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UNIVERSITY

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**INTERNATIONAL  
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IN EDUCATION**

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## Foreword

Dear Guests,

Welcome to the 5<sup>th</sup> International Conference of New Horizons in Education-2014 in Paris, France. "The International Conference of New Horizons in Education (INTE)" is an international educational activity for academics, teachers and educators. It promotes development and dissemination of theoretical knowledge, conceptual research, and professional knowledge through conference activities, workshops, discussions and conference proceeding book. The International Conference of New Horizons in Education-2014 aims to diffuse knowledge and research findings among academicians and lead to professional development and scholarly practices in educational sciences.

For this conference, we have gathered in Paris to share and construct knowledge, to promote dialogue across academic differences, to further and deepen connections within our scholarly community, and to be in fellowship with friends and colleagues old and new. This year, INTE-2014 has received about 1300 applications. The Conference Organizing Committee has accepted approximately 900 abstracts and the conference features over 750 presentations, including 620 oral, 86 poster, and 42 video presentations in 8 conference halls and with more than 165 sessions, representing the breadth and depth of education research today.

This year we have participants from more 60 different countries representing five continents, with different races, gender, ethnic backgrounds and cultures.

We would like to wish you a pleasant stay in Paris and a successful conference. We hope that we will meet again at the International Conference of New Horizons in Education, 2015 in Barcelona, Spain next year.

Thank you for your contribution for the success of International Conference on New Horizons in Education 2014.

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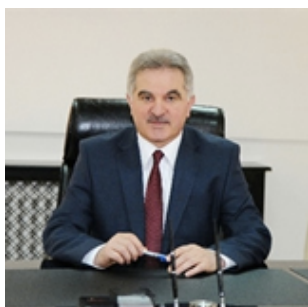
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*Turkish Higher Education System, New Developments and Trends*

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*Are you ready today for tomorrow's technology?*

Prof. Dr. J. Ana Donaldson

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*New Trends in Education: Tradition and Innovation*

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## INTE 2014 Keynotes



How mobile technology effectively enhances language teaching and learning performance?

Prof. Dr. Vincent Ru - Chu SHIH

National Pingtung University of Science and Technology, TAIWAN



Leveraging Institutional Capacity Through Research Based Evaluation

Prof. Dr. Douglas Franklin

Ohio University, USA



Why We MOOC: "Philosophy and operations of HarvardX and EdX"

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Harvard University, USA

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# Reading comprehension intervention program for teachers from 3rd grade's students

Simone Aparecida Capellini<sup>a</sup>; Cataryne de Almeida Rodrigues Pinto<sup>a</sup>;  
Vera Lúcia Orlandi Cunha<sup>a</sup>

*<sup>a</sup>Investigation of Learning Disabilities Laboratory of Speech and Hearing Sciences Department of São Paulo State University "Júlio de Mesquita Filho" - UNESP - Marília - São Paulo - Brasil. Avenue Hygino Muzzi Filho, 737, Postal Code: 17.525-000, Marília-Sao Paulo-Brazil.*

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## Abstract

This study aimed to verify the effectiveness of Reading comprehension intervention program for teachers from 3rd grade's students. 4 teachers of 3rd grade from public school were divided: GI - two teachers submitted to intervention program and GII - two teachers not submitted to intervention program. Reading Comprehension Assessment Protocol was applied in all students of these teachers in pre and post-intervention. The results revealed a difference between the performance of the situations of pre and post-testing for GI. The intervention program was effectiveness for teachers to teach narrative and expository texts comprehension for students.

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**Keywords:** Learning. Reading. Intervention. Reading Comprehension.

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## 1. INTRODUCTION

To the process of reading occur some skills are considered essential, as: language, attention to understand and interpret written language, auditory memory, visual memory, identifying words, contextual and structural analysis of language, logic synthesis, vocabulary, comprehension and fluency in reading. Thus, reading involves a variety of processes that begins on the visual identification of the letters and to the understanding of the content of the text message (Andrade and Dias, 2006).

Several factors contribute to the comprehension of texts, all of which are necessary, but insufficient to, in isolation, determine the comprehension. It is widely acknowledged the role played by linguistic factors, such as the ability of decoding, vocabulary and syntactic knowledge (Cain, Okkhil and Elbro, 2003); by cognitive factors such as working memory, monitoring, and the ability to establish inferences (Andrade and Dias, 2006); and by social factors, involving the circumstances under which the reading occurs (social context, objectives, motivations and expectations of the reader), but also the previous knowledge of the reader and your social and cultural experiences (Baleghizade and Babapour, 2011). However, educators and professionals who work with students know the difficulties that many of them present in the skill of reading comprehension.

Cain, Oakhill, Barnes and Bryant (2001) argued that the most important measures of the performance of reading are related to how much and how the student understand a text and identifying processes and processing underlying to the comprehension. This is done in different levels, from the most superficial, even that which allows to use creatively the information removed from the text and to answer questions whose answers are not literally written or identify problems occurring during the reading and looking for ways to solve them (self-regulation).

Differences of the performance in reading tests observed in students showed that the development of cognitive processes and of language interferes in the comprehension.

Massignani, Oliveira, Kubo and Botomé (2012) cited the importance of developing the behavior of reading comprehension in students through the use of any resource or strategy, as the dramatization of stories. Their results indicated that the use of this resource contributed to improving of the reading comprehension. This results are in agree with Ferreira and Dias (2004) which concluded how the use of reading strategies can assist in overcoming difficulties in comprehension of text, especially when allows the active participation of the reader with the text, contributing to the integration of the information contained therein and the construction of inferences.

Considering the results obtained by the different research presented, this study intends to apply an informative intervention program, with the possibility that the students will progress in the reading comprehension after its realization, because this ability is a process essential for the achievement of learning the different curriculum subjects.

## **2. OBJECTIVES**

-Verify the effectiveness of an intervention informative program to the reading comprehension to third grade teachers of elementary level.

## **3.MATERIAL AND METHOD**

This research was conducted after approval by the Research Ethics Committee of the Faculty of Philosophy and Science – FFC/UNESP-Marília, São Paulo, under the Protocol 0720/2013 approved in 5/29/2013.

### **3.1 Pre-assessment of the 3th of elementary level in reading comprehension**

Participated this study 45 students of the third grade of elementary level, of two municipal public schools in the city of Marília-SP, of both genders between the ages of seven years to eight years and eleven months.

A pre-assessment was conducted using the Protocol of evaluation of reading comprehension-PROCOMLE (Cunha and Capellini, 2014). The evaluation was applied through a narrative and expositive text, being respectively N1 and E1. These texts contain each of them eight multiple-choice comprehension questions, four related to microstructure of text (two literals and two of the inferences) and four related to the macrostructure of the text (two literals and two of the inferences).

### **3.2 Application of Informative intervention program for reading comprehension for teachers of the elementary level**

At this phase it was applied a informative intervention program for reading comprehension for students of the third year of elementary school I.

The guidelines and strategies of intervention provided were about the processes involved in reading comprehension both of narrative texts and expositive texts.

Informative Program guidelines were held in two sessions of four hours each, being two hours for the theoretical part and two hours with workshops, in which were worked for activities practices to the teacher.

Participated of the study two teachers of the students participating in the phase 1 of this study. These teachers were divided into:

Research Group (GI): composed of two teachers of the third grade that was submitted to informative intervention program,

The control group (GII): composed of two teachers of the third grade that has not been submitted to the intervention program.

The teachers of the GII group did not receive any sort of guidance on the specific and directed work with reading comprehension, while the teachers of GI group received guidelines of interventive program informative about the cognitive and metacognitive processes of reading comprehension and reading comprehension strategies with specific and targeted activities.

### 3.3 Verification of the educational effectiveness of the Informative Intervention Program to the reading comprehension to the students of the third grade of elementary level.

In order to verify the educational effectiveness of the program developed in this study, after the implementation of the program, all the students of the phase 1 of this study were subject to reapplication of the evaluation Protocol of reading comprehension-PROCOMLE (Cunha and Capellini, 2014), after eight weeks between the first and second evaluation. In the post assessment was used a second narrative text and a second expository text of the Protocol, being respectively N2 and E2, each with eight multiple-choice comprehension questions, four related to microstructure of text (two literals and two of inferences) and four related to the macrostructure of the text (two literals and two of inferences), constant in the original assessment procedure.

## 4. RESULTS

The results of the pre and the post assessment were statistically analyzed with the purpose of comparing the results intergroups in situation of pre and post implementation of the informative program in order to verify the educational effectiveness of the program. For this analysis, we used the program SPSS (Statistical Package for Social Sciences), in its version 21.0. Was applied the test of Wilcoxon, aiming to check possible differences between the moments of implementation of the evaluation of the understanding reader in study groups, submitted and not subjected to the intervention program.

Table 1 presents the values of average, standard deviation and the values of p regarding the performance of the GI in situation of pre and post intervention in narrative texts N1 and N2 and expository texts E1 and E2.

**Table 1.** Distribution of values of average, standard deviation and p value regarding the performance of the GI in the pre and post intervention situation.

Texts	n	average	standard deviation	p value
N1 Lmi Pre	20	0,60	0,88	0,627
N2 Lmi Post	20	0,70	0,80	
N1 Lma Pre	20	1,30	0,80	0,001*
N2 Lma Post	20	0,30	0,47	
N1 Imi Pre	20	1,25	0,72	0,083
N2 Imi Post	20	0,95	0,61	
N1 Ima Pre	20	1,05	0,89	0,018*
N2 Ima Post	20	0,30	0,66	
TN Pre	20	4,20	2,57	0,009*
TN Post	20	2,25	1,80	
E1 Lmi Pre	20	1,10	0,79	0,059
E2 Lmi Post	20	0,70	0,73	
E1 Lma Pre	20	0,85	0,81	0,802
E2 Lma Post	20	0,90	0,79	
E1 Imi Pre	20	0,95	0,83	> 0,999
E2 Imi Post	20	0,95	0,83	
E1 Ima Pre	20	1,10	0,91	0,448
E2 Ima Post	20	1,25	0,72	
TE Pre	20	4,00	2,43	0,282



Texts	n	average	standard deviation	p value
TE Post	20	3,55	1,76	

**Legend:** **N1:** narrative text 1; **N2:** narrative text 2; **E1:** expositive text 1; **E2:** expositive text 2; **Lmi:** literals questions of microstructure; **Lma:** literals questions of macrostructure; **Imi:** questions of inferences of microstructure; **Ima:** questions of inference de macrostructure; **Pre:** pre-assessment; **Post:** post-assessment.

The data in the Table 1 reveal that the GI's students, whose teacher was subjected to intervention with the informative program showed statistically significant differences in the comparison between the literals questions of macrostructure with lower average for the text applied on post-assessment, N2 indicating a smaller number of incorrect answers, suggesting superior performance on questions of the post-assessment. The same occurred for the questions of inferences of macrostructure, indicating superior performance also in the post-assessment. On comparison between the pre-and post-assessment to the total number of questions of narrative texts, the lower average also occurred in the post-assessment pointing to superior performance after the intervention activities.

Table 2 presents the values of average, standard deviation and p value regarding the performance of the GII in evaluation Protocol of reading comprehension-PROCOMLE (Cunha and Capellini, 2014) in situation of pre and post intervention.

**Table 2.** Distribution of values of average, standard deviation and p value regarding the performance of the GII in the pre and post intervention situation.

Texts	n	average	standard deviation	p value
N1 Lmi Pre	25	0,64	0,70	> 0,999
N2 Lmi Post	25	0,64	0,64	
N1 Lma Pre	25	1,04	0,68	0,004*
N2 Lma Post	25	0,52	0,65	
N1 Imi Pre	25	0,84	0,69	0,186
N2 Imi Post	25	1,08	0,86	
N1 Ima Pre	25	1,08	0,70	0,348
N2 Ima Post	25	0,88	0,73	
TN Pre	25	3,60	1,78	0,303
TN Post	25	3,12	2,11	
E1 Lmi Pre	25	0,84	0,75	0,430
E2 Lmi Post	25	0,68	0,80	
E1 Lma Pre	25	0,88	0,73	0,973
E2 Lma Post	25	0,88	0,83	
E1 Imi Pre	25	1,16	0,75	0,739
E2 Imi Post	25	1,12	0,73	
E1 Ima Pre	25	1,08	0,64	0,830
E2 Ima Post	25	1,04	0,84	
TE Pre	25	3,96	1,93	0,646
TE Post	25	3,72	2,34	

**Legend:** **N1:** narrative text 1; **N2:** narrative text 2; **E1:** expositive text 1; **E2:** expositive text 2; **Lmi:** literals questions of microstructure; **Lma:** literals questions of macrostructure; **Imi:** questions of inferences of microstructure; **Ima:** questions of inference de macrostructure; **Pre:** pre-assessment; **Post:** post-assessment.

The data in the Table 2 show that the GII's students, whose teacher was not subjected to intervention with the informative program showed statistically significant differences only in the comparison between the literals questions of macrostructure with lower average at post-assessment, indicating superior performance in this type of question in the narrative text N2.

## 5. DISCUSSION

Our results showed the positive effects of explicit information strategies for comprehension narrative texts, because students presented significant differences between pre and post assessment for the literal and inferences questions and of macrostructure, indicating superior performance to the central ideas and in the association with previous knowledge, agreeing with studies of Rabren, Darch and Eaves (1999) who demonstrated that students performance was better when the pedagogical approach used textually explicit material.

Specific strategies for reading comprehension have also been investigated in a study of Ferreira and Dias (2004) performed in order to check and compare the training effect of strategies of note-taking and Mental image on the reading comprehension of students of 8 to 14 years old (3rd and 4th grades) with reading comprehension difficulties of public and private schools. Their results indicated that the group with little difficulty in comprehension progressed more about inferences questions than the group with great difficulty of comprehension. Children from public schools were the most benefited. Both strategies have enabled the emergence of answers to literals and inferences questions, agreeing with our results that demonstrated positive effects on these types of questions on work with narrative texts.

The positive effects of specific practices for the teaching of reading comprehension have also been demonstrated in study of Lai, McNaughton, Amituanai-Toloo, Turner and Hsiao (2009) whose results showed systematic improvement in performance to the students who received these specific practices and the maintenance of this improvement from one year to the next over the three years of study.

The positive results have also been observed in study of Block, Parris, Reed, Whiteley and Cleveland (2009), which indicated the positive effects of instructional approaches, noting that when readers with difficulty received 20 minutes of instruction with reading practices in the classroom with the teacher's monitoring produced significantly higher scores in reading comprehension.

In a study of Baleghizade and Babapour (2011) conducted with the objective to investigate the effect of summary written in reading comprehension, found that this kind of strategy improved the reading comprehension and retention of the main ideas. Our findings corroborate these results, because between the activities developed for the comprehension of narrative texts had also written summary of the main ideas so that the diagrams were filled. This strategy therefore proved effective also in our study since students presented superior performance in the macrostructure questions on post-assessment.

Diakidoy, Mouskounti and Ioannides (2011) conducted study to compare the effects of a contested text in performance comprehension and learning of expositive texts. 61 students of a psychology university course participated of the study. The participants were randomly divided into 2 groups: one for reading a text of refutation and another expositive text pattern on the scientific concept of energy. The results indicated that compared with expositive text, the text of contestation facilitated learning and an overall increase of inference generation bridges and elaborativas, but not the memory for the text. Comprehension performance indicated the performance in learning, especially for students with prior knowledge low and inaccurate. The results contributed to the understanding of the effect of the contested text, indicating its association with increased generation of inference and the construction of a more elaborate and coherent textual representation.

Study of Sampaio, Assis and Baptista (2010) also proved the effects of explicit teaching procedures on reading comprehension. The students were exposed to teaching conditional relations, equivalence tests, teaching by

thread of responses, production tests of sentences, and connectivity tests and reading comprehension tests. The results indicated that these procedures were significant in performance in reading comprehension.

The intervention program developed with the expositive texts of this study was based on studies of Sánchez (1992, 2002, 2012) that discuss the work in thematic progression of text, extraction of global significance (application of macro roles selection, generalization and integration), recognition and use of basic organizational forms. The results obtained by this study did not corroborate those obtained by Sánchez, which studies have shown that students who received the training program presented superior performance after the intervention activities, because our students did not present significant differences between pre and post assessment for the expositive texts.

Our results do not corroborate also study of Miranda, Villaescusa and Vidal-Abarca (1997) that showed that explicit instructions about identification of main ideas by means of the application of the generalization macro roles brought benefits in performance comprehension of the students of the study, because they did not significant differences between pre and post assessment for the expositive texts.

Study of Kinniburgh and Shaw Jr. (2009) performed with the goal of teaching strategies for reading comprehension of expositive texts for students of the third to sixth grade, which would have to identify the type of question whether explicit or implicit, framed them in two categories: "memory for events" and "inferences", showed that by incorporating strategies for reading comprehension, students have become more skilled in reading of scientific texts. Your reading and comprehension of theoretical texts improved its results in the tests in science and reading. Our results however showed that the way the strategies were provided were not efficient, because no significant differences between the pre and post assessment demonstrating that students did not understand the relationship between questions and answers.

Study developed by Wilawan (2011) in order to investigate the effects of a procedure which incorporated lexical cohesion and macro roles to promote the comprehension of the main idea of the text read, revealed in its results a significant improvement in comprehension the main idea in the experimental and control groups on the post-test. However, no significant differences were found between the groups. The findings suggested that the statement of the main idea requires a simultaneous integration of various techniques of reading. Our results for the expositive texts indicated that in some variables there was a decrease in the averages indicating some improvement in post-assessment although not statistically significant differences have occurred.

Our results indicated that the strategies used in informative program for teachers concerning the comprehension of narrative texts were more effective than those used for the expositive texts, because for the first statistically significant differences occurred while for the latter, these differences did not occur. In this way, it is necessary that the strategies used for the expositive texts (types of strategies) and the way in which they were used (frequency and duration of follow-up monitoring guidelines, of the guidelines and how they have been applied, for example) are revised to that subsequent studies should be reconsidered in order that greater effectiveness of its results. However, the results recorded for the narrative texts, we find also in our study, the use of explicit and specific strategies for reading comprehension had significant effects on this ability to students participants in this study.

## 6. CONCLUSION

From the results found in this study it can be concluded that:

- The profile of the 3rd grade in reading comprehension before the implementation of the informative program developed for this study was similar, meaning that not presented significant differences for both performance narrative texts as for the expositive.
- The intervention program developed for this study was effective for the comprehension narrative texts because to the narrative texts statistically significant differences occurred while these differences did not occur for the expositive texts.

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# Realization of digital Oscilloscope with FPGA for education

Berkant Başa<sup>a\*</sup>, Murat İskefiyeli<sup>b</sup>

<sup>a</sup>*Sakarya University, Faculty of Computer and Information Sciences, Department of Computer Engineering, 54187, Sakarya TURKEY*

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## Abstract

In this study, it is aimed to implement a digital oscilloscope by FPGA architectures to correspond the requirements of laboratories in the educational institutions in an economic way. It is shown that non-professional oscilloscopes can be implemented with low-cost, educational purposed FPGAs. It is also able to measure high frequency signal by high speed FPGAs. Terasic DE0 kit is used as hardware and Quartus II is used as software in this application. The sine signal which is a widely known signal used to measure is generated by the signal generator. The graphical view of the sampled signal in the FPGA is shown on a 640x480 pixelated VGA monitor.

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*Keywords: FPGA, VHDL, Altera DE0, Oscilloscope;*

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## Introduction and Purpose

The aim of the realization of digital oscilloscope with FPGA (Field Programmable Gate Arrays) structures is to get a digital oscilloscope in an economic way. The principal reason of this phenomenon is the extraordinary evolution of the Digital Electronics [1]. Every time the manufacturers of Digital chips manage to realize smaller chips, with major number of transistors, capable of working every time to more speed and to minor cost. The basic functioning of the digital oscilloscope we can see it in the Figure 1. It has an ADC (Analog to Digital Converter) for conditioning signal. The ADC is in charge of sampling the signal and of the quantification of this value.

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Corresponding author. Tel.: +905375063887; fax: +0-000-000-0000 .  
E-mail address: basaberkant@gmail.com

This part of the oscilloscope is especially critical, since depending on the sampling rate and the precision level of the converter (levels of quantification), it will define the principal characteristics of the oscilloscope [5]. Once sampled the values are stored in a digital memory for later processing and visualization. The Digital oscilloscope, by the advantage of the digital logic, can realize complex calculations on the information stored in the memory. This one is a great advantage of the digital oscilloscopes opposite to the analogical ones the Major Productivity. The design is simpler and rapid on our chip that the design with devices of different manufacturers and with characteristics that surely are not exactly the wished ones[6].

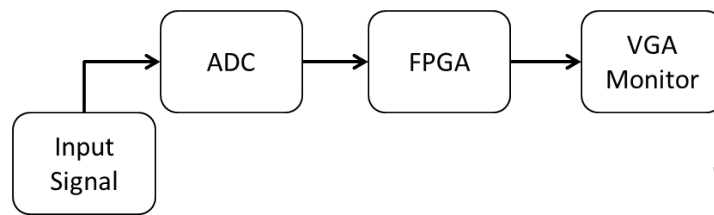


Figure.1: Schematic digital oscilloscope

## Altera DE0 Board

The Altera DE0 board is a well-known kit of Terasic Technologies and it is shown in Figure 2. It depicts the layout of the board and indicates the location of the connectors and key components. The DE0 board has many features that allow the user to implement a wide range of designed circuits, from simple circuits to various multimedia projects. To provide the maximum flexibility for the user, all connections are made through the Cyclone III FPGA device. Thus, the user can configure the FPGA to implement any system design [3].

The concept of the DEO Control Panel is illustrated in Figure 3. The "Control Codes" that perform the control functions is implemented in the FPGA board. It communicates with the Control Panel window, which is active on the host computer, via the USB Blaster link. The graphical interface is used to issue commands to the control codes. It handles all requests and performs data transfers between the computer and the DEO board [3].

The DEO Control Panel can be used to light up the LEDs, change the values displayed on 7-segment, monitor buttons/switches status, read/write the SDRAM and Flash Memory, read data from a PS/2 keyboard, output color pattern to LCD monitor via VGA connector, and read SD-CARD specification information. The feature of reading/writing a word or an entire file from/to the Flash Memory allows the user to develop multimedia application (Flash Picture Viewer) without worrying about how to build a Memory Programmer [3].

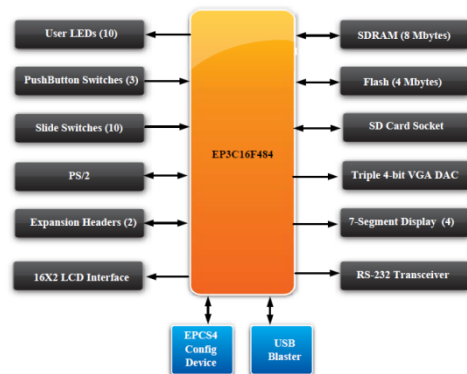
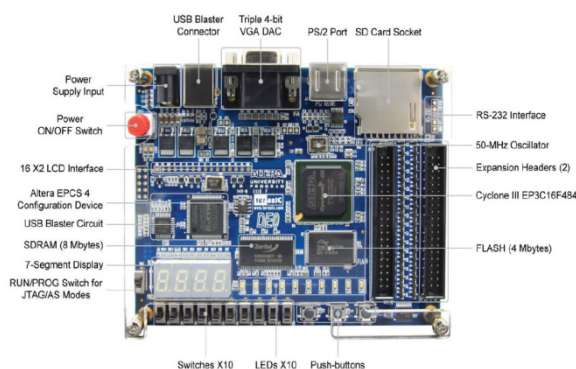


Figure.2: DE0 Kit

Figure.3: DE0 Block diagram

## FPGA and VHDL

Modern field-programmable gate arrays (FPGAs) contain hundreds of thousands of lookup tables (LUTs), hundreds of embedded memories, and hundreds of multipliers connected through a programmable interconnect fabric. Obviously it is intractable to program the FPGA at the granularity of these individual elements. However, with modern synthesis and layout tools, it is possible to describe a design simply by writing logical expressions, a level higher than gates, and letting the tools do the rest [2].

Register transfer level (RTL) design is a popular discipline for describing these logical expressions. It allows the designer to express the design by describing the logic between each pair of register stages. This allows her to carefully control register-to-register logic depth while freeing her from selecting the actual gates and their mapping to the FPGA. Very High-Speed Integrated Circuit Hardware Description Language (VHDL) is one popular programming language that supports RTL hardware descriptions [4].

VHDL enjoys widespread popularity among designers in the industry, along with its close cousin, Verilog. Indeed, almost all modern CAD tools that perform simulation, synthesis, and layout support both. Verilog differs from VHDL primarily in the syntax it uses (VHDL is derived from Ada; Verilog, from C), but both languages are IEEE standards and are periodically reviewed to reflect changing industry realities and expectations.

## Digital Oscilloscope with FPGA

An oscilloscope is an instrument of visualization of signals as seismic, beatings of the heart, electromagnetic waves etc. when it has been provided with a suitable transducer. The measurements that an oscilloscope has to do have to be very precise and it is here where the system of acquisition has been generated by a memory of double port synthesized and optimized by Altera DE0 for its FPGAs. The FPGA is programmed to measure the digital a module that manages the reading and writing of the same one. The writing fulfills consecutively from the address 0 up to 640 when the control of the trigger indicates it to us. This does that for our VGA it is so simple to read all the information that it contains whenever we draw one of 480 vertical lines that has the screen.

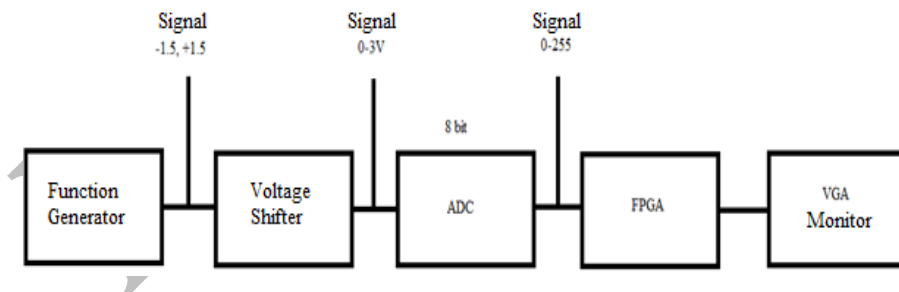


Figure.4: The Block diagram of the system

The oscilloscope module is the part of the system which deals with the analog signal and converts it in to a digital form that is then stored in to a memory [7]. In the project, the reference voltage of ADC is 3.3 V. So, the maximum voltage that measures is 3.3 V. The values that bigger than the reference voltage must be converted by transformer or divided by resistance. For testing in the project it is used a function generator and adjusted its values as below.

Signal type	: Sine wave
Amplitude	: 1.5 Volt



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Frequency : 50 Hz

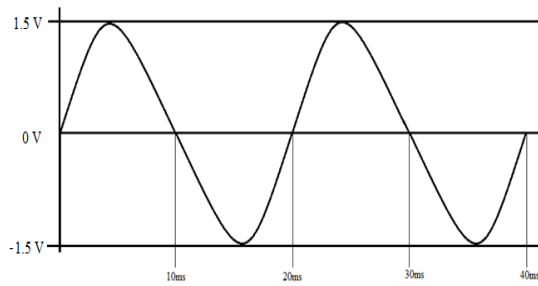


Figure.5: Sine wave

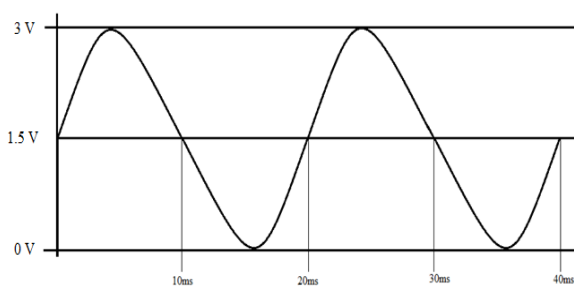


Figure.6: Shifted Sine wave

The sine wave has a negative and a positive pole in one cycle. So the maximum value is +1,5 V and the minimum value is -1.5 V. To measure both negative and positive values a DC signal adder is designed and the sine wave scope is altered from (-1.5 V, +1.5 V) to (0 V, +3 V) values. The new sine wave can be seen in the Figure 6. [8].

In the Figure 7 the non-inverting adder circuit can be seen. In the circuit, if the  $R_a=R_b$  and  $R_f=R_i$  then the output voltage will be  $V_{out}=V_a+V_b$

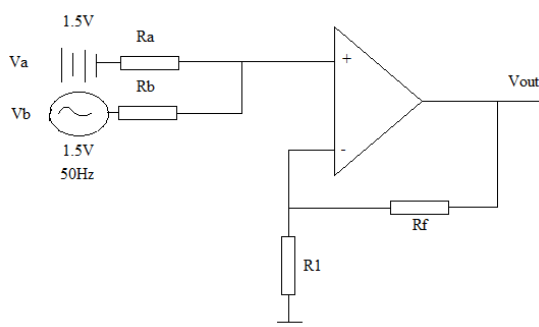


Figure.7: Non-inverting voltage adder

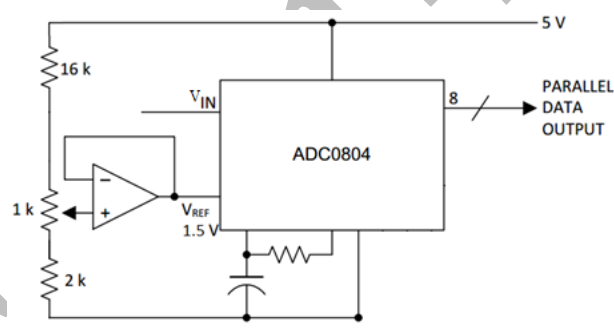


Figure.8: ADC0804

The output of the voltage adder circuit is connected to the ADC's input and the ADC converts this analog value to the digital value. The ADC has a resolution of 8 bits and converts the 0-3 V to the digital state of 0-255. According to the design -1.5 V corresponds to 0 and +1.5 V corresponds to 255.

The measured voltage can be calculated by the formula of

$$V = (\text{ADC\_Output\_Value} * 3 / 256) - 1.5$$

The VGA monitor with the resolution of 640x480 screens the image of obtained sinusoidal wave. Number of pixels on horizontal axis is 640 and number of pixels on vertical axis is 480. According to the design every horizontal pixel represents 1 msec and also every vertical pixel represents 10 mV [8].

The VGA monitor connector on the ALTERA DE0 board consists of five signals, RED(4 bits), GREEN(4 bits), BLUE(4 bits), HORIZ\_SYNC, and VERT\_SYNC. The timing relationships among this signal are shown in Figures 9 and 10. The generation of signals needed for the raster on the VGA monitor begins with dividing the frequency of the 50 MHz clock on the ALTERA DE0 board down to a 25 MHz pixel clock which is further divided down to the horizontal and vertical sync frequencies [9].

This means your design will contain a horizontal counter and a vertical counter. The horizontal and vertical sync pulses of appropriate lengths are then produced from the two counters. A video display consists of 640 pixels in the horizontal direction and 480 lines of pixels in the vertical direction. The monitor starts each refresh cycle by updating the pixel in the top left-hand corner of the screen, which can be treated as the origin (0,0) of an X-Y plane.

After the first pixel is refreshed, the monitor refreshes the remaining pixels in the row. When the monitor receives a pulse on the **HORIZ\_SYNC** pin, it refreshes the next row of pixels. The time required for the sweep, the horizontal sweep period, is nominally 31.77  $\mu$ s [9].

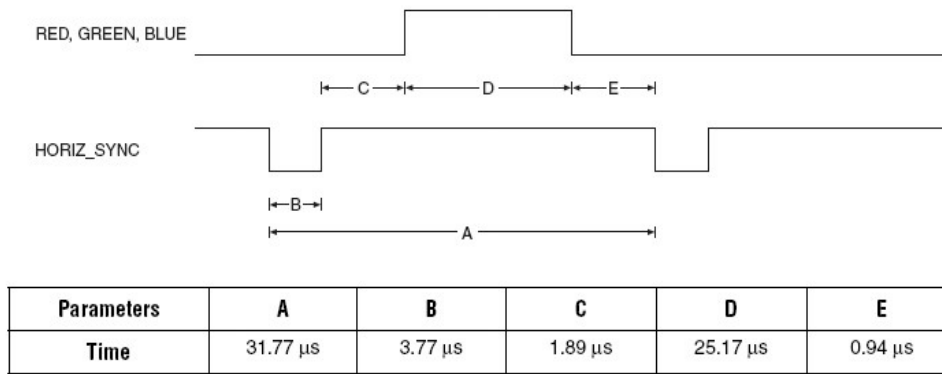


Figure.9: Horizontal Refresh Cycle.

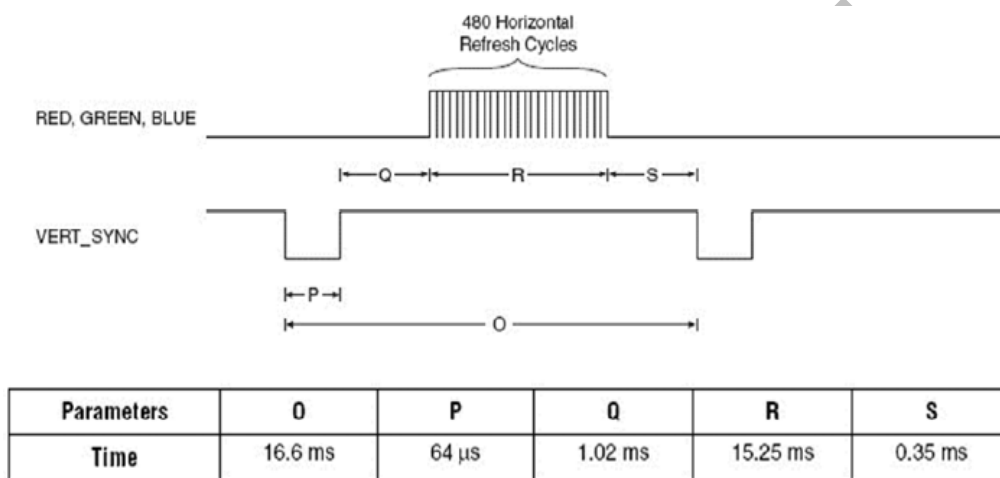


Figure.10: Vertical Refresh Cycle.

This process is repeated until the monitor reaches the bottom of the screen. When the monitor reaches the bottom of the screen, a 64  $\mu$ s pulse applied to the **VERT\_SYNC** pin, causing the monitor to begin refreshing pixels at the top of the screen (i.e., at [0,0]). As shown in Figure 8, the VERT\_SYNC pulse must be repeated every 16.6 ms (vertical sweep period). A complete screen of information is being traced by the electron beam every 16.6 ms for a frame rate of 60 Hz [9].

In this context, we use the non-inverted voltage bus, ADC, DE0 Kit and VGA 640x480 monitor the process of implementation through the elements we have reflected on the screen. The sinusoidal waveform obtained through the following image we have achieved is shown in Figure 11 [8].

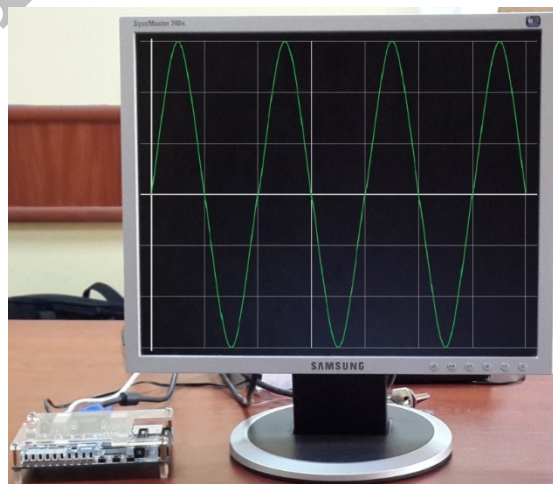


Figure.11: VGA 640x480 output sine wave

Above on the screen that is reflected, in the range of 3V that means between +1.5V and -1.5V, non-inverting voltage integrator term is used to acquiring a sinusoidal wave on the screen. In the view on the screen that is showed are the main dots of sinusoidal wave's (view on the screen that is reflected is between +150pix and -150pix). During the process of FPGA DE0, the function is on the basis of pixel and every detail of view that is the reflected on the screen is calculated over pixels. It is impossible to see by pixel's this view on the screen because FPGA's are functioning very fast and this is the reason why the view is not reflected clearly on the screen [8].

## Conclusion

In this project is worked by FPGA DE0 kit to verify the quantitative oscilloscope. The kits (or materials) that are used for purpose of educating and for non-professional to performe the oscilloscopes are quite low coasted. During this project work, there was a signal of sine wave that was attained from generator. An improving kit that we have ADC has no module. Therefore the module was connected from the outside by the ADC. The sine (sinus) wave include both positive and negative pole. Because of this reason by inverting and shifting term, the exit of functional generator is shifted to the positive pole. The exit of the ADC is connected to the DE0 kit and is written by VHDL.

Then the code that was written is synthesized and loaded to the FPGA and the enter signal of DE0 that is connected to the VGA's port, is watched on the monitor.

In the project, even the sine signal is tested as the input signal, it is arranged for all the signal terms to be readable. Moreover, all these readable values are saved in memory module where exist in the DE0's kit (or material) memory card. Therefore, all values are backed up.

Instead of using external ADC module, it can be used new version kits of internal ADC modules. By this way, not just low frequency signals but also on high frequency signals can be followed.

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# Reception of critical educational science and the contemporary educational crisis

Adnan Tufekčić<sup>a</sup>

<sup>a</sup> Department of Pedagogy and psychology, Faculty of Philosophy, University of Tuzla,  
Tuzla, Bosnia and Herzegovina

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## Abstract

The basic starting point in the research of the educational reality within the critical educational science was represented by criticism of the ideology and comprehension of the influence of social processes on education. The purpose and principal objective of education from the critical educational science point of view is striving towards maturity and self-determination leading to emancipation and solidarity development. Contemporary society is marked by large educational crisis determined by postulates of so called „neoliberal pedagogy” where, very frequently, education becomes its opposite. Due to that, the question arises of whether we could and should analyse the existing contemporary educational crisis through the reception of the critical educational science.

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*Keywords:* critical educational science, educational crisis, emancipation, children and young people

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## 1.Introduction

Critical educational science appeared in the second half (the sixties) of the 20<sup>th</sup> century. Its emergence represents the tendency of one part of pedagogues to structure the educational science on the basic starting points and fundamental characteristics of the critical theory of society. The most significant representatives of this direction within educational science are Klaus Mollenhauer, Herwig Blankertz, Wolfgang Klafki, Hermann Giesecke and Wolfgang Lempert. Therefore, resting upon the most important thesis of the critical theory of society, the representatives of critical educational science believe that the critique of ideology is the basic starting point in understanding educational reality and therefore the fundamental task of educational science. This starting point and the fundamental task attempt to explain the social context of education or in other words the influence of social processes and ideologies on upbringing and education by which “the educational practice enlightens on itself by which, for example, teachers are helped to realize usually unnoticed dependence of the educational system of the governing social structures” (Gudjons, 1994, 37). This was the way of accomplishing one deviation from empirical / behavioral educational science as well as from spiritual scientific pedagogy that have not critically illuminated social circumstances in which educational reality takes place, nor the social demands that are being placed on upbringing and education.

The fundamental question of critical educational science, therefore, are upbringing and education whose objective and purpose are striving towards emancipation, which leads to maturity, self-determination and development of solidarity. Emancipation and solidarity as the purposes of education lead to the liberation of children and young people from different kinds of subordinations, in other words, being free for maturity and self-determination (König and Zedler, 2001) “Emancipation means freeing the subject - in this case young people in this society - from conditions that limit their rationality, and the related social activity” (Mollenhauer, 1973, 11, according to König and Zedler, 2001, 137). The task of all educational reflections, from the viewpoint of critical educational science, is the research and design of pedagogical activities with the aim of clarifying the issues of self-determination, democratization and emancipation. Emancipation and solidarity as the purposes of education lead to liberation of young people from different forms of subordinations, in other words being free for maturity and self-determination.

Although the critical educational science in the late seventies of the 20<sup>th</sup> century loses its critical-theoretical “edge” in dissecting the existing social and pedagogical relations, the question arises whether we can and should analyze the existing contemporary educational crisis, and therefore the position of children and young people in contemporary social and educational reality from the perspective of critical educational science that in the last few decades has been neglected in considerations and structuring the system of upbringing and education. This question specifically refers to the structuring and reforming educational systems in the so called “transitional societies”. Therefore, the next part will try to show some of the most important guidelines of the contemporary educational crisis and its influence on the lives of children and young people in the current social reality and on the basics of the most important start points of critical educational science.

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\* Corresponding author. Tel.: +38735306330; +387603349632; fax: +38735306332.

E-mail address: adnan.tufekcic@untz.ba

## 2. Some characteristics of the contemporary educational crisis

The modern age is full of various contradictions, problems and risks and according to the words of Ulrich Beck it can be characterized as "risky society" (Beck, 1992). A large number of today's reflections of education as a human activity is focused on finding answers to these problems. That points to the fact that education is facing some really high expectations. Almost imperative, education is referred to as the main growth driver, as the field of solving the greatest misfortunes of mankind. We are looking for new solutions, new methods and new concepts of education that will be particularly successful. No area of human activity is so affected by the reforms as education is. However, in all this, the question that arises is what is with the crisis of education itself, that is, in what kind of condition it is in the rapidly changing society full of risks and uncertainties. This question in itself implies the following questions: 1) If education can "cure" or alleviate and solve many social problems, does this mean, then, that they are created by the education? 2) If there are social problems that are caused by education, can we expect education to solve them? 3) If education cannot solve all social problems, how much can it help in restoring and connecting numerous broken social relationships, and social connections and networks? The efforts in this paper are not focused on trying to give answers to these questions. Highlighting them is the way to show the problem of crisis in education which is expected, as it is pointed out, to alleviate social crisis. This crisis of education is often blurred by various neo-liberal concepts of education in which, under the constant illusion of emphasizing the free development of the individual, the fundamental universal guidelines of education are ignored. Consider the following words: "Zealous advocates of reform must be talking about the individual and his responsibilities, but they are deep in their hearts determinists, deeply convinced that the structures determine everything. They therefore prefer to deal with structural reforms, not finding anything so disgusting as structural conservatism" (Liessman, 2009, 142). Therefore, the question of human's/individual's position in the current crisis of education is more emphasized.

A man treats the world that surrounds him through the system of knowledge and values. He is a being who has not been given "ready-made things" because man is a being to whom things are "assigned". This means that he is a being that by his birth is still not the thing that he should be. This, to use the Nietzsche language, "loose animal" needs to go through the development process after his birth and cross the path from biological individual to personality. This development path, in which special human characteristics are being developed, is based on potential and tendencies that a man has, is named the process of upbringing/education. In upbringing / education as "the shortest way to man's ascent to humanity" (Slatina, 2000, 365), a *conditio sine qua non* is being hidden when it comes to human development path and his becoming a human being. It is unimaginable and impossible to find some form of human society in any historical period, nor any human individual, which in its basis of existence does not contain procedures and ways of conquering and transferring knowledge, in the broadest sense of the word, necessary for their survival, changing and transforming. That is why upbringing and education always carry "social" and "individual" in themselves, not as opposites or exclusivities but as two guidelines which overlap and reinforce. On the level of "social" we are talking about the influence of older on younger, introducing young people into the social world and conquered system of social knowledge and values, and on the level of "individual" we are talking about upbringing that enables this influence and introduction. "Among all the characteristics by which a person is very different from other beings, a special place certainly belongs to upbringing. It is exactly the thing that makes him the only truly social being - being that its essence, culture and purpose of its existence, cannot satisfy by the very birth, but only by life and education in the community" (Polić, 1997, 150).

We face, therefore, many problems that are directly or indirectly connected with upbringing and education. "Today's world is not only image of new discoveries and progress but (also) the kind of performance of violence and drama of man's moral action and life. Despite the modern scientific and technological progress of mankind, our time registers a series of assaults and attacks on human life (alcoholism, drug addiction, various forms of euthanasia, genetic manipulation, selfish organ transplantation, torture, executions, murder, terrorism, wars, crimes, genocide) ... It is obvious that the moral progress of mankind today has not kept pace with his intellectual progress" (Slatina, 2005, 11). In addition to these problems in today's global information age, the special attention has been directed towards intercultural education which aims at a common and peaceful life of people who come from different cultures with all the diversity which in their totality constitute the uniqueness of the world. In efforts to respond to these problems and challenges and in order to find so called „pedagogical solutions“, we often reach for a frequent term which sometimes becomes a purpose in itself and it is "reform of the educational system" (Tufekčić, 2009, 266). The phenomenon of upbringing is inextricably linked to the phenomenon of education and its characteristic is to be always in reform because upbringing and educations are also by themselves reform and change. The misfortune is often in the fact that every time the reform is being accessed, it comes to such occurrences that we believe that everything that is left behind is underdeveloped and that we are the ones that will build a "contemporary, modern, efficient" system of upbringing and education. Such opinions often rise to the level of major "scientific" and "professional" achievements and are declared the "best" solutions. Basically, this occurs mainly because most of the focus of attention is always on the form, and the essence remains "intact". This is very noticeable in the reform stunts of the so called transitional societies such as the Bosnian society, in which among other things it happens that one child-centeredness is formulated in the terms such as "child / student in the center of attention" or "school is child's friend" appears as one of the best solutions for the organization of school work. As much as these ideas appear as new, I offer personal observation that they are consumed and outdated ideas because in essence they are really "production" of limited manpower to "modern times", in other words, of neoliberal capital. In addition to numerous reforms, we continue to face the great misfortunes in the modern world (wars, human suffering, hunger and illiteracy in the XXI century), which are mainly "creation" of those who are educated and who have a huge number of scientific information which do not preserve but in various

ways destroy the man (Tufekčić, 2009).

It is necessary to impose such a simple but also extremely complex question: why is it so? In an attempt to answer this question it is evident that in the development of some pedagogical areas and their application in pedagogical work, especially the one that is related to school and teaching, there was neglect or some sort of (unusual) distancing from the fundamental anthropological guidelines of upbringing and education. This problem clarifies Slatina (2001, 66) through the analysis of school due to the upbringing and education as human and as a social necessity: "In our teaching practice dominates the cognitive school model. A school that is only a means of supplying the society with usable workers rests on the wrong anthropological assumptions." In the foundations of modern educational crisis lies precisely this problem. Moreover, we find an interesting observation by Pastuović (1999, 23-24) that "the educational crisis is not only educational but also upbringing. It is interesting that the upbringing crisis is detected later than educational, although, according to the latest analysis, it is more dangerous for the sustainable development than educational. The upbringing crisis is more complex and less transparent than educational. This can be seen from the list of some of the major causes of the school's inefficiency in upbringing." The next question is: What is the position of children and young people in recent educational crisis?

A possible answer to this question is that the children and young people are usually left to themselves. It happens often that behind the terms like "democratic education", "school as child's friend", "child in the center of attention" etc. we have hidden adults' indifference for essential needs and problems of children and young people. In other words, children and young people are liberated from those activities and "efforts" that they should experience and live through from the aspect of developing their own personalities while on the other side we set before them certain forms of behavior and actions that belong to the world of adults. "Intensive institutional colonization of childhood can lead to its extinction" (Postman, 1994, according to Nenadić, 2010, 274).

So, big aspirations about "free education" in the result lead to neglect of a child and his surrender to himself and strengthening the preset images on upbringing by the adults. At the same time, neoliberal colors of happiness (hedonism) and child-centeredness in these pictures of adults lead to such (non)educational results that are reflected in the inability of developing the picture of childhood in children or in other words not being able to develop self-perception and image of life (Tufekčić, 2013, 77). "In summary, for modern childhood we can argue that the adoption of culture in children has significantly changed: secondary experiences are growing, the ways of behaviour focused on consumption and previously interpreted forms of interpretation. But according to new theories about the activities and findings, the own activity represents a material surface of cognitive activity and the image of the world and reality is related to the active dealing with reality" (Folling-Albers, 1989, according to Gudjons, 1995, 96).

In schools, it is evident that under the pretext of developing "free and creative people" we leave children without the optimal development of their life forces and specific human characteristics. This happens through permanent development of "culture of idleness and consumption" and "management culture" in schools from one side and developing "ideology of success" on the other side. Failure to develop all necessary competences in children and young people in processes of formal education is in a weird and dangerous way compensated with a false image of success. Besides that the questioning about what consequences this phenomenon has on the social position of children and young people necessarily occurs. While in a way we "enchant them with school success" we do not think about the level on which children and young people develop personal skills important for free and self-conscious life in the 21<sup>st</sup> century. In the process of education of children and young people we deprive them of these competencies and in return we develop "overprotective" relationship towards them which we want to show as "child care". In addition, the children and young people are often found in the open space between family and school which transfer responsibility on each other for the situations in which children and young people try to point out that they are in the state of neglect and mistreatment, while at the same time that lack of interest for the development of children and young people as free, self-actualized personalities, personalities that are ready for critical reflection of the realities of life, they explain by the fact that they want to provide children with "free" and "unrestricted" development. Let us recall the words of Hannah Arendt pronounced in the mid 20<sup>th</sup> century: "It appears that the child freed from the adult authority is not liberated but subject to even worse and indeed tyrannical authority, the tyranny of the majority... The reaction of children to this pressure is either conformity or juvenile delinquency, or, quite often, a mixture of both" (Arendt, 1954). Let us add to this the fact that the results of pedagogical research in the field of family upbringing showed that overprotected children ultimately show similar personality characteristics as well as the so called abandoned children.

Furthermore, the deep ideological education institutions, rather strong negative aspects of the hidden curriculum (conformism, subordination, the inability of conscious rejection of the state of humiliation, developing passive traits of will and character, etc.) and who are faithful picture of contemporary social processes, especially in transitional societies, do not allow emancipation, maturity and self-determination of an individual and develop noncritical acceptance of the ideology of consumer society where everything turns into commodities and where "sociability is not based on solidarity but on conflict" (Močnik, 1999). "Simply put, instead of parents (*and schools* – a remark A.T.) teaching children to the socially acceptable behavior, they try to as much as possible and as quickly as possible fulfill the wishes of their children. That transformation of one of the key processes in the society is related to the transition from working society to the society of consumption, and the processes of individualization and subjection" (Nikodem, 2010, 174).

Efforts of the so called neoliberal pedagogy that are really too beautiful to be true are directed towards subordination of the children to unnecessary forms of rule of man over man or a group of people over another group of people. That is why, the position of children and young people, their quality of life in the processes of education in today's times and social realities



certainly seek actualization of programs of critical educational science, because “the attempt of established critique of existing pedagogical relations is undoubtedly justified” (König and Zedler, 2001, 137). This critique of existing pedagogical relations based on the ground postulates of critical educational science involve constant reference to the problem of identifying the contemporary upbringing / education and indoctrination. Therefore, a critical approach to modern upbringing – educational opportunities involves constant differentiation of these two processes that are formally very similar but fundamentally are opposed to each other and are mutually exclusive. In a looser interpretation, here will be given some explanations between differentiating upbringing/education and indoctrination which are discussed by Slatina (2000, 373), in the following tabular overview:

Table 1. Differentiation between upbringing/education and indoctrination

<b>Upbringing/education</b>	<b>Indoctrination</b>
<i>Preparing people to accomplish their own possibilities</i>	<i>Getting people used to use their possibilities in limits</i>
<i>Forming an open spirit</i>	<i>Forming closed and rigid conscience</i>
<i>Development of feeling and need for freedom and personal dignity</i>	<i>Getting people used to loyalty and obedience</i>
<i>Teaching people that they can think anything, work, believe and evaluate</i>	<i>Guiding people to think, to work, to evaluate in a specific way</i>
<i>Developing the ability of independent and free thinking</i>	<i>Making people dependent</i>
<i>Offering ideas</i>	<i>Forcing ideology</i>
<i>Pointing to the possibility of choice, to the alternative</i>	<i>Removing all alternatives, offering only “one solution”</i>
<i>Offering information, facts, views on which there is general agreement</i>	<i>Extortion of a general consent for your own, personal opinion</i>
<i>Offering the truth as tuition and lesson</i>	<i>Offering your own message as truth</i>
<i>Practicing others to set hypotheses in order to check them</i>	<i>Guiding others to believe in totally suspicious things</i>
<i>Using checked data</i>	<i>Misuse of all data</i>
<i>Reasonable and progressing action on the behavior of others</i>	<i>Unreasonable judgment</i>
<i>Entering the relationship of mutual learning</i>	<i>Teaching by the principle „magister dixit“</i>
<i>Learning to know, to do, to live, to be</i>	<i>Learning to have, to own, to rule</i>
<i>Building the authority of truth</i>	<i>Imposing irrational identity</i>
<i>Mistaking because of ignorance</i>	<i>Conscious and deliberate spreading of delusion</i>
<i>Efforts to expand the knowledge of others</i>	<i>Desire to narrow down the rational possibilities of others</i>
<i>The existence of a solid target (forming a complete person)</i>	<i>Accomplishing partial goal</i>

In a number of mentioned educational reforms a lot more attention is focused on developing new and more successful methods and techniques of learning and teaching, in other words on more successful adoption of educational contents rather than on shedding the light on the differentiation between upbringing/education and indoctrination. This has led to the fact that education in various ways is becoming more in the service of requests that in themselves carry less internal logic to education and more market logic, the logic of manipulation and the logic of “human resource management”. Therefore, it is necessary to reaffirm theoretical - methodological traditions of critical theory of society and the so called conflicting views on education in contemporary reflections on education in order to fully comprehend the place and role of this very important human activity. This is because once again the question is raised of whether the inner world of education should be determined by an autonomous educational awareness or is the current “relative autonomy” of education contemporary concealment of the processes of converting natural differences of people in their inequalities (Bourdieu and Passeron 1971, according to Gudjons, 1994, 209). The consequences of avoiding this theoretical - methodological discourse reflects in the fact that the reform of educational institutions is not directed towards and from the theory of education but it comes down to adopting various regulations which turn educational institutions from places of free education into places of “unfree service activity” (Liessmann, 2009, 77).

Emancipatory education involves developing opportunities for children and young people to participate in present and in some new world in a new paradigm of critical thinking because “education is the field where we show if we love our children enough not to force them out of our world and leave to themselves, not to take their opportunity to try something new but to prepare them in advance for the task of renewing our world” (Arendt, 1954). We are all responsible for this. Education can help, but today the education itself needs to be helped.

### 3. Instead of conclusion

Critical educational science provides if not a complete and fully developed concept then at least one very important segment in the range of different theoretical and empirical approaches to looking at contemporary educational crisis as well as the phenomenon of education in general.

At all times and in all areas of human life different ideologies are possible and sort of capture the different ways of social institutions including the sphere of education. The attempt to resolve numerous problems related to upbringing and education has always brought new forms of ideological submission. Education has always shared the fate of the society in which it is organized. All social processes and phenomena and social adversities have always folded up through education. But education, unlike other social subsystems has a very important and powerful opportunity. As well as receiving certain influences of the

society, because it is its integral part, education can influence the society and shine into it positive and developing forces. It has this possibility because the essence of education consists of young people that need to be taught and allowed to treat the world with all its constructive potential that a man can carry with himself. Education therefore should be the space in which we live and gain experience, the human one.

Theoretical concepts of critical educational science help to reflect and invent the situation and the position of children and young people more clearly and pedagogically expressed, for the sake of themselves.

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# Recognition of diversity in the one and only Ivan from literature-based language lessons

Hyunhee Song

\*Research Professor, Hannam University

## Abstract

This paper is focused on recognition of diversity in *The One and Only Ivan* from literature-based language lessons. A literature-based approach in the second language (L2) classroom offers a variety of benefits. It encourages sense-making or meaning-making of a whole text (story, poem, etc). Fountas and Hannigan (1989) contend that once students understand the general meaning of the whole text, they are better prepared to deal with the analysis of the parts. A literature-based approach also promotes active engagement and collaborative work so that learners contribute to class activities through direct interaction with either the instructor or with peers. They also participate through sharing information, asking questions, and reflecting on their understanding, as well as working together to make sense of the text under study. Another advantage of this instructional approach is its incorporation of a human component so that learners can identify with characters who face common human conflicts and problems, such as fear, hate, love, etc. Learners have the opportunity to reflect on the characters' actions and choices and then discuss whether they agree or disagree with the characters' decisions (Adair-Hauck, 1996). Furthermore, a literature-based approach supports integrated as opposed to segregated skills and, as a result, its associated activities usually target in one lesson all the skills involved in reading, writing, listening, and speaking.

The purpose of this lesson is to put into practice some of these benefits. To carry out this intention, a story entitled *The One and Only Ivan* by Katherine Applegate (2012) was chosen. This story tells about a Old gorilla named Ivan who has been struggling with his current situation and forgotten his real life. One day while Ivan was considering, his old friend Old Stella died a very lonely and left young little elephant Ruby. At last Ivan and Ruby are both adopted by the same zoo. The story ends with Ivan and Ruby adapting to their new habitats and the other animals they will live with. I analyze this story with literature-based theory. This story was selected based on five components suggested by McWilliams (1993): Time and setting, Characters with personality, A major problem, Includes a problem and attempts to solve it, Has a quick resolution and ending. From these I prove the significance of a variety of culture.

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**Keywords:** diversity, identity, prejudice, another one, literature-based language lessons, *The One and Only Ivan*

## 1. The meaning of Literature Based on Language Lessons

A literature-based approach in the second language (L2) classroom offers a variety of benefits. It encourages sense-making or meaning-making of a whole text (story, poem, etc). It also promotes active engagement and collaborative work so that learners contribute to class activities through direct interaction with either the instructor or with peers. This is its incorporation of a human component so that learners can identify with characters who face common human conflicts and problems, such as fear, hate, love, etc

## 2. The Relationship of Literature based on Language Lessons with The Use of *The One and Only Ivan*

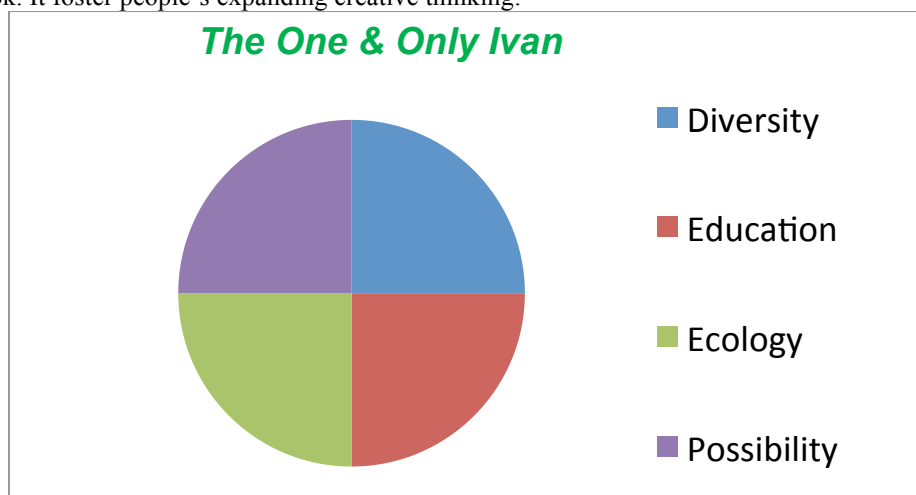
I think we have to understand the meaning of children's literature. This includes stories, books, and poems that are enjoyed by children. Modern children's literature is classified in two different ways: genre or the intended age of the reader. This can be traced to stories and songs, part of a wider oral tradition, that adults shared with children before publishing existed.

And *The One and Only Ivan* has a special story. This story tells about a Old gorilla named Ivan who has been struggling with his current situation and forgotten his real life. One day while Ivan was considering, his old friend Old Stella died a very lonely and left young little elephant Ruby. At last Ivan and Ruby are both adopted by the same zoo. The story ends with Ivan and Ruby adapting to their new habitats and the other animals they will live with.

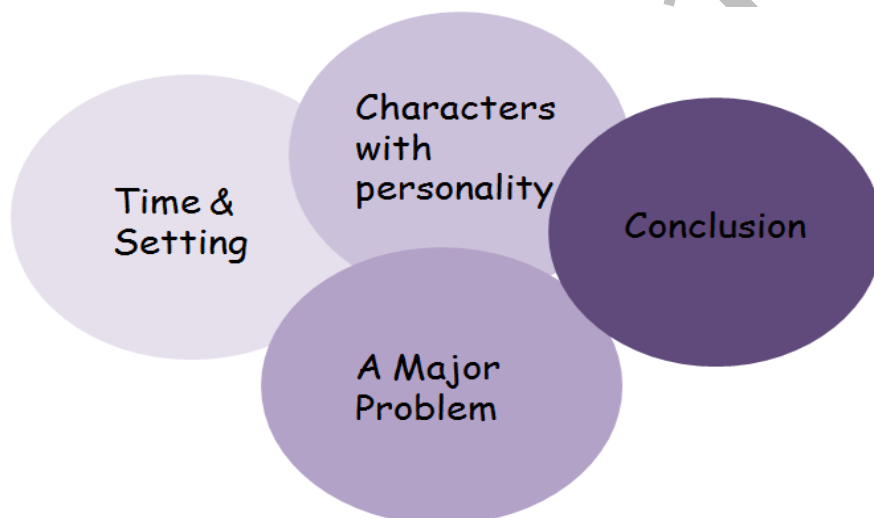
This book represents four things; diversity, education, ecology, possibility. These consists of below. First, diversity means race, nationality, LGBT. Characters of each animal represents human race. Second is education. This combined with literacy works with culture and more understandable language. Third is ecology. This is a true story who spent 27 years in a Washington mall before being transferred to the Atlanta Zoo. So we recognize the important things of nature from story. Last is possibility-

· Corresponding author. Tel.: +00-00-000-0000  
E-mail address: laerdal@naver.com

compare another book. It foster people's expanding creative thinking.



And I try to point out the strong point of using book. First is comparing. This means easy to access another culture & people, expand the range of level, and enhance their comprehension of similarity & difference. Second is problem solving; it is connected with time and setting, characters with personality, a major problem, includes a problem and attempts to solve it (McWilliams, 1993).



Last point is creating. It means that share ideas through book and make their own thinking (more creative).

### 3. Conclusion

This kind of book give some effect of literature based on language lessons. We cans easily understand another culture and world. From their reality, we can give some questions; Ivan's blocked shopping mall? Is this Africa? They want to go to the transferred zoo? And we can find the efficiency of studying English from making a map, creating a short story. Also enhance to make a collaboration.

There are lots of suggestion for further research; Combining with a various media, Cooperating with another book, Applying in the deep theory, Enhancing more efficient studying method.

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# Record, evaluation and planning of knowledge work experiences on personal research environments via life logging system

Buket Kip Kayabas<sup>a,\*</sup>, Mehmet Emin Mutlu<sup>b</sup>

<sup>a,b</sup> Anadolu University, Eskisehir, Turkey

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## Abstract

In this study, record, evaluation and planning of knowledge work experiences in personal research environments is applied via a life logging system, which has ability to capture screen shots and camera shots continuously for a month and then observations of this study are discussed. The life logging system is individually applied by first author for a month and then it is evaluated by both of the authors via logs and semi-structured interviews. As a result of the evaluation, it is seen that the life logging system has a potential for managing knowledge work experiences on personal research environments.

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*Keywords:* Life logging; personal research environments; recording knowledge work experiences; managing knowledge work experiences.

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## 1.Introduction

### 1.1.Knowledge work environments and personal research environment

According to Mutlu (2014a) the experiences based on individual's personal data, information and knowledge can be gathered under seven different environments such as "personal communication environment", "personal media environment", "personal transactions environment", "personal working environment", "personal publishing environment", "personal learning environment" and "personal research environment" by using environment approach. When they are compared according to the competencies, they are required to have, personal communication environment is the most commonly used environment. And it is followed by personal media environment. After these two, personal transactions environment comes. The environments mentioned until this point are the ones which are used intensively by the groups other than the knowledge workers. The predominant environments of the knowledge workers start with personal working environment. Personal publishing environment follows that. Personal learning environment contains partially all the environments mentioned before. Last one is the personal research environment and it represents the highest level of the knowledge work.

Today, scientific research activities mainly carried out on computer environments and Web 2.0 technology provides significant opportunities to share the research, sources and results. Online libraries, research platforms, scientific social networks, document share applications, bibliographic reference management software, social bookmark managers, citation indexes, blogs and wikis, scientific news services, open access services have become the tools that researchers spent more time with and the group of these tools forms personal research environment. At the first phases of internet, accessing data and information were important but after Web 2.0 the "sharing" became the outstanding activity. In personal research environments, main activities are grouped as sharing the research's itself, sources and results of the research. (Rebuin, 2011, Mutlu 2013).

### 1.2.Knowledge work environments and personal research environment

When it is considered on an integrated basis, personal knowledge contains all the life experiences which are related to individuals' personal data, information and knowledge and happens at individuals' knowledge work environments and these experiences are mingled with the other life experiences of the individual. Not all of the knowledge work experiences are planned beforehand and neither they occur deliberately. By borrowing the approach which is used in "extended informal learning model" (Mutlu, 2014b) taxonomy given below can be formed according to initial planning and consciousness of the knowledge work experiences:

- Implicit (tacit) knowledge work experiences which are happens unconsciously and unplanned.
- Integrated knowledge work experience which happens unconsciously but planned.
- Reactive (incidental) knowledge work experience which happens consciously but unplanned.
- Self-directed knowledge work experience which happens consciously and planned.

While individuals easily realize their self-directed learning experiences simultaneously or later on, realizing other life experiences is not easy and it is mainly dependent on strength of the individuals' memory and ability to review their life. In order to realize the experiences at individuals' knowledge work environments, it is required to capture and record all the life experiences of the individual's physical and virtual environments.

### *1.3. Recording knowledge work experiences*

Simultaneous record of personal experiences is named as "life log" and it is focused to save, archive and access the data and information gained via wearable-portable sensors (Bell and Gemmell, 2009; Sellen and Whittaker, 2010). The first idea of saving life experiences is dated back to Memex vision of Bush (Bush, 1945). In 90s life log researches gained importance with the help of Mann's wearable computer studies (Mann, 1997), and Aizawa's studies (Aizawa et al., 2004), Microsoft's SenseCam camera (Hodges et al., 2006) and MyLifeBits Project developed by Gemmell and Bell (Gemmell et al., 2002).

Even though cognitive, spiritual and religious experiences cannot be saved directly, it is possible to save physical, social and virtual experiences. A tool named as "multiple device based life log system" developed by Mutlu (2014b) to save learning experiences can also be used to save knowledge work experiences. In this system, a wearable camera which records camera shots at every 30 seconds is used for saving experiences occur in physical environments. In order to save the experiences occur in virtual environments software which can take screenshots at each 30 seconds is used on desktop computers, laptops and tablets. The content belonging to knowledge work is not recorded via camera shots and screen shots instead a mnemonic visual related to the work is obtained. These visuals are enough for retrieval and recognition of the knowledge work experiences.

### *1.4. Recording knowledge work experiences*

Inspired by "management of learning experiences" (Mutlu 2014b) an approach which is for management of experiences in personal knowledge work environments, a three stepped approach mentioned below is suggested (Mutlu 2014a). Third stage of the approach is updated and typology of knowledge work experiences is included.

- Do the knowledge work. (With this aim individual uses processes and tools suitable for the nature of the knowledge work in knowledge work environments.)
- Save knowledge work experiences passively. (Experiences of individual in physical and virtual knowledge work environments are saved as screenshots and camera shots at 30 second intervals spontaneously.)
- Manage knowledge experiences. (At this stage, the individual relates the experiences with the context space and comments, do activities such as tagging knowledge work experiences, and activities such as evaluation-controlling-planning)

At the third stage of the suggested approach, the individual scans life experiences he/she obtained via the life log tool and interprets these experiences hierarchically such as "activities", "episodes", "stories". Then places, persons, events, behaviors, attributes and assets related to these experiences are transferred to lists of contexts and notes taken for every context. Knowledge work experiences are tried to be determined by evaluating experiences and comments, then these experiences are tagged as "implicit (tacit) knowledge experience", "integrative knowledge work experience", "reactive (incidental) knowledge work experience" or "self-directed knowledge work experience". Lastly, planning lists towards future, control lists for current situation and evaluation lists for past are created for management of knowledge work activities.

In this study, attainability and manageability of knowledge work experiences are researched by applying "management of knowledge work experiences" approach. With this aim, life experiences of the first author of the paper, who is also a Ph. D student at dissertation level, are recorded via life log system for a month and knowledge work experiences in her own personal research environment are tried to be caught and managed via experience processing software. Application is evaluated with the help of observations, logs and semi-structured interviews by both of the authors.

## **2. Method**

### *2.1. Action Research*

In this study, action research method is applied. Action research is a common self-reflective investigation technique which is carried out by participants in order to realize their own social or educational activities and the situations at which these applications take place as well as to develop rationalities and judgments related to them (Kemmis and McTaggart, 1988: 5; McNiff and Whitehead; 2002). Action research method can be applied for the studies in which action is applied by researcher's himself/herself, self-observation during the research and self-evaluation periods and it is also preferred because of the fact that it includes an applicable and controllable process. Action researches towards developing a new system, determining problems of an existing system or improving it are usually developed as action cycles. In this study, it is aimed to obtain new results and findings by applying an approach which is designed and tested before within a bordered area. Because of that action research is designed as an action cycle which contains steps such as (a) defining the question of action research, (b) defining the research, (c) planning and applying the action, (d) gathering data by examining the action, (e) evaluating the observation results and (f)

reflecting results in a critical approach.

## *2.2. Action research question*

If a knowledge worker saves daily life experiences via a life log system, can he/she catches and manages knowledge work experiences in his/her personal research environments among these experiences?

## *2.3. Definition of the research*

In this study daily life experiences of the first author is recorded via a life log system, then they are scanned in order to find knowledge work experiences in personal research environments and management activities related to these experiences are carried out. This process is observed and evaluated by both of the authors.

## *2.4. Planning and applying the action*

The action is applied from 15 May till 15 January 2014. During this term, first author of the study recorded her daily life experiences via a life log system and commented on them by interpreting these experiences with the help of a experience processing software once in every two days. A system which works on personal and business computers of the author and catches screenshots and camera shots at every 30 seconds and saves them on OneDrive (SkyDrive) cloud environment is used as a life log system. By scanning these records every week the author collected findings which are accompanied with these experiences and collected them on a personal research environment. Parallel to this transaction she caught and tagged personal research environment experiences within her life experiences. Lastly, she used “to do lists” “lists of the activities done” and “lists of the activities she completed” in order to plan, control and evaluate her experiences in her own personal research environment.

## *2.5. Collecting data by observing the action*

In order to observe the action, both of the authors recorded their daily activities belonging to this process via life log. Daily records are interpreted by both of the authors via an experience processing software, semi-structured interviews are done by meeting once-twice a week and interview notes are saved as daily activity notes.

## *2.6. Analyzing data in order to evaluate the action and critically reflecting the results*

Authors collectively evaluated observations and they have made mid-term evaluations by gathering together at the end of each term. With this aim, they used the records they made and interpreted them via life log system.

A report, which also includes critics towards application of the action, is formed by using the evaluation results.

## **3. Findings**

The first author's daily experiences by using life log system recorded for a month. And the “management of knowledge work experiences” approach is applied on them for a month. And the findings obtained via observations and evaluation meetings carried out by both of the authors are arrayed according to management of knowledge work experiences approach.

### *3.1. Critically reflecting the results*

Images belonging to life experiences which are recorded to the cloud environment via OneDrive (SkyDrive) and caught by life journal system are scanned on hourly, daily, weekly, monthly basis and activities, episodes and stories related development period of the software are tried to be determined. In order to make it clear in scope of management of knowledge work experiences, comments which can be found during longer research periods are also mentioned.

**Activities:** Because of the fact that the first author, whose life experiences are recorded via life log system, is at dissertation stage, it is seen that most of the knowledge work experiences she had on her personal research environments are about her dissertation thesis writing. In this phase, she deliberately worked on her thesis. Aims are determined by defining the problem and framework of the method part of thesis are tried to be formed. Draft of the thesis proposal presentation is prepared. At the same time, summarization and archiving of the researches are made with the help extensive literature scans for reporting process. During application period weekly interviews are regularly made with counselor and all of them are recorded. Another experience occurred in this period as a result of the writing process of two separate papers for presenting them at a congress.

If the study wasn't limited to a month, it would have been covered all the thesis writing process and it would have included a wide list which contains literature scan, taking notes, creation of the draft, quotation, referring, writing sub-chapters of the thesis such as summary, introduction, collection of data, data analysis, findings, discussion, results, suggestions, writing references,

making interviews with the counselor, preparing thesis follow-up juries and attending them, preparing thesis presentation and presenting them in addition to the activities mentioned above.

**Episodes:** During application period, dissertation proposal is prepared. During dissertation proposal preparation period, problem, aim, importance and limits of the thesis study is asserted first and main framework of the method chapter is determined. At the same time members of the jury is assigned and both the author and members of the jury are informed.

It is seen that main episodes of thesis writing process are determination of the thesis subject, making weekly interviews with the advisor, attending thesis follow up juries, writing parts of the thesis consequently or correspondingly, attending thesis defense jury. These episodes are the ones which triggers, directs and enables us to categorize meaningfully all the activities belonging to the process and they will be remembered even though long time passes after the thesis writing process.

**Stories:** Stories are summaries of life log entries at the highest level which are used for defining the individual's life with its main lines. For an academican conducting a research, giving lectures and performing his/her administrative tasks, if he/she had any, are main stories and main episodes related to his/her carrier. During application period main story defined in personal research environment is thesis writing process' itself. Other story contains other academic publishing works which are carried out during the same period. Third story is administrative tasks of the author who also continues her job as a manager of e-certificate Programmes of Faculty of Distance Education.

### *3.2. Findings Related to Contexts*

During research, findings related to recorded experiences are tried to be determined and persons, places, episodes, behaviors, features, emotions, assets are logged into their own lists. Even though, some of the entries in contextual lists related to the experiences are the ones which appeared for the first time during the research period, some part of them are the ones which are related to the new experiences she had during the research process. The data given below is found mainly in lists of contexts.

**Persons:** It is seen that thesis advisor, members of thesis follow up jury and the environment which mainly consists of colleagues with whom thesis subject is discussed, co-authors with whom she worked together while writing the paper, her supervisors to whom she communicates with in order complete her administrative tasks and her colleagues are main entries.

**Places:** It is seen that during that period personal research environment is mainly used at her office and home. Besides, she accessed her personal research environment for meetings she holds with other authors and her advisor for her administrative tasks.

**Events:** During this process main events are determination of thesis subject, appointment of members of jury and basic events related to administrative tasks (exams of the certificate programs she is responsible for and beginning of the new semester.)

**Behaviors:** Behaviors are routines we have. Daily, weekly, monthly and annual routines of the author during the research process are tried to be determined and recorded. Fundamental behaviors towards personal knowledge work in personal research environment defines our practices such as accessing the information, creation of information, changing, forwarding and saving it.

**Attributes:** The characteristics an individual have are formed, changed and accumulated in time. The new administrative responsibilities undertaken by the author of the paper during research period can be given as an example of the new characteristics she gained related to her personal research environment

**Emotions:** Contexts related to emotions may contain the entire perception that cover individual's inner world. Especially life-deep learning experiences are closely related to the individual's subjective perception, his/her inner world and his/her past and while individual manages his/her life he/she usually ignores these contexts. From time to time individuals know and manage themselves better as long as they put on paper the experiences which are accompanied to these contexts.

**Assets:** Assets of knowledge work experiences in personal research environments are the tools which can be usually defined as the software, hardware and services used, sources and contents. It is observed that during her research period author used online resources that belong to Anadolu University Library very often.

### *3.3. Findings belonging to knowledge work experiences take place in personal research environments*

The learning experiences found while scanning these experiences are tagged as "implicit (tacit) knowledge experience", "integrative knowledge work experience", "reactive (incidental) knowledge work experience" or "self-directed knowledge work experience". It is seen that the knowledge experiences of the author are concentrated on the headlines given below.

#### *3.3.1. According to knowledge work environments*

**Personal communication environment and personal media environment:** In addition to the e-mail, it is observed that various social media environments are used. It can be said that, especially on social media environments, covered knowledge work experiences happen unplanned and unconsciously. For example, while she was in communicating with her friends via a social network, an article about benefits of the yoghurt was suggested on the same screen and after it is read by author it made her to have an unplanned and unconscious learning experience. Suggestions of social media sites similar to this kind of knowledge sources which cause the occurrence of a lot of covered knowledge work experiences. These experiences are interpreted by scanning the screen shots which are taken at every 30 seconds.



**Personal transactions environment:** During research period, main transactions are the ones done at Anadolu University website, online library transactions, services of online magazines, transactions made on the website of the conference she is interested to.

**Personal working environment:** During research period, a personal working environment, on which Microsoft Office software and internet based software are mainly used, is utilized in order to complete administrative tasks.

**Personal publishing environment:** During research period nothing is published on author's o personal Blog and wiki pages. In real life, both of these two personal publishing tools will be used more in order to direct the PhD dissertation process.

**Personal learning environment:** It is seen that web browsers and folder, in which she backs up the documents she gets, are at the center of author's personal learning environment.

**Personal research environment:** It is observed that the author mainly benefits form online library services of Anadolu University. Also she plans to use Mendeley reference management software more in order to manage her academic studies.

Self-driven knowledge work experiences, which are consciously planned, carried out. And also they are observed on personal work, personal learning and personal research environments. While she is writing her doctorate thesis, the author follows certain calendar and obeys her daily, weekly and monthly working schedule. During application period she scanned sources she determined in literature, archived the researches which she will use in her thesis by summarizing them and she has done planned activities such as taking notes, recording, and reading.

### *3.3.2. According to activity type on personal research environment*

**Sharing the research:** Sharing the research on personal research environments are usually done via research platforms, scientific social networks and file share applications (Mutlu, 2013). It is also observed that the author shared her publications on Academia, ResearchGate and SlideShare in this period.

**Sharing resources:** Researchers would like to share their sources with the others and benefit from other researchers sources during their research. With this aim, they use bibliographical reference management software, bookmark managers and citation indexes (Mutlu, 2013). It is seen that the author uses Mendeley, Diigo, Google Scholar Citation and Microsoft Academic Research web sites during this period.

**Sharing results:** One of the fundamental characteristics of Web 2.0 and social networks is the fact that they enable researchers share the results of their researches via blogs, wiki sites, news services, open source magazines and open source archives. So researchers can introduce their researches more to the other researches and enable them to cite from their own work (Mutlu, 2013). Because of the fact that the academic studies of the authors haven't been resulted yet, activities related to share of the results haven't been observed.

### *3.3.3. According to knowledge work typology*

**Implicit (tacit) knowledge work experiences:** It is observed that, implicit knowledge work experience are unwittingly within the self-directed knowledge works which are carried out planned and deliberately. While author is conducting her planned knowledge work, she also realizes that she reached a lot of information and gained experience unwittingly and unplanned.

**Integrative knowledge work experiences:** While the author was writing the report of her thesis proposal, she had integrative knowledge work experiences which happened planned but unwittingly. Even though reporting period is a planned activity, the learning experiences she gained unwittingly during this period, are evaluated under integrative knowledge work experiences.

**Reactive (incidental) knowledge work experiences:** Unplanned and deliberate reactive knowledge work experiences are coincided frequently especially during literature scan. The knowledge work carried out which includes reaching primary sources of the citations made from other sources can be placed in this category.

**Self-directed knowledge work experiences:** When screenshots and camera shots taken during the application period are interpreted it is realized that self-directed learning experiences are the ones which disguised fastest and easiest. Author could determine easily the knowledge work experiences which were started in a plan and she was also aware of the fact that they will end up with learning by examining the record imageries.

### *3.4. Findings belonging to knowledge work experiences take place in personal research environments*

During the application period, it is seen that first author has abilities towards planning the future, supervising the current and evaluating the past and these are mentioned below:

A calendar, which is required to follow during the thesis writing period, is prepared and monthly activities are determined in accordance with this calendar. Studies are conducted mainly according to scheduled work-time chart. Monthly activities are determined on this calendar later on weekly and daily activities are also determined. Annual working plan is summarized on a monthly basis and logged into the AllMyListsLE experience processing software. When the time of planned episodes and activities come, they are evaluated by reviewing their completion rates. On the other hand, previous events and activities are also reviewed and this enabled user to update his/her current and upcoming episodes and/or activities. During research period planning, supervision and evaluation processes are applied for a month. It is foreseen that the process will be applied after the research period in order to easily follow knowledge work activities from previous year, current year and upcoming year.

#### 4. Discussions, results and suggestions

Continuous record of daily life experiences of the individuals via life logging tools enables us to evaluate these experiences later. The system is also required to be economic and easy for sustainability. In this study, passively and non-assertively recording the experiences via life logging system, then scanning fast and systematically the caught experiences by the individual and developing them by interpretation are enabled with the help of existing suitable tools.

The results mentioned below are obtained at the end of the research:

In this study, operating researcher recorded all of her knowledge work experiences via life logging system on her personal research environment for a month. She scanned these records once every two days via AllMyListsLE software and defined knowledge work activities, episodes and stories. Practitioner -researcher applied the three staged “management of knowledge work experiences” flawlessly from beginning to end with the help of the experience she gained during another research she conducted via management of learning experiences by using same tools.

The author focused on the knowledge work experiences, which belong to a specific story (writing a PhD thesis), so she was able to distinguish the episodes and activities related to this story amongst the others. She gained ability to interpret each episode together with the context they belong to while her awareness towards contexts related to these experiences are increasing. And she turned her personal database which is created by these contexts into a powerful personal knowledge management tool.

Later on, she also realized her unplanned or unwittingly learning activities in addition to her planned and conscious ones with the help of crosshatching. Especially determining unplanned and spontaneous covered knowledge work experiences in personal learning environments and recording them later on, supports revealing process of the covered knowledge of the operating researcher.

Planning knowledge work experiences in personal research environments as activities, episodes and stories, auditing and evaluating the experiences he/she had with these concepts enables us to manage these experiences flawlessly and fluently.

Systematical observation of knowledge work experiences is a relatively new research area. In this study, natural steps of method of management of personal knowledge work experiences are applied on only one practitioner for a month. If we apply method of management of personal knowledge work experiences in future studies on more subjects, it will be possible to find out the acquisitions of the individuals and nature of the method in details.

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# Redesigning education for the future

Luiz Roberto Calado<sup>a</sup> \*, José Antônio Arantes Salles<sup>b</sup>

<sup>a</sup> Faculdade Alfa, Av. Perimetral Norte, n° 4129

Vila João Vaz - Goiânia-GO 74445-190, Brazil

<sup>b</sup> Faculdade Alfa, Av. Perimetral Norte, n° 4129

Vila João Vaz - Goiânia-GO 74445-190, Brazil

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## Abstract

This article presents the innovations occurring in the context of education, in regard to basic principles that can be adopted in all disciplines. In the future our suggestion is that education methods should incorporate the principles of systemic thinking and the Global Compact of the United Nations, from which derive the principles for a comprehensive education, discussed in the pages to follow. The text also details the active participation of Brazil in global forums to discuss the new principles for education, clarifying its important role in the discussion and dissemination of important global initiatives.

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*Keywords:* education; Brazil; global compact; United Nations

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## Introduction

Facing the new challenges imposed by our society, it becomes essential to rethink education in teaching, particularly in relation to higher education focused on business, such as administration, accounting sciences and economic sciences. This paper proposes a new concept for the subject, from an approach adopted by the United Nations as well as the practical experience of the authors, to participate in a comprehensive debate involving stakeholders: companies and organizations, government, academic and youth.

## The end of an era

Peter Senge (2014) stated the end of the industrial age, which does not instantly imply the emergence of a new era, but a transition. Fritjof Capra (1984), in turn, points out that: "Our obsession with economic growth and the values system that underlies it created a physical and mental environment in which life has become extremely unhealthy."

According to the author, we are living in a paradigm shift, being today the turning point of society, the Cartesian paradigm to systemic design. However, the author's "today" refers to many years ago, which only shows that the ongoing change is very complex and some more time will be required for the new culture to be established, or rather some new cultures, in order to verify it with the centralized model of American culture. Such transformations are structural, they are processes that are slowly updating and changing, although generating profound impact in society as a whole. After all, companies cannot succeed in societies that fail.

Society is undergoing fundamental changes, which are more easily identified in the workplace. With the introduction of customized services, changes in business organizational characteristics strongly affect the way we understand "work". Traditional plants are becoming old-fashioned and work units are fundamentally changing with the introduction of machines and outsourcing services. Changes felt in the career plans, due to this process, are a particular challenge for education, as the needs of society have distanced themselves from the old model adopted in industrial production. Reforms in education are necessary and should be considered in this new society that is on the making.

The teaching profession also faces the challenge of providing quality education in the new models of the XXI century. The economic, social, scientific and technological needs must adapt to the introduction of sustainable development.

It is important for a country to understand how to be successful, therefore it's crucial to identify the knowledge that will be essential to this new era. In this sense, it seems clear to many that education methodology needs to change and that new

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\* Corresponding author. Tel.: +55-11-999333041; fax: +55-11-99933304.

E-mail address: luiz.calado@alfa.br

principles need to be adopted, since the current education system is still built on principles that are already outdated.

### **Tools for the education of the future**

In this scenario, the perspective of a systemic vision teaches us to understand the problem as a whole. As companies started to receive inputs from other segments of society (stakeholders), schools should also encourage such behavior. Particularly, NGOs also need to be more participative in the schools, encouraging discussions about topics of interest to society, this is a huge opportunity for interaction by NGOs, especially by those who defend their causes in the dialogue with companies and government. We need to work together, as we did in the past, as Peter Senge states in his last work, *The Dance of Change: The challenges to sustaining momentum in a learning organization* (2014).

The challenge for higher degree education teachers has been posed: how to reflect on their courses the significant changes that have affected our society, especially in the last five years. For example, the issue of NGOs expressed in the previous paragraph, or in which way the electronic social networks was introduced in their disciplines.

The information society has created new communication mechanisms. Anyone with a video camera, a web site and an opinion can post a subject. This fact must necessarily be reflected in our educational system. We need to guide students on how to use such tools. Teachers, therefore, need to understand the dynamics of this kind of environment and also make use of blogs and electronic social networks in order to maintain communication at the level of their students.

My experience on teaching suggests the improvement of some essential skills to further develop education in primary and advanced levels. The birth of a new thinking in business schools, in turn, is critical to place ourselves more assertively in the economic world context.

### **Understanding the Global Compact**

In order to contextualize the reader briefly, the Global Compact is an initiative developed by the United Nations. The goal of the Pact is to mobilize the international business community to adopt in their business practices the internationally accepted core values in the Human Rights, Labor Relations, Environment and fighting corruption. It is interesting to note that the United Nations, through the Global compact, are increasing their dialogue scope, by including companies as the core of the project.

As companies started to pursue a solution to manage their growth responsibly, the Global compact was able to draw the interest of companies from different industries groups and geographic regions, ranging from major multinationals, to small companies with local operations.

This Pact, by itself, is a voluntary initiative that seeks to provide guidelines for promoting sustainable growth and citizenship through corporate leaderships which are engaging and innovative. The ten principles are derived from the Universal Declaration of Human Rights from the International Labour Organization on Fundamental Principles and labor Rights, the Rio Declaration on Environment and Development and the United Nations Convention against Corruption.

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights.
- Principle 2: make sure that they are not complicit in human rights abuses.
- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
- Principle 4: the elimination of all forms of forced and compulsory labor.
- Principle 5: the effective abolition of child labor.
- Principle 6: the elimination of discrimination in respect of employment and occupation.
- Principle 7: Businesses should support a precautionary approach to environmental challenges.
- Principle 8: undertake initiatives to promote greater environmental responsibility.
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.
- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

## Principles for comprehensive education

As educational institutions are involved in the present and future citizens education, such as business managers, the institutions joining the pact for education shall participate in a process of continuous improvement of the following principles:

- Purpose: To develop students' skills to be future generators of sustainable value for business and society in general and to work for an inclusive and sustainable global economy.
- Values: Include in the academic activities and curricula the values of global social responsibility presented in international initiatives such as the Global pact of the United Nations.
- Method: Create molds, materials, processes and environments that enable effective learning experiences for responsible leadership.
- Research: Commitment in conceptual and empirical research to improve our understanding about the role, dynamics and impact of companies in creating values of social, environmental and economic sustainability.
- Partnership: Interact with managers of business corporations to extend our knowledge about their challenges in the pursuit of social and environmental responsibilities and to explore effective ways to address these challenges.
- Dialogue: Facilitate and support dialog and debate among educators, companies, government, consumers, media, civil society organizations and other interested groups and investors (stakeholders) about critical issues related to global social responsibility and sustainability. We understand that our own organizational practices should serve as an example of the values and attitudes we pass on to our students.

The goal is to encourage the alignment of business policies and practices with the values of universally agreed goals which are internationally applicable, by also encouraging other academic institutions, associations and organizations to adopt and uphold these principles.

## An evolution in the way: the use of learning goals

A system of educational goals to identify suitable teachers eligible for bonuses in cash is being discussed in some states and cities in Brazil; mainly São Paulo and Rio de Janeiro, being a desirable way to improve the teaching.

These goals, if adopted, may restore the responsibility of the teacher, who will strive to improve the conditions of schools. The state of São Paulo since 2009 adopted the salary bonuses to teachers who improve student achievement, based on a pre-established goal. Minas Gerais and Pernambuco will also apply similar measures. However, it is necessary to adopt a system which would enable to evaluate the results of teachers, according to their conditions. i.e., it is preferable to adopt goals for each school individually rather than to take up universal goals.

Teachers often feel degraded by the lack of support and poorly equipped schools to deal the environment they work in. The more teachers with proper recruitment and training, wages and compatible benefits with those activities that require similar specific qualification, the better working conditions and opportunities for development and promotion are our key challenges.

During the development process, it is important to ensure the participation of all stakeholders in the debate, including politicians, teachers and their organizations. Social debates will help to build consensus for a more efficient implementation of "teacher's policies".

We are witnessing dramatic changes in higher education degrees, such as the crescent number of people taking it, especially in the developing countries, it's increasing commercialization (trading), as well as training with a greater focus on business needs. Despite all controversial debate, the important growth of information technology and communication is at hand; and finally, it hangs towards the internationalizing of education, which entails greater flow of students and academic staff.

It is necessary an investment on teachers and school administrators, particularly the latter, which have been left apart of the debate around this issue. Administrators must possess the tools in order to motivate school teachers; only then a greater goal will be achieved. They are the ones who, through their knowledge, lead young children into being more equal human beings with knowledge and capable of demanding and building a better world (Calado & Nadai, 2008).

In Brazil, many of our teachers face serious danger in the classroom, since students members of gangs threaten them demanding money and protection against drugdealers from favelas and sometimes from the police. Many of them still exposed to inhumane circumstances in developing countries, where children of different age groups attend to the same classroom, since there are not enough qualified staff to meet the demand. We can conclude that one reason why children drop out school is because they do not find the necessary encouragement to continue studying since the circumstances are so unsettling, the education level is low and the infrastructure is almost nonexistent.

It makes sense to remember the Maslow's hierarchy of needs. According to which, people only focus on certain personal goals when others more relevant have been resolved, i.e., unsafety, unemployment and poor living conditions come before education. Without these issues met to a certain degree, it will be very difficult to make progress in education.

### **Systemic thinking in education**

We propose a wisdom by Edgar Morin, integrated, contextualized and responsible for the solution of practical and existential doubts. While fragmented, knowledge offers neither sense nor interest, while responding to questions and natural curiosities of the human being; it creates interest and makes sense. Thus, we agree with Senge (2009), when he puts forward the question: "Learning for what?" And replies: so that schools are able to teach students how to learn, so that public organizations are able to fulfill their role, so that companies can be innovative and creative.

In this discussion, Morin (2003), also offers us inspiration for the educator, which refers to the essential knowledge for good educational practice. We adapted his theory to the follow principles

- 1<sup>st</sup> - Knowledge - Error and illusion: Do not keep away the error from the learning process, but integrate this error to the process, so that knowledge advances.
- 2<sup>o</sup> - Knowledge - The pertinent knowledge: Join the most diverse areas of knowledge against the fragmentation.
- 3<sup>o</sup> - Knowledge - Teaching the human condition: We are not only a somewhat. We are more than cultural individuals, we are mental, physical, mythical, biological etc.
- 4<sup>o</sup> - Knowledge - earthly Identity: Know that the Earth is a small planet that must be sustained at all costs. Idea of sustainability, land-homeland.
- 5<sup>o</sup> - Knowledge - Facing the uncertainties: Uncertainty principle. Teach that science should work with the idea that there are uncertain things.
- 6<sup>o</sup> - Knowledge - Teaching for understanding: Human communication should be directed toward understanding. Introduce understanding between school departments, between students and teachers, etc.

Physics, as assigned by the educational programs, for example, is entirely based on axioms, rules presented as stable and permanent, and requires answers to questions that have never been made (Calado & Barontini, 2008).

The policies and actions related to improving access to higher degree education should be based on a holistic view of the system and all its parts - primary education, secondary and higher education - connected with the outside to meet market needs and local and global societies.

The basic or elementary school education is a challenge for Brazil - as a developing country, our goal is to educate all schoolchildren who perhaps today do not attend the classroom.

### **Final considerations**

The Global Compact is to assist the implementation of a reliability system of companies focused on corporate responsibility. The huge deficit and social inequalities in our country impart the companies social responsibility even greater relevance. Brazilian society expects companies to play a new role in the development process: they are agents of a new culture, social change motivators and builders of a better society.

In this discussion about educational goals, started in São Paulo and Rio de Janeiro, it would be suitable to consider the principles outlined here. Thus, the education project for the future will include key incentives.

International discussions of the similar importance often take place and focus on issues such as education reform and financial budget that should be applied, become more critical as time passes, since both issues are essential to overcome this deficit today.

It is important to acknowledge that well-paid and content teacher tends to reflect a good education, a range of greater knowledge and better use by converting it into quality education. Of course, it is interesting to adopt mechanisms to motivate teachers to update, performing their work more engaged and committed, such as the application of variable remuneration. But, for that, the role of the director should be emphasized, because in elementary and higher education in Brazil, there are fixed wages for class hours, with no additional bonuses for teacher performance.

The education goes beyond the classroom. Books, magazines, encyclopedias, internet, "everyday" conversations, lectures and conferences carry information, knowledge and learning in a different way, but no less important. Visits and trips to historic cities which sometimes aggregate knowledge in the classroom are not covered in much depth and / or sometimes children and teenagers do not absorb so easily what is being proposed. In Conferences, the issues are addressed with greater depth of knowledge which leads to those who are present to a superior interest to continue their studies of the subject matter.

In recent times, there has been a need for further education for business professionals. It is these people who, in some cases, in a very near future, will manage reputable companies in the market and will participate helping the Global compact, supporting the cause.

In a more institutional aspect, one self-regulation could be adopted for the education segment. Calado (2013) states that the more developed schools could suggest the best practices to be adopted by other schools. The most qualified entities could go further, helping public schools to achieve their educational performance. Does it sound too unrealistic? No. Most quality private schools in Brazil already have scholarship programs for needy students. These resources would be better allocated if the school was willing to empower the leadership and teachers at a public school, thus greatly increasing the scope and impact of its work. Another idea, even in this sense, would be to develop a seal of certification for educational institutions that would introduce in their educational process the precepts discussed here. In a certain way, the use of the seal of the Global Compact would be a kickoff, despite the parentheses (there is not a consistent audit process for the compliance of the Pact by the UN).

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# Reform and development of professional degree education in China

Lu Xiaoyu<sup>a</sup>, Zhou Wenhui<sup>b</sup>, Zhao Qinghua

<sup>a</sup> Beijing Institute of Technology, Beijing 10081, China

<sup>b</sup> Beijing Institute of Technology, Beijing 10081, China

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## Abstract

By reviewing a series of achievements that professional degree education has obtained in China, the author think that China's professional degree education has entered into a new period of strategic transition for comprehensively improving the quality as the core task. By the end of 2012 to early 2013, the Research Center for Graduate Education of Beijing Institute of Technology did an investigation on students' satisfaction with postgraduate education. Results revealed that the quality of the professional degree education needs to move forward a single step. Improving the curriculum rationality, Changing teaching methods, Adding practice base construction and strengthening the construction of the tutor team are the new horizon for future reform.

*Keywords: Professional Degree; New Horizon; Satisfaction; Quality; China*

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## 1. Introduction

In late nineteenth Century, American University for further enriched and developed modern degree system, set up professional degree. In England and Australia as representatives of the Commonwealth countries, also have formed a more perfect professional degree education system. Japan and South Korea since the 1990s, also attaches great importance to the development of professional degree education, and formed a professional degree education system independently in the short term. Today, the cultivation of high-level talents has become a global trend; professional degree education has also become an important part of many countries graduate education.

With the rapid development of Chinese economic background, the professional degree education starts to meet the social demand for high-level talents. Compared with the development of American professional degree education, which has been developed a century, China's postgraduate professional degree education belongs to a new field, there are still many aspects needs improving.

## 2. Current situation of China's professional degree education

### 2.1 The training scale is expanding constantly

In 1990, China piloted the first professional degree-MBA. By the end of 1996, there were only Bachelor and Master of Architecture, Master of Business Administration. Postgraduate professional degree accounting for the proportion of the total number of graduate's degree awarded only 0.7%. But from 1997, on-the-job personnel have been recruited to pursue a professional degree, a new field for the development of China's postgraduate professional degree education opened. From then on, the training scale is expanding constantly.

In 2009, the Ministry of Education decided to expand the recruitment of professional degree scope. Enrollment began to increase sharply. It can be seen from Table 1, the number of China's professional degree postgraduate enrollment in 2012 accounted for one-third of all enrollments, more than double the enrollment in 2009. It is expected that in 2015, professional degree graduates enrollment proportion will reach 50%. As shown in Figure 1, professional degree graduates number is also increasing.

The reasons for the expanding scale of professional degree graduates is due to the rapid development of China's social background, sustained demand application-oriented high-level personnel to produce. This makes the postgraduate education transform from cultivating academic talents training to academic talents training and applied talents training.

Table 1. 2009-2012 The number of professional degree graduates enrolment

Year	Postgraduates enrolment	Professional degree postgraduates enrolment	The Proportion of professional degree graduates enrolment ratio (%)



2009	510953	72239	14.1
2010	538177	119299	22.2
2011	560168	159942	28.6
2012	589673	198883	33.7

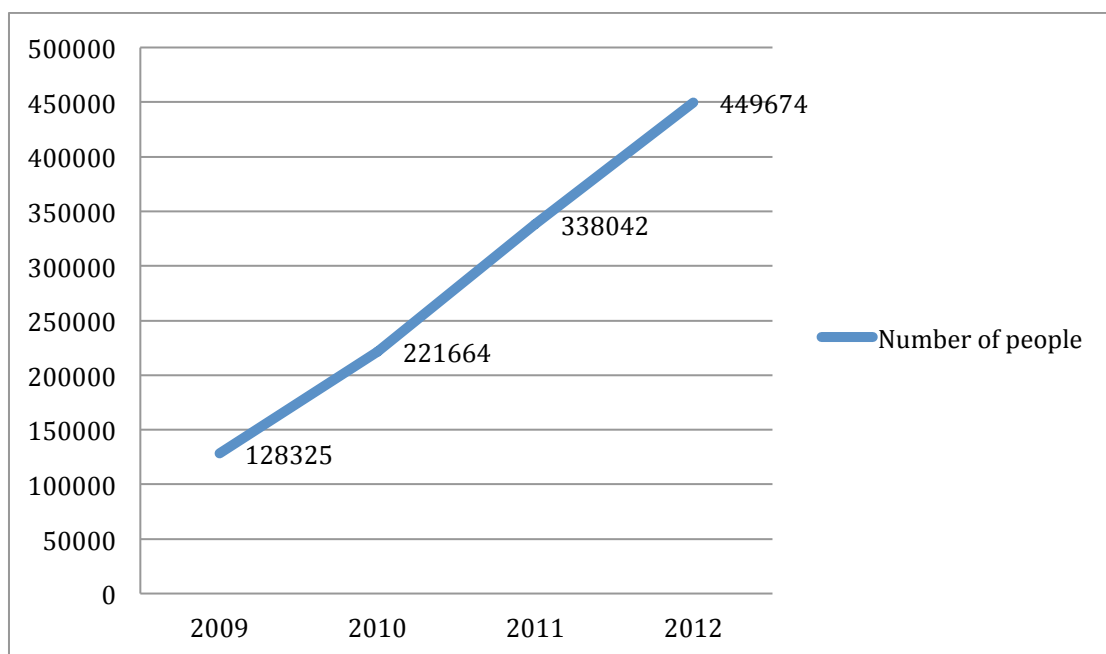


Fig. 1. 2009-2012 Professional degree postgraduates scale

## 2.2 The training types is continually enriching

From the structure point of view, 39 categories of professional degrees exist in China, including the master level 39 kinds, the doctoral level 5 kinds, and only one kind of bachelor level. Therefore, the doctoral level and bachelor level are weak, hierarchical layout is not perfect.

From the training type of view, as shown in Table II, professional degrees covering both the legal, educational, medical and other traditional career area; as well as engineering, business administration, accounting, art, sports and other modern career field. At the same time, China has also developed professional degree with Chinese characteristics, such as Master of Chinese Materia Medica, Master of Teaching Chinese to Speakers of other Languages.

But the species is still not rich enough. In the first place, there is still a certain gap between China and developed countries. As American has set up 74 kinds of professional degrees, 55 kinds of doctoral professional level degrees, have covered the country's economic construction and social development of much-needed high-level professional industries talents. In the second place, at present, the professional degree types are difficult to meet the rapid development of China's social and economic needs of high-level talents. According to the National Bureau of industry classification standard, Chinese industry can be divided into 20 categories, 98 kinds. The degree types can include Master of Design, Master of Forensic, Master of public bidding or something in the future.

Table 2. China professional degree category

Professional degree category	Abbreviation	Approved year
Master of Business Administration	MBA	1990
Master of Architecture	M.Arch	1992
Juris Master	JM	1995
Master of Education	Ed.M	1996
Master of Engineering	ME	1997
Master of Medicine	M.M.	1998
Agricultural Extension Master	MAE	1999
Master of Veterinary Medicine	VMM	1999

Master of Public Administration	MPA	1999
Master of Stomatological Medicine	S.M.M	2000
Master of Public Health	MPH	2001
Master of Military		2002
Master of Professional Accounting	MPAcc	2004
Master of Science in Physical Education	MSPE	2005
Master of Fine Arts	MFA	2005
Master of Landscape Architecture	MLA	2005
Master of Teaching Chinese to Speakers of Other Languages	MTC SOL	2007
Master of Translation and Interpreting	MTI	2007
Master of Social Work	MSW	2008
Master of Finance	MF	2010
Master of Applied Psychology	MAP	2010
Master of Applied Statistics	M.A.S.	2010
Master of Nursing Specialist	MNS	2010
Master of Taxation	MT	2010
Master of Journalism and Communication	MJC	2010
Professional Master of Pharmacy	M.Pharm	2010
Master of International Business	MIB	2010
Master of Publishing	MP	2010
Master of Chinese Materia Medica	MCMM	2010
Master of Insurance	MI	2010
Master of Cultural Heritage and Museology	M.C.H.M	2010
Master of Valuation	MV	2010
Master of Urban Planning	MUP	2010
Master of Tourism Administration	MTA	2010
Master of Policing	MP	2010
Master of Library and Information Studies	MLIS	2010
Master of Forestry	MF	2010
Master of Engineering Management	MEM	2010
Master of Auditing	MAud	2011

### 2.3 The training goal is continually clearing

Different degree types are corresponding to different training objectives. Academic degrees and professional degrees respectively correspond to the academic and applied graduate students. Application graduate students have strong business capability and are good at technical work as well as the management, operation and decision-making work. Postgraduate professional degree education based on specific working practice has a technical and practical nature. Thus all the professional degree postgraduate training objectives are emphasize the application of objective, occupational and academic unity.

Each type of professional degrees also has their own training goal, Such as Master of Finance training objectives are: Having good political quality and occupation moral accomplishment to fully understand the financial theory and Practice, mastering the

investment and financing management skills, technology and operation of financial transactions, financial product design and pricing, financial analysis, financial risk management and related fields of knowledge and skills, solving practical problems of high-level with strong financial capacity.

Many countries take professional degree as a prerequisite to engage in an occupation. In China, every type of professional degree also has a specific occupation orientation. Such as the Master of Finance (MF) career point include: Banking professionals, securities industry professionals, certified international investment analysts, actuaries, and associate financial planners. Master of Valuation (MV) career points include: price assessors, real estate values, land appraisers, real estate economics.

However, in China, apart from the MTI and M.Arch, professional degree education and vocational qualification is still not established a link mechanism. If we can establish a link system between professional degree training and vocational qualification, it can help the student’s employment and the development of enterprises.

### 2.4 The training quality is still need to improve

By the end of 2012 to early 2013,Research Center for Graduate Education of Beijing Institute of Technology launched an investigation on students’ satisfaction with postgraduate education in 37 different level and type postgraduate education institutes around China. The survey has 32 items delineated into 4 sections. A LIKEPT five-grade (very satisfied; satisfy; general; dissatisfied; very dissatisfied) scale covering course teaching, scientific research training, instructor mentoring, management &services of postgraduate education are applied in the investigation. And that aims to evaluating the quality of postgraduate education based on the perspective of students’ satisfaction. The survey of 14000 questionnaires was distributed, 10605 questionnaires were recovered, and the recovery rate is 75.8%, which surveyed 1804 postgraduate professional degree students.

The results are shown in Figure 2, generally 66.5% of professional degree postgraduates show their satisfaction for the current postgraduate education, only 6.3% of professional degree postgraduates expressed dissatisfaction. This data shows that the quality of Chinese professional degree education has been recognized by most of the students; basically meet the needs of postgraduate professional degree education of comprehensive development. But there are still 26.8% felt the quality of postgraduate professional degree education in a “general” level, 6.3% of postgraduates voted for dissatisfaction. And in the course teaching, scientific research training, management &services are still need improving the quality. It means that the postgraduate professional degree education training quality needs improving.

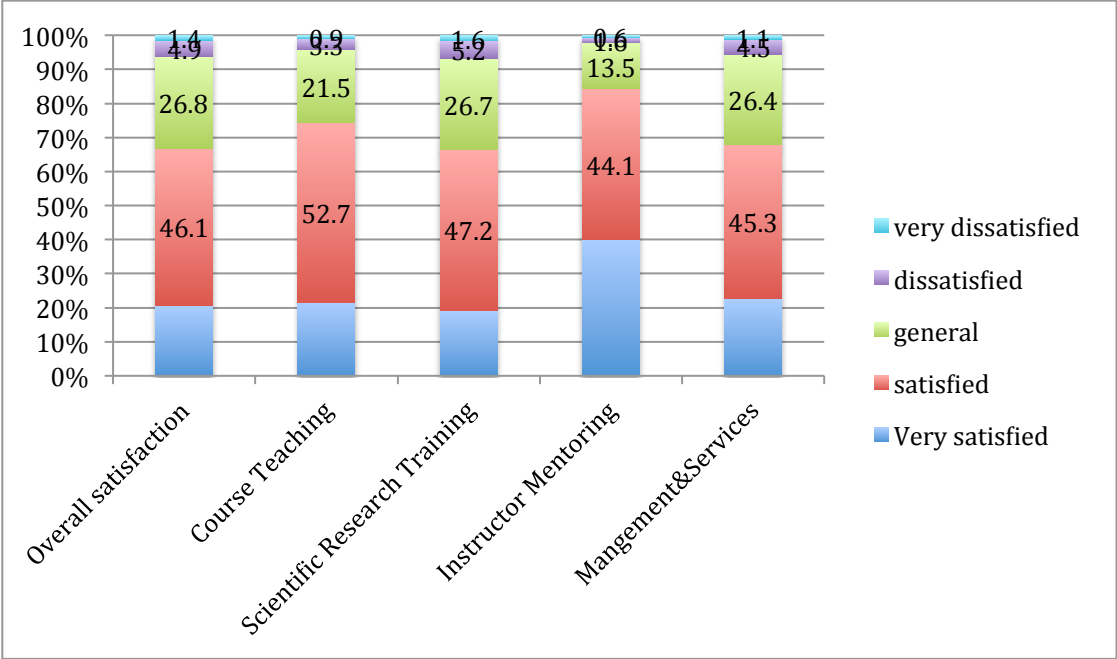


Fig.2.2013 Overall degree of satisfaction towards professional degree education

*Note: satisfaction rate refers to the proportion of “Very Satisfied” and “Satisfied” voted by postgraduates; dissatisfaction rate refers to the proportion of “dissatisfied” and “Very Dissatisfied” voted by postgraduates.*

Table 3 shows the summarized responses about course teaching. As can be seen, the satisfaction rate for curriculum system voted by professional degree graduates is less than 60%, while the dissatisfaction rate reaches 10.1%. The satisfaction rate for property of frontier of course content voted by professional degree postgraduates is only 58.1%,while the dissatisfaction rate reaches 8.6%.The results indicate that the rationality of professional degree postgraduate curriculum system and the property of frontier of course content remaining to be improved. Course teaching not fully functioned in professional degree education.

Table.3 Degree of satisfaction towards course teaching

Items	Satisfaction Rate	General	Dissatisfaction Rate
Curriculum system rationality	59%	30.9%	10.1%
Property of frontier of course content	58.1%	33.3%	8.6%

Students' evaluation on improving innovation ability and employment competitiveness from scientific research is relatively low. The results are shown in Table 4, as for the ability improvement of scientific research training, 37.2% of postgraduates think of "General", "Relatively small", or "Very small" effect on improving their innovation ability. At the same time, only 52.7% of graduates vote for "Relatively big", or "Very big" effect on improving their employment competitiveness.

Table.4 Ability improvement of research training

Items	Very big	Relatively big	General	Relatively small	Very small
Innovation ability	17.7%	45.1%	31.2%	4.3%	1.7%
Employment competitiveness	17.3%	35.4%	36.0%	8.2%	3.1%
Learning ability	25.1%	49.8%	21.6%	2.6%	0.9%
Practice abilities	23.6%	44.1%	25.5%	4.9%	1.9%
Academic accomplishment	21.2%	49.5%	25.6%	2.8%	0.9%

The survey found, the main reason why students are not satisfied with the management & services are that Double-Tutorial System and the professional practice base did not work out. In the aspect of instructor mentoring, each unit of China's Postgraduate education institute generally implemented the Double-Tutorial System, and the establishment of various forms of professional practice base. But the survey showed that only 23.2% professional degree postgraduates have an off-campus mentor; only 29.2% postgraduate enter the practice base. So that the off-campus mentors and practice bases are hardly meeting the needs.

### 3. Conclusion

At present, China has established a postgraduate professional education-training mode with Chinese characteristics. First, we should fully affirm that China's Professional degree graduate education made a series of achievements, Such as expanding scale, various training types and gradually clear training goal. Secondly, we should also be fully aware of the deep quality problems and hidden dangers existed, thus requiring the continuous reform and improvement.

By the investigation, this article believes that the professional degree postgraduate education quality should be enhance in the following aspects:

- ① To increase the postgraduate professional degree enrollment ratio.
- ② To add the professional degree types, and set up clear training objectives.
- ③ To establish the link system between professional degree training and occupation qualification.
- ④ To improve the rationality of curriculum system and the property of frontier of course content.
- ⑤ To add practice base construction.
- ⑥ To Strengthen the construction of the tutor team.

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# Relations between operational chemistry and physics problems solving skills and mathematics literacy self-efficacy of engineering faculty students

İbrahim Güneş<sup>a</sup>, Zeliha Özsoy-Güneş<sup>b</sup>, Yasemin Derelioğlu<sup>c</sup>, Fatma Gülay Kırbaşlar<sup>b</sup>

<sup>a</sup>Istanbul University, Faculty of Engineering, Department of Electrical-Electronics Engineering, Avcılar, Istanbul, Turkey

<sup>b</sup>Istanbul University, Hasan Ali Yücel Faculty of Education, Department of Science Education, Vefa, Istanbul, Turkey

<sup>c</sup>Istanbul University, Hasan Ali Yücel Faculty of Education, Department of Pre-School Education, Vefa, Istanbul, Turkey

## Abstract

The aim of this research is to study the connections between operational chemistry and physics problems solving skills and Mathematics Literacy Self-Efficacy of Engineering Faculty students. This research is designed as relational scanning model. The sample of this study, Chemistry, Chemical Engineering, Electrical-Electronics Engineering senior students taking “General Chemistry” and “General Physics” course has formed. In the study; “Mathematics usage scale in Operational Chemistry and Physics Problems” (MUSOPCP) with two factors which is developed by Özsoy-Güneş, Derelioğlu&Kırbaşlar (2011) and Mathematical Literacy Self efficacy Scale (MLSS) which is developed by Özgen&Bindak (2008) are used as tool of data collection. As a result, between MLSS scale with “mathematics anxiety in chemistry and physics problems” factor of MUSOPCP has a negative relation and with “mathematics knowledge” factor of MUSOPCP has a positive relation. The significant differences were found between the department with “mathematics anxiety” factor score of MUSOPCP and between the gender with “mathematics knowledge” factor score of MUSOPCP. The significant differences weren't found between the gender, department and graduated secondary school with MLSS scales.

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**Keywords:** Learning skills, study approach, profoundly learning, superficial learning.

## Introduction

Engineering education should be designed according to this approach: equipped with basic knowledge and skills in the field of, analysis, synthesis, design capable, have acquired the habit of lifelong learning to educate individuals (Ertepinar, 2000). Engineering education should be based on a strong science and mathematics education. On the other hand, a well-trained engineer to issues outside their own discipline is often emphasized in familiarity.

Success is not simply based on the possession of necessary skills for performance; it requires the confidence to use these skills effectively. The belief of self-efficacy affects the perception, motivation and performance of a person. One of the most important reasons of students' failures in physics and chemistry problem solving is calculation based problems. Students' attitudes, self-efficacy and motivation are variables which play an important role in this type problem solving.

Mathematic literacy is the capacity of the individual as thinking, producing and criticizing citizen to think mathematically when solving problems to be encountered in the future and when making decisions by understanding the role of mathematics in the world and their surroundings (OECD, 2006). Mathematical literacy is the ability of students to solve problems, to analyze, to judge and to find effective solutions in different situations and fields. Mathematics, symbols and language teaches us to interpret life. Mathematical literacy however maintains mathematical skills that can be used in daily and social life (Özgen&Bindak, 2008).

Problem solving is an action has a wide range of mental processes and skills when reached the correct conclusion (Altun, 2002). An individual with advanced problem solving skills can effectively use knowledge and can easily solve the problems encountered (Altun, 2010).

Mathematics anxiety is the state of tension preventing us from using the numbers and finding the solutions for Mathematics Problems in daily or academic life or it is the illogical state of terror lowering their performance in Mathematical Thinking, consequently impeding their learning (Miller & Mitchell, 1994). The negative attitude adopted against Mathematics can be seen as an important factor preventing the outcome of Mathematics ability in students.

\* Corresponding author: İbrahim Güneş Tel.: +0-212-440-00-00.

E-mail address: gunesi@istanbul.edu.tr

## Aim of the Research

The aim of this research is to study the connections between operational chemistry and physics problems solving skills and Mathematics Literacy Self-Efficacy of Engineering Faculty students.

The Problem Statement: Is there a connection between operational chemistry and physics problems solving skills and Mathematics Literacy Self-Efficacy of Engineering Faculty students?

Sub Problems:

1. What are the levels of operational chemistry and physics problems solving and mathematics literacy self-efficacy of students?
2. How do students' levels of operational chemistry and physics problems solving and mathematics literacy self-efficacy vary according to the varieties of gender, department and graduated secondary school?
3. Is there a connection between operational chemistry and physics problems solving skills and Mathematics Literacy Self-Efficacy of Engineering Faculty students?

## Methods of the Research

In this study, quantitative research method and relational screening model has been used.

### *Sample of the Research*

The sample of this study is formed by 214 senior students taking “General Chemistry” and “General Physics” course from departments of Chemistry, Chemical Engineering and Electrical-Electronics Engineering at Engineering Faculty. 58 of Students (27.1%) are from the department of Chemistry, 99 of them (46.3%) are from the department of Chemical Engineering, and of 57 them (26.6%) are from the department of Electrical-Electronics Engineering, 119 of students (55.6%) are female and 95 of them (44.4%) are male.

### *Data Collection Instruments*

For research a three fold form has been created. In the first part personal data like the gender, department and graduated secondary school have been collected. Second part includes Mathematics usage scale in Operational Chemistry and Physics Problems (MUSOPCP) scale which is developed by Özsoy-Güneş, Derelioğlu&Kırbaşlar (2011) for define mathematics usage inclinations in operational chemistry and physics problems of students. . Third part includes Mathematical Literacy Self efficacy Scale (MLSS) which is developed by Özgen&Bindak (2008).

Mathematics usage scale in Operational Physics and Chemistry Problems (MUSOPCP): MUSOPCP formed by 10 statements requiring “yes”, “no” and “neutral” as choice of answers is a three-point likert scale.

Following the factor analysis, it is noticeable that the scale is in two factor structure and disclosed total variance is 46.864 %. These factors are defined as: 1.Mathematics anxiety in Operational Physics and Chemistry Problems, 2.Conceptual knowledge and Mathematics knowledge relation in Operational Physics and Chemistry Problems. First factor consists of the statement numbers 2, 4, 5, 7, 9, 10; second factor consists of the statement numbers 1, 3, 6, 8. Total cronbach of the scale is  $\alpha=.713$  and cronbach for the first factor “Mathematics Anxiety in Operational Physics and Chemistry Problems” is  $\alpha=.720$ ; cronbach for the second factor “Concept knowledge and mathematics knowledge connection in Operational Physics and Chemistry Problems” is  $\alpha=.675$ . Students' responses to substances, “yes” option 3, “neutral” option 2, “no” option is given 1 point. The minimum and the maximum score that can be taken from the scale are between 6-18 for the first factor, 4-12 for the second.

Mathematical Literacy Self efficacy Scale (MLSS): Mathematical Literacy Self efficacy Scale (MLSS) developed by Özgen&Bindak (2008) the reliability coefficient is defined as cronbach  $\alpha=.942$ . 25-item scale consisting 4 Negative (6, 9, 18, 22) items was prepared as five-point Likert type scale. The response range of the scale is from “definitely disagree” (1), “disagree” (2), “uncertain” (3), “agree” (4) to “completely agree” (5). Factor analysis of the questionnaire responses using Principal Component Analysis resulted in 25 items which loaded on one factor. Explained total variance of MLSS was found as 59,475 %. The minimum and the maximum score that can be taken from the scale are between 25-125.

### *Analyzing Data*

SPSS 16.00 is used to analyze the data. ANOVA, independent t-test and Post-Hoc test techniques have been conducted to monitor the scores taken from the scales in terms of demographic varieties. PEARSON correlation coefficient analysis technique is applied in order to observe the relations between scales. In all statistical processes significance at a level of .05 has been sought.

## Findings

The research findings are evaluated in the context of sub-problems.

Sub-Problem 1. What are the levels of operational chemistry and physics problems solving and mathematics literacy self-efficacy of students?

The minimum and the maximum score that can be taken from the MUSOPCP scale are between 6-18 for the first factor, 4-12 for the second and 10-30 for the total score. In this study, Students' average score for the first factor which is Mathematics Anxiety in Operational Physics and Chemistry Problems is found as 9.1028; and average score for the second factor which is Concept Knowledge and Mathematics Knowledge Relation in Operational Physics and Chemistry problems is found as 11.5888. The minimum and the maximum score that can be taken from the MLSS scale are between 25-125. In this study, the taken total MLSS scale score was calculated as 92.7150. (Table 1).

Table 1. Distribution of scores of students taken from MUSOPCP according to the factors and MLSS Scale

Scales Score		X	SD	SE
MUSOPCP	1 <sup>st</sup> Factor	9.1028	2.74737	.18781
	2 <sup>nd</sup> Factor	11.5888	1.06108	.07253
MLSS Total Score		92.7150	9.96699	.68133

Sub-Problem 2. How do students' levels of operational chemistry and physics problems solving and mathematics literacy self-efficacy vary according to the varieties of gender, department and graduated secondary school?

As in table 2, as a result of independent group t-test applied to define whether the scores taken from the MUSOPCP factors differentiate according to the gender variable; for the second factor score the difference between the arithmetic average of the groups have been found statistically significant. Female students' score average is significantly higher than the Male students ( $p < .05$ ). The result of independent group t-test applied to define whether the scores taken from the MLSS Scale differentiate according to the gender variable; for the MLSS Scale total score the difference between the arithmetic average of the groups have not been found statistically significant ( $p > .05$ ).

Table 2. The results of Independent group t-test of the scores taken from MUSOPCP factors and MLSS Scale according to the gender variable of students.

Score	Group	N	X	SD	SE	t-test		
						t	df	p
MUSOPCP	1 <sup>st</sup> Factor	Female	119	9.1008	2.85644	-.012	212	.991
		Male	95	9.1053	2.61938			
	2 <sup>nd</sup> Factor	Female	119	11.7395	.69456	2.198	132.026	.030
		Male	95	11.4000	1.37144			
MLSS Total Score	Female	119	92.3025	9.57447	.87769	-.677	212	.499
	Male	95	93.2316	10.46621	1.07381			

As seen in table 3 as a result of ANOVA which is done in order to determine whether the scores taken from the first and second factors show a significant difference according to the academic department variable; for the first factor scores the difference between the arithmetic average of the group has been found statistically significant but the difference is found out to be insignificant for the second factor. Following this process Post-Hoc analysis techniques are started to be applied.

After ANOVA, conducted to define how first factor score changes among sub-groups, considering the academic department variable; LSD test is chosen among the post-hoc analysis techniques upon seeing: group variance is found not homogeny for the first factor according to the Levene's test applied ( $L=4.010$ ,  $p < .05$ ).

Table 3. The results of ANOVA of the scores taken from MUSOPCP factors and MLSS Scale according to the academic department variable of students.

N, X and SD Values					ANOVA Results					
Score	Group	N	X	SD	Var. K.	SS	df	MS	F	p
MUSOPCP 1 <sup>st</sup> Factor	Chemistry	58	8.0862	2.59070	Between	139.217	2	69.609	10.002	.000
	Chemical Engineering	99	9.9394	2.97890	Within	1468.521	211	6.960		
	Electric-Electronics Engineering	57	8.6842	1.96540	Total	1607.738	213			
	Total	214	9.1028	2.74737						
MUSOPCP 2 <sup>nd</sup> Factor	Chemistry	58	11.5517	1.20193	Between	.708	2	.354	.312	.732
	Chemical Engineering	99	11.5556	1.05194	Within	239.105	211	1.1335		

	Electric-Electronics Engineering	57	11.6842	.92886	Total	239.813	213		
	Total	214	11.5888	1.06108					
MLSS Total Score	Chemistry	58	93.0172	10.30669	Between	40.469	2	20.234	
	Chemical Engineering	99	92.2525	9.08839	Within	21119.143	211	100.091	
	Electric-Electronics Engineering	57	93.2105	11.15594	Total	21159.612	213		.202 .817
	Total	214	92.7150	9.96699					

As a result of this test it has been stated that Chemistry Engineering students get a higher significant level of score for the first factor than Chemistry and Electric-Electronics Engineering students.

As a result of ANOVA which is done in order to determine whether the scores taken from the MLSS Scale show a significant difference according to the academic department variable; for the scale total score the difference between the arithmetic average of the group has been found to be insignificant statistically.

As a result of ANOVA which is done in order to determine whether the scores taken from the MUSOPCP factors and MLSS Scale show a significant difference according to the graduated secondary school variable; for both scale and factors scores the difference between the arithmetic average of the group has been found to be insignificant statistically.

Table 4. The results of ANOVA of the scores taken from MUSOPCP factors and MLSS Scale according to the graduated secondary school of students.

N, X and SD Values				ANOVA Results						
Score	Group	N	X	SD	Var. K.	SS	df	MS	F	p
MUSOPCP 1 <sup>st</sup> Factor	General	66	8.5455	2.45690	Between	37.823	2	18.912		
	Anatolian	88	9.5455	2.90425	Within	1569.915	211	7.440		
	Other	60	9.0667	2.74243	Total	1607.738	213		2.542	.081
	Total	214	9.1028	2.74737						
MUSOPCP 2 <sup>nd</sup> Factor	General	66	11.4091	1.28874	Between	3.209	2	1.605		
	Anatolian	88	11.6932	.88873	Within	236.604	211	1.121		
	Other	60	11.6333	1.00788	Total	239.813	213		1.431	.241
	Total	214	11.5888	1.06108						
MLSS Total Score	General	66	92.8182	11.66574	Between	232.447	2	116.223		
	Anatolian	88	91.6364	9.43359	Within	20927.165	211	99.181		
	Other	60	94.1833	8.57567	Total	21159.612	213		1.172	.312
	Total	214	92.7150	9.96699						

Sub-Problem 3. Is there a connection between operational chemistry and physics problems solving skills and Mathematics Literacy Self-Efficacy of Engineering Faculty students?

As a result of Pearson Multiplication Momentum Correlation Analysis, conducted to define the relations between the MUSOPCP factors and MLSS Scale; MUSOPCP 1st Factor score and MLSS Scale score, have a significant negative (Table 5).

Table 5. Pearson Multiplication Momentum Correlation Analysis Results conducted to define relations of the scales and factors.

	MUSOPCP		MLSS Total Score
	MUSOPCP 1 <sup>st</sup> Factor	MUSOPCP 2 <sup>nd</sup> Factor	
MUSOPCP 1 <sup>st</sup> Factor	X=9.1028 SD=2.74737 N=214	r=-.177(**)	r=-.310(**)
MUSOPCP 2 <sup>nd</sup> Factor	-	X=11.5888 SD=1.06108 N=214	r=.030
MLSS Total Score	-	-	X=92.7150 SD=9.96699 N=214

## Results

In this study, the students' Mathematics Anxiety in Operational Physics and Chemistry Problems factor average scores which is the first factor of Mathematics Usage Scale in Operational Physics and Chemistry Problems is close to minimum score that can be taken. Concluding from this result it can be stated that, though under the average, students have a higher level of anxiety than expected. The second factor Conceptual knowledge and Mathematics Knowledge Relation in Operational Physics and Chemistry average score of students is close to maximum score that can be taken. This result gives us the conclusion that the students are conscious of Conceptual knowledge and Mathematics Knowledge Relation in Operational Physics and Chemistry but they have higher Mathematics anxiety than expected while solving operational Physics and Chemistry problems. Czerniak&Chiarelott (1984) showed that higher level of science anxiety accompanies lower success in science. Research by Babayeva (2000) indicates a significant relation between student's ability to solve algorithmic problems and learning Chemistry concepts.



Researches can be found related to the necessity of operational problems and concept knowledge (Zhang & Watkins, 2001; Erdemir, 2009).

For the second factor of MUSOPCP the level is significantly higher for the female students in comparison with the male students. Sezgin, Çalışkan, Çallica, Ellez&Kavcar(2000) in their research conducted to find out problem solving strategies of university students having science lessons, indicated that there is no difference between the strategy preference of males and females and also between the students of Physics, Chemistry, Biology and Science Departments.

The score averages of MUSOPCP factors of the students don't significantly differentiate according to the graduated secondary school variance.

In this study, students' Mathematical Literacy Self efficacy levels were seen to be above average. It has been found out that the averages of students' total scale of MLSS Scale do not differ according to gender, the academic department and the type of graduated secondary school variances. Research by Akkaya&Sezgin-Memnun (2012), studies of teachers for gender has been determined that there is not significant difference. The studies of Akkaya&Sezgin-Memnun (2012) and Güneş&Gökçek (2013); there are significant differences between departments. In some studies the Mathematical Literacy Self efficacy levels has been found to be associated with the graduated secondary school variance (Schnulz, 2005; Yenilmez, 2010; Özgen&Bindak, 2011).

Between Mathematics Anxiety in Operational Physics and Chemistry Problems factor average scores which is the first factor of Mathematics Usage Scale in Operational Physics with Chemistry Problems and Mathematical Literacy Self efficacy Scale, have a negative significant relation.

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# Relationship between the national survey of development of students (ENADE) and testing of sufficiency federal council of accounting (FCA).

\*Emilio Maltez Alves   \*Filho Mariano Yoshitake   \*Jose Antonio Arantes Salles

*\*Rua Dr. Gerino de Souza Filho, 420 – 42700-000. Lauro de Freitas, estate of Bahia/Brasil. .*

*\*Faculdade Alfa, Av. Perimetral Norte, nº 4129 Vila João Vaz - Goiânia-GO 74445-190, Brazil*

*\* Faculdade Alfa, Av. Perimetral Norte, nº 4129 Vila João Vaz - Goiânia-GO 74445-190, Brazil.*

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## Abstract

The aim of the paper is to investigate to what extent the performance of students in the National Examination of Accounting Students (ENADE) relates to the Examination of the Sufficiency Federal Accounting Council (ES / FCA). The methodology used is empirical and theoretical, with the use of quantitative techniques. The results show that the performance in ENADE in 2009 had a fit (62.33%) on the rates of passing the examination of the FCA 2011, with a beta of 21.76%. It follows the performance ENADE has a significant relationship with approval ratings in the examination of the sufficiency of the FCA in Brazil.

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\* Corresponding author. Tel.: +55-11-953010545.

*E-mail address:* jose.salles@alfa.br

## 1 . INTRODUCTION

Since the early 1990s have been repeated actions of governmental regulators and inspectors of education in Brazil , particularly in higher education , to promote the accreditation and certification of the quality of that training level through the establishment and improvement of tests for measuring performance and certification of the profession.

Accounting courses in general have gotten a poor performance, judging by the results obtained in the forms of assessment and accreditation existing today in Brazil: ENADE and examination of the sufficiency of the FCA. In the 90s, the Brazilian government established, through the Ministry of Education and Culture (MEC), instruments to regulate, supervise and evaluate the performance of higher education (Souza & Machado, 2011). This action became necessary in view of the increasing privatization of higher education in the country, started in the late 80s , due to neoliberal policies ( Santos, 2010).

This process resulted in a significant increase in the number of Higher Education Institutions (HEIs) and undergraduate courses in the country, pressing the demand for university lecturers, substantially boosting this job market, but prioritizing quantity over quality. In the case of undergraduate accounting, the number of courses increased from 194 (1986), to 1241 (2011) (Brazil, 2012a; Gee, 2003)

These data reinforce the need for verification and control of the quality levels of training counter. On June 11, 2010, according Kounrouzan (2012 ), with the enactment of Law No. 12,249 (Governing Law of Accounting) , examination of

sufficiency ( ES ) went again to be held by the Federal Council of Accounting System ( FCA ) which ensures a priori the minimum certification of professional quality Counter .

The 1st Exam Result Sufficiency FCA (ES / FCA) in 2011 , since its suspension in 2004 , recorded a 30.8 % approval . Subsequent data from CFC (2013 ) show approval ratings below: 2nd exam 2011 ( 58.2 % ) ; 1 examination , 2012 (47.2% ) ; 2nd exam 2012 ( 26.5 % ) ; and 1st exam of 2013 ( 35.6 % ) . These results generally suggest little relevance performances that seem to reveal a fragile accounting education in the country , similar to what has happened in other Western countries , like the U.S., according to study by Albrecht and Sack ( 2000 ) , discussed later in literature review.

From another angle, all Accounting courses (recognized and / or allowed) in the country , only 722 achieved a score ENADE in 2009 , according to data from INEP (2012 ) : 114, 608 public High Educational Institutions (HEIs) and private HEIs . ENADE of concepts ranging from 1 to 5, 46.5 % of public HEI obtained above concept of three, whereas only 16.6% of the private institutions achieved this performance. With these data, it is possible to suggest two things: the decline in accounting education and precariousness of private education in relation to the public.

Besides the above, there was a recommendation from Santos (2012), in a previous study, researchers sought to determine whether there is significant difference between the academic performance of students participating in the ENADE and the result obtained in Exam Sufficiency, promoted by the FCA. The reflections contained in all preceding context served as justification for the formulation of the guiding question of this research: to what extent the performance ENADE relates with approval ratings in the examination of the sufficiency of the FCA, taking into account the concepts obtained in these exams?

The aim of this study therefore was to ascertain to what extent the performance ENADE relates with approval ratings in the examination of the FCA, based on the grades obtained in these examinations. Besides ENADE, we sought to identify other variables that could enhance the explanatory power of implication on the rate of passing the examination of the sufficiency of the FCA.

The study hypothesis is that the approval ratings of the test of sufficiency of the FCA system is positively influenced by the performance of students of the Accounting exam ENADE , ie , a good performance in ENADE implies a greater possibility of success in the exam sufficiency of the FCA .

## 2 . LITERATURE REVIEW

The (or accreditation) of education in the country accounting certification systems similar to those of other countries of the Western world, of course with the existence of peculiarities of each country. In Australia, the accreditation process is often used to improve the quality of programs provided by the institution. However, its value is mainly dependent on the ability of the faculty to the accrediting institution providing some form of market advantage. Basically, accreditation is a mark or symbol used by schools accounting or business to inform the market - students, businessmen, teachers and others that their education programs fall into some global quality standards (Light body, 2010). Another highlight is that the fall in the levels of quality of accounting education, cited above, is not only a reality in Brazil. Albrecht and Sack (2000), in his classic study, have already proven this decline in accounting education in the U.S. itself. The authors criticized the accounting education the way he was being held in the USA in the year 2000 gone the first arguments were used in their criticism.

[...] The current accounting education suffers from many serious problems and our concern is that if these problems are not addressed seriously, they will lead to the disappearance of accounting education. [...] Leaders in Accounting and practicing accountants are telling us that accounting education, as is currently structured, is outdated, broken, and needs to be modified significantly. (Albrecht & Sack, 2000, p. 1).

In the 2000s some U.S. scandals (Enron, WorldCom , Arthur Andersen and others) showed a striking manner the need for an overhaul in the standards and legal accounting procedures, resulting in the improvement of science and better education accounting .

What changes are needed in education in accounting to make it look more professional? It is a question made by Zarkasyi (2009), based on the phenomena happened in the U.S. and its developments. He also comments that the accounting education currently faces a significant challenge: education aims to train young people who will work in increasingly intensive firms in advanced information technologies to monitor the continuous organizational changes. New products and services will emerge, requiring new procedures and judgments with respect to the accounting process. According to Chang and Sun (2008), the quality of continuing education in accounting depends on the competence and the availability of faculty to attract the best students in accounting. Although enrollment of students in higher education continue to grow , the quality of accounting education is threatened due to lack of qualified teachers in the area . The decline in the quality of accounting education is evident; many universities and colleges are dealing with the shortage of teachers, hiring alternatively, assistant professors of accounting ( Sun & Chang , 2008) . In contrast , Marin , and Casa Nova Lima (2011 ) , were more optimistic about the current line-up counter in Brazil , by claiming that , as a result , mainly , of the phenomenon of globalization and the quest for harmonization of international accounting standards , the accounting profession has been valued . However , according to the authors , this change brought the trailer, larger

market requirements in relation to the counter , such as : use of complex quantitative methods for analysis and simulation projects , leadership skills and socializing with cultural differences , critical analysis , need to learn foreign languages and a professional image of ethics and efficiency . In a recent article in USA, Clark and Latshaw (2012 ) cite Kerin (2002); Tucker et al. ; (2003); and Visser et al. (2006 ) , who observed that over the last forty years , the teaching profession has sought increasingly to identify and refine the focus of the teaching- learning in the learning styles of students . The main conclusion is that teachers should adjust their teaching styles to accommodate learning styles of students, aiming to continually improve student performance.

This type of effort has been going on with honorable exceptions in accounting education in Brazil, mainly in the southeast and southern regions, and more frequently , in large public and private universities . However, this decentralization of quality education still has a long way to go , is what it claims Rafael Villas Boas at UNB ( Brazil de Fato, 2012) argues that when compared with their Latin American counterparts , the Brazilian university , despite their islands of excellence , is far from corresponding to the demands for consistent size of its population and its territory education. According to Souza and Machado (2011), before the current evaluation phase of higher education in the country , various proposals and programs have emerged . Should be highlighted: the Assessment Program of the University Reform (PARU), 1983; and the proposal to review the draft of the Executive Group of the Education Reform

(GERES), 1986 . All these programs predate the enactment of CF/1988. Also according to these authors, in 1993 we implemented a program of Institutional Evaluation of Brazilian Universities (PAIUB) . The PAIUB prescribed self-assessment as the first step of the process, once begun, was deployed for the entire institution, complemented by an external evaluation . But PAIUB was short lived. There was also in the path , known as *prova*o National Course Examination (ENC) , which was made possible in 1996 a survey applied to learners between 1996 and 2003 , and was, according to Souza and Machado (2011 ) , evaluating courses in higher graduation specifically regarding the results of the teaching- learning process . On the quality of performance of teachers, Olak Alves , Corrar and Slomsky (2012 , p.3 ) emphasize that:

Initially, you should be aware that the central goal of undergraduate students is learning, and the teacher, therefore, should be part of this teaching-learning process, not just the teaching process, because the emphasis should be on student learning and not the transmission of knowledge from the teacher.

Another survey gauging the quality of teaching is ENADE , an instrument created according to INEP (2012 ) and Brazil ( 2012b ) , the enactment of Law No. 10,861 , of April 24, 2004 , which established the National Evaluation System Higher Education (SINAES) . The concept and purpose of ENADE are defined in Article 5 ° of the same law, which states that the evaluation of the performance of students of undergraduate courses will be determined based on the National Examination for Students - ENADE. The following paragraphs clarify a bit more : § 1 The ENADE will benchmark student performance in relation to the syllabus laid down in the curriculum guidelines of their undergraduate degree , their ability to adjust to the demands arising from the development of knowledge and skills to understand their issues outside the specific scope of their profession , linked the Brazilian and global reality and other areas of knowledge . [ ... ] § 3 The maximum frequency of application of ENADE students of each undergraduate course will be triennial.

This aspect of the validity of ENADE be triennial gave validity to the decision of the concepts ENADE 2009 is used, compared with approval ratings in January 2011. Already proficiency exams FCA system are held twice a year, under the law then current . Another indicator is the CPC (Preliminary Concept Course) which, according to INEP (2012) , aims to evaluate the contribution of the course for the training of their students .

The CPC binds various measures relating to the quality of the course: the information infrastructure and physical facilities, teaching - learning resources and faculty offered for a course ; the performance obtained by graduates and students entering the ENADE ; and the results of the indicator Difference between Observed and Expected Performances ( IDD ) . Altogether there are eight components eight measures of quality of the course. The formula for obtaining this concept, according to INEP (2009) Technique -17- 12-2009 CPC - Note is as follows:

All notes were processed using statistical techniques to default the result (quantitative continuous variable) between 0.0 and 5.0 could later be converted into a discrete concept, 1-5, as the following table:

All notes were processed using statistical techniques to default the result (quantitative continuous variable) between 0.0 and 5.0 could later be converted into a discrete concept, 1-5, as the following table:

Table 1: Determination of discrete concepts of CPC

Continuous Value of CPC	Continuous Value of CPC
0.0 to 0.94	1
0.95 to 1.94	2
1.95 to 2.94	3
2.95 to 3.9	4
3.95 to 5.00	5

Source: Data from INEP 2011

The determination of discrete concepts ENADE follows the same logic of the determination of the discrete concepts of CPC seen in the table above. Currently only the INEP promotes quality validation of IES and its courses, publishing a number of other indicators such as infrastructure, teachers and students, unlike the FCA has not released further their statistics by state approval since resumed the exam.

### 3. METHODOLOGY AND PROCEDURES USED

Was used in this study, an empirical, theoretical methodology, quantitative in nature, using descriptive and inferential statistics. Although the main objective was to verify the relationship between performance on ENADE and examination of FCA, we sought to identify other variables related to education to try more explanatory power for the change in approval ratings in the CFC by state. In regression analysis, it was considered as a dependent variable the change in approval ratings in the examination of the sufficiency of the FCA. A descriptive analysis of these variables to identify and eliminate those with linear associations below 0.30 therefore unsuitable for the study (Favero, Belfiore, Silva & Chan, 2009) was performed. Then a simple regression using only the two main variables of the research was conducted. The level of significance was set at 5 % and the proposed model is  $Y = \alpha + \varepsilon + \beta.X$ . Further, we performed a multiple regression to verify that the additional independent variables could contribute to the study. Later used to factor analysis (FA) to reduce the number of variables, and eliminate any issues of multicollinearity. Two new variables were created to perform the factor analysis, the first named FAC.APROV.X; and the second, called FAC.APROV.Y. Finally we performed a simple regression with the last factor found.

#### 3.1. Characterization of the population, sample and explanation of the variables used in the study.

The study consisted of a population of HEIs in Brazil possessing undergraduate degrees in Accounting. The sample population comprised primarily of IES, using the criterion of obtaining valid score in ENADE in 2009 (722 IES), distributed by the twenty-seven Brazilian states. The option for continuous concepts and ENADE CPC held the level of accuracy that the work aims to achieve, given the significant gap between the discrete and continuous concepts. After collecting and analyzing the descriptive statistics for the data from each State, it was decided to determine weighted averages by state for both ENADE concepts as for the CPC to be more representative, given that each course participates with quantities of students very different between the HEIs.

The seven (7) independent variables considered in the study are arranged as follows:  
Figure 1 - Independent variables used in the study.

ENADEMED	Indicator ENADE / INEP continuous (Weighted Average by dealunos number that enabled the ENADE by state.
CPCMED	CPC / INEPcontinuous Indicator (Weighted Average by Students that enabled the ENADE per state) of IEs with undergraduate degrees in accounting.
QAluMed	Number of students attending the school average in 2005, by state.
QCursos	Discounts courses degree in accounting by state in 2010.
InvEduMed	Average investment in education per student in 2005, by state.
RendaMe	Income per capita by state media in 2009.
IDH	Indices of human development in 2008, by state (only ones available at the time).

The collected data and their sources are explained as follows: the ENADEMED and CPCMED were determined from data obtained from original INEP (2012). The QAluMed, QCursos, InvEduMed and RendaMe variables were obtained from original data related to education (Brazil, 2012c); and HDI variable was obtained from the website Brazil School (2012). At the end of the methodological procedures and consistency tests, we managed to get just one factor, based on three independent variables, but that proved irrelevant results in linear regression compared to the first regression between performance on ENADE and approval rates in ES / FCA. These results are in the following topic.

### 4. ANALYSIS OF RESULTS

Of variables subjected to correlation, only five independent variables were given appropriate values for subsequent steps being discarded HDI and InvEduMed.

Then, the first simple regression was performed, yielding an  $R^2$  of 62.33 %, a specimen was as follows:

$$Y = -0.219 + 0.218 \cdot X + \varepsilon (1)$$

I.e. means that for every increase in ENADE concept obtained by IES from 2, a possibility of 21.8 % of students achieve success in the examination of the FCA.

Following a multiple regression analysis with five independent variables was performed, but the results were insignificant. In view of this, it was performed a factor analysis (FA), the KMO test was 0.784, ensuring its validity.

With this result, it became a new simple regression, yielding the following expression:

$$Y = -0.258 + 0.091 X + \varepsilon (2)$$

Where  $FAC.APROV.X = 0.091$  or 9.1 %

However, the results were inadequate;

A new factor analysis, excluding the lowest variable linear correlation with APROVMED variable was then performed. The AF has been validated by KMO test value approximately equal 0.7. Finally a simple regression analysis, where  $R^2 = 66.6\%$ , the expression of which is described below was performed:

$$Y = -0.258 + 0.093 X + \varepsilon (3)$$

Where  $FAC.APROV.Y = 0.093$  or 9.3 % However, when comparing the results of two regressions: a (1) to (3), we find:

The marginal benefit from the inclusion of two additional variables beyond converted to ENADEMED factor variable has no bearing on the first regression. Additionally, the beta of the latter regression was negligible compared to the first regression. In short, although attempts to include other variables in the study were made, only the first regression was satisfactory, that is, their results were not significant compared to the last regression because only one independent variable (ENADEMED) was obtained significant explanatory power, suggesting an influence on the variation in pass rates in ES / FCA, combined with a significant beta (21.76 %), although it cannot claim to be a relationship of cause and effect between these two variables. One can finally conclude that the performance in ENADE has a significant positive relationship with the functional examination of the FCA in the analyzed period, partially confirming the hypothesis of the study, i.e., the two tests are significantly associated. Although one cannot say categorically that the performance in the ENADE influences the results obtained in the examination of the sufficiency of the FCA, it is possible to suggest that obtaining a good performance on the exam entails ENADE obtain greater possibility of achieving similar performance in examining the sufficiency of the FCA.

## 5. CONCLUSIONS

The aim of this study was to determine to what extent the performance ENADE relates with approval ratings in the examination of the FCA, taking into account the grades obtained in these examinations. Answer to the research question: student performance in ENADE has a significant positive relationship with the functional variation approval ratings in ES / FCA of 62.33 %, partially confirming the basic hypothesis of the study. The inclusion of more variables, glimpsing more leverage this degree of involvement, proved ineffective in terms of cost-effectiveness. Besides the previous paragraph, it follows, referring to the suggestion made by Santos

(2012), there is no significant difference between the academic performance of students participating in the ENADE compared to the result obtained in Exam Sufficiency FCA. On the contrary: there is a significant functional relationship between the two tests.

By analyzing the regression coefficients (the constant was negative, -0.2187, and the independent variable was positive, 0.2176), we can say, in theory, that getting notes on ENADE (either individually or by HEIs state) ranging between 0 and 1 would be correlated with a failure in ES / FCA. But from the note 2 based on discrete concepts ENADE, each additional point obtained in the examination of ENADE, there would be a proportional relationship of increase of 21.76 % in the number of approvals in ES / FCA.

Some of the references used in this study sought to present: a) the contrast between the decline in the quality level of teaching Accounting courses in Brazil, b) through some research abroad, sought to show that the decline in the quality of accounting education and certification of the learning process of these courses are also problems in many Western countries, based on the U.S., Australia, among others; and c) an historical overview of the evolution of benchmarking tests and certification of higher education, in particular, the Accounting courses in Brazil;

To answer the research question, an extensive database of INEP (2012) was used, covering all IEs have Accounting courses in the country and have received ENADE score in 2009. This exam is conducted every three years to a number of upper-level courses. The next examination of ENADE for courses in Accounting happened in late 2012 and its results were not made available until late in the second half of 2013.

After a process of appropriateness of the original database INEP and the identification and exploration of other variables that could contribute to the desirability of research, statistical techniques for the processing of data were defined. We used a combination of these tools, involving descriptive and inferential statistics, using in the latter case an integration of the techniques of simple and multiple linear regression, combined with factor analysis. The findings were positive in some aspects: a) the novelty of the subject, since any work that addressed this specific issue was

not found; b) as already mentioned in the introduction, it was found that there was a recent thesis Santos (2012) recommended that an issue that also served as justification for the formulation of the research

problem; c) it is expected that the results may encourage the development of similar assignments, aimed at: improving throughout the country, the level of quality of the teaching- learning process; and promote greater openness of certifying agencies, especially the Federal Accounting Council, for a wide dissemination of statistical and dynamic approval of their proficiency exams not only by state but also by HEIs. Finally, the higher the distribution of statistics and information on the performance of education in the country, the greater the contribution of empirical work that may increase the real possibilities of improving the quality of education, not only the upper, as the levels of base produce the "raw material" for HEIs.

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# Relationship of modernism, postmodernism and reflections of it on education

Ayşe Derya Kahraman<sup>a</sup>

*Practical Arts, Graphic Department*

*K.T.O. Karatay University, Karatay-Konya and 42020-Turkey*

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## Abstract

Making Modernism and Postmodernism a different sense of social life caused creation of different life and thinking styles. Modernism as a result of enlightening after the 18th century has taken its place in every area of the society. Post modern word has been defined as the further level of modernism. Every two kind of thinking styles have been effective at every point of life , also it affected education. Main elements of modern culture and postmodern education are combined and are being integrated with educational programs. The relationship of modernism and postmodernism is being examined since past till today in this essay and also their reflection on education has been examined. This research is in a survey model and documentary survey method has been used. As a result, the idea of entering postmodernism after modernism in our lives even in education, saturating the transition in the values of the society without realizing it and even not complaining about this situation awakened in us.

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*Keywords:* Modernism; Post modernism; Arts education; Culture

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## 1. Introduction

Modernism came along as a different view with 1970's. All field experts calls this period as postmodernism. Postmodernism is thought as a structuring and a reaction against modernism and separating modernity. While post modernism is being examined in visual media of 21st century, it is required to talk about the relationship between modernism and postmodernism. Whereas acting starts from producing principle, consumption principle has been more important in postmodernist period. As superficial subjects have been more important in radical in every part of life, more daily subjects have been in agenda instead of upper explanations, it is a period when upper explanations have been rejected and central structure has been removed. (Harvey, 1997, p:60).

\* Corresponding author. Tel.: +90 000.000.00.00

E-mail address: aysederyakahraman@gmail.com

It is thought that as Postmodernist period created problems in itself by being accepted in the society and cultural, social and economic arrangements at every level of the society in the context of the effects of the period, this period can be thought as consumption culture. Postmodern period with its production, production structure and Dynamics has a structure provoking consumption. Because of this reason, firstly giving meaning to every aspect of life, objecting values is required to provide production and forming a positive value for the life. While modernity affects firstly human beings, it includes positivism, techno centrism, globalism and rationalism, so it affects the world of human beings. (Aslan and Aydın, 2005, p.96).

In other words, trying to institutionalize "modernism" by the society under the title of "cultural society" and consumption by this way is called postmodernism. The society named as cultural society are the individuals who produce and consume popular equipment not caring about the formation of serious cultural products and all communication channels, universities, publishing houses which live in this area and use all mass media in its own cultural sub-structure (Harvey, 1997, p.78). This research is important in the frame of examining the effect of postmodernism on society by the way of visual media.

### 1.1. Modernizm

Modernism corresponds to "enlightenment" concept in English. Modern word based on enlightenment has been produced from Latin "modo" and means that modernus separates past and present. (Aslan and Yılmaz, 2005, p.94-96). Modern term the new one is used as synonymous of near future which has been furthered away from past (Kızılcılık, 1996, p. 9). This situation is the one which has been created form a radical change and been applied to human and its natural environment. Modernism is living and being in a qualified, different and new world which does not belong to the past (Yıldırım, 2009, p.382).

Modernism, as Jürgen Habermasın wrote in an essay named as "modernity, uncompleted Project" in 1980, is a product of an idea where the individual will be able to Orient everything as he requests and believes he can do everything by using his

intelligence (Doltaş, 2003, p.21). Modernism includes a change, transition to fine and beautiful things and also war. Modernism is formed of individuals who are living relationships basis for an intelligence world regularity formed of enlightened individuals and organizations of these individuals (Yıldırım, 2009, p.382)

So, according to Sarıbay (2001, p.4-5) modernism concept states as

*“A situation in which a differentiation of progressing, economic and administrative rationalization and social world opposite to traditional order in parallel with modern capitalist –industrial government and which has been started to be used in West with the Enlightenment in the eighth century (Yıldırım, 2009, p.383).*

Self-confidence of the individuals increased with modernism but human beings preferring narcissism of the individualism have been burst out in their internality by the loneliness of urbanization. Postmodernism, which is against aggrandizing the intelligence by modernism, came up by accepting multiplism and diversity instead of single mind(Gökçearslam, 2005, s.20-21).

## 1.2. Postmodernizm

Postmodernism is a society net which formed its own life forms. Postmodern societies do not foresee the freedom of mind, they defend local culture, they are formed of civil societies which have been formed of some pieces, there are relevant statement methods to their own living forms (Adak, 2010: 372).

Even Postmodern period had been in inclination of supporting with opposite cultural movements in 1960's ,the impulses are seen as an extension of discharging the will chains of instincts, conflict of rebel and bourgeois opposite to modernist actions in arts area(Best ve Kellner, 1998, p.29). The first one using this term is the historian Arnold Toynbee. Toynbee in his product called as A Study of History used postmodern term firstly. The period when west civilization entered a dark period since 1875 is called as postmodern period. (Doltaş, 1999, p.187; Aydın, 2006, p.3). According to Tenner(1997, p.34) in case of expansion of the term postmodernism, the word “post” as an affix has been defined as determination of what has to be done to overcome modernism(Yıldırım, 2009, p.386). The word “post” includes two meanings with its English usage. It is used in the meaning of “Later” or education after bachelor’s degree(Odabaşı, 2004, p.20).

According to Adak (2010, s.371) postmodernism is examined in three branches firstly aesthetically in different styles in arts and architecture, secondly as historical for a period starting from 1900's, and lastly ethical and philosophical as a questioning including an area in which the knowledge is being tested as radical epistemological (Gandy:1997, p.150).

Postmodernism period has been a historical period and also it has been serious paradox. In addition to individuals’ getting used to development and changes in every area, the reason of increasing the importance of societies’ life styles includes social and economic developments. Because of this reason, a differentiation or a collapse can be lived by the individuals who live concept chaos.

We can accept postmodernism as an extension of modernism as a living situation. However, postmodernism existed as a reaction against being modernism global in the context of knowledge, mind and values, development of humanist ideological values. Postmodernism internalizes objective approach in the realist ideal and has been objective society values. Because of this reason, it is understood that postmodernism is opposite to all values based on ontology, epistemology and rationalism. It exhibits an opposite attitude towards global human approaches and humanist ideologies (Aydın, 2006, p.1).

In other words, it can be told that postmodernism is a modernism which struggles and comes to an agreement with impossibilities living in itself and existing in life by itself. Also according to Kale Postmodernist artist is brave and criticizes the world he has been living in, he qualifies this period as the past of future period(Kale, 1993, p.284). In other words, individuals reverse the signs of the roof forming the structure of single type individual profile and globalism with postmodernism. This situation not only provides the individuals who internalizes postmodernism accept the differentiation of life styles but also live in this life style. So postmodern societies corrupts all rules by third learning , they leave all their behaviours (Bauman, 2005, p.156).

### 1.2.1. The features of Modernism and Postmodernism :

#### **Modern/ Modernity**

Regularity/Control  
 Certainty/ determiner  
 Fordism/Factory  
 Content/Depth  
 Development/tomorrow  
 Homogeneity  
 Hierarchy/Adulthood  
 Existence/reality  
 Cautious/External  
 Design  
 Relevancy

#### **Postmodern/ Post modernity**

Irregularity/ Chaos  
 Uncertainty /Indecision  
 Postfordism/Office  
 Style/Superficial  
 Stable/Today  
 Inhomogeneous /Multiplier  
 Equality/Youth  
 Performance/Imitation  
 suspicious/Self-centred  
 Participation/Parody  
 Irrelevancy/Luck (Odabaşı, 2004, s.29).

### *1.2.2. Social reflection of postmodernism forms six basic situation on the behaviours of individuals*

Top reality  
Crashing  
Replacement of production and consumption  
The subject not being at the centre  
Association of opposites  
Losing commitment and trademark loyalty  
Multiplism is also added to the features related to Postmodern situation  
(Yeygel, 2006; 204; Odabaşı, 2004, p.32-33; Kayaman ve Armutlu, 2003, p.3;).

As Kayaman and Armutlu(2003,p.3), transferred from Brown (1993,p.19), the most important features of contemporary postmodern societies are living today, emphasis on shape and style, acceptance of irregularity and chaos.

### *1.3. Reflection of modernism on education*

Modernism concept states changes related to arts and science in culture history. Modernism is seen as positivism in science beyond the reflection of its relationship with human being in a passive way. Because of this reason, modernism has developed as a reaction against realism.

The changes in social sciences affect education concept, institutions and educational services. So, there have been changes in the structure of the schools which carry out educational activities. The process of cultural differentiation, individualization, materialization and rationalization which form the roof of modernism will be effective in the development of individuals who will provide the sustainability of available status quo and changed the structure of the schools. Modern structure examining the schools ideologically pushes all structure, elements and staff of the school to a passive structure in the definition of duties. The teacher became the applier of the curriculum and transferring the knowledge and the student became the learner of rational knowledge related to the exams to provide the continuity of status quo (Aslanargun, 2007: 197).

The behaviours are based on reason-result relationship in the frame of behaviours in modernism. It is not related with feelings, beliefs or traditional forms. The reason of this situation is based on the change in cultural and social structure. In case of examining the change in reason and result relationship of social structure, it can be told that it is social mobility and the individuals' passing from general roles to special roles which they fictionalised in a specific way in their social lives. This situation caused changes in the general structure of the schools.

Modern educational approach is status quo and bureaucratic which defends management from centre. The individuals educated at schools did not meet the expectations who had been educated with the idea of happy ideal world of enlightenment thought; on the contrary a world which has been dominated with fright, chaos and war after the industrial revolution existed. The authority levels as hierarchically, determination of definition and duties of all school staff, priority of registration and documentation system for the students and also dominancy of individualistic preferences in addition to regulations in all central educational system are accepted as the basic features of modern schools. As a reflection of industrial revolution, transferring institution and factory environment to educational environments, using the rules and providing the sustainability of existent situation were accepted more important than the values they had (Aslanargun, 2007: 197).

### *1.4. Reflection of postmodernism on education*

Postmodernism discussions existed as a result of questioning modern educational approach since 21<sup>st</sup> century. Post modern education as an alternative to modern educational understanding exists as a new understanding. Postmodern educational understanding has discussions and questions related to knowledge and scientific traditions, such as whether science is particular to the individual or is it definite, knowledge should be directed at understanding or questioning, knowledge should include arithmetical and verbal mind in addition to rhythmical and kinaesthetic development(Özden, 1999).

Postmodernism as a culturally entity is commented as the organizations which the individuals formed have a culture, because of this reason management of postmodernism with cultural content is the point in question. Because of this reason, positivist paradigm is used as basic point of view in post modern education fact. This situation creates problems in the context of culture and philosophy; as a result an educational approach that does not give importance to local and cultural values in educational management approaches is being lived(Şişman, 1998).

Post modern educational approach is a questioning in this meaning. It is the rebellion of crushed groups in societies all through the time. Postmodernism is the interpretation of the relationship between power, knowledge and wish. Because of this reason, while Post modern educational approach contributes to social changes, it also emphasizes the individuals' stating themselves and difference of them. So, the educational institutions are not only the places giving information and training individuals as a subject but also contributing subjectivism to the individuals.

The individuals who have been trained with this understanding should not only know their language but also know the world languages. Because of this reason, knowledge provides the individuals have education which increase their democratic ideas and

trained as living cultural diversity in post modern education. Because of this reason, education provides opportunity for the individuals to use a definite content by adapting it to themselves (Kurt; 2009: 89). It is possible to talk about Postmodern educational approach as an approach where modernist educational approach problems exist and questioned. Standardization, centralization, catharsis from the values and rationalism of postmodern paradigm colours the modern educational approach. Postmodern educational approach thinks that modern educational approach and the structure of the schools are inadequate. Science and education builds its roof over dynamic knowledge in postmodernism, it develops its productivity by searching new ideas and concepts (Fritzman, 1995).

Enlightenment with Postmodernism defends that knowledge can be extended and globalised in usage and this will be a social success (Terren: 2002, 161). Uncertainty lived with postmodern social change causes negative effects such as decreasing the socialization at schools (Aslanargun, 2007: 197).

Relationship with subject in modernism, emphasis on privacy by the majority in postmodernism is combined and creates a combining effect of abstract rights, cultural, historical structure of the society. Pluralist life and mind are structured together in postmodern education and transforms life to democratic actions. Because of this reason, postmodernism education is a system that forms global, questioning structure by rejecting science and knowledge types (Giroux, 1991).

## 2. Research Methods

It has been a research in the survey model and has been prepared with documentary survey method, the research is the total of scanned documents, paintings, pictures, voice records, plaques, equipment, sculpture belonging to the past and in addition to these it also includes every kind of reports, encyclopedias, books, statistics and minutes (Karasar, 1999, s:183).

## 3. Conclusion

While individuals move with the idea of reaching ideal structure and production in modernist period, they start out with the idea of consumption in modernist period. The first priority of modernity is the building stones around the individual and the individual himself. However institutionalization of the structure defined as cultural society of modernism caused the existence of postmodernism. In the modernism period which means enlightenment, the individual is able to orient every kind of structure by using his mind. This situation has been seen as a movement of industrial revolution and capitalism, people became individualized in modernist period and have been drowned in their internalization. Post modernism is a rebel against the criticism of modernism. The questioning of arts in addition to architecture, history and epistemology has been talked about in post modernist period. Postmodernism society adopts objective approach in realism ideal and has been objective to the social values. Postmodernism reverse globalism and being single type of individual signs which are the central values of modernism. They also apply this life style. So, postmodern societies crash down all rules with third learning and give up all their habits. The changes lived in social sciences caused changes in work and functions of institutions in educational area. Claiming negative and invaluable approaches to individual and educational system at the experimental level by important changes and transformations realized in educational world and creation of dead-ends cause some critics. There have been some irregularities in the transition from modernism to post modernism and in the structure of postmodern educational system. Post modern educational institutions have an authorized structure in the context of curriculum, rules, knowledge and management. Because of this reason, cultural differences threat status quo, they have the quality that makes the provision of stability. They limit the education approach; they are not successful at not taking into account individual differences. So, quantity and quality chaos is lived along. There is a suspect about the absolute true. The schools are evaluated as the centre of the knowledge and the teachers are the ones transferring the knowledge. In modern period, educational activities are at the forefront, whereas individual satisfaction is at the forefront in postmodern period. Because of this reason, an understanding including different cultures in it should be adopted, not local values instead of post modern educational approach. You should work together with teachers and managers who have vision to adopt stability and flexible understanding. While educational activities are going on, the individualistic differences and emotional situations of teachers and managers, but firstly the students should be taken into account and flexible but an educational approach which has its own principles in it should be provided.

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# Relationships among parents, students, and teachers: The technology wild card

Eva Patrikakou<sup>\*</sup>

DePaul University, Department of Counseling and Special Education, 2247 N. Halsted Str., Chicago, IL 60614, U.S.A.

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## Abstract

Parent involvement and home-school partnerships have gained the status of a self-standing research area in the past three decades. While continuing to intrigue researchers and practitioners alike, a wild-card factor has been added that has changed the known dynamics, and has presented parents, teachers, students with a challenge that has neither been researched nor systematically addressed in everyday practice. The wild card is the explosion of technology use, and parents and schools are scrambling to find ways to monitor and control the influence of online interactions, often falling short on both fronts. The paper discusses the relationships of technology and cognitive, social and emotional processes, as well as the impact of electronic media on families and schools.

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*Keywords:* parent involvement; school-family partnerships; media impact families, and schools; educational psychology

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## 1. Introduction

Over the past three decades researchers and practitioners alike explored the power of parent involvement and the importance of fostering school family partnerships in order to enhance the academic, social and emotional learning for children and adolescents (Patrikakou, Weissberg, Redding, & Walberg, 2005; Patrikakou, 2004, 2008). As a fuller picture of variables, processes, direct and indirect effects influencing parent involvement, and, in turn, student success, became clearer, a major new factor has introduced itself, and has made the parent involvement and school-family partnerships literature enter a new era. Media access and its increasing use by children and teenagers have enormously changed the parameters in the field, which is pursuing anew to understand how technology use impacts relationships among children, parents and schools. The rapid internet boom since the 1990s, as well as the speedy expansion of mobile technology use in recent years, have introduced a new educational avenue and a communication factor that play an increasingly important role in the relationships among parents, teachers, and students. The current generation (known as the Net generation, i-generation, digital natives, etc) is the first one that has known digital technology since birth, and seems to feel the most comfortable using it. Children and adolescents spend more than seven hours a day with media, which, in cases, is the most time spent on any activity, including sleep) and 97% of adolescents report that they play video games on a variety of platforms, including computers, hand-held devices, and game consoles (Kaiser Family Foundation, 2010; Strasburg, Jordan, & Donnerstein, 2010). In a policy statement, the Council on Communications and Media of the American Academy of Pediatrics (AAP) expresses concern for the increased media use and its potential harmful effects, while it also recognizes the positive impact that media use can have. The AAP suggests that pediatricians incorporate questions regarding media use in well-visits and make recommendations to parents to monitor and limit media exposure and use (American Academy of Pediatrics Council on Communications and Media, 2013).

## 2. Technology and Cognition

These rapid technological changes have shifted the learner's profile. Access to knowledge is not relatively static (e.g., choice of books), but its form changes tremendously at light speed. The goals are no longer to acquire the best ways to access information from a source, such as a book, but, rather, to learn to keep up with the brisk changes in accessing resources: applications, blogs, virtual reality environments, instant messaging, texting, social networks, gaming, with more forms and applications added daily (Subrahmanyam & Greenfield, 2008).

In order for learners to be successful in this landscape, they need to have a *flexible cognitive schema*. This flexibility allows the learner to quickly adjust their thinking to adapt to yet another form of communication or venue of accessing information. A flexible cognitive schema is supported by fluid reasoning (the capacity to think logically and solve problems in novel situations) and relates to fluid intelligence, reading fluency and reading comprehension (Cattell, 1987). In this environment, cognitive

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<sup>\*</sup> Corresponding author. Tel.: +1-773-325-2072  
E-mail address: epatrika@depaul.edu

processes, which are part of a learner's personal competencies, assume an even more pronounced role with potentially a more narrow profile: learners without a flexible cognitive schema will struggle to keep up with new advances and, therefore, with accessing and processing information.

Research has mostly centered around the negative effects of media on cognitive development and academic achievement, but benefits have also been documented. For example, although exposure to educational programming on TV can foster cognitive development and academic achievement, violent programming can impact cognitive development, learning, and behavior in a negative way (Kirkorian, Wartella, & Anderson, 2008). Recent studies have further placed an emphasis on the benefits of media use. For example, gaming can have a variety of cognitive benefits such as improved spatial skills, faster and more accurate visual processing and attention, as well as problem-solving skills. It is important to note that observable gains in neural processing and efficiency obtained through game-playing are not restricted to just gaming, but they can generalize to other, non-gaming contexts improving an individual's performance and achievement (Granic, Lobel, & Engels, 2014; Ventura, Shute, & Zhao, 2013).

### **3. Technology and social and emotional development**

Technology has also altered the nature and quality of social relationships. Whether a public venue (e.g., chatrooms) or private media (e.g., instant messaging), a different type of social interaction has rapidly evolved. Online interactions lack features that have been a crucial part of human relations, such as eye contact, body language, etc., and, therefore, are often characterized as lacking the richness of face-to-face interactions. In addition, new phenomena such as "cyberbullying" have caught all involved in education by surprise, forcing them to scramble to address issues in a crisis mode.

There have been both positive and negative features identified in online interactions. Relieving social anxiety of meeting and interacting with people whom you do not know well is an example of the former, while cyberbullying and sexual predation is an example of the latter (Subrahmanyam & Greenfield, 2008). In addition, adolescents report feeling more comfortable sharing their feelings online, as they feel they can be more honest, and, especially, shy teenagers, utilize the safety of being behind the screen to reach out and communicate (Rosen, 2007). It has also been indicated that most adolescents use online networks to extend and enhance already existing, off-line friendships, indicating a "friendship-driven" and also "self-directed" form of social and emotional learning (Ito et al. 2008). On the other hand, other types of technology, such as cell-phones, and other hand-held devices, have undermined family practices, mealtimes, etc., and have established new generational boundaries, including the lack of screening calls by parents (Ling & Yttri, 2006).

Current research also draws attention to motivational and emotional benefits such as enhanced creativity, persistence and motivation in the face of failure, improved mood, and positive emotions as a result of media use (Granic, Lobel, & Engels, 2014; Ventura, Shute, & Zhao, 2013). Through targeted media use, adolescents can explore and develop specialized interests and connect with others sharing these interests outside their local community. They also have the opportunity to share and disseminate their work on such a broad, global scale, for example through youtube, something that would have been unthinkable a few years back. This "interest-driven" media use can significantly enhance not only academic, but also social and emotional learning, preparing individuals to better address and function in a tech-based, global world (Ito, et al., 2008).

### **4. Relation of face-to-face and online interactions**

#### *4.1 The chicken and the egg dilemma*

The ways in which online interactions affect face-to-face relations are not yet fully understood, and conflicting findings have created controversy regarding the relationship between these two types of interactions (Kujath, 2011). Emerging patterns beg the question of the direction of causality. In other words, were face-to-face interactions problematic to begin with, and that increased the desire, and pursuit of, online interactions, or vice versa? Some evidence indicates that youth seeking out online relationships with strangers had high conflict levels with their parents, as well as low levels of communication (Wolak, Mitchel & Finkelhor, 2003). Also, teenagers who spent a lot of time on sites such as "MySpace" felt that they received less support from their parents (Rosen, Cheever & Carrier, 2008). However, other evidence suggests that youth use online media to extend already existing, offline relationships, and do not pursue online interactions because the offline, face-to-face interactions are problematic (Ito, et al., 2008; Schurgin O'Keeffe, Clarke-Pearson, & Council on Communications and Media, 2011). Although, these two broad types of evidence seem to contradict each other, they may be just pointing to the intricacies of media-use, prompting us to closely examine the complexity of the reasons behind the use of certain media as a means to maintain, and to a different extent, form new friendships.

#### *4.2 Electronic media and parents*

Although the Net generation is the first to grow up in a digitalized world, this is not the first generation that created a media-use uneasiness for parents. When television became widely available, its use and effects on children became an issue for parents

and educators alike. However, in the present Net generation the accelerated pace of technological developments, as well as the short time period during which this technology has saturated world markets, have added several issues that have not been encountered before (Roberts & Foehr, 2008; Rosen, 2007). The mere fact that, on average, children and teens know more than their parents about the technological aspects of the new forms of communication and accessing information may lead to inter-generational conflicts unlike those seen before. Depending on the type of media use, effects could be positive or negative on family cohesion. For example, it has been indicated that if media were used for social purposes, it lead to family conflicts, whereas, if media were used for school-related purposes, it was not linked to family conflicts (Mesch 2006).

There are two ways that parents seem to be exercising influence regarding technology and media use: (a) by monitoring activity through filters and other software, and (b) by restricting access to certain sites, or limiting time that can be spent online. However, there is little research on what parents actually know regarding their own teens' e-media use. One study reported that parents were unaware about their adolescents' MySpace use (Rosen, Chever, & Carrier, 2008), while another study found that 90% of adolescents did not tell an adult, including parents, even instances of cyberbullying (Juvonen & Gross, 2008).

Initial evidence also links parenting style with online media use. Four parenting styles (authoritarian, authoritative, neglectful and indulgence) are based on two basic dimensions of parental behavior: acceptance and responsiveness on one hand, and demand and control on the other (Baumrind, 1966); Maccoby, E. E. & Martin, 1983). It has been indicated that authoritative parents were most knowledgeable about their child's use of social media. Authoritative parents were also more likely to set limits about media use and teenagers with parents of this parenting style were the least likely to engage in high-risk, online behaviors, such as sharing of personal information (Rosen, Cheever & Carrier, 2008). It is interesting to note that developmental differences were associated with parent style and monitoring online use. In general, parents of younger teenagers were displaying authoritarian and authoritative styles, and were more likely to closely monitor media use and set limits than parents of older teenagers who practiced more neglectful or indulgent parent styles.

It has also been shown that the type of media use may be mediating the parents' reaction and limit-imposing behavior. For example, if technology is used to complete homework, acquire new skills and information, it is deemed compatible with parent expectations, and, therefore, in these cases, media use is negatively associated with conflicts. However, if technology is used solely for entertainment and social purposes, these uses contradict parent expectations, increase parent-child conflicts, and, therefore, negatively affect family cohesiveness (Mesch, 2006).

If viewed as an isolating, individual-only activity, other issues are also associated with media use and families, such as time displacement, since spending time on electronic media is negatively associated with quantity and quality of family time. However, internet and media use can become a shared activity and provide families the opportunities to create family sites, play games, stream movies, create family movies and albums, etc.

## **5. Electronic Media and Schools**

### *5.1 Technology and Learning*

Schools are trying to handle the explosion of media use in a variety of ways. At one end of the continuum seem to be schools and districts that have completely blocked access to a variety of e-media forms including cell-phone use, websites, games, etc, sometimes even blocking sites and media that can be of legitimate use in the educational process (Simmons, 2005). At the same time, others have embraced the use introducing blended learning (instruction with both face-to-face and online components), flipped classrooms (students access new material outside of class, via online lectures, videos, etc, and then use of class time is applying, analyzing, evaluating, and debating issues). This approach has been picking up momentum and studies have offered evidence of learning gains compared to a traditional instructional method (Brame, 2013; Mazur, 2009).

However, a significant roadblock in broadly applying a blended learning format is educator preparation. On average, pre-service, and to a higher degree in-service educators, have not been prepared to integrate extensive and complex technology in their daily practice. Such training is not a simple dissemination of information in a number of workshops or courses, but rather a comprehensive revision of the current pedagogy and classroom ecology (Voogt, Almekinders, Akker, & Moonen, 2005). In many ways, the role of an educator will have to be re-examined and re-defined, as technology uses will expand in schools and in daily functioning, causing a big shift in theoretical paradigm and practice. In addition to this paradigm shift, another issue needs to be addressed in a pressing and comprehensive way: involving families to extend this technology-supported learning at home.

### *5.2 Technology and School-family Partnerships*

Technology can play a vital role in increasing parent involvement in the educational process. Since nearly all schools are connected to the internet, and more than 77% of adults in the U.S. have access to it, increasing home-school communication and



fostering meaningful home-school relationships should be easier than ever (Olmstead, 2013). With the help of technology, being actively involved does not necessarily require the parents' physical presence at school, and it can also provide increased immediacy in home-school communication. In addition, keeping parents informed about classwork and homework, as well as their children's progress has become much more efficient through technology. School and teacher websites can keep parents abreast of school and classroom workings, only if they are frequently updated. Through such a system the perennial statement "I don't have any homework" can be easily confirmed and, more importantly, give students the message that the line of home-school collaboration is ongoing and well-established, leaving little room for pinning parents against teachers. In addition, online progress and grade reports can provide parents with a systematic way of monitoring their children's school performance, and, also, foster direct communication between parents and teachers through posted links that parents can access if they have questions regarding their child's progress.

In this era of rapidly evolving demands for technology use in schools, establishing school-family partnerships extends beyond facilitating two-way, home-school communication and information dissemination. In the core of the extended use of technology in schools lies the assumption that technology-based student learning will extend to the home, as students are asked to use technology to complete homework, or, in a flipped classroom format, even familiarize themselves with new material and concepts. Under this assumption, fostering school-family partnerships assumes an even more important function than ever before, as it becomes an integral part of technology-based learning (Kong, & Li, 2009).

There have been several technological advances prior to the dawn of the digital age, but an important difference this time is that changes are swift and have immediate applications. This calls for swift and pressing changes and actions on several levels. Although educational policy and school systems are convoluted and slow to change, given that technological applications will continue to increase, and learning demands on students will continue to shift, we cannot afford to lose time. Better understanding of the way these applications affect parent, teacher, and student interactions, as well as addressing changes in the educational process, instruction, and outreach to families is an urgent mandate for researchers, practitioners, and policy-makers alike.

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# Religious influence on education and culture: violence against women as common sense

Daniéli Busanello Krob<sup>a</sup>, Luciana Steffen<sup>a\*</sup>

<sup>a</sup> *Colleges EST - Amadeo Rossi Street, 467, São Leopoldo, 93030-040, Brazil*

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## Abstract

Gender relations are influenced by culture, education and religion, and often encourage situations of violence, especially against women. This article, through a literature review, aims to investigate the relationship between violence against women, culture and religion, as well as propose a reflection on violence against women and education. The religious morality perpetuated by culture legitimizes the violence against women, which is a urgent issue for the education area. An education that does not reproduce gender relations based on patriarchal system, valuing all people and aiming more equitable relationships without violence is needed.

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*Keywords:* violence against women; education; religion.

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## 1. Introduction

Gender relations are influenced by culture, education and religion, and are often permeated by violence. Education, culture and religion, often encourage situations of violence, especially against women. This article, through a literature review aims to investigate the relationship between violence against women, culture and religion, as well as propose a reflection on violence against women and education. This article discusses how the Christian religion legitimizes violence against women, perpetuating a symbolic violence and stresses the importance of an education that aims more fair and equitable gender relations, eradicating violence.

The religious morality perpetuated by culture legitimizes violence against women, and this is an urgent subject for education. The statistics of domestic violence in Brazil are troubling. The NGO Centre On Housing Rights and Evictions (COHRE) published on July 16, 2010 data from a survey entitled *A Place in the World: the right to adequate housing as a key to a life free of domestic violence* element, revealing that in Brazil, it is estimated that one in four women suffer and/or have suffered some form of violence (COHRE, 2010). According to data published by Perseus Abramo Foundation in 2010, a woman is assaulted every twenty-four second in Brazil, totaling approximately 1,314,000 women victimized by violence each year (Pesquisa Fundação Perseu Abramo, 2010).

Thus, it is urgent to find ways to eradicate domestic violence, in this way, education and religion are areas that need attention. In the Brazilian context, even if there's a person who says that is distant from religions, in some form or another, has its life riddled by religious morality, which are often oppressive to women. Churches and schools can not remain inert in relation to violence against women.

## 2. Christian Religion and Domestic Violence against Women

Religion, initially, is popularly associated with peace, with the common good of humanity, with love, with the protection of those less favored, which complicates the perception of the potential for violence that underlies its speech and in its practice, especially in relation to women (Citeli & Nunes 2010, p. 5). Religious taboos often collaborate to keep women suffering violence in their relationships. The lack of theological training to deal with domestic violence against women can also contribute and feed religious myths that condone this reality. One of the biggest myths of the Christian Church is home as safe and sacred place and should be kept foremost. Families with religious experiences may also be affected by the problem of domestic violence:

[...] Pastoral counselors need to recognize the reality that the family is the most violent group to which women and children belong. Even if there is a desire to see the family as a group living Christian values, where there is comfort, love and joy, we must recognize that the family is a place where not only violence but also the tragedy can occur. (Bergesch, 2008, p. 125).

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\* Corresponding author. Tel.: +55-51-9808-1043  
E-mail address: danielibusanello@gmail.com

Many women seek to understand the violent relationship who live through religion. Want to understand why their suffering and their stay in the abusive relationship. Seek answers in religion for the transformation fellow who once vowed to love her and respect her, but now the violent assaults and systematically (Lemos & Souza, 2009, p. 19). This search for understanding can occur, often through prayer, dialogue with God. Often this search - or even some religious counseling - to direct the story of the crucifixion of Jesus. It creates a kind of conformity to the violence through the suffering of Jesus, because it is the largest extant suffering. This theological affirmation reduces any human suffering:

[...] In the center of the Christian tradition, is the son of God, suffering and dying on the cross [...] When this theological and pastoral interpretation of suffering is combined with Genesis 3:16, where God greatly increases the pain of Eve in birth because of their sin committed, a double, lasting and complicated message is sent to the women. First, it is good and suffering is a God's wish, and second, suffering is the inevitable consequence of personal sin. Christian women are called to suffer as Jesus suffered; as daughters of Eve, women are eternally punished with suffering. (Tatman cited Bergesch, 2006, p. 220).

Religious values act with great force in the symbolic and subjective plane. The inferiority of women conveyed by religious discourse is a form of symbolic violence, enforced through social representations. (Tomita, 2004, p. 175). One example that is set up and maintained in religious values is the traditional model of a patriarchal family structure with heterosexual sex, male managers and submission of children and wife to husband and father (Citeli & Nunes, 2010). Women are subjected to so embedded in the culture and society that often do not realize what happens symbolic violence. This violence is so subtle that may be disguised in the name of women's freedom, but in fact is nothing more than slavery. That is, when women seek the job market, it is still common for housework and caring for children, elderly and other dependents, where applicable, are not shared with his companions, which is therefore that they have double or triple work shifts. Moreover, in Brazil, women with the same age and educational level than men still earn lower salaries, approximately 30% unless they (Centre, 2012). And this symbolic violence, in some cases, can turn into domestic violence. When these women fail to comply with perfection all obligations related to work outside the home, are punished with psychological and physical violence: The fact that women have gone to the public world of work is the scene of the forbidden fruit that she eats. Daily she disobeys, and follow the advice of the serpent. The subtlety of the speech will say that she will not remain without punishment (Roese, 2009, p. 182).

When religion teaches that women should be obedient, passive and submissive, it is just contributing to the production and reproduction of various forms of violence that affect. Religious discourse, sacred texts and their interpretations, practices of exclusion and sexist discrimination from church towards women, collaborate to maintain this violence (Ströher, 2009, p. 101). The history of violence against women within the Church, as the witch hunts, the biological discrimination, the omissions in violent conjugal relationships, contributed to discrimination against women from society and culture. Church is a place of training and influence on individuals who begin to act socially. (Bergesch, 2006, p. 114).

The witch hunt was one of the cruelest forms of violence against women, and what is more aggravating, was perpetrated by the Church itself. According to Karen Bergesch, torture was considered the most effective way to get the confession. The torturers were looking for any sign of abnormality, which would be a clear sign pact with the devil. Therefore, the victims were naked and depilated. If a woman confessed that she wasn't a witch, it was also considered an important proof of witchcraft, for "his alleged biological inferiority not allow resistance, unless she received aid from evil." (Bergesch, 2006, p. 112). In 1694, the responsible for religious persecution, beatings and executions of thousands of women considered witches, prepared a document based on a reading of the Bible manipulated to justify such acts. Among other things, reported in a document: a) all wickedness is little compared to women; b) when (women) use their good qualities, it's good, but when they use bad, it's the devil himself; c) a woman is evil by nature and it is easy for her to renounce her faith, which is the root of witchcraft; d) it must be said that there was a defect when it became the first woman since it was made from a bent rib, that is, the breast, that is made contrary to the rib of man, and since then, for this defect is an imperfect animal (Calabrese, 1998).

Churches condone with the reproduction and maintenance of the myths and violence against women at the time they become complicit in the culture of silence and inaction, refusing to report acts of violence and their authors, in addition to the institutional and social structures that perpetuate this unfair practice. "Ignore the women, do not take them into account, not to refer to them is a way of belittling them and denying them rightful place in society and in the churches." (Calabrese, 1998, p. 38). Because churches have behaved against violence against women as something natural and socially trivialized, they end up legitimizing its practice in intimate family, thus reinforcing the view patriarchal world in which man can and should exercise his power and authority over women and upon the children (Cavalcante & Soares, 2009).

Women were affirmed as naturally inferior to men by various Christian theologians, influenced by classical philosophy, argued from a supposed theological bases male superiority, thus legitimizing the domination of women. Augustine, for example, in *De Trinitate*, claimed that woman would be deprived of the image of God simply by being a woman. Thomas Aquinas, in *Summa Theologica*, argued that women had a lower nature and, therefore, should be subject to men. For Luther, the authority of the husband represented a sacred authority, and women who submit unquestioningly. Calvin, meanwhile, argued that women

should stay in the marriage even with physical violence because the husband has authority over his wife (Lemos & Souza, 2009). Until today, the arguments that the Catholic Church uses to deny women the right to ordination relate to supposedly inferior nature of women compared to men and also based on Ephesians 5:23 - the man is the head of the wife/house, so as Christ is the head of the Church (Bergesch, 2006).

The set of social representations that formed throughout the history of subordination and inferiority of women, mark yours perception and perception of others about them. Are these social representations that bring meanings that have caused the women resigned permission violence, and religious discourse participates in the production and reproduction process of these representations (Lemos & Souza, 2009, p. 59).

### 3. Christian Education and Religion to end Violence Against Women

According to Mary Hunt, the first work investigating the relationship between religion and violence against women was the Rev. Dr. Marie Fortune Marshall in 1977, in the United States. In order to inform, consult and provide education about domestic violence materials, Marshall established the Center for the Prevention of Sexual and Domestic Violence, now known as Faith Trust Institute (Hunt, 2009). Feminist students of religion and Marshall investigated the theological origins of violence suffered by women. Investigated, among many topics, language and exclusively male imagery and its relation to violence, for example. However, what surprised Marshall and its colleagues, was the discover that there were also priests and other religious authorities involved in violent behavior:

Pastors, rabbis and priests involved in sexual activity with his parishioners, the imams who advise women to have abusive marriages [...] show that violence is not just something that religions condemn, but something that their own leaders are involved. Moreover, the violence committed by religious leaders has the extra element of violating not only the physical and psychological dimensions, but also the spiritual dimension of the person. (Hunt, 2009, p. 9).

In 1983, the Faith Trust Institute revamped their programs of action, which are valid until today. These four programs are: 1) ethics for clergy: training and educational materials, in order to prevent instances of sexual abuse, and instruct on the topics of limits; 2) Safety and Health in the Congregation: support clergy and lay leaders in creating and maintaining safe and healthy congregations, emphasizing prevention of juvenile sexual abuse; 3) Healthy Families: printed and audiovisual educational materials about juvenile abuse, domestic violence and relationships in adolescence, educating the religious leaders to involve communities as part of a global community action against domestic violence; 4) Human Trafficking and Sexual Exploitation: Educational materials for clergy and lay leaders (Hunt, 2009).

Church often becomes the refuge, the place where woman suffers violence seek help and acceptance. This is because it is a space allowed to women by the men who assaults. Another relevant factor is that this religious space and their leaders are considered sacred, free of profane feelings. However, we must not forget that religious institutions and their representatives are inserted in the patriarchal system and its policies, ideologies and attitudes contribute, in most cases, for the maintenance of this social organization. An example that makes this clear is that the sins of men are always diminished and even justified, while women are the cause of this sin. When a woman is raped, is very common witness attitudes laying woman in the role of blame for rape. The causes of rape are attributed to women, because of women crept, caused, allowed and asked to be raped. This scapegoating of women is also present within religious institutions:

[...] Playing is a divine gift, and sexuality as a means to achieve the divine purpose of reproduction. This religious conception justifies the dispossession of women's bodies and makes room for violence against them when they want to exercise their rights to autonomy and freedom [...] There is a traditional view that makes women and their bodies guilty of violence who suffer, although in fact, violence is found rooted in society that is guided by a system itself violent in that engenders it, but it attaches to the body of the woman the violence itself, society, produces, and in which appear religious institutions as an important component. (Orozco, 2009, p. 138).

So when a woman seeks help in religion, feel their suffering lessened, cheapened and naturalized, understanding that suffering is part of being a woman. The patriarchal religions tend to legitimize the subservience of women by linking them to evil, the deviant, to disorder and moral weakness, leaving them at the mercy of punishments touted as natural (Citeli & Nunes, 2010, p. 6). Therefore, they take the blame for the violence they suffer. Women seek to recall moments of their lives or their relationships where they did something wrong, by which they are being punished.

Traditional theology, despite considering encompass the human being as a whole, leaves women at the margin, because there is, at least not enough, the fundamental questions going through their lives, such as domestic and sexual violence. "The woman is

disrespected because traditional theology does not consider female suffering at his reflection. Rather, the woman gets the blame upon himself for having introduced sin into the world" (Bergesch, 2006, p. 119). To this theology, there are only two choices for women: To be Eva, the sinful, or to be Mary, the holy.

The life and social position of women today is not the same as ten years ago, much less, than in centuries. However, the religious discourse never followed this change of female paradigms. "There is a religious and cultural mystification of woman, female, mother to a cult, the virginal, sacred, deified female." (Roese, 2009, p. 189) In relation to the family, religious discourse argues that this is sacred, untouchable and hence, and an unquestionable structure, hierarchy and even violent relationships. Thus it creates the culture does not place the spoon. Violence becomes cultural, structural and institutionalized, and sustained by a conservative moral (Roese, 2009).

The reality about many women in society and how the family organizes itself changed. Women today, in an increasing number, work outside the home, are qualified and competent professionals, living alone, and many, support their own families. The discourse of the Church today is not suitable for the everyday reality of these women, whether they are independent or whether they are in an abusive relationship [...] (Bergesch, 2006, p. 128).

Often, women who are abused ask God to free them from this calvary, because they believe in its power. However, they don't believe themselves. They seek support in religion not just for the wedding, but also for the divorce, when the cycle of violence becomes unbearable. "A religious legitimacy to get out of violent situations" (Lemos & Souza, 2009, p. 19). God cares for us with love and encourages us to make use of this inner power, opening the doors to understand who we are and how we are important in the world. You need to trust that God also believes in us. Women who undergo violent situations usually have a self-esteem so impaired that are slow to realize his own strength. Gradually, they can regain their human dignity that was stolen, discovering themselves as women created by God for happiness, solidarity and full life. And then, will be free to grow, first of all, the love itself. "The woman who loves herself always walks with his head high, look safe, and each day grows your confidence in yourself and your power as a daughter of God." (Calabrese, 1998, p.193). It thus becomes essential that gender relations and religious morality that fosters violent relationships be reviewed, and this has to be a role of education, even within the churches. Women need to be encouraged in their self-esteem, empowered, so that the cultural and religious context that underestimates women should just stay in the past, and that fair and just relationships start to be a reality.

#### 4. Final Thoughts

Considering the high incidence of domestic violence in Brazil, as the indexes indicated earlier in this paper (COHRE, Pesquisa Fundação Perseu Abramo, 2010), we question how many families are in this situation within a community or school. Many communities do not receive women and families experiencing violence in a empowering and liberating way, but legitimize violence, and encourage women to endure the violence they suffer, without considering that women are worthy human beings who deserve to have a life free, fair, and without violence. An education on gender is urgently needed in the educational and religious context in order to question and change the oppressive gender relationships taught and stimulated in culture, the schools, and by religions. Stereotypes of obedient, passive and submissive women are oppressive and destructive to the self-esteem of women, justifying acts of violence, and needs to be deconstructed. Women in situations of violence need to feel safe - both in relation to confidentiality as compared to non - prejudiced judgments:

A woman seeking aid and at the same time, have difficulty understanding the relationship of violence in which it participates, states that her history is recognized as true [...] requires a pastoral counselor understand and believe in his speech. Consequently, this also means receiving practical referrals, for example, house addresses shelter, aid phones and necessary referrals (Bergesch, 2006, p. 129).

Churches and schools should take the responsibility and training and qualification of their religious leaders and educators to prevent, educate, serve and host families and especially women living with domestic violence leaders. However, we must be alert to all aspects involving violence against women, such as the cycles of violence and threats of man with aggressive behavior, for example. It is quite common for women to seek help in their church and then repent of this act. In some cases, may even distance themselves from their community, need not explain why this new chance at your relationship and marriage. But if the spiritual counselor aware of all the complex issues that are involved in an abusive relationship, it will not (pre) judgments and know how to continue welcoming and advising this woman and her family. It is therefore crucial to deconstruct the oppressive gender relations legitimized by religion and education in order to eradicate domestic violence, empower women, and promote the ideal of peace, equity and justice for all people.

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# Representation of the other in George Orwell's *Burmese Days*

Fatma Kalpaklı\*

\*Faculty of Letters, Selcuk University, Konya 42, Turkey

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## Abstract

In *Burmese Days*, George Orwell presents the relationships between the English people and the Indian people in the days of the British colonialism in Burma. As time goes by, the interactions between the English and the Indians result in the othering process as differences rather than the similarities are emphasized by the English. Thus, the Indians are perceived as the other, as the non-white, non-Christian by the English. In this article the perceptions of the other will be studied with regard to George Orwell's *Burmese Days*. Moreover, the Eurocentric perceptions of the East and India will be dealt with closely.

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**Keywords:** George Orwell, *Burmese Days*, Anglo-Indian relations, the Other, the Other process, British Raj, displacement.

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## Introduction

The British presence in India began with the establishment of a few trading centers at Madras, Bombay, and Calcutta (Mahmud, 1988: 183) in the sixteen century (Edwardes, 1994: 15). As time went by India became "the jewel of the British Empire". Thus, India began to attract the attention of the adventurers, especially of the second sons of the wealthy families because of the British inheritance regulations, which dictate that the second sons do not inherit as much as the first sons. Therefore, the second sons end up in becoming either Army officers or officials in the colonies such as in India, Trinidad or Ceylon.

George Orwell was one of these officers in India and began his career as a member of the Burmese Imperial Police in 1922 and had the chance to learn India's culture. After returning to England in 1927, he began to write his first novel, *Burmese Days* (which was published in 1934) ("George Orwell").

The novel presents a realistic picture of the British colonialism in Burma. At the beginning of the British Raj in India, most of the Indians were content with the English people and the English existence in India. Until the Mutiny of 1857, the English and the Indians were on good terms. However, in 1857, the use of cow and pig fat in rifle cartridges was one of the main causes of the Mutiny and it created such fears among the Indians that Indian religion and culture would be erased by the English culture (Edwardes, 1994: 150). Therefore, some of the Indians rebelled against the British Raj.

Though the Mutiny of 1857 was suppressed and British authority was regained in India, its impact on Anglo-Indian relations continued. From then on, there was mistrust on both sides. Within the context of imperial policies, the British Empire decides to adopt a more strict paternal colonizer's attitude. Similarly, when Orwell began his service in the Imperial Police in 1922, the relations between the British and the Indians were not very well.

At the time, the British claimed that their presence in India was beneficial for the development of the Indian people, who are very backward and who are in need of the British guidance. Thus, they regarded the Indians as the child-like people, who should be taken care of and governed by a superior race, that is by the British people. The superiority complex of the British resulted in the othering process, racism and in the exclusion of the Indians from the white circles (such as the whites-only club in *Burmese Days*). The aim of this article is to analyze the representations of the other in George Orwell's *Burmese Days*.

Throughout the novel, the "us and them" attitude is prevalent and the Indians, being non-white and non-Christian, are perceived as the other. There are clear-cut distinctions and borders between the English and the Indians in *Burmese Days*. At one scene in the novel, Flory, who is the main character in *Burmese Days*, suggests that indigenous people should also be welcomed at the English club. Ellis, another Englishman in the novel, applies the othering process towards the indigenous people and illustrates the typical attitude of the Englishmen, or on a larger scale the Eurocentric attitude towards the indigenous people by expressing the following words to Flory: "You oily swine! You Nigger's Nancy Boy! You crawling, sneaking, bloody bastard! ... Look at him, look at him! Letting us all down for the sake of a pot-bellied nigger! After all we've said to him! When we've

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\* Corresponding author. Tel.: 00-000-000-0000  
E-mail address: fkalpakli@gmail.com



only got to hang together and we can keep the stink of garlic out of this club forever. My God, wouldn't it make you spew your guts up...?" (Orwell, 1984: 235). Through his utterance of the words above, Ellis expresses the prevalent racist British belief that the white-men are superior to the indigenous people and that the Indians should not be welcomed at the English club in India. They further should be excluded from the white circles. Thus, they should know their places and boundaries and remain as "the other".

As an extension of the fear and hatred against the other, there is a tendency among the English to associate the Indians with bad and evil things. As a consequence of these racial tendencies and prejudices, the Indians become the scapegoats at the hands of the English people. For instance, in one scene in *Burmese Days* a British officer is killed and immediately an Indian is accused of, despite not having enough evidence, murder. General McGregor, the British officer, says to his fellow British officers that "[t]hese may not be the natives who murdered the man, but they'll do... We need a nigger, any nigger, and these are just as good as any. They will most definitely be found guilty and executed for the crime" (Orwell, 1984: 242). This passage is very remarkable to show the extent of the othering process and racism and these events remind us *To Kill A Mockingbird*, in which a black man is accused raping of a white girl, though he is innocent. These events pave the way for revolts and protests. Having been exposed to injustice for too long and for many times, the Indians begin to protest that they are not represented fairly "in the British courts" and therefore, the Indians try to solve their problems in their own ways. They begin riots to get what they deserve or achieve justice. For example, Ellis, an Englishman, causes an Indian boy to become blind. Upon this event, some Indians come together in order to punish Ellis themselves and to protest the injustice done to the Indians at the courts. They go to Ellis's house and seeing Flory with him there, they say, "Mr. Flory! Ah, Mr. Flory... Please, return yourself to the building... We have no problem with you. You are a good man and we do not wish to harm you. However, we do require that you deliver Ellit to us. He has struck one of the boys in the face and blinded him. You had better be quick, min gyi (sir). We know that there is no justice for us here in the courts, so we must punish Ellit ourselves" (Orwell, 1984: 247). Ironically, in their own homeland, Indians are judged with the English laws and consequently, the Indians are deprived of their human rights and justice.

Before the events narrated above, for a period of time, the Indians were unable to see the evil and corruption beyond the white mask. There were some Indians, who perceived the British as friends and tended to take side with the British. The best expression to explain this situation/or the colonization of India with the consent of some Indians by the English may be "it takes two to tango". These issues are also illustrated in detail in Orwell's *Burmese Days*. Throughout the novel, many of the Indians try to impress the British by adopting British manners and eventually become themselves mimic men.

This situation may stem from the fact that Indians are exposed to British culture and education for so long that they internalize the British values without questioning. Moreover, as it is also pointed out by Memmi and Fanon in their books, Indians have been brainwashed and "made to believe that a person of white skin is superior to one of dark skin". Therefore, Indians have a tendency to believe that the British are the best in their all deeds and beliefs.

With this respect, in *Burmese Days*, the discussion between Dr. Veraswami, an Indian doctor, and Flory, an Englishman, is remarkable. Dr. Veraswami takes a pro-British stance and expresses that "My friend, it is pathetic to me to hear you talk so. It is truly pathetic... You are forgetting the Oriental character. How is it possible to have developed us, with our apathy and superstition? At least you have brought to us law and order... Consider that there are also other achievements of your countrymen. They constructed roads, they irrigate deserts, they conquer famines, they build schools, they set up hospitals, they combat plague, cholera, leprosy, smallpox, venereal disease... Your people are truly the better... Behold the degeneracy of the East without the Europeans!" (Orwell, 1984: 42). Dr. Veraswami is such an admirer of the British that he feels gratitude to the British colonizers. He does not see the evil behind the white mask, whereas Flory, despite being an English, explains that the English are in India for the sake of Money and wealth, to exploit the land/India, not for the sake of humanitarian values.

Under the light of all the examples given so far, it can be suggested that Orwell in *Burmese Days* reflects the events in Burma towards the end of British Imperialism realistically and the power-struggle between the English people and the Burmese people is conveyed to the reader through the metaphor of the English club in Burma. Orwell defines the English club as "the seat of English power" (Bose, 1990: 61). Furthermore, in the novel, the willingness of Dr. Veraswami's to be a member of this club and his refusal by the British officers in Burma illustrates that they could not have a compromise due to "the othering process". The white men do not want to see the black man, Veraswami in the club, though he is well-educated and a doctor. Furthermore, Ellis looks down upon the Indian universities and does not see Veraswami as a real doctor since he "has done two years at an Indian so-called university" (Orwell, 1984: 24). The colour of his skin is seen as a barrier for the membership to the club. Though, he is an admirer of the British culture and though he imitates the Englishman, he is excluded from the white-men's circle. He neither belongs to the English, nor to the Burmese culture and he starts living in a social-limbo and he feels displaced in his own country. He does not question the British existence in Burma, on the contrary, he supports it and he believes in the superiority of the Englishmen blindly. Orwell's description of him is like a caricature and this may be taken as a critique of the indigenous people, who accept colonialism and who try to rise in the social-strata by co-operating with the British.

It is an undeniable fact that English men are there to exploit the land of the indigenous people and their sources. Thus, in the novel, Orwell draws a parallel between the usurpation of the Burmese land and the Burmese women. Even Flory, the most tolerant and friendly character towards the Burmese people, does not hesitate to abuse Burmese women sexually. He has a mistress called "Ma Hla May" and he treats her very harshly. He has sexual intercourse with her, and gives her money and then wants her to go out. It is like a take-and-give relationship, there is no feeling and emotion in their relationship. Just as they do to

Burma, the white man/Flory uses her for the satisfaction of his desires and needs. And perceiving her “as something disposable”, he leaves her eventually. In other words, she has no identity and no value in the eye of the Britishmen. From time to time, he does not avoid to use violence against her, he pushes her and hurts her (Orwell, 1984: 52-53). Flory/The British Empire gets rid of Ma Hla May/India, when she becomes a financial burden.

On the other hand, Ma Hla May is not very innocent and tries to get advantage of this relationship. She tries to get as much money as possible from this relationship, just like Dr. Veraswami thinks that India takes the advantage of Britain through the building of railways. Moreover, seeing herself as a white-man’s wife, she feels proud. Her attitude may be parallel to the attitude of U Po Kyin, who tries to benefit from the colonial system in the novel. Orwell points out that, “to fight on the side of the British, to become a parasite upon them, had been his [U Po Kyin’s] ruling ambition, even as a child” (Orwell, 1984: 6). Though Ma Hla May and U Po Kying try to exploit the colonizer, actually they are the exploited ones. They only deceive themselves by thinking that they could abuse the colonizer in return.

Parallel to the exploitation of India by the White-men, throughout the novel, women are exploited by the men and seen as “inferior”, regardless of their colour and their social statue, “[a] woman ranks at about the same level as a rat or a frog” (Orwell, 1984: 7). For instance, a white woman called Elizabeth is exploited sexually by white men, first by her boss in France, later by her own uncle, Mr. Lackersteen in Burma. Therefore, in a patriarchal society it is made clear that a woman has no other choice except marrying to a rich man. Only, Flory puts her “on a pedestal” and seems to appreciate her, but he cannot understand her and wants her to think in the same way as he does. He wants to colonize her by persuading her, not by force. He tries to conquer not only the white female body, but also her mind through persuasion. As an extension of this attitude, white “women cannot vote in the club” (Orwell, 1984: 219) in *Burmese Days*. In the novel, it is stated that Elizabeth’s mother is an artist and is a supporter of Women’s Suffrage Movement as the so called “civilized” white men oppress the white women. At this point, women suffragists may be likened to the Burmese nationalists, who try to gain their independence from the Oppressors. That is, women/Burmese nationalists are against the men/the British Empire. Relying on the dominance of WASP(M) people - which means White Anglo-Saxon Protestant (and in parantheses a hidden Male) - and the oppression of the indigenous people, it can be suggested that the oppressed/the other - non-White, non-Christian, non-Male that is Female - begins to look for justice in the novel.

On the other hand, paradoxically white women try to oppress black women. For example, Elizabeth finds “black women and her kinship with them” disgusting and sees them as “creatures with black faces” (Orwell, 1984: 113). This illustrates that there is not “sisterhood among the white and black women” and their colour is more important than their sex as a common denominator. Burmese women are put into some clichés by the English women and are likened to “boys” (Orwell, 1984: 84) with no curves in their bodies and described as “coarse-looking” (Orwell, 1984: 113) and as “small-footed” (Orwell, 1984: 123) and with “vegetable baskets on their heads” (Orwell, 1984: 119-120). Moreover, Burmese women have a tendency to imitate the white women and sometimes U Po Kyin’s wife dreams herself in “high-heeled shoes and in silk stockings” (Orwell, 1984: 136) and this Anglicised image makes her very happy in the novel. In other words, they become mimic-women. Furthermore, Flory cannot remember Burmese women’s faces (Orwell, 1984: 186) and their not having any faces reveals that in the eyes of Flory, they do not have an identity. Likewise, Verrall, a policeman, perceives (both black and white) women as “distractors and they take men away from polo and so on”(Orwell, 1984: 193). In addition to them, Mr. Lackersteen abuses both white and black women (Orwell, 1984: 201). In the novel, Elizabeth’s shooting birds and tigers may be taken as a reaction to these abuses of the women by the men. As she cannot control men, unconsciously she tries to control animals. That is, since she cannot take her revenge from the white-men, she becomes cruel towards the animals. The oppressed/Elizabeth becomes the oppressor for the animals and for the black servants. In the novel, it is emphasized that Burmese servants prefer man-sahib, no a woman sahib, since the English women are more cruel towards them. Therefore, servants also make “the othering process” and say “they [English women] are not even human, they are a different race” (Orwell, 1984: 112). And a white woman becomes superior to a man, only if the man is black. As it is mentioned before, the main determinant of one’s social position is one’s skin-colour rather than one’s sex. Then, if you are a colonized black woman, your burden is tribled.

Thus, the situation of the black women is worse than the situation of the white women. This becomes very striking in the scene when “Ma Hla May kisses Flory’s shoes” (Orwell, 1984: 147). Flory is the Man/Master/Colonizer and Ma Hla May is the Woman/Servant/Colonized and therefore she is suppressed three-times.

One may justify Ma Hla May’s situation, but in fact when a Burmese woman gets married her situation does not change much. For instance, Ma Kin, U po Kyin’s wife always “stands behind her husband and serves him”(Orwell, 1984: 13). Similarly, Doctor’s wife hides herself whenever Flory comes to their house like it is done in the *haremlık-selamlık* tradition in the Ottoman Empire and this shows that women are isolated and they do not take active parts in social life.

Yet, in *Burmese Days*, women are not the only ones, who are perceived as the inferior and “the other”, the indigenous people of Burma whether they are men or women face the same problems. In the novel, the Englishman’s negative stereotyping of the Burmese may attract a keen-eyed reader’s attention. First of all, Burmese people are “lazy, dirty and smell garlic”. They are not considered as human-beings, for example Mrs. Lackersteen says, our servant “loved us like a dog ”(Orwell, 1984: 28). They can love like an animal, not like a human being. An extension of this belief is that they do not have intellectual capacity and they “understand only violence”(Orwell, 1984: 107) like animals. And the British officers in Burma believe that only through the use of violence, one can make them work, not through persuasion.

Orwell himself unconsciously believes that all Burmese magistrates are dishonest and cunning and this belief comes to the surface, when he uses the following words for U Po Kyin, "he is a fair sample of a Burmese magistrate" (Orwell, 1984: 43). At the beginning of the novel, we are informed that he takes "bribes" (Orwell, 1984: 6) and abuses his power at work. Parallel to this, Eurasian overseers are seen as "inefficient in work" and therefore, it is stated that in Flory's absence, "everything went to pieces at the factory" (Orwell, 1984: 110). In addition to these, the early comers to Burma advise to the new comers not to trust to the indigenous people. The warning "[d]o not trust to Indians" (Orwell, 1984: 179) is repeated many times by the English in the novel.

Apart from these, the indigenous people are "supposed to be poor" and if someone has more wealth than the British expect him/her to have, then s/he is accused of being a thief in the novel. "How can a black have an Emerald Ring?" (Orwell, 1984: 71) says a British man and then accuses a Burmese man of being a thief.

In addition to these, the Burmese people are depicted as "superstitious" and irrational. In the novel, it is stated that the Burmese do not grease the axles of the bullock-carts because they believe that "the screaming keeps away evil spirits" (Orwell, 1984: 56). Furthermore, they are assumed to "drink urine and menstrual blood" (Orwell, 1984: 138) to cope with illnesses. And when an earthquake happens, the Burmese believe that Nga Yin, a giant is shaking himself (Orwell, 1984: 171-2).

What is remarkable is that throughout the novel, the Englishmen insult black people and especially Ellis calls them as "the incestuous children of pigs" (Orwell, 1984: 230). They are also defined as "a row of yellow, malicious faces" (Orwell, 1984: 229). Paradoxically, Burmese people themselves begin to believe in these images that even they themselves begin to perceive themselves through the negative images made by the white men. Doctor believes that "one European can do an Oriental more good than that of a thousand of his fellow countrymen" and as if to prove this belief, Orwell makes him enter to the club with the help of Flory. In other words, in *Burmese Days*, Burmese people are depicted in such a way that "they cannot do anything without the help of the Englishmen". And as they do not have any value as human beings, "every year, eight hundred Burmese are murdered and they are seen as nothing, but when a white man dies, it is taken as a massacre" (Orwell, 1984: 215). Thus, the Burmese do not deserve to sit in the same rows with the English people as they are inferior and as they are something to be avoided and consequently, Oriental Christians sit at the back rows in Church. Furthermore, it is pointed out in *Burmese Days* that Mandalay is famous for five main products all beginning with P. These five Ps are; Pagodas, Pariahs, Pigs, Priests and Prostitutes. It is clear that Pigs, Pariahs and Prostitutes are used to add to the negative stereotyping of Burma and Burmese people.

In the novel, the Englishman's positive representation of the Burmese people can also be found, though it is very rare. To exemplify, at one point in the novel, they are shown as "more humanistic than the English people" and this is expressed by Flory in the following words: "They [do not] let anyone to starve" (Orwell, 1984: 116). Apart from the negative and positive images of the Burmese people, there are some depictions of them which are neither positive nor negative. For example, like Edward Said does in *Orientalism*, Orwell in *Burmese Days* emphasizes the exotic nature of the colonies and the East. He depicts Burmese dancers and through Flory's expressions tries to persuade both Elizabeth and the reader that they are unique: "[T]his was the Orient, scents of coco-nut oil and sandalwood, cinnamon and turmeric, floated across the water on the hot, swimming air" (Orwell, 1984: 92).

Furthermore, Orwell deconstructs the image of the black man as something horrible and something to fear by depicting a black baby who begins "making water on the floor" (Orwell, 1984: 125), when he sees white-faces around him. It can be argued that in this instance, Orwell shows that "man is man" and suggests that as white man has doubts and fears about the black man, it is the same for the black man. As this baby has not been exposed to the British way of thinking and education, his reaction is very natural. Thus, Orwell juxtaposes the baby's natural behaviour and the Burmese adults' learned/or rather imposed and artificial behaviour (which results in the Deification of the English people) towards the British people. The Burmese men's idealization of the British people or the deification of the British people by the Burmese people attracts our attention and it is an imposed and learned behaviour. For example, Flory's servant calls him as "the Holy One", yet he cannot see the fact that Flory came to Burma as he was one of the typical hopeless Englishman who "cannot find a job in England" (Orwell, 1984: 62) and tried his chance in a colony as Albert Memmi expresses in *the Colonizer and the Colonized*. Likewise, Elizabeth came to Burma to find a husband in the Indian-marriage market, "when a girl's failed everywhere else she tries India, where every man's pining for the sight of a white woman" (Orwell, 1984: 104-5) says Mrs. Lackersteen in *Burmese Days*. Moreover, Englishmen wear white clothes, which show that they do no manual jobs and which shows their social-status. This whiteness may also be taken as a symbol of purity, which goes hand in hand with the act of deification. Moreover, they are fat, which show richness and healthiness. In other words, mostly they are given positive attributes.

On the other hand, the Burmese men's negative stereotyping of the British people is very rare and is made collaboratively. For example, British Empire is depicted as "an aged female patient of the doctors" (Orwell, 1984: 35) towards the end of Imperialism (which reminds us the saying *hasta adam* (an aged male patient) for the Ottoman Empire). It is interesting that the English people and imperialism are not depicted negatively by the Burmese, but by Flory and by the narrator, which may be taken as a self-criticism made by Orwell. We are informed that even clergymen, who are supposed to practise religious doctrines, sleep with Burmese girls and have mulatto children (Orwell, 1984: 117). Besides these, clerks become false-witnesses in the trials and all this information and self-criticism are given through the mouthpiece of Flory.

In addition to these, English officers in Burma are racists and therefore, they admire Germans (Orwell, 1984: 228) and Hitler very much. Interestingly enough, English women are more racists than men and can easily apply the othering process. Sometimes, they may become more cruel to cope with the fear of rape by a black-man. Mrs. Lackersteen unconsciously exaggerates this fear and she begins to see Burmese nationalism as a kind of rape as well: "To her mind the word sedition, Nationalism, rebellion, Home Rule, conveyed one thing and one only, and that was a picture of herself being raped by a procession of jet-black coolies with rolling white eyeballs" (Orwell, 1984: 131). Then not surprisingly, most of the English in Burma do not like "the missionaries" (Orwell, 1984: 26) who teach equality. Contrary to the missionaries, Englishmen in Burma are mostly the believers of violence. For example, Maxwell, an Englishman in the novel, shoots a Burmese and then, the relatives of the Indian boy kill Maxwell in return. Another example of violence is seen when Ellis blinds a Burmese boy, which later causes to the "Villagers' Revolt" (Orwell, 1984: 233) in order to have justice in courts (Orwell, 1984: 234). To suppress this revolt, Mr. Macgregor gives permission to the use of weapons. However, Flory makes sure that the police "fire over the crowds's head instead of straight at them" (Orwell, 1984: 244) and saves the Indians' lives. Yet, Nationalists are punished severely, for instance the editor of the Burmese Patriot had been put on trial for sedition and then went on "hunger strike", and two rioters (Orwell, 1984:106) died. Though, the use of violence against the indigenous people is forbidden by the British government, it is practised by the British officers in Burma. They disapproved these laws and call these humanitarian-laws as "kid-glove laws" and instead, they suggest to apply "the way of Turkish flogging" (Orwell, 1984: 107) to the indigenous people.

In *Burmese Days*, Flory's ideas seem to oscillate between two opposites. This may be taken as an inner-conflict. He sometimes sees Englishmen as heroes as they endure hot weather and illnesses in Burma. And he even says, "living and working among the Orientals would try the temper of a saint" (Orwell, 1984: 14). On the other hand, he declares that Englishmen are "despots" and Burmese men are more humane than the so called civilized Englishmen. And only after considering all the events in the novel, we can see clearly his stance and we deduce that he is a humanist and an Anti-Imperialist. To exemplify, he includes his servant Ko Sla in his will. And this shows Flory's good feelings towards the Burmese people. Moreover, in his biography it is stated that "Orwell himself was not happy to be a policeman in Burma" (Orwell, 1984: 166). Thus, in the novel Flory may represent Orwell's own ideas.

In addition to these, in *Burmese Days*, only Flory confesses that contrary to the common assumption Britain brings civilization to the colonies, in fact they destroy the unique culture of the colonies. For example, the development of Indian shipbuilding and Indian Muslims were prevented by the British Empire. Moreover, they do not give the important jobs to the Indians to make sure that the Burmese people will not become powerful and be a threat for the English in the future. Flory underlines the fact that only independent countries like "Japan and Siam" (Orwell, 1984: 39) developed their own industries, not the colonized ones. Thus, England wrecks (Orwell, 1984: 40) Burmese national culture, instead of bringing civilization.

To conclude, in *Burmese Days* George Orwell deconstructs Kipling's "White Man's Burden" and he is bold enough to say openly that Englishman is in Burma in order to take advantage of it and also contrary to the arguments of bringing civilization, in fact they destroy or rather kill the unique Burmese culture. Furthermore, Flory's act of committing suicide may stand for his belief that English existence in Burma is not a necessity and should come to an end. Flory/Orwell sees "the Empire as a system in which he could not continue to participate and keep his self-respect" (Orwell, 1984: 142). Therefore, in the novel by putting an end to his existence as a colonizer in Burma, he puts an end to the imperialism in Burma and let the other continue his life as s/he wishes.

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# Research as a curriculum movement: teacher protagonism as a pathway to learning

Angélica Vier Munhoz<sup>a\*</sup>, Morgana Domênica Hattge<sup>b</sup>

<sup>a</sup>Univates, Rua Avelino Tallini, 171, Bairro Universitário, Lajeado, 95940000 Brazil

<sup>b</sup>Univates, Rua Avelino Tallini, 171, Bairro Universitário, Lajeado, 95940000 Brazil

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## Abstract

This paper analyzes some curriculum practices developed in a Colombian school in which an experimental education project has been carried out. By taking the Foucauldian genealogy as our theoretical-methodological reference, we aim at evidencing some curriculum movements produced in that environment. The study shows that research as an educational principle and teacher protagonism can be important movements in the construction of a kind of education that is more concerned with the needs of the subjects and the local community and less committed to fixed, predetermined standards from which school curricula have been usually established.

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*Keywords:* Curriculum; research; teacher protagonism; genealogy; Michel Foucault

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## Introduction

Research inside the school and beyond as a curriculum movement. This is the starting point for discussion in this text. In the first section, we attempt to present the practice here considered by locating it among the findings of a more comprehensive research from which this study has stemmed. In the second section, we present Escuela Pedagógica Experimental, the Colombian institution where the experiment discussed here has been performed. Finally, in the third section, from the studies already carried out, we attempt to think about research by focusing on that Colombian school, its curriculum relationships amidst schooled and non-schooled practices, and its emphasis on teacher protagonism.

## School and non-school curricula

The objective of the research Curriculum in schooled and non-schooled environments in Brazil and Colombia: different relationships between learning and teaching is to problematize schooled and non-schooled curricula, in an attempt to analyze schooled and non-schooled movements and how such concepts have been articulated. The research was approved by the National Council for Scientific and Technological Development (Edital MCTI/CNPq Nr. 14/2013) and is linked to the Post-Graduation Program – Master Course in Teaching, Univates University Center. The research has addressed curriculum movements in four places: a school in Brazil, a school in Colombia, and a non-governmental organization (NGO) and a museum in Brazil.

We live in a highly schooled and pedagogicalized society where “school has been once and for all established as the great truth to which we all subject” (HATTGE, 2013, p. 95). According to Segura (2000, p. 159), “the school as it is nowadays is a scientifically supported institution whose management has been generally successful and, finally, has met the society’s expectations”. Of course, there are criticisms to its processes as well as questioning of its outcomes, but it is almost a consensus that every child should undergo the schooling process.

Noguera-Ramirez (2011) has analyzed the institution of what he called “learning society” (NOGUERA-RAMÍREZ, 2011, p. 21), in which, on the one hand, we can notice the “extension of the educative function beyond the school” (NOGUERA-RAMÍREZ, 2011, p. 21); on the other hand, there is the “resulting demand for constant and life-long learning by the inhabitants of this new social place, a demand that causes us to regard them as permanent learners” (NOGUERA-RAMÍREZ, 2011, p. 21).

It is understandable that the frontiers separating school from non-school contexts have been often questioned, relocated and re-signified by schooled and non-schooled movements, which have posed us different questions along the research. Therefore, we attempt to understand which curriculum movements have been instituted in the practices performed in each one of the places addressed.

The research began in March 2013. Based on Michel Foucault’s thought, the study has used genealogy as its methodological principle. Genealogy, from a Foucauldian perspective, can be understood as

[...] the attachment of knowledge to local memories, which allows the constitution of historical knowledge about fights and the use of such knowledge in present tactics (FOUCAULT, 2002, p. 15).

In this sense, as an initial methodological movement, it was necessary to search for local knowledges in every research environment – yellowish files, legal documents and archives, as well as texts written by teachers and managers of the surveyed institutions. Furthermore, it was necessary to talk to teachers that took part in the writing of those documents, as they would be able to contextualize and question them, and detail the movements made in their production.

However, it is important to explain that, in accordance with the genealogical perspective, we do not intend to reconstruct a “true” history by looking for a supposed essence that could characterize the institution and its actors. Rather, we attempt to understand how certain discursive and non-discursive practices have been instituted, the forces that have operated on their institution, how the subjects have related to them and which effects they have produced on that environment. Thus, through the analysis of those materials (documents, scientific texts, interviews), it is possible to know the process of constitution of those environments and evidence some practices that have constituted different curriculum movements, thus allowing several articulations. In this text, we focus on curriculum practices performed in Escuela Pedagógica Experimental in Bogotá, Colombia.

### **Escuela Pedagógica Experimental and the institution of an ever-changing curriculum**

Escuela Pedagógica Experimental, or EPE, was founded in 1977, when a group of five teachers working at Universidad Distrital decided to start the project with the objective of constructing an educational environment (SEGURA et al, 1999). With time, the school was integrated into a corporation that invests in teaching, research and extension projects. The following excerpt from an interview shows such a movement:

[...] the school was started in 1977 with five owners. In 1986, there were two owners because the others sold their shares. In 1986, we decided to increase the number of partners of that limited partnership until 1991. In 1992, the corporation was instituted, and all the partners either donated or sold their shares to make it a corporate non-governmental organization. (Interviewee F)

EPE was born as an experimental education project intended to disrupt the modern school model and its stratified ways to approach knowledge, space, time and subjectivity.

For many people, more than being a formal education institution, a pedagogical laboratory or a place where proposals are designed and tested, the *raison d'être* of EPE is the possibility of inspiring changes in the educational system (SEGURA et al, 1999, p. 42).

Since 2012, EPE has kept an agreement with the Pedagogy course of Unives University Center, and every semester two students undergo training in the school<sup>†</sup>. The purpose of this agreement is to make possible for Pedagogy students to have pedagogical experiences in schools whose curricula have been organized differently. This is the case in EPE.

The school was strongly established from the denial of both curricula and practices regarded as “traditional” by its founders. One of the statements that are often heard from the school teachers is that EPE does not have a curriculum, as we can see in the following fragment of interview:

Considering that the traditional view of curriculum as content organization, in which contents are seen as a list, a logical sequence from simple to complex, from this perspective, the school doesn't have a curriculum, that is, from such perspective we talked about, we don't have a curriculum. We don't respond to that kind of thing. We have a different proposal in which (...) the subjects construct their knowledge. In this sense, there isn't a pre-established order of actions that, for example, would allow or make that construction possible. (...) In that series of interactions, everyone interacts in a particular way. The group interacts as a whole, but there are subtleties in the interaction of each individual. (Interviewee M)

“Schooling is awfully mortiferous”, states Gutiérrez (2000, p. 101). The school thought as a synonym for schooling is related to education with institutionalized objectives, whose actions seek for “uniformization of several sociability patterns and lifestyles

<sup>†</sup> Eight students have undergone the training at Escuela Pedagógica Experimental as required by the Pedagogy course curriculum.

under the citizenship veil” (CORRÊA; PREVE, 2011, p.188). It is possible to notice that EPE, in its curriculum movements, attempts to distance itself from a schooling model. Despite being constituted as a school environment and acknowledged by the Ministry of Education in Colombia, the school has produced disruptions with the marks of schooled education for more than three decades.

What we actually require from a school is neither education nor knowledge, but certificates. We have arrived at this unfortunate, unspeakable situation because we have seen schooling as education. Naively, we believe that schools educate, but that is not true. The school does not educate, it does not have time to do that. The school instructs and does it very badly. Despite being compulsory, free school is still the slogan used by politicians from every party (GUTIÉRREZ, 2000, p. 100).

Marques and Hattge (2013) carried out a research to understand the different views of curriculum that have been mobilized in the school. In order to do that, they interviewed the school teachers and students of Univates Pedagogy course that underwent curricular training at EPE. The authors say:

We know that sight “has been celebrated as a privileged sense able to perform an accurate mediation between us and reality, i.e. to show how the world really is” (VEIGA-NETO, 2002, p. 24). In this paper, however, we have a different objective by bringing forward the view issue. Our intention is not to say how the EPE curriculum really should be and understood. Our intention is to show that meanings are instituted from different ways of looking at them, thus producing distinct experiences on approaching the same space. From the interviews with the Colombian teachers, it was possible for the student and her advisor to perceive how those teachers understand the school curriculum – as a school concerned with the students’ interests, in continuing construction and development, a school that prioritizes meaningful learning, is interested in daily topics and addresses issues related to the society as a whole. Univates students regard EPE’s curriculum similarly. (...) Activities challenge students to think, design strategies to solve problems and research into the studied subject or theme. In this way, students become protagonists of their own learning process and their academic and personal growth and development (2013, p. 72-73).

In the next section, we analyze more deeply the way the research that was started at EPE and has been extended to the social environment has become an important movement in the curriculum and produced effects on the modes of teacher and student subjectivation at EPE.

### **Research started at the school as a curriculum movement: teacher protagonism**

On analyzing how the curriculum has constituted relationships at EPE, our attention is drawn to how research has become a routine practice there. The investigation projects, as they are called, gather teachers and students around a variety of themes and usually enable inter- or trans-disciplinary experimentations. These investigation projects go beyond the school boundaries and expand to build bonds with the school community, as it is the case of the project entitled Blue Economy, which seeks to problematize practices that affect the planet and the ways that learning related to sustainability can occupy the school space. In interaction with the school community and the local community, EPE has tried to find solutions for imperious environmental problems both inside and outside the school, such as the recovery of a stream in the school surroundings. To do so, teachers and students have allied themselves with other professionals that can contribute with their knowledge, as well as with community people that, not necessarily having professional education, may be considered as experts in a particular theme and contribute with their knowledge to help find a solution for the problems they are facing.

We believe that in the school we must do much to prepare for living in a rapidly changing world and, at the same time, have a solid education to contribute to those changes. The goal is that all human beings are happy and able to share our existence by respecting the existence of other living beings. (CORPORACIÓN ESCUELA PEDAGÓGICA EXPERIMENTAL, 2014, s.p)

This project is an example of how to get away from that curriculum and, say, integrate all the areas. (...) So, teachers from every area are working in this project and learning. (interviewee V)

Inherent to this possibility of knowledge construction that disrupts the disciplinary and hierarchical frontiers of knowledges, we would like to highlight an issue that has drawn our attention amongst the curriculum practices developed in the school. Research at EPE has been usually associated with teacher protagonism, since students have the chance to construct their knowledge through searching, experimenting, exchanging with their classmates and the environment. But it is possible to

perceive that more than, or even before, investing in teacher protagonism, EPE invests in the student protagonism. This was the first challenge faced by the school, as we can see in the excerpt below:

Trust teachers so that they could generate options of a different school according to their context – that was the idea. (Interviewee F)

## Conclusion

The partial results obtained from the research have enabled us to perceive that, amidst discussions about curriculum, we intend to understand to what extent the concepts of school and schooling have been intertwined, thus defining curriculum movements. From this perspective, EPE is a potent place for investigation, as it is a school that seeks to create fissures in the curriculum model of the modern school. However, the research does not either aim at finding an ideal curriculum or working with the comparative notion of “good” and “bad” curricula. The focus is on the situations and conditions that enabled the emergence of such curricula, as well as on possibilities of weaving other curriculum movements and relationships. One of the issues that have become apparent up to this moment and we have attempted to evidence in this text is the importance of a research practice that goes beyond the school limits, in order to solve community problems; this is only possible through the reconfiguration of teacher subjectivity. A teacher that plays the main role in other ways of experiencing the schooling process by disrupting knowledge hierarchies makes possible the student protagonism, thus allowing the experimentation of new schooled configurations in their intersections with non-schooled practices in a continued movement.

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# Research-based guidelines for evaluating educational service website: case study of Thailand cyber university project

Jintavee Khlaisang<sup>\*</sup>

Associate Professor, Department of Educational Technology and Communications,  
Chulalongkorn University, Bangkok, 10330, Thailand (jintavee.m@chula.ac.th)

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## Abstract

The research aims to develop User Interface (UI) guidelines and a prototype for evaluating an educational service website. Thailand Cyber University Project (TCU) under Office of the Higher Education Commission, Thailand was used as a resource of detailed examination in this research. The guidelines development based on quantitative and qualitative data collected from the 3 data sources (n=139,482, n=7,147, and n=188,428 respectively) during the last 3 years. After the data were analyzed; the guidelines were developed; the prototype was tested by 107 users; and they were approved by the experts. Both the guidelines and the prototype were focused on 3 perspectives: technology, pedagogy, and accessibility, as detailed in the article.

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*Keywords:* Research-Based Guidelines; Educational Service Website; Thailand Cyber University Project

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## Introduction

The article on 'Research-Based Guidelines for Evaluating Educational Service Website: Case Study of Thailand Cyber University Project' presents the results of the research, focusing on the research process and the research results which readers can apply as guidelines in evaluating educational service website in different context. This includes evaluation process, evaluation guidelines, evaluation framework, and evaluation results. The article contains (1) Summary of research objectives and research methods, (2) Research results, (3) Discussion of the research results, and (4) Suggestions.

### 1. Summary of research objectives and research methods

The research aims to (1) study the use of TCU website from quantitative and qualitative data collected by TCU, (2) study website structure, user interface design, and conduct usability test of TCU website, (3) present a model of suitable website for TCU service, and (4) design and develop a prototype of TCU website from the proposed website model. Also, it presents recommendations and suggestions to develop the website suitable for TCU service. The research process consists of 4 phases including:

**Phase 1: Study the use of TCU website.** The data were collected from a system analyzing the statistics of the use of TCU website from 3 sources (1) data of link clicking on TCU website, (2) data of satisfaction survey of TCU website users, and (3) the overall statistics of the website. The report presented quantitative and qualitative data, classified by the variable features of users, satisfaction level, and other related context from the sample group of 139,482, 7,147, and 188,428 respectively.

**Phase 2: Study website structure, user interface design, and conduct usability test of TCU website.** The research was conducted using evaluating framework for educational service website in two main areas: (1) technology area, including user interface design, navigation design, accessibility from various devices such as computers, notebooks, tablets, and smart phones, and (2) pedagogy area including primary information sources, supporting information sources, quality of the design contributing to education, reliability, and preparation for the ASEAN Community in 2015.

**Phase 3: Present a model of suitable website for TCU service, using data from Phase 1 and Phase 2** includes: (1) the results of the study of the use of TCU website; (2) the results of the study of website structure, user interface design, and usability test of TCU website, based on two research conducted in 2010 and 2013 which the author was a principal researcher. The research includes "Proposed Models of Appropriate Website and Courseware for E-Learning in Higher Education: Research Based Design Models" and "Analysis of the Cultural Factors Affecting the Proper Design of Website and Electronic Courseware for e-Learning in ASEAN"; (3) literature review including research, articles, and samples of domestic and international sites; (4)

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<sup>\*</sup> \* Corresponding author. Tel.: +662-218-2644 ; fax: +662-218-2644  
E-mail address: jintavee.m@chula.ac.th

interviews with experts; and (5) analysis and synthesis of data obtained from step 1-4 to find a suitable educational service website.

**Phase 4: Design and develop a prototype of TCU website from the proposed website model.** Make recommendations to develop the site that is suitable for TCU service by: (1) designing and developing a prototype of the TCU website; (2) conducting satisfaction and feedback survey of users; (3) having the prototype approved by the experts; and (4) redesigning the prototype using the results from steps 2-3.

## 2. Research results

Research results included 4 phases of the research including:

### **Research Phase 1: The result of the study of the use of TCU website**

The study of the use of website collected the data from a system analyzing the statistics of the use of TCU website. The data consisted of quantitative and qualitative data, classified by the variable features of the users, satisfaction level, and other related context. The data was collected from 3 sources and can be analyzed as followed.

**Data source 1:** Data of link clicking on TCU website (n=139,482). Data, which was collected during January 2010 to December 2013, found that there was access to internal links and external links which can be classified into 7 groups: (1) education, religion, and culture, (2) science and technology, (3) economy and social, (4) language, (5) health, (6) energy, and (7) information published by TCU.

Regarding the top 10 links which had the most visitors, there were both internal links and external links. Popular internal links were TCU Open Educational Resources, TCU E-Books, and TCU Open Courseware. Popular external links included websites offering information about science and technology and language.

**Data source 2:** Data of satisfaction survey of the TCU website users (n=7,147). The objective of the survey was to compare the differences of user satisfaction in 2011, 2012, and 2013. The data was classified by gender, educational level, occupation, and access to services. The results showed that most users were female, younger than 21-30 years old, with educational level of bachelor's degree and occupation of students, followed by government officers / employees. Most users accessed the lessons in the TCU-LMS with the internet from educational institutes. Overall results found that users had satisfaction at high level and there was no significant difference in terms of gender (male), age (age group 21-30 years, 31-40 years, 41-60 years, and over 60 years), educational level (high school, vocational education, master degree, doctoral degree), occupation (state enterprises and private enterprises), and access to services (3G, educational institutes, Internet Café, and modem) that affected the user satisfaction of TCU website. Considering each item, it was found that users satisfied with stability of TCU-LMS, the publication of information on TCU website, the easiness in using TCU-LMS with minimal guidance or none at all.

**Data source 3:** The overall statistics of TCU website (n=188,428). Data was collected during January to December 2013. The results were divided into 4 quarters, including Q1 (Jan-Mar 13), Q2 (Apr-Jun 13), Q3 (Jul-Sept 13), and Q4 (Oct-Dec 13). The results were as follows; Hour Distribution, it was found that most visitors visited the website during 10:00 am - 16:59 pm, most visited on weekdays (Monday-Friday); Browsers, it was found that, in every quarter, TCU website visitors used Internet Explorer, followed by Safari; Reference, it was found that, in every quarter, most visitors visit TCU website from google.co.th.

### **Research phase 2: The results of the study of website structure, user interface design, and usability test of TCU website**

The results of this phase will be presented into 2 parts: (1) the results of the study of site structure and user interface design of TCU website, and (2) the result of the study of the structure of TCU website according to two researches conducted in 2010 and 2013.

**Part 1:** The report on the study of site structure and user interface design of TCU website consists of 3 parts. The first part is site structure. It was found that there were 3 types of link: 1) internal site, 2) external site, and 3) external site maintained by TCU. The second part is menu bar. It was found that TCU website consisted of 6-leveled menu. Considering the link to internal sites, external sites, and external sites maintained by TCU of the 6-leveled menu, it was found that there was a lack of consistency in the structure of the menu bar. The third part is page design. It can be grouped into 5 types. Every type has main components which were page header and page body. However, navigation menu was not consistent; sometimes it appeared on the left, sometimes on the right, or both. It can be concluded that the site still lacked of consistency in the choice of a model based on the type of link and content (site structure are shown in Picture 1-3).

**Part 2:** The report on the study of the structure of TCU website, according to the research conducted in 2010 and 2013 by the authors as a main researcher: (1) Research on "Proposed Models of Appropriate Website and Courseware for E-Learning in Higher Education: Research Based Design Models", and (2) Research on "Analysis of the Cultural Factors Affecting the Proper Design of Website and Electronic Courseware for e-Learning in ASEAN". The areas of evaluation consisted of 3 areas (1) Technology, including 1) user interface design, 2) navigation system design, 3) access to data, and 4) the compatibility of tools; (2) Pedagogy, including 1) primary information sources, 2) supporting information sources, 3) the quality of the design contributing to education, 4) reliability, and 5) preparation to the ASEAN Community in 2015; and (3) Accessibility, using "Thai Web Content Accessibility Guidelines" (TWCAG) which evaluated the ability of the website that can be perceivable,

operable, understandable, and robust.

The results of TCU website evaluation, considering the click of TCU website in order of Top 10, the first is the link to a PDF file which cannot be included in the analysis. In the evaluation of other 9 websites, the 3 areas to be evaluated included 1) Technology, 2) Pedagogy, and 3) Accessibility (TWCAG 2010).

*Analysis by the evaluation form of the site components on technology* found that the 9 websites had the first 3 user interface design components. They consisted of the clear identified name, quick access to information, and the easiness and convenience in controlling the using, respectively. For the components of navigation design, all sites had the top 3 components, including a link back to the main page, having a content overview, and using symbols that were easy to understand and convey meaning, respectively. For the accessibility components, all sites used and had the clear classification of content. For the components on the compatibility, the top 3 components that all sites shared were that they offered mobile Learning, were accessible via the tablet, and can be read on portable devices; both vertical and horizontal with text didn't exceed the screen when reading vertically.

*Analysis by the evaluation form of the site components on pedagogy* found that all sites had 3 components of primary information sources, including short and concise content, the division of content, and the classification of content into categories, respectively. For the components of supporting information sources, the top 2 components that all sites had were promotional tools for an online community and tools that helped in sharing information. Three components on the quality design that all sites had included short, concise, and update content, accurate and non-biased data, and complete information. For the components on the reliability of the site, the top component that the sites shared was that site creator and contact e-mail was published on the sites. For the last component on the preparation for the ASEAN Community, there was a single component that only 2 sites had which were content about the local culture of countries in ASEAN.

*The evaluation of the site components on accessibility according to TWCAG 2010* found that the components on perceivable, the 2 components that the sites had were the providing of alternate text for time-based media, followed by the presenting of the content that users can see or hear clearly, as well as the distinguish of the foreground and background colors. For the components on operable, the top 3 components that the sites had included the use of only keyboard to access all parts and use web pages, offering sufficient time to allow users to read and use content, and not creating content that caused seizure. For the components on understandable, the top 3 components that the sites had included the web pages appeared and operated in a predictable manner, users can read and understand the content in the text form, and the site helped users to avoid mistakes and suggest a solution. For the last component, robust, it was found that most sites (6 sites) had the ability to accommodate a wide variety of web technologies both now and in the future.

### **Research phase 3: Presenting a model of suitable website for the TCU service.**

The report was divided into 3 parts (1) the presenting of a suitable site model (2) the results of expert interviews, and (3) the analysis of data from 1-2 to find a model of suitable website.

#### **1) Presenting a model of suitable website for TCU service using data from the research phase 1-2.**

The literature review included research and articles related to the definition of educational websites, including the definition, types, guidelines for evaluating educational website, and samples of websites from both domestic sites and international sites. Also, information from research phase 1 and phase 2 was used as guidelines for evaluating educational websites and for designing and developing a prototype in the next phase.

#### **2) The results of interviews with 10 experts on the design and development of educational service websites.**

##### **Case studies: evaluation of the operation of TCU website.**

The results of the expert interviews could be summarized into 3 main areas that the reader can use as guidelines to design and evaluate websites.

**1. Technology:** (1.1) Navigation system design should focus on site map, add search box in a position easily seen. The design should accommodate users with different preference such as the design for people who like to search and the design for people who like to click, which should add social media icons to allow users to share their learning with each other. Icons should be consistent and harmonious in the whole site. Each module should be placed in the order of importance of the content. (1.2) Accessibility. Information display should not exceed one page and a half. Website should be in two languages. (1.3) The compatibility of tools. The website should be designed to accommodate the access by portable devices (Mobile site).

**2. Pedagogy:** (2.1) Primary information sources should separate internal information sources and external information sources clearly. MOU should be done to share course contents. Information should be updated and there should be an announcement about online courses. Organization image should be more emphasized by presenting the vision and mission. Tag Cloud may be used to present organization image. (2.2) Supporting information sources should add social media icons to allow users to share their learning with each other. (2.3) The design quality. Color tone of each module should be harmonious and well blended. Log-In area for should be placed in a position clearly seen (top left of the website). (2.4) The preparation for the ASEAN Community. There should be cooperation in ASEAN. News about ASEAN or courses related to ASEAN should be added. The website should be in 2 languages to support the ASEAN Community. Additional feature to translate languages of web browsers might also be used.

**3. Accessibility:** (3.1) The website should be developed to be user friendly site which users can use easily

without the need to learn. (3.2) The difficulty to access information. The website should be improved to enable easier access to information. Content structure should be redesigned to suit the user. (3.3) Information should be grouped according to the scope of TCU contents or the frequency and interest of TCU users. (3.4) The website should be designed to accommodate the access by portable devices (Mobile site). (3.5) Registration system should be improved by providing access without registration (Open Access). Single Sign-On system which allows users to access the services of the entire system with a single authentication should be used. In the first phase, it could offer to a small group of users and gradually develop further in the future. (3.6) User statistics. Tools that can show information of domestic sites may be used such as True Hits. (3.7) Search Box should be in a position easily seen and has a format compatible for users with different preference; people who like searching and people who like clicking.

### **3) Analysis of data obtained from step 1-2 to find a model of suitable educational service website.**

The analysis and synthesis of data from step 1-2 can obtain a model of suitable website (Page Design and Site Structure) and then data was used to develop a prototype for educational service website. This will be presented in comparison along with the research phase 4.

### **Research phase 4: The result of the designing and developing a prototype of TCU website from the proposed website model. Presenting recommendations and suggestions to develop the website that is suitable for TCU service.**

Research phase 4 will be presented in 4 parts: (1) Presenting a prototype of a redesigned educational service website; (2) Reporting the results for the satisfaction and feedback survey of the user of the TCU prototype website; (3) Reporting the results of the approving of the TCU website prototype by 5 experts, and (4) Reporting the redesigning of the prototype of TCU website from the results of part 2-3, including the feedback from users and experts.

1. Based on the analysis and synthesis data obtained from the report 1-4, a suitable site structure and page design can be created and then developed into a prototype of educational service website. Comparison detail will be presented in phase 4.

2. The report of satisfaction and feedback survey of 107 users of TCU prototype website. The report was done in qualitative and quantitative data analysis. It was divided into Part 1: Basic information the respondents and Part 2: Satisfaction of TCU website users in five areas: (1) web technology, (2) content design, (3) multimedia design, (4) interaction, and (5) identity and creativity.

**Part 1:** The survey of basic information of the respondents. It was found that most respondents were female (61.68 percent), aged 31-40 years (44.86 percent), educational level: master degree (42.06 percent), occupation: student (29.95 percent), experience in using the computer: 11-15 years (43.93 percent), having a computer or electronic device connecting to the Internet (98.13 percent), using a portable computer (notebook) to visit TCU website (36.03 percent), and having experience of using websites offering TCU service (45.79 percent).

**Part 2:** The survey of the satisfaction of users of TCU website. It was found that users had satisfaction at a high level ( $\bar{X}$  = 4.17, S.D. = .62). Considering each area, it was found that the highest area was identity and creativity ( $\bar{X}$  = 4.29, S.D. = .76), followed by content design content ( $\bar{X}$  = 4.24, S.D. = .60), and interaction ( $\bar{X}$  = 4.21, S.D. = .70), respectively.

3. The report of the approving of the prototype of TCU website from 5 experts. It was found that the experts had satisfaction at a high level ( $\bar{X}$  = 4.21, S.D. = .63). Considering each area, it was found that the highest area was web technology ( $\bar{X}$  = 4.35, S.D. = .51), followed by interaction ( $\bar{X}$  = 4.25, S.D. = .62), and content design ( $\bar{X}$  = 4.21, S.D. = .68), respectively. Examples of suggestions included: (1) A banner which can convey the meaning of the organization, without interpretation, should be used, (2) a screen design should be designed with elements and contents that attracted the attention of the general web audience and web members, and (3) there should be instructions showing in the first page and can be seen easily.

4. The report of the redesigning of the TCU website prototype based on the results of parts 2-3. The redesigning of the website developed by Content Management System: CMS can be summarized into 2 parts: the graphics and the system. The graphics have been redesigned based on the feedback, in both Homepage of TCU OOC and TCU GLOBE. The system has been modified in 10 parts which were in accordance with the suggestion in the research phase 1-3.

From the research phase 1-3, the author will introduce a website model and prototype that is suitable for TCU service. The presentation will be a comparison of 3 models: (1) the site structure and prototype before redesigning which was the result of the research phase 1; (2) Redesign 1 which was the result of the research phase 2; (3) Redesign 2 which was the result of the research phase 3. Examples are as follows.

1. Comparison of site structure before redesign, after Redesign 1 and Redesign 2, as shown in Figures 1-3.

2. Comparison of Homepage of the prototype before redesign, after Redesign 1 and Redesign 2, as shown in Figures

4-6.

### **Comparison of site structure before redesign, after Redesign 1 and Redesign 2.**

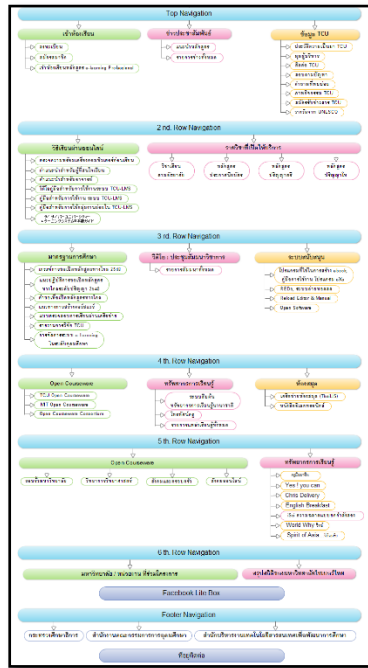


Figure 1: Site structure before redesign

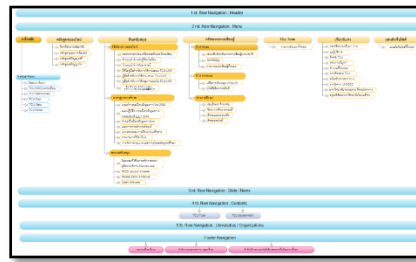


Figure 2: Site structure after redesign 1

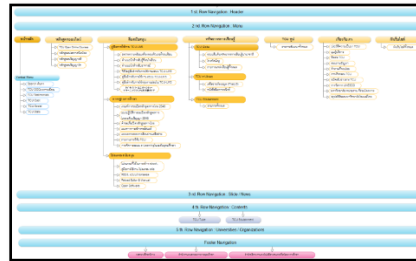


Figure 3: Site structure after redesign 2

Comparison of Homepage of the prototype before redesign, after Redesign 1 and Redesign 2



Figure 4: Homepage before redesign



Figure 5: Homepage after redesign 1

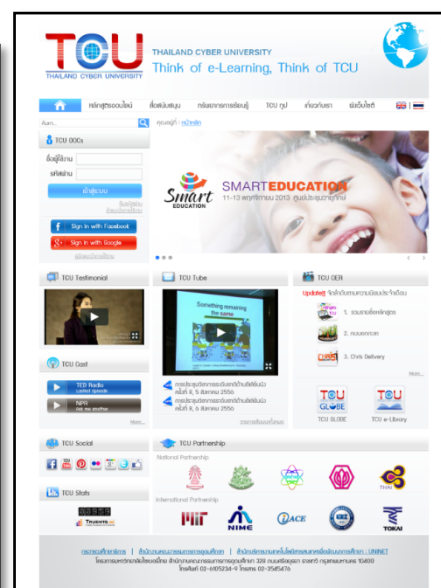


Figure 6: Homepage after redesign 2

### 3. Discussion of the research results

Considering the relevance with other researches, it was found that there were many other researches that were relevant and consistent with this one. For example, TCU website can be classified as many types of website considering its content and services. According to the concept of Anantakal (2005), they are (1) Information site which has the main objective to introduce organization, activities, and progress report; (2) Portal site with a variety of contents that does not specific on any subject. It offers both internal links and external links for the target audience; (3) Branded Promote site which aims to promote a specific issue such as new curriculum or course developed by TCU and annual national and international conferences; (4) Personal & Community site which users study in TCU programs or courses such as E-Learning Professional in a virtual classroom, specifically created for a group of people with specific interests; and (5) Educational site because overall TCU website has a clear purpose to disseminate knowledge, education, teaching, research in the organizational level.

When considering the type of educational site, it can be said that the distinctive feature of the technology of TCU website is Portal site. It consists of a search engine that compiled links of interesting websites as well as services related to the mission. In addition, the portal site is a place for people to share and discuss their opinions in various issues, which are called community web. It is a web hosting provider for a group of people who are interested in the same subject to exchange and comment with each other (Ping and Gisela, 2000; Sukekyu et al., 2003).

This is also consistent with the concept of Khlaisang (2010) discussing about a suitable website for e-Learning in higher education. It was concluded that there were 16 issues about the model of educational service website that the developer can use to design and develop website. This included technology, pedagogy, and accessibility. It is also consistent with the findings of the research on "Research on Analysis of the Cultural Factors Affecting the Proper Design of Website and Electronic Courseware for e-Learning in ASEAN" (Khlaisang, 2012). The research aimed to conduct Exploratory Factor Analysis: EFA on the culture and proposed a website and courseware model suitable for e-Learning in ASEAN. It was found that cultural components that affected website suitable for e-Learning in ASEAN consisted of 9 elements, 56 variables, divided into 6 direct elements and 21 variables and 3 indirect components, 35 variables, including technology, pedagogy, and accessibility. Thus for, the 2 researches can be additional sources of information in the process of designing, developing, and evaluating the quality of educational service website.

This is in line with the concept of Ping and Gisela (2000) which noted that in evaluating educational website, there were 2 issues to be taken into account: (1) the satisfaction of the user; the customer must be satisfied with the website appearance, including the design, the benefits gained, the use of graphics and (2) easy and uncomplicated access to information; users can access information and can go back to main page easily. This is in accordance with the guidelines for the development of the prototype website which focused on the design of user interface and adding social media to meet the interest of the target user. The design of a navigation system to provide a simple access to information, providing 2 languages, and the compatibility of the tool which focused the access by mobile devices were the issues to be in consideration.

Considering the type of educational service website, it can be said that the distinctive feature of education in TCU website is the content. According to World Best Website Awards (2004), the organizer defined evaluation and scoring criteria. The component of content has a weight of 30 %. The criteria consisted of *Purpose*: (1) having the clear mission and goals, (2) the

benefits and quality of content, (3) providing resources free of charge; (4) having a reason to return to visit, *Interaction*: (1) having interaction with users, (2) providing the privileges to members, (3) providing a list of e-mail, newsletters, news groups, (4) providing other useful services for users, and *Information*: (1) making complicated information easier to understand and summarizing the essence, (2) the structure of information and basic objectives are short and concise. Providing FAQ, (3) attracting interest and having a clear working system, and (4) access to information, content evaluation system, searching system, site map, steps to goal, the ability to read, effective graphics.

They are consistent with the concept of the American Association of Webmasters (2007). The organizer of AAWM Awards defined evaluation and scoring criteria based on the components, including the content which considered the following issues (1) clearly stated purpose, (2) title on each page, (3) naming titles and having persuasive message inviting viewers; (4) writing style, clear language; (5) contact information; (6) Policy and Terms of Use; (7) Copyright; (8) grammar and spelling; (9) a statement on user's privacy and confidentiality; and (10) content suitable for all genders and ages.

#### 4. Suggestions

Suggestions of each research phase can be described as followed.

**Research phase 1:** The results of the study of the use of TCU website can be used as basic information to design and develop a website to meet the needs of the target users and the objectives of the organization. Also, it can be guidelines for the study and analysis of the needs in other research.

**Research phase 2:** The results of the website structure, user interface design, and analysis of the suitability of the website for the use of TCU will be important information to analyse the suitability of the site by using guidelines to design and develop a website on international standards. Also, it can be guidelines for the designing and developing of educational in other research study.

**Research phase 3:** The results of the presentation of a model of suitable website for TCU service will be important information in developing suitable educational service website. The research employed data from the literature review, expert interviews, and feedback from the user. The results of this research will be useful for other research such as evaluation questionnaires of suitable educational website which were developed from literature review and the samples of 40 websites to get the questions that covered all aspects of the evaluation.

**Research Phase 4:** The results of the designing and developing a prototype of TCU website from the proposed website model and the presentation of recommendations and suggestions to develop the website that is suitable for TCU service. It will be important information to develop suitable educational service website. The researcher presented the prototype (Mock up) design and development methods of the 3 main pages with an emphasis on the use of Open Source Software which are internationally used and popular among of the website developers. So the website has international standards and can be delivered for future maintenance. The results of this research will be useful for other research in the part of the suggestions from experts who are professional in the designing and developing educational website.

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# Review of The Critical Reading Education in The Primary Schools\*

Erol DURAN\*\* - Esra YALÇINTAŞ\*\*\*

Uşak University, The Institute of Social Science/ TURKEY

## Abstract

The purpose of this research is to determine the 4th grade primary school students' level of attaining critical reading gains in their Turkish lessons. In the study also it was aimed to reach opinions of the teachers about examining of the 4th grade primary students' level of attaining critical reading skills. According to the results of the study, implementation of the available activities and critical reading gains can be said to that it provides contribute to critical reading skills of the students. However, when numeric datas are analyzed, critical reading attainment level averages of the students are seen to vary in between 32.75 and 72.94, and is observed to be critical reading skills an intermediate level of the students. It has further been concluded that, nearly total of the students could not have attained the gain "Determines, and questions the emotional and exaggerated elements in what he/she reads. (32.75)" at all. That have not still reached gains of some critical reading or that have possessed of a critical reading skills of intermediate level in the 4th grade of students should be interrogated when considering of the gains of critical reading taught from the 2nd grade. Expected that it provides contribute to the literature and applications with these aspects of the research.

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*Keywords:* Reading; Comprehension; Critical Reading

## 1. Introduction

It is quite important for the individuals' social and academic achievements to gain reading habit after learning how to read and write, and then to begin reading with a critical point of view (Gokturk, 1997). Therefore, critical reading is the key of productive thinking and most important part of the reading education (Cifci, 2006). Critical reading is not only limited in understand the text, also thinking on a text which read, determination of true and false in the text (Ozdemir, 1997, pp. 19), and the interpretation (Bagcı & Sahbaz, 2012, pp. 2) and the assessment of the opinions or knowledge (Candan, 2003, pp. 105) is the process. Critical reading begins with the interpretation of the subject based on individual's own life, accumulation of knowledge, to his/her observations, to his/her views (Orhan, 2007, pp. 49). According to Ozdemir (2002), critical reading is a skill that should be used throughout life. Critical reading has been defined as the ability to make judgements and inferences, distinguish between fact and opinion, and recognize the author's purpose or points of view (Darch & Kameenui, 1987). In short, critical reading is to actually thinking about the subject, moving beyond what the text concluded to the point of how the author reached that conclusion and the degree to which that conclusion is accurate (Wheeler, 2007).

Critical reading has been defined as learning to evaluate, draw inferences and arrive at conclusions based on the evidence (Zintz and Maggart, 1984). Critical reading is like a key inquiring, questioning, researching, giving the consciousness of becoming intellectuals (Pirozzi, 2003, pp. 25). According to Yildiz (2008), determining whether the readers agree with what is told in the text, searching for answers to question in their mind, establishing a cause-effect relationship between emotions, thoughts and events, give the meaning based on your own experience what they read is required. According to Devoogd (2007, pp. 22), first, critical reader must be open to understanding the content and perspective presented. Secondly, instead of merely accepting the text and automatically adopting the author's perspective, readers must consider which may be incomplete and inaccurate aspects of the text. The students not mustn't read looking only for information but also must read for different ways of thinking about the subject matter (Knott, 2013, pp. 1).

Critical reader, while reading the text is not content with what he/she want to give of the author. The critical reader evaluates from numerous angles including logical, rhetorical, historical, ethical, social, and personal perspectives, taking advantage of past experiences what he/she reads (Wheeler, 2007), and creates a new meaning according to himself/herself (Asilioglu, 2008, pp. 8). Thus, the reader may decide on the applicability and the suitability of ideas and opinions to own lives (Wheeler, 2007). In this way, also readers be conscious that it is essential the role of background knowledge and the student's ability on the critical reading/learning (Collins, 1993, pp. 3), and that requires the development continuously of critical reading skills (Leist, Woolwine & Bays, 2012, pp. 37).

The purpose of this research is to determine the 4th grade primary students' level of attaining critical reading skills. Answers to the following questions were sought with this purpose:

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\*\* Assoc. Prof. Uşak University, Faculty of Education, erol.duran@usak.edu.tr

\*\*\* Master Students, Uşak University, The Institute of Social Science, esrayalcintas@hotmail.com



- What is the level of critical reading skills of the 4th grade primary students?
- What are the opinions of teachers about levels of critical reading skills of the primary school 4th grade students?

## 2. Method

Screening model is applied in the research. The data obtained for the first sub-problem of the research by descriptive analysis, the data obtained for the second sub-problem of the research by content analysis are evaluated. The study also interview technique is used.

### 2.1. Study Group

The study group of the research is consisted of 109 fourth grade primary school students, who are studying in the primary schools located in the Centrum of the City of Kırıkkale (Turkey) in the 2013-2014 academic year. While the study group is selected, random sample selection technique is used.

### 2.2. Data Collection Process

Data collection process of the research is consisted of five phases. First of all, the required permits are received. Then, what kind gains of critical reading education to be able to determine, Curriculum of the Turkish Lesson of the Primary Schools (4th grade) (MEB, Ministry of National Education, 2013) is examined and thirteen gains are identified. At the third phase, fifteen worksheets by critical reading activities in the MEB (Ministry of National Education) Fourth Grade Textbook and Workbook is formed and this worksheets are applied to students. At the fourth phase, worksheets are assessed by the researchers, together with an expert. In the evaluation, the arithmetical means of the points obtained to from activities for each gain of the students is recorded to be the point earned by the students per each gain. Finally, semi-structured "Interview Form" composed of four questions, developed by the researchers and an expert in order to learn the opinions of teachers about levels of critical reading skills of the primary school 4th grade students are applied to twenty-eight classroom teachers.

### 2.3. Data Analysis

The data obtained for the first sub-problem of the research are evaluated by descriptive analysis. Each created worksheet is "100 points". The scoring of the questions in the pages are different from each other and a student can take from any worksheet the highest "100 points" and the lowest "0 points". The points received from the worksheet of the students are entered into SPSS statistical program and the arithmetical means of this points are taken. In addition, "minimum" and "maximum" points of the students are calculated in order to determine the effectiveness of the gains. The datas are examined to looking at the arithmetical mean points of the students. The data collected through the interview form for the second sub-problem of the research are evaluated by content analysis.

## 3. Findings and Comments

Findings addressing to the sub-problems of the research, and the comments addressing to these findings are lined up upon taking the order of the sub-problems into consideration.

### 3.1. Findings and Comments Regarding the First Sub-Problem

The data collected for the answer of the question of "What is the level of critical reading skills of the 4th grade primary students?", namely the first sub-problem of the research, are shown in Table 1.

Table 1. Descriptive data regarding the critical reading skill levels of the students

	N	Minimum	Maximum	Mean
Questions the knowledge, news, and opinions, being transmitted via mass media (newspaper, magazine, TV).	109	20.00	95.00	65.85
Criticizes the text – visual relationship.	109	18.00	95.00	57.41
Sorts out the problems put forth in the text, and derives various solutions thereto.	109	20.00	97.00	66.02
Sorts out the similarities and differences between the opinions in the text and his/her own opinions.	109	30.00	100.00	62.43
Reads the interrogator.	109	.00	100.00	55.87

Determines, and questions the emotional and exaggerated elements in what he/she reads.	109	.00	92.00	32.75
Criticizes the headline – content relationship.	109	10.00	95.00	59.31
Sorts out the language, expression, and information mistakes out of what he/she reads.	109	8.00	96.00	62.11
Distinguishes what is real, and what is imaginary out of what he/she reads.	109	20.00	96.00	69.98
Distinguishes the objective and subjective conclusions from the text he/she reads.	109	.00	100.00	66.05
Assesses his/her reading, content of the text he/she reads, and the reading environment.	109	20.00	100.00	69.66
Determines the purpose of the writer.	109	20.00	100.00	72.94
Determines, incomplete and unrelated information in what he/she reads.	109	6.00	100.00	64.57

In consideration of the data given in Table 1, critical reading attainment level averages of the participant students of the research are seen to vary in between 32.75 and 72.94. Out of the critical reading gains of the students, they seem to have attained the gain of “Determines the purpose of the writer. (72.94)” at well level and nearly all of the students have not attained the gain of “Determines, and questions the emotional and exaggerated elements in what he/she reads. (32.75)” at all.

### 3.1. Findings and Comments Regarding the Second Sub-Problem

The themes and codes emerged in the results of interview for the answer of the question of “What are the opinions of teachers about levels of critical reading skills of the primary school 4th grade students?”, namely the second sub-problem of the research is presented in detail in Table 2.

Table 2. Emerging themes from content analysis

Theme	Code	Sample Explanations
Critical Reading Activities	Adequate 35.7 %	<ul style="list-style-type: none"> <li>• Yes, can be given. These activities are adequate. (n = 8)</li> <li>• Activities too much, some of them are unnecessary. To obtain the critical reading skills should be read in other books and comparisons should be made. Activities should be least, adequate, rational and from daily life.</li> </ul>
	Inadequate 50.0 %	<ul style="list-style-type: none"> <li>• If there is activity of the critical reading skills can be gained. However, there is no adequate activity. We are faced with this issue in the “Individual and Society Theme”.</li> <li>• Activities are not enough. More detailed and more different activities may be included.</li> </ul>
Critical Reading Gains	Adequate 57.1 %	<ul style="list-style-type: none"> <li>• Yes, adequate and appropriate. (n = 13)</li> <li>• The gains are adequate. The important thing is to realize the gains and is to obtain.</li> </ul>
	Inadequate 25.0 %	<ul style="list-style-type: none"> <li>• Not appropriate. Because level of children is not enough in terms of critical thinking.</li> <li>• The gains of critical reading skills are incompatible with the application books. So it does not show development.</li> </ul>
The Challenges of Development of Critical Reading Skills		<ul style="list-style-type: none"> <li>• First, the concept of "criticism" is required perception as good in the society. It is difficult to give the critical reading for we saw as criticism to say only negative things. The acquisition of critical skills will facilitate learning to find solutions our children instead complaining.</li> <li>• The time of lesson hours is not enough. (n = 5)</li> <li>• Reading habits of students is inadequate. (n = 8)</li> <li>• In the education system should be made changes concerning this issue. (n = 2)</li> <li>• Applications are not compatible with each other for gains. Therefore, the teachers are forced in the practice. (n = 2)</li> <li>• The difficulties encountered in attaining critical reading skills;</li> </ul>

	<p>1) During the reading to be passive. 2) To accepting without discussion that contains text. 3) Not benefiting from past experience while reading.</p> <ul style="list-style-type: none"> <li>• 1) The people who were respected to their thoughts will have the critical reading and critical thinking skills. 2) Encountering with people's reactions weakens the critical reading.</li> <li>• The difficulties of attaining critical reading skills have been increasing as the age small. Expressing their thoughts is experiencing more distress via writing and orally. The visual and practical activities and examples will reduce these problems to be more than.</li> <li>• The children often find everything ready. They do not use too much things like thinking, analyzing, questioning. They do not read very carefully what they read. They only see as stack of word what they read. They do not form connections, do not need to struggle, do not pay attention to parts of the introduction, development and conclusion in the text. The awareness of students is very important.</li> <li>• The gains in critical reading skills is crucial to the student's permanent information.</li> <li>• The students find boring the attaining of critical reading skills that questioned the imaginations and thoughts while reading.</li> <li>• I do not encounter with any difficulties in the attaining to critical reading skills. (n = 2)</li> <li>• My thoughts, if done more reading and oral expression to students, there is no problem.</li> </ul>
Other	<ul style="list-style-type: none"> <li>• If activities be short and applicable and dramatized, the students can attain the critical reading skills. We must learn and teach to act with cases and we must teach. We need to read understandable and observe good. While we conclusions reached, we need to determine the reasons correctly and explain. We need to understand the subject good. we just need to talk about subjects. If we do not know, we should prefer to remain silent.</li> <li>• The images and sentences are compatible very few with each other. Subjects and content very much. Also the terms and words must be prepared in accordance to nowadays.</li> <li>• The relevant studies and activities having to visuality are required for small classes. When they reached to gains, the benefits of critical reading in the students are immediately noticeable.</li> <li>• The concept maps should be included at the end of each text. Because all of the critical reading gains are not at the end of each text.</li> <li>• If the physical conditions appropriate to implement all activities difficult. In the absence of appropriate physical conditions are harder to implement all the activities. The levels of grade also are forcing us to perform activities.</li> <li>• The gains of critical reading skills are adequate. Commencing to critical reading at the smaller grades will make it easier to overcoming the challenges.</li> <li>• The reading studies done in a proper manner to punctuation marks, use punctuation marks, obey the writing rules is important very much.</li> </ul>

10 (35.7%) out of total 28 teachers from stating their views think that is "adequate" of the activities in the Turkish books. 4 (14.2%) teachers find "partially adequate" the activities. This teachers remark that it is above the class level of some part of the activities and that more time should be allocated to activities directed to be able to look critical to events of the students. The remaining 14 (50.0%) teachers think that is "inadequate" of the activities.

16 (% 57.1) out of the teachers stated their opinions find adequate and appropriate the gains about whether it is appropriate of the critical reading gains stated. This teachers express which to be realized the gains and the importance of considering the differences between students. In consideration of the results addressing to the previous question, it is understood that have nothing to do with gains of finding inadequate of activities the teachers. Because the existing gains are found suitable for attaining skills of critical reading by most of the teachers. 7 (% 25.0) out of the teachers stated that are not appropriate of the gains. To this case the teachers demonstrated reasons as that it is not enough level of students, that are incompatible with the application books of the gains, that it should be remarkable the activities and the texts.

26 teachers have expressed their thoughts about the difficulties of attaining critical reading skills. Most of the interviewed teachers stated that they are reachable the purpose of attaining the critical reading skills, that but they have difficulty in

reaching these aims in the students. Their opinions usually states being long of the activities and the short duration of the lessons (the shortage of time), deficiencies in the skills of understanding, questioning and critical thinking for that it is not the habit of reading.

#### 4. Conclusion

This Research has been conducted so as to determine the 4th grade primary school students' level of attaining critical reading gains in their Turkish lessons. In the study also it was aimed to reach opinions of the teachers about examining of the 4th grade primary students' level of attaining critical reading skills. In consideration of the findings addressing to the first sub-problem of the research, critical reading attainment level averages of the participant students of the research are seen to vary in between 32.75 and 72.94. In that case, the 4th grade primary school students seem to having attained the critical reading skills either at well level (72.94) and medium level (in between the points of 55.87-69.98), or having not attained such skills at all. It has further been concluded that, nearly total of the students could not have attained the gain "Determines, and questions the emotional and exaggerated elements in what he/she reads. (32.75)" at all. The reason of not reaching this gain of the students may be activity deficiency of this gain in textbooks. In order to give further of gains may be not prepared an alternative activity might be.

In consideration of the findings addressing to the second sub-problem of the research, 57.1% out of the teachers who were received their opinions that the critical reading gains find adequate and appropriate, and 25% out of the teachers who were received their opinions that find inadequate is concluded. The teachers who find inadequate the gains stated reasons as that it is not enough level of students, and that are incompatible with the application books of the gains, and that they are hard to understand. The critical reading is a skill which requiring process and settling over time. Therefore, in an instant, to be critical reader of students can't be expected. In consideration that should be given throughout an academic year to students of gains, assessment immediately after being given the gain the students of the teachers and would not be appropriate to draw a conclusion.

Finding inadequate the activities 50% out of teachers stating their opinions about whether adequate of the activities, which makes think, whether it is the effective of this case in lack of critical reading skills in our students. The teachers stated reasons as being the long of the activities and the shortage of time, deficiencies in the skills of understanding, questioning and critical thinking about the difficulties of attaining to critical reading skills.

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## 8. Sınıf Öğrencilerinin Matematik Dersi Yazılı Sınav Puanlarının TEOG Sınav Puanlarına Göre İncelenmesi

Investigation of 8<sup>th</sup> Grade Students Math Written Exam Scores comparing to TEOG Exam Scores

Bulut Yıldıztekin<sup>a</sup>, Gökhan Kumlu<sup>a</sup>, Sinan Yavuz<sup>a</sup>, Levent Yakar<sup>a</sup>

<sup>a</sup>Hacettepe University, Educational Sciences Institute, Educational Measurement and Assessment, Ankara, Turkey

### Özet

Bu araştırmada 8. sınıf Matematik dersi 1. ve 3. yazılı sınav puanları ile TEOG'dan elde edilen 2. yazılı sınav puanları arasındaki ilişki incelenmiştir. Araştırmanın evrenini Ankara ili Altındağ ilçesinde bulunan 32 ortaokulun 164 şubesinde eğitim gören 5038 İlköğretim 8. sınıf öğrencisi oluşturmaktadır. Verilerin analizi için öncelikle okul sınavları ve TEOG sınavı arasındaki puan farkları hesaplanmıştır. Ardından aradaki fark puanlarının karşılaştırılmasına yönelik varyans analizi uygulanmıştır. Matematik dersine ilişkin TEOG sınavından düşük puan alan öğrencilerin puanları ile öğretmen tarafından yapılan 1. ve ayrıca 3. yazılı sınav puanları arasında farklılık olduğu görülmüştür. TEOG sınavından yüksek puan alan öğrencilerin puanları ile öğretmen tarafından yapılan 1. ve 3. yazılı sınav puanları arasında ise fazla farklılık olmadığı görülmektedir.

**Anahtar Kelime:** TEOG matematik puanları, yazılı puanları

### Abstract

In this research 8<sup>th</sup> grade Math courses 1<sup>st</sup> and 3<sup>rd</sup> written exam scores between 2<sup>nd</sup> exam scores, which are obtained from TEOG exam, relations have been investigated. Universe of the research is 5038 students of 8<sup>th</sup> grade students from 32 middle schools located Altindag district of Ankara city. For the analysis of the data firstly, score differences between written exams and TEOG exam has been calculated. Then, those differences of the scores have been analyzed by ANOVA. There are statistical difference on TEOG mathematics exam scores of students with low ratings and made by the teacher written exam scores between 1<sup>st</sup> and 3<sup>rd</sup>. Students, who get higher scores from TEOG exam were not high difference between 1<sup>st</sup> and 3<sup>rd</sup> written exams made by teacher.

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**Key Words:** TEOG Math scores, Written Exam

TEOG temel öğretimden ortaöğretime geçiş sınavının kısa adıdır. TEOG' da 3 sınavı olan dersler için 2. Sınav, 2 sınavı olan dersler için ilk sınav merkezi sınav olarak gerçekleştirilir. Öğrenciler sınavda Türkçe, Matematik, Fen ve Teknoloji, TC İnkılap Tarihi, Yabancı Dil, Din Kültürü ve Ahlak Bilgisi dersleri olmak üzere 6 farklı temel dersten sorumlu tutulurlar. Sınavların ardından, ağırlıklandırılmış merkezi sınav puanına eklenmiş yılsonu başarı puanlarının ortalamaları ile liselere yerleştirme işlemi gerçekleşir. Buna göre 6, 7 ve 8. sınıf yılsonu başarı puanlarının ortalamasının %30 'u hesaplanarak temel eğitimden ortaöğretime geçiş sınavları puanlarının %70' ine eklenir. Böylece öğrencilerin liselere yerleştirilmeye esas puanları elde edilmiş olur. Alan yazın incelendiğinde Okul sınavları ve ulusal sınavlar arasındaki ilişkiyi inceleyen araştırmalara rastlanmamıştır. Ancak Baş (2013) "İlköğretim İngilizce Dersi Akademik Ortalamaları İle Seviye Belirleme Sınavı İngilizce Alt Testi Sonuçları Arasındaki İlişkinin Yapısal Eşitlik Modeli İle İncelenmesi" başlıklı çalışmada ilköğretim öğrencilerinin İngilizce dersi akademik ortalamaları ile Seviye Belirleme Sınavı (SBS) İngilizce alt testi sonuçları arasındaki ilişkiyi yapısal eşitlik modeli ile incelemeyi amaçlamıştır. Bu araştırmada, 6. 7. ve 8. sınıf İngilizce dersi yazılı sınav puanları, proje görevi, performans görevi ve ders içi etkinliklere katılım yılsonu akademik başarı puan ortalamaları ile bu sınıfların SBS İngilizce alt testi ham puanları arasındaki ilişki incelenmiştir.

### YÖNTEM

#### EVREN

Araştırmanın evrenini Ankara ili Altındağ ilçesinde bulunan 32 ortaokulun 164 şubesinde eğitim gören 5038 İlköğretim 8. sınıf öğrencisi oluşturmaktadır. Tüm okulların yeterince temsil edilmesinin istenmesi nedeniyle örnekleme işlemi

gerçekleştirilmemiştir. Veriler Hacettepe Üniversitesi ile Altındağ İlçe Milli Eğitim Müdürlüğü'nün imzalamış olduğu protokol çerçevesinde edinilmiştir.

## VERİLERİN ANALİZİ

Verilerin analizi için öncelikle okul sınavları ve TEOG sınavı arasındaki puan farkları hesaplanmıştır. Ardından aradaki fark puanlarının karşılaştırılmasına yönelik varyans analizi uygulanmıştır. Bu uygulama ile değişkenlik kaynakları ve değişim ölçüsü belirlenmiştir.

## BULGULAR VE YORUMLAR

Bu bölümde araştırma verileri, araştırma sorularına paralel olarak analiz edilmiş ve elde edilen bulgular sunulmuştur. TEOG matematik sınavına göre gruplandırılan öğrencilerin matematik dersine ilişkin 1. yazılı sınav-TEOG sınav fark puanlarına bağlı olarak istatistiksel yönden farklılaşıp farklılaşmadığı varyans analizi ile test edilmiş ve sonuçlar Tablo 1'de verilmiştir.

Tablo 1

TEOG Matematik Sınavına Göre Gruplandırılan Öğrencilerin Matematik Dersi 1. Yazılı Sınav-TEOG Sınav Fark Puanlarının Karşılaştırılmasına İlişkin Varyans Analizi Tablosu

Varyansın Kaynağı	Kareler Toplamı	sd	Kareler Ortalaması	F	P	Fark (Scheffe; $p \leq 0.05$ )
Gruplar arası	169334,208	9	18814,912	57,850	,000	1-2; 1-3; 1-4; 1-5; 1-6; 1-7; 1-8; 1-9; 1-10; 2-3; 2-4; 2-5; 2-6; 2-7; 2-8; 2-9; 2-10; 3-4; 3-5; 3-7; 3-8; 3-9; 3-10; 4-10; 5-10; 6-10; 7-10;
Gruplar içi	1635293,694	5028	325,237			
Toplam	1804627,901	5037				

TEOG matematik sınav puanlarına göre 10 gruba ayrılmış 5038 kişilik öğrenci grubunun, matematik dersine ilişkin 1. yazılı sınav-TEOG sınav fark puanları arasında fark olup olmadığını sınamak için, TEOG matematik sınav puanlarına göre oluşturulan grupların matematik dersine ilişkin 1. yazılı sınav-TEOG sınav fark puanları ortalamaları ilişkisiz örneklem için tek yönlü varyans analizi ile karşılaştırılmıştır. Test sonunda, TEOG matematik sınav puanına göre gruplandırılan öğrencilerden,

1.grupta (0-10 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^1=27,50$ ), 2.grupta (10-20 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^2=19,46$ ), 3.grupta (20-30 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^3=11,27$ ), 4.grupta (30-40 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^4=6,98$ ), 5.grupta (40-50 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^5=5,85$ ), 6.grupta (50-60 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^6=7,46$ ), 7.grupta (60-70 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^7=5,20$ ), 8.grupta (70-80 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^8=4,21$ ), 9.grupta (80-90 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^9=1,53$ ), 10.grupta (90-100 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}^{10}=-1,97$ ) arasından en az ikisi arasında istatistiksel olarak anlamlı fark gözlenmiştir ( $F(9-5028)=57,85$ ,  $p<0.05$ ). Test sonucunda hesaplanan etki büyüklüğü ( $\eta^2=0,09$ ) bu farkın orta düzeyde (orta etki) olduğunu göstermektedir. Yapılan Scheffe çoklu karşılaştırma testi sonucunda anlamlı farkın 1. grup ile diğer tüm grup fark puanları arasında, 2. grup ile diğer tüm grup fark puanları arasında, 3. grup ile 6.grup hariç diğer tüm grup fark puanları arasında, 4. grup ile 10. grup fark puanları arasında, 5. grup ile 10. grup fark puanları arasında, 6. grup ile 10. grup fark puanları arasında ve 7. grup ile 10. grup fark puanları arasında olduğu görülmüştür. TEOG

matematik sınavına göre gruplandırılan öğrencilerin matematik dersine ilişkin 3. yazılı sınav-TEOG sınav fark puanlarına bağlı olarak istatistiksel yönden farklılaşıp farklılaşmadığı varyans analizi ile test edilmiş ve sonuçlar Tablo 2’de verilmiştir.

Tablo 2

TEOG Matematik Sınavına Göre Gruplandırılan Öğrencilerin Matematik Dersi 3. Yazılı Sınav-TEOG Sınav Fark Puanlarının Karşılaştırılmasına İlişkin Varyans Analizi Tablosu

Varyansın Kaynağı	Kareler Toplamı	sd	Kareler Ortalaması	F	P	Fark (Scheffe; $p \leq 0.05$ )
Gruplar arası	277107,992	9	30789,777	100,677	,000	1-2; 1-3; 1-4; 1-5; 1-6; 1-7; 1-8; 1-9; 1-10; 2-3; 2-4; 2-5; 2-6; 2-7; 2-8; 2-9; 2-10; 3-4; 3-5; 3-6; 3-7; 3-8; 3-9; 3-10; 4-7; 4-8; 4-9; 4-10; 5-8; 5-9; 5-10; 6-8; 6-9; 6-10; 7-10;
Gruplar içi	1537704,841	5028	305,828			
Toplam	1814812,833	5037				

TEOG matematik sınav puanlarına göre 10 gruba ayrılmış 5038 kişilik öğrenci grubunun, matematik dersine ilişkin 3. yazılı sınav-TEOG sınav fark puanları arasında fark olup olmadığını sınamak için, TEOG matematik sınav puanlarına göre oluşturulan grupların matematik dersine ilişkin 3. yazılı sınav-TEOG sınav fark puanları ortalamaları ilişkisiz örneklem için tek yönlü varyans analizi ile karşılaştırılmıştır. Test sonunda, TEOG matematik sınav puanına göre gruplandırılan öğrencilerden,

1.grupta (0-10 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_1=32,68$ ), 2.grupta (10-20 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_2=24,02$ ), 3.grupta (20-30 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_3=14,30$ ), 4.grupta (30-40 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_4=9,67$ ), 5.grupta (40-50 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_5=8,61$ ), 6.grupta (50-60 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_6=8,74$ ), 7.grupta (60-70 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_7=4,50$ ), 8.grupta (70-80 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_8=2,32$ ), 9.grupta (80-90 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_9=0,66$ ), 10.grupta (90-100 puan alan) yer alan öğrencilerin fark puan ortalaması ( $\bar{X}_{10}=-3,66$ ) arasından en az ikisi arasında istatistiksel olarak anlamlı fark gözlenmiştir ( $F(9-5028)=100,68, p<0.05$ ). Test sonucunda hesaplanan etki büyüklüğü ( $\eta^2=0,15$ ) bu farkın yüksek düzeyde (geniş etki) olduğunu göstermektedir. Yapılan Scheffe çoklu karşılaştırma testi sonucunda anlamlı farkın 1. grup ile diğer tüm grup fark puanları arasında, 2. grup ile diğer tüm grup fark puanları arasında, 3. grup ile diğer tüm grup fark puanları arasında, 4. grup ile 7., 8., 9. ve 10. grup fark puanları arasında, 5. grup ile 8., 9. ve 10. grup fark puanları arasında, 6. grup ile 8., 9. ve 10. grup fark puanları arasında ve 7. grup ile 10. grup fark puanları arasında olduğu görülmüştür.

## SONUÇ

Araştırmada, matematik dersine ilişkin 1. ve 3. yazılı sınav-TEOG sınav fark puanları incelenmiştir. 1. yazılı sınav-TEOG sınav fark puanları açısından elde edilen bulgular incelendiğinde, TEOG sınavından 0 ile 10, 10 ile 20 ve 20 ile 30 puan alan öğrencilerin 30 ile 100 puan alan öğrencilere göre, matematik dersine ilişkin TEOG sınavı ile 1. yazılı sınavı arasındaki puan farkının daha fazla olduğu sonucuna ulaşılmıştır. Ayrıca matematik dersine ilişkin TEOG sınavı puanları ile 1. yazılı sınav puan farkının, TEOG sınavından 0-10 arası puan alan öğrencilerde en fazla olduğu görülmektedir. Dolayısıyla, matematik dersine



ilişkin TEOG sınavında düşük puan alan öğrencilerin, öğretmen tarafından yapılan 1. yazılı sınavdan daha yüksek puan aldıkları sonucuna ulaşılmıştır. Matematik dersine ilişkin TEOG sınavından yüksek puan alan öğrencilerin puanları ile öğretmen tarafından yapılan 1. yazılı sınav puanları arasında ise fazla farklılık olmadığı görülmektedir.

Benzer şekilde 3. yazılı sınav-TEOG sınav fark puanları açısından elde edilen bulgular incelendiğinde, TEOG sınavından 0 ile 10, 10 ile 20, 20 ile 30 ve 30 ile 40 puan alan öğrencilerin 40 ile 100 puan alan öğrencilere göre, matematik dersine ilişkin TEOG sınavı ile 3. yazılı sınavı arasındaki puan farkının daha fazla olduğu sonucuna ulaşılmıştır. Ayrıca matematik dersine ilişkin TEOG sınavı puanları ile 3. yazılı sınav puan farkının, TEOG sınavından 0-10 arası puan alan öğrencilerde en fazla olduğu görülmektedir. Dolayısıyla, matematik dersine ilişkin TEOG sınavında düşük puan alan öğrencilerin, öğretmen tarafından yapılan 3. yazılı sınavdan daha yüksek puan aldıkları sonucuna ulaşılmıştır. Matematik dersine ilişkin TEOG sınavından yüksek puan alan öğrencilerin puanları ile öğretmen tarafından yapılan 3. yazılı sınav puanları arasında ise fazla farklılık olmadığı görülmektedir.

Ayrıca matematik dersine ilişkin 1.yazılı sınav-TEOG sınav puan farkı ile 3.yazılı sınav-TEOG sınav puan farkı incelendiğinde, düşük puan alan öğrencilerin 3. yazılı sınavdan aldıkları puan ile TEOG sınavından aldıkları puanların farkının, 1. yazılı sınavdan aldıkları puan ile TEOG sınavından aldıkları puan farkından daha fazla olduğu sonucuna ulaşılmıştır. Bu durumun matematik dersine ilişkin TEOG sınavında düşük puan alan (0-60) öğrencilerin 3. yazılı sınav puanlarının 1. yazılı sınav puanlarına göre artış göstermesinden kaynaklandığı söylenebilir. Yüksek puan alan öğrenciler açısından incelendiğinde de 3. yazılı sınavdan aldıkları puan ile TEOG sınavından aldıkları puanların farkının, 1. yazılı sınavdan aldıkları puan ile TEOG sınavından aldıkları puan farkından daha az olduğu sonucuna ulaşılmıştır. Bu durumun da matematik dersine ilişkin TEOG sınavında yüksek puan alan (60-100) öğrencilerin, 3. yazılı sınav puanlarının 1. yazılı sınav puanlarına göre azalış göstermesinden kaynaklandığı söylenebilir.

#### **KAYNAKÇA**

Baş, G. (2013). “İlköğretim İngilizce Dersi Akademik Ortalamaları İle Seviye Belirleme Sinavi İngilizce Alt Testi Sonuçları Arasındaki İlişkinin Yapısal Eşitlik Modeli İle İncelenmesi.”*OMÜ Eğitim Fakültesi, ISSN: 1300-302X*.

# School Principals' Opinions on the FATİH Project in Turkey

Buket Akkoyunlu<sup>a</sup>

Gülsün Baskan<sup>b†</sup>

<sup>a</sup>Prof. Dr., Hacettepe University, Ankara, 06800, Turkey

<sup>b</sup>Prof. Dr., Hacettepe University, Ankara, 06800, Turkey

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## Abstract

This study aims to determine the thoughts and opinions of the school principals on the FATİH Project initiated by the Ministry of Education to facilitate a technology-supported education in Turkey. 24 Principals were involved in the study. The answers of the principals received on structured interview forms that contained open-ended questions and were analysed with content analysis method. Results of the research show that a majority of the principals have positive opinion about the FATİH Project. The principals state that the FATİH Project has brought a new energy to their schools and motivated the students. Nevertheless, the principals also stated that, to enable the system to run smoothly; specialised staff are needed to be recruited to solve arisen problems immediately, for the teachers to learn how to use the interactive board, tablet PC, document camera and multipurpose printers that have been given as part of the Project, they should be provided with adequate training sessions that are extended over a year and that, although it is very important for this process, the role of IT teachers are still not clearly defined.

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*Keywords:* FATİH Project; school principals; interactive board; tablet PCs

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## Introduction

The fast change in the Information and Communication Technologies (ICT) have affected and transformed the societies in many ways. Many countries nowadays give importance to involving technology in the learning and teaching process in order to improve the students' technology skills and equip them with digital abilities. Being also aware of this fact, the Ministry of Education (MEB) initiated the FATİH (Turkish initials for Movement of Increasing Opportunities and Improving Technology) Project.

As part of the FATİH Project in Education, that is launched to promote equal opportunities in learning environments and improve the technological conditions in our schools, 570.000 classrooms in all our nursery, primary and secondary schools will be provided with LCD Interactive Panel Boards and Internet infrastructure. With this project, it is aimed to appeal more senses of students during learning process and increase the efficiency of the teaching in classrooms. Within the scope of this Project, every teacher and every student will be given a tablet PC. Meanwhile the teachers will receive in-service trainings to help them to use the IT hardwares installed in the classrooms more effectively. In this period of time, the curriculum will be tailored in accordance with the IT-supported education and educational e-materials will be created. The FATİH Project is focused on providing five main components:

1. Installation of Hardware and Software Infrastructure
2. Creation and Running of educational e-materials
3. Efficient use of IT in the Education Programs
4. In-service Training of the teachers
5. Attentive, Safe, Manageable and Measurable IT use

The FATİH Project is implemented by the Ministry of Education and supported by the Ministry of Transportation and planned to be completed in five years. It is targeted to complete the IT hardware and software installation, create e-material contents, update the teachers' guide books, give in-service trainings for teachers for the secondary schools in the first year, for the second primary graders in the second year and for the first primary graders and pre-schoolers in the third year (MEB 2014). Apart from these components, the FATİH Project also has stakeholders such as the students, teachers, principals and service providers.

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\* Corresponding author. Tel.: +90 532 635 05 60

E-mail address: buket@hacettepe.edu.tr

With this Project, the Ministry of Education targets to form classrooms equipped with interactive panel boards and necessary technology where each students is provided with a tablet PC to enable the students and teachers to use these technologies effectively. For this target to be achieved, it is necessary for the school principals, who are at the position of supporting and guiding the Project, to adopt the Project and support the teachers who are the main implementers of the Project.

A literature scan shows us that studies carried upon the FATİH Project are mostly focused on the usage of the system by the students, perception of the Project by the teachers and on determining the computer literacy levels of the teachers and students (Çiftçi, Taşkaya & Alemdar, 2013; Gürol, Donmuş & Arslan, 2012; Kayaduman, Sırakaya & Seferoğlu, 2011).

This study aims to determine opinions of school principals upon the utilisation of the interactive panel boards and/or tablet PCs that were distributed as part of the FATİH Project launched by the Ministry of Education to facilitate the students to receive a technology supported education.

These are the research questions addressed to the principals to be examined within the scope of this research:

1. What are the opinions of the principals upon teaching and learning practice that is supported with the technologies in question?
2. According to the principals, what are the reasons that render or hinder the use of those technologies?
3. What are the suggestions of the principals for using those technologies more efficiently?

## Method

In this research, case study method is used. According to Yin “A case study is an empirical inquiry that investigates a phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2003). While Baxter and Jack (2008) state that the case studies give the researchers the opportunity to reply the “how” and “why” questions while investigating how the phenomenon is affected by its context. Although different case study researchers give different classifications, in this study we used the “descriptive case study” method which has been described by Yin (2003) as mentioned earlier. Therefore, the case investigated in this study is the principals’ opinions regarding the interactive panel boards and tablet PCs that were distributed in the schools as part of the FATİH Project. Data gathered in this research have been analysed with content analysis, a known qualitative research paradigm.

### 1 Study Group

This research is conducted on a voluntary basis in the 2013-2014 Academic year, over 24 school principals (13 principals, 11 vice-principals; 2 of whom were women, 22 of whom were men) from different fields working in the high schools where FATİH Project is launched. The frequency and percentage rates of the principals participated in the research according to their professional seniority are given in Table 1.

**Table 1:** Distribution of the principals in accordance to their professional seniority

	Professional Seniority (Year)													
	1-3		4-6		7-9		10-12		13-15		15-		Total	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Principal	-	-	-	-	2	8.3	3	12.5	2	8.3	17	70.83	24	100

## 2. Data Collecting Tool

Data are collected with questionnaires containing open-ended questions. The research questions are tailored so that the opinions of the principals upon the interactive panel boards and tablet PCs, distribution and usage of which have been especially emphasized in the FATİH Project, can be revealed.

## 3. Data Analysis

The data obtained from the research have been investigated with content analysis. Fraenkel, Wallen and Hyun state that the content analysis is a research method that is flexible, systematic and reduces data. In the study, in order to assure the validity and reliability of the research and of the codes and themes, we conducted cross-checks that were defined by the researchers.

### Findings

This section comprises the findings and comments that were obtained by analysing the questions and the answers given to those questions. Here, findings of the data analysis, the defined codings, frequency and percentage rates of the themes have been supported with striking quotations from the statements of the participants.

*What are the opinions of the principals upon teaching and learning practice that is supported with the technologies in question?*

The analysis of the opinions of the principals on the teaching experience supported with interactive panel boards and tablet PCs shows that the opinions were gathered around the codings of “effective learning”, “saving time and productivity” and “motivation, interest and participation” (Table 2).

Table 2: Principals' opinions on the technology-supported education in question

	f	%
Learning can be more permanent and efficient through lessons taught with interactive panel board and tablet PCs.	17	70.83
Regular use of interactive panel board and tablet PCs during teaching process saves time.	12	50
Use of interactive panel board and tablet PCs in classrooms motivates the students and increase their involvement in the class.	11	45

While 70.83 % (f=17) of the principals think that the lessons taught with the support of interactive panel board and tablet PCs provide more permanent and efficient learning, 50% (f=12) of them think that the usage of interactive panel board and tablet PCs provides saving in time and 45% (f=11) of them think that using interactive panel board and tablet PCs in classrooms motivate the students and increase their involvement in the lessons.

*“These technologies enable visually enriched materials to be used during the lessons and this attracts the attention of the students more ...” Y1*

*“It attracts the students' attention, motivates them which can eventually increase their success..” Y3*

Principals claim that the use of the mentioned technologies in the lessons can save the teachers time and can serve as a good tool to attract the students' attention. They also think that the technology-supported education will render both students and teachers to use the technology more efficiently and more productively.

*“It saves teachers time, hence they can teach or revise more subjects and it also attracts interest and attention of the students better...” Y10*

*“It helps students and teachers to use the technology more efficiently and more productively.” Y2*

*According to the principals, what are the reasons that render or hinder the use of those technologies?*

The principals were asked "Are the interactive panel board and/or tablet PCs used efficiently in the schools?" (Table 3).

Table 3: Principals' opinions on the reasons that render or hinder the effective usage of those technologies

Are the interactive panel board and/or tablet PCs used efficiently in the schools?	f	%
Yes	14	58.33

While, 58.33 % (f=14) of the principals think that the technologies offered with interactive panel boards and tablet PCs are not being used efficiently, 41.67 % (f=10) of them think that those technologies are adequately utilised.

Principals with positive opinion stated that the tablet PCs and interactive panel boards save teachers time in teaching their lessons and they visually support the learning process.

*"Significant increase in visual materials has success-promoting benefits such as keeping the students alert." Y18*  
*"Students' interest in the lesson increased, it allows more illustrative teaching and more productive use of time."*

Y21

*"By means of illustrations, students' level of perception is kept high..." Y28*

*"They can reach visual and illustrative materials more easily. This saves time especially in lessons that require drawing." Y3*

According to the principals who gave negative answer to this question, the reasons hindering the efficient usage of these technologies are mainly inadequate technical facilities (weak internet infrastructure, poor technical support, etc.), incompetence of teachers in using these technologies, negative approach of the teachers towards using technology in class, teachers remaining distant from innovative changes and poor availability of electronic lesson materials.

*"...S/he cannot give up the classical teaching methods. S/he talks about innovation and change, but acts in a way opposing innovation..." Y19*

*"Some of our teachers enter lessons unprepared and they have lack of confidence in using these technologies and cannot pull themselves out of monotony ..." Y5*

*"... the biggest handicap that they do not quickly adapt themselves to the new technology and to applying this technology into their teaching." Y24*

*"Some of them did not use computer before and they do not want to change their habits." Y12*

*"Some of the teachers keep themselves distant from the technology and some of them think that the technology cause more mistakes than human beings." Y22*

*"Electronic lesson contents and materials are inadequate, teachers do not know how to use or how to prepare lessons with the available contents." Y12*

The study conducted by Gürol, Donmuş and Arslan (2012) also supports the opinions of the principals who filled our questionnaire. According to this study, teachers think that, although this Project will be beneficial, it also has some problems such as inadequate resources and lack of information.

*What are the suggestions of the principals for using those technologies more efficiently?*

The school principals were asked "What would you suggest to make these technologies to be used more efficiently?" (Table 4).

**Table 4: Principals' thoughts on more efficient use of the technologies in question**

	f	%
Teachers should be trained to be more competent	14	58.33
Scope of the in-service training given to teachers should be revised and a hands-on training should be provided	20	83.33
Electronic lesson contents are inadequate, the number and quality of them should be increased	18	75.0
Durations of the in-service trainings given to teachers should be increased	13	54.16
Teachers should be encouraged to use the new technology	22	91.66

When we examine the opinions of the principals, we see that they mainly laid stress upon subjects such as; increasing teachers' competence, reconsidering both the content quality and durations of the in-service trainings, increasing both number and quality of the electronic lesson contents and encouraging teachers to use the new technology.

*"Teachers should be given a hands-on and purpose-built training that involves more practice." Y11*

*"Trainings given for using the electronic contents should be increased and the teachers should be encouraged to prepare such resources." Y22*

*"More efficient in-service trainings should be provided. And they should be active, hands-on training, not just theoretical. More time is needed to learn how to use the provided lesson materials." Y29*

Principals expressed that, to increase the level of usage of the FATİH Project, more training is necessary and told that the current in-service training given to develop teachers' professional abilities and technological literacy involves using only the interactive panel board and the software for a very limited time.

Most of the principals (91.66 % f=22) stated that the teachers are needed to be encouraged to use the new technology.

*"Especially teachers reached at a certain age experience great difficulties. These teachers need extra support and more practice to increase their efficiency in using the technology. MEB should promote them in this direction."* Y26

## Conclusion, Discussion and Suggestions

The aim of this study was to determine the opinions of the school principals about the FATİH Project. According to the results of this research, the principals think that the technology used in this project will effect the educational process positively on three points defined as "efficient learning", "saving time" and "motivating and increasing the interest and involvement of students". Involving devices such as the interactive panel boards that alert more sense organs of the students, in the teaching-learning environment renders more effective and permanent learning. The study of Şad and Özhan (2012) shows that giving lessons with interactive boards both saves time and provides better learning with the use of visual resources and the multimedia. Another study conducted by Gursul and Tozmaz (2010) over teachers who use interactive panel boards in their classes defines that the interactive panel boards have positive effects upon raising the interest of the students in the subject being taught.

The principals, who think that in the schools, the technologies in question are used effectively, stated that the usage of interactive boards and tablet PCs in the teaching practice, saves teachers time during giving their lessons and visually supports the students' learning. The principals who think that these technologies are not used efficiently stated that the reasons of this are the technical deficiencies and teachers' incompetency in using these technologies.

The principals stressed the significance of the electronic teaching resources for the effective use of the technologies in question and underlined that the contents of these resources are very important to be able to use the interactive boards and tablet PCs effectively in the teaching and learning process. The principals also noted the importance of the teachers' trainings and stated that increasing the number of hands-on in-service trainings is necessary. Among their suggestions to render the FATİH project to be conducted more efficiently and more productively were giving more regular and continuous in-service training, providing technical support and solving infrastructural problems. Results obtained with this study are also affirmed by other studies conducted by Günbayı and Yörük (2014), Türel (2012) with Adıgüzel, Gürbulak and Sarıçayır (2011).

As a conclusion, we suggest that by enriching the lesson contents, updating teaching materials, making in-service trainings regular and continual, the FATİH project can proceed in a more wholesome manner. Studies conducted by Günbayı and Yörük (2014); Türel (2012) and Adıgüzel; Gürbulak and Sarıçayır (2011) emphasize that teachers are needed to receive more comprehensive training to learn how to use the materials provided as part of the FATİH Project.

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# School self-concept of the adolescents in the relation to the risk behavior. Age specifications

Michal Čerešník ·

*Constantine the Philosopher University in Nitra, Faculty of Education, Department of Pedagogy and School Psychology,  
Dražovská 4, 949 01 Nitra, Slovakia*

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## Abstract

Presented paper deals with the relationship between the school self-concept and the risk behaviour of adolescents. The key theoretical background includes the self-concept and its components (Greenwald, & Pratkanis, 1984), the beneffectance concept (Greenwald, 1980), the self-evaluation concept (Rosenberg, 1982) and its resources (Tafarodi, & Swann, 1995), the theory of self-discrepancy (Higgins, 1991) and the concept of self-mastery (Bandura, 1997), theory of psychological needs (Langmeier, & Matějček, 2011), etc. Based on the relatively high prevalence of various forms of the risk behaviour (based on various researches), there has been put forward the assumption that (1) the measure of the risk behaviour will increase together with increasing of the adolescent age and (2) that the adolescents with higher school self-concept will produce less risk behaviour. The research has been carried out in Slovakia with the sample of 1,704 adolescents in the age from 10 to 15. Two research methods have been applied: Self-concept of School Effectiveness Questionnaire (Matějček, & Vágnerová, 1992 in modification of Čerešník, 2013) and Prevalence of Adolescents Risk Behaviour (Skopal, & Dolejš, 2013; Slovak modification of Čerešník, 2013). Both hypotheses can be supported. The outcomes point to need to strengthen the self-concept at children and adolescents in terms of support of self-exploratory activity, the preference of instrumental assistance ahead executive, or the support of emotional expression and confrontation.

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*Keywords:* school self-concept; adolescence; risk behavior

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## Introduction

The aim of the research is the exploration of the relationship between the school self-concept and the risk behaviour of adolescents. The school self-concept is defined through the self-assessment within general skills, math, reading, spelling, and writing with self-confidence. The risk behaviour is defined in subscales abusos of addictive substances, delinquency and bullying. Population in adolescent age is defined in the range of 10 to 15 years. Its choice has been determined by sensitivity to the questions of self-concept during this period, highlighting the self-exploratory motive and active work with possible self.

## School Self-concept, its Age Specification and Relation to the Risk Behavior

The school self-concept represents the specific part of self-concept which develops after a child starts attending a school. According to Erikson, industry versus inferiority is related to the solution of the conflict and it might lead to development of virtue, if the conflict is solved in a positive way, and it is called competence (Erikson, 1999). From the point of view self-regulatory theories (e.g. self-efficacy (Bandura, 1999), perceived control (Skinner, 1995), effortful control (Eisenberg, Smith, & Spinrad, 2011), etc.), the school self-control might be characterized as a mental presentation of selves and their outputs in a school environment which is based on self-recognition (information about themselves) and evaluation of selves and their outputs. It includes a personal belief in the contingency between their own behaviour and effect which (this behaviour) causes it. In structural terms, it has the same components as a general self-concept, so-called cognitive, affective and conative aspect (Greenwald, & Pratkanis, 1984).

Cognitive aspect of the school self-concept consists of declarative knowledge about the world and about oneself, which reflects effectance of a child (educant) and procedural knowledge, so-called application strategies that reflect beneficence of a child (educant). A.G. Greenwald (1980) joined these two terms (effectance and beneficence) into one – beneffectance – which represents a social dimension of knowledge acquisition and a personal dimension of applying the learning and life strategies. A several representations of self are a part of the cognitive aspects of the school self-concept. They include:

- actual and ought self (Higgins, 1987) representing personal beliefs who a child, pupil (educant) is and who he/she should be like;
- desired and undesired self (Ogilvie, 1987) representing confrontation of positive and negative ideals;

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· Corresponding author. Tel. number: +421 37 6408 289

E-mail address: mceresnik@ukf.sk

- possible selves (Markus, & Nurius, 1986) representing diverse ideas about who the educant might be (and in what kind of conditions);
- real and ideal self (Rogers, 1951) representing beliefs about the current form of self and ideal form (it means something, the educant could tend to be).

Representations of self are defined as a set of hypothetical personal constructs, which are compared with each other and lead to the evaluation of themselves in terms of satisfaction or dissatisfaction with a given state.

As regards evaluation, or self-evaluation (for instance Rosenberg, 1982), it refers to affective aspect of the school self-concept. There are two resources of self-evaluation. According to R.W. Tafarodi, & W.B. Swann (1995), they are self-competence and self-liking. Competence represents a personal belief about the ability to produce desired (school) achievements through their own skills. Self-liking can be understood as a perception of the other people's emotional bonds to the oneself. The other important things of self-evaluation may be derived from these variables, as there are polarity (positive and negative) (for instance Baumeister, Heatheron, & Tice, 1993) and stability (for instance Marsh, 1993). Self-evaluation is thus derived from external and internal sources. The external sources of self-evaluation are diverse and can be located among members of small social groups (primary and also secondary ones). A key prerequisite, however, is subjective significance of others for the human beings themselves (Shavelson, Hubner, & Stanton, 1976), for example parents, peers, friends, partners, colleagues.

The fundamental change while evaluating the relationship to selves is the period of adolescence, it means in the age from 9 to 11, which is, according to E.T. Higgins (1991), a significant shift from identification (with parental model) to internalization, when the external norms become self-guides. They allow evaluating the world and selves independently, out of opinions of others.

Conative aspect of the (school) self-concept closely relates to the personal beliefs of consistency and controllableness of the self and the world, but especially with the motivation of personality. Beliefs about consistency and controllableness of the self and the world are basal personality structures based on successful solve problems in the early stages of personality development, it means problems like trust versus mistrust, autonomy versus doubt, initiative versus guilt (Erikson, 1999). They relate to the development of virtues such as hope, will and decisiveness and with saturation of psychological needs, which are inseparable part of the motivation system. They include a need for stimulation, a need to bond, a need for meaningful world, a need to define one's own identity and needs of the future (Langmeier, & Matějček, 2011). These needs protect against deprivation and sub-deprivation symptoms that may lead to the development of mental abnormalities. They are closely tied to the primary family environment, which is the source of prototypical types of behavior and socializing experiences. Motivational aspect of the self-concept associates with the development of self, which becomes the supreme regulator of behavior. Motivation as a part of the self-concept can be conceptualized through self-discrepancy theory (Higgins, 1991), and self-mastery concept (e.g. Bandura, 1997). Self-discrepancy theory is based on the concept of self-guides, which Higgins refers to the life standards. They belong to the content of an ideal and desired self. The personal standards represent motives that initiate, focus on behavior and give it an emotional charge. The result of motivated behavior is then comparison of the current state with the desired one, leading to either evaluation "consistence" or similarity, or to the evaluation of "discrepancy", or disagreement. In case of discrepancy, regulatory processes are activated, which are based on modified behavior in the direction of achieving the desired (school) outcomes. The concept of self-mastery (Bandura, 1997) can be explained as a high belief in self-efficacy, it means a belief that one can influence events in oneself and around the self (control upon one's life). This belief is filled especially with self-mastery; it means one's own competence in specific situations.

The self-concept is a complex personality structure, which development is very sensitive in the period of starting school, puberty and adolescence in general. After entering the school the child is confronted with new tasks and responsibilities. Except the game, which is important mean in forming, a child has to pay attention to school tasks and after managing the adaptation process they lead to evaluation of their performance. It means to the performance of themselves as well as of their peers. They find out, they are good at some subjects more than in others and on the other hand, they are bad at some other ones. What happens in this age can be labelled as a separation of school self-concept from the global self-concept. Of course, there is an important relationship between them, but the school self-concept becomes a variable which significantly influences a child and its further development. However, a child in its early school age expects that if he/she is initiative, it means if he/she invests the time and energy to solve given tasks, he/she will be rewarded (in a form of a mark or orally). He/she is not always successful and based on repeated cycles achievement - reward (or missing reward) may lead to forming a school self-concept. A system of declarative knowledge is being formed (about self and one's own performance), as well as a system of procedural strategies which are both necessary to acquire adequate high self-evaluation. On the other hand, the self-evaluation significantly affects interests, goals, or aspirations. The whole process leads to the fact that a child will select the fields where its self-concept is high and he/she wants to involve in them because they bring benefits in the form of a high self-evaluation, positive evaluation of parents or teachers, or it may bring belief for the own competency. The fields with low self-concept are not interested for a child, nor are they a source of rewards or benefits.

When a child enters a puberty period, it means a development of higher cognitive processes, development of abstract thinking, introspection, active work with information of emotional features, in accordance with a rational system. Adolescence period is characterized with a strengthening of self-exploratory motive and (normative expected) active work with self-defining. In comparison with a previous period, which is characterized by a desire for attention and positive evaluation of the effort, for



adolescence period is typical critical thinking to performances (the own ones and the other ones). Awareness of established standards explicitly or implicitly and the need for their achievement leads to early development of self-reflection of adolescents, and their metacognitive skills. Adolescents begin to aware of polarized nature of the world and themselves, it means their positive and negative features which must be integrate into relatively closed and consistent system. Emotional instability in early adolescence period is just an indicator of how adolescence work intensively with their own self-concept and how it is difficult for them to integrate personal and social standards, relativity of positive and negative aspects of life, but also sthenic and asthenic emotions associated with emerging adulthood (Arnett, 2000) and the growing need to define their own identity, which has rather diffuse features in this period in the form of a relatively large number of possible self (Markus, & Nurius, 1986) .

The development of self-concept requires intensive mental work. However, it cannot be either mobilize or supported by the absence of external factors. The most important ones are parents and teachers. The main objective of education (the parental and school ones) should be in terms of a healthy personality development and its self-concept (1) sufficient stimulation of the environment associated with relatively great degree of freedom and as well the presence of boundaries, (2) emotional stability generated through saturation of emotional needs, the relative stability of the environment and the possibility of emotional confrontation, (3) support of self-worth, which is derived from a slight overestimation of their abilities - this leads to the perception and use of the life challenges, awareness of the possibilities of a positive perception of the future (defined as paraphrase of psychological needs according to Langmeier, & Matějček, 2011).

The optimal development of personality and self-concept is not always possible to realize. It is evident in rapidly growing number of psychopathological diagnoses (or at least pathological symptomatology) in children and adolescents, for example child depressions, schizoaffective disorders, acute stress disorders, neurosis, but also behavioral disorders and addictions in terms of risk-taking behavior. Risky behavior is defined as a set of phenomena which existence and consequences can be subjected to scientific research and that can be influenced by preventive and therapeutic interventions. The risk behaviour concept mostly includes bullying and violence, truancy, substance and non-substance addictions, sexual risk behavior, delinquency, maltreatment, abuse, racism, xenophobia, intolerance, and so on. (Miovský, & Zapletalová, 2006). Lepík F. et al. (2010) found out (except other outcomes) that 23% of adolescents were ridiculed at least once a month, 25% of them take money to their parents, 23% of adolescents have already had a problem with the police, 25% smoke more than 5 cigarettes a day, 52% drank some alcoholic beverage in the past month, 41% have ever tried marijuana. Similar findings also noticed J. Vacek, J. Šejvl, & M. Miovský (2008). They have found out that 31% of adolescents (over 14 years old) smoke daily, 87% drank some alcoholic beverage in the past month, 21% were ridiculed. J. Vacek (2008) reported 33% of adolescents who are ridiculed at least once a month, 99% of adolescents have an experience with alcohol, 21% of adolescents have an experience with illegal drugs, 23% of adolescents in the ninth year of studying in primary school have a sexual experience. M. Dolejš, & O. Skopal (2014) found out that adolescents in the age 11-15 have experience with alcohol (78%), tobacco (31%). There were five percent of them who drunk in the last month and 3% smoke more than 5 cigarettes a day. The American Psychological Association introduces similar alarming findings (2002). In the context of the relatively high prevalence of various forms of the risk behavior we ask if this behavior relates to school self-concept of adolescents.

## Method

The basic research sample includes adolescents in the age 10-15, permanently living in Slovakia. According to the census list in 2011, there are approximately 180,000 people in the age 10-15 living in Slovakia (Statistical office, 2012).

The sample can be characterized as stratified. Criteria that were taken into account in the drafting are the following ones: adolescents in the each class from 5-9 in primary schools secondary school at about the same representation, boys and girls around the same representation, the regions of the Slovak Republic in about equal representation. Characteristics of the sample are given in Table 1. Whole research sample consists of 1704 adolescents. All these criteria have been met.

Table 1. The counts in the research sample.

		class					total
		5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	
sex	boys	143	177	181	164	172	837
	girls	162	164	184	181	176	867
total		305	341	365	345	348	1704

There have been applied two diagnostic methods in the research, particularly *Self-concept of School Effectiveness Questionnaire* (Matějček, & Vágnerová, 1992) and *Prevalence of Adolescents Risk Behavior* (Skopal, & Dolejš, 2013). The first mentioned is a standardized diagnostic method, which includes six subscales: (1) general abilities (2) mathematics (3) reading (4) spelling (5) writing (6) self-confidence and the total score of the school self-concept. It includes 48 items. The questionnaire has been developed as the Czech (Czech-Slovak) modification of the Student's Perception of Ability Scale Questionnaire set up by F.J. Boersma, & J.W. Chapman (1979 in Matějček, & Vágnerová, 1992). It has been adapted to form SPAS III. Standardization

took place in 1987. On its basis have been developed sten norms for individual age groups, which it is intended to, it means adolescents aged 10-15, or to adolescents attending classes 5-9 in elementary schools. Reliability of individual subscales is defined by Cronbach  $\alpha$  0.89 and more. The presented research applied the original structure of the questionnaire. The items have been modernized and formulated to the correct Slovak form.

Prevalence of Adolescents Risk Behavior set up by O. Skopal, & M. Dolejš (2013) is a diagnostic method, which has been in the process of standardization. It includes three subscales: (1) abusos, (2) delinquency, (3) bullying and total score of prevalence of risk behaviour. It includes 18 items. Reliability of individual subscales is defined by Cronbach  $\alpha$  in the range from 0.53 up to 0.81.

The following hypotheses were put forward based on theoretical background presented in chapter 2:

H1: We assumed that the range of the risk behaviour will be increasing together with the increasing age of adolescents.

H2: We assumed that adolescents with higher school self-concept will produce less risk behaviour.

## Results

While testing the hypothesis 1, the statistical method of the range difference was applied, Friedman test. It is a parametric statistical test developed to compare three and more independent samples. The significant standard level  $\alpha \leq 0.05$  was accepted. The aim of the analysis was comparison of the risk behavior prevalence of adolescents in relation to their age.

The risk behavior descriptors and all their subscales are listed in Table 2. The average values for all the variables were increased along with the number of class which the adolescents attended. The variance of analyzed data was relatively large. The values kurtosis and skewness indicate not normal and asymmetric distribution of data, except data collected in the ninth class. Similar trends appeared in Table 4 while testing hypothesis 2 (available in the text below).

Table 2. Descriptives of the risk behavior in the relation to the age.

class		N	Min	Max	AM	SEM	SD	kurtosis	skewness
5 <sup>th</sup>	abusos	291	0	7	0.21	0.05	0.81	33.97	5.42
	delinquency	290	0	6	0.41	0.06	0.97	12.04	3.25
	bullying	292	0	4	0.55	0.05	0.88	2.33	1.66
	risk behavior	286	0	16	1.13	0.12	2.09	15.69	3.49
6 <sup>th</sup>	abusos	336	0	7	0.38	0.05	0.98	13.97	3.47
	delinquency	336	0	7	0.71	0.07	1.23	5.08	2.15
	bullying	336	0	4	0.69	0.06	1.00	1.54	1.46
	risk behavior	333	0	15	1.76	0.14	2.54	4.74	2.10
7 <sup>th</sup>	abusos	360	0	7	0.64	0.07	1.33	9.42	2.92
	delinquency	356	0	7	1.19	0.09	1.71	2.46	1.71
	bullying	359	0	4	0.89	0.06	1.04	1.00	1.22
	risk behavior	352	0	18	2.67	0.18	3.37	4.96	2.06
8 <sup>th</sup>	abusos	336	0	7	0.76	0.07	1.29	4.56	2.10
	delinquency	339	0	7	1.20	0.08	1.38	2.09	1.33
	bullying	338	0	4	0.91	0.06	1.07	0.62	1.12
	risk behavior	331	0	16	2.84	0.16	2.81	1.83	1.25
9 <sup>th</sup>	abusos	340	0	6	1.22	0.08	1.54	0.74	1.28
	delinquency	344	0	7	1.98	0.10	1.81	0.09	0.87
	bullying	346	0	4	0.82	0.05	0.95	0.29	1.00
	risk behavior	332	0	16	4.03	0.19	3.41	0.47	1.00

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation;

The increase in the average risk behavior values is also evident in the form of statistical indexes - namely F-values (Table 3). All found differences are highly statistically significant, namely the level  $\alpha \leq 0.001$ . This means that among adolescents in the age cohort 10-15, there are significant differences in the rate of the risk behavior production. If we compared only the fifth and ninth classes, it means adolescents aged 10 and 15, we would find out that older adolescents produce about 3 risk behaviors more than younger adolescents. Similar results were also recorded in the subscales abusos (an increase in 1 symptomatic response), delinquency (1.5 symptomatic response) and bullying (0.3 symptomatic response).

Table 3. Comparison of the risk behavior in the relation to age.

ANOVA						
		Sum of Squares	df	Mean Square	F	p
abusos	Between Groups	196.486	4	49.122	32.485	$\leq 0.001$
	Within Groups	2507.082	1658	1.512		

	Total	2703.568	1662			
delinquency	Between Groups	461.269	4	115.317	53.432	≤0.001
	Within Groups	3582.641	1660	2.158		
	Total	4043.91	1664			
bullying	Between Groups	28.799	4	7.2	7.281	≤0.001
	Within Groups	1647.373	1666	0.989		
	Total	1676.172	1670			
risk behavior	Between Groups	1542.962	4	385.74	45.415	≤0.001
	Within Groups	13836.347	1629	8.494		
	Total	15379.309	1633			

Legend: df = degree of freedom; p = significance

We divided the sample to two groups before testing hypothesis 2, which may be presumed that they will differ in characteristics related to the risk behavior production. There, the school self-concept variable was set up to 25<sup>th</sup> and 75<sup>th</sup> percentile. The group that scored at the 25th percentile and below was marked as a group with low self-concept. The group that scored at the 75th percentile and more was marked as a group with high self-concept. They are indicated as “low” and “high” in Table 4. Therefore, we excluded adolescents who scored in the mean value of the variable from the analysis. Afterwards, data were tested applying t-test for two independent selections with acceptance standard level  $\alpha \leq 0.05$ . The results are available in Table 4.

Table 4. Descriptives and comparison of risk behavior in the relation to school self-concept

class		self-concept	N	Min	Max	AM	SEM	SD	kurtosis	skewness	t	p
5 <sup>th</sup>	abusus	low	50	0	5	0.30	0.14	0.97	14.56	3.77	1.810	0.073
		high	73	0	1	0.08	0.03	0.28	7.87	3.11		
	delinquency	low	50	0	6	0.60	0.18	1.28	8.71	2.89	2.757	0.007
		high	73	0	2	0.15	0.05	0.46	9.41	3.17		
	bullying	low	50	0	3	0.82	0.14	0.98	-0.30	0.91	3.598	≤0.001
		high	74	0	3	0.30	0.07	0.64	5.10	2.30		
	risk behavior	low	50	0	13	1.72	0.37	2.62	7.17	2.46	3.542	0.001
		high	72	0	4	0.54	0.11	0.89	3.12	1.80		
6 <sup>th</sup>	abusus	low	64	0	7	0.42	0.14	1.15	18.00	3.93	0.945	0.346
		high	87	0	6	0.26	0.10	0.90	27.91	5.02		
	delinquency	low	63	0	7	0.90	0.19	1.47	4.43	2.01	2.429	0.016
		high	87	0	4	0.43	0.10	0.95	6.65	2.65		
	bullying	low	64	0	4	1.05	0.13	1.03	-0.38	0.62	4.429	≤0.001
		high	87	0	3	0.44	0.07	0.66	2.01	1.48		
	risk behavior	low	63	0	15	2.38	0.34	2.73	6.55	2.09	3.298	0.001
		high	87	0	10	1.13	0.21	1.93	10.43	3.00		
7 <sup>th</sup>	abusus	low	95	0	7	1.01	0.17	1.68	3.34	1.93	3.224	0.002
		high	69	0	3	0.32	0.08	0.70	5.74	2.43		
	delinquency	low	94	0	7	1.55	0.21	2.07	0.83	1.35	3.870	≤0.001
		high	69	0	4	0.54	0.10	0.82	3.60	1.73		
	bullying	low	95	0	4	0.87	0.12	1.12	1.23	1.36	0.706	0.481
		high	69	0	4	0.75	0.12	1.01	1.99	1.50		
	risk behavior	low	92	0	18	3.34	0.42	4.03	2.58	1.71	3.306	0.001
		high	69	0	7	1.61	0.22	1.86	1.16	1.28		
8 <sup>th</sup>	abusus	low	78	0	6	1.33	0.20	1.73	0.04	1.08	4.869	≤0.001
		high	86	0	3	0.35	0.08	0.70	4.27	2.15		
	delinquency	low	79	0	7	1.58	0.17	1.48	0.87	0.88	2.969	0.003
		high	88	0	5	0.95	0.13	1.25	1.05	1.32		
	bullying	low	78	0	4	1.12	0.13	1.16	0.42	1.04	2.639	0.009
		high	88	0	4	0.68	0.10	0.95	2.66	1.66		
	risk behavior	low	77	0	16	4.06	0.39	3.39	0.44	0.72	4.893	≤0.001
		high	86	0	8	1.94	0.22	2.05	0.48	1.11		
9 <sup>th</sup>	abusus	low	88	0	5	1.44	0.17	1.58	-0.47	0.82	3.200	0.002
		high	79	0	5	0.73	0.14	1.25	3.24	1.95		
	delinquency	low	88	0	7	2.47	0.21	1.97	-0.23	0.69	3.518	0.001
		high	77	0	6	1.48	0.18	1.57	0.35	1.04		
	bullying	low	87	0	4	1.24	0.12	1.15	-0.56	0.63	3.813	≤0.001
		high	79	0	3	0.66	0.09	0.77	-0.16	0.85		

risk behavior	low	86	0	16	5.18	0.39	3.59	0.52	0.89	4.527	≤0.001
	high	77	0	11	2.88	0.32	2.77	0.67	1.16		

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; t = t-value; p = significance

We have found out that the groups with low and high school self-concept differ in the risk behaviour production. Significant differences were observed in all variables (abusus, delinquency, bullying, and risk behaviour) in the 8<sup>th</sup> and 9<sup>th</sup> classes. None significant differences were observed in subscale abusus in the 5<sup>th</sup> and 6<sup>th</sup> classes. In the 7<sup>th</sup> class were not observed any significant differences in the subscale bullying. There are significant differences in individual classes quantified by a difference of mean of symptomatic responses. In the subscale abusus, it is an increase 0.69 to 0.98 responses. In the subscale delinquency, it is an increase 0.45 to 1.01. In the subscale bullying, it is an increase 0.44 to 0.59 responses. The increase is always at the side of adolescents with low school self-concept. In the total score of risk behavior, an increase of 1.18 to 2.3 of symptomatic response at the side of adolescents with low self-concept was recorded. The increase of the risk behavior was in accordance with increasing age. It means the most evident difference in the risk behavior production while comparing groups with low and high self-concept was recorded in the 9<sup>th</sup> class.

## Discussion

Based on presented results above we may conclude that we can support both hypotheses. Adolescents in the age 10 to 15 produce more risk behaviour in relation with increasing age. Adolescents with low school self-concept produce more risk behaviour in comparison with adolescents with high school self-concept. Presented results are consistent with R. Jessor (1991) who perceives inadequate self-concept as one of factors leading to the production of risk behaviour in adolescence. Inadequate self-concept may also lead to behaviour which can be interpreted as problem or risky. Paraphrasing Čerešniková (2005) we present behavioural symptoms which can be considered for undesired behaviour of the children with inadequate self-concept: (1) unacceptance of the authority, (2) slight relations, (3) prosocial behaviour related to close group, (4) extreme emotional expressions, (5) extreme attitudes, (6) breaking the social norms, (7) development in lightly stimulating environment which can have pathological features.

If we think about the indirect indicators of the relation between risk behaviour and self-concept, we can write about the consistency of our results with outputs of various researches. M. Verešová (2004) states that the users of addictive substance (1) have strong discrepancy between internalized values they should have and the values they actually have as users of addictive substances, (2) weakened decisional skills and goal allocation, (3) lower self-esteem and self-confidence, (4) lower social skills and resistance. M. Verešová, D. Malá, & V. Gatál (2009) found that the production of risk behaviour has positive relation with general personal tendency to risk and stimulation seeking. M. Verešová, & M. Pohánka (2009) found out lower life meaningfulness and life satisfaction in alcohol users in comparison with abstainers. M. Verešová (2010) who found out that students using addictive substance have lower proactive coping and sense of coherence in comparison with abstainers. M. Verešová, & D. Malá (2011) repeatedly confirmed the relation between low proactive coping of addictive substance users and their risk behaviour. They found out the relation between low self-efficacy of addictive substance users and their risk behaviour.

In terms of education and self-education of child and adolescent population we may on the basis of our results recommend a clear concentration on the development of their self-concept in terms of the support of self-exploratory activity, preference of instrumental assistance before executive, or support of emotional expression and confrontation. If talking about a particular strategy and key development areas (school) self-concept, we could accept recommendations of M. Nevoralová, & L. Čablová (2012), which are aimed at development of self-determining abilities. They include (1) critical thinking, (2) creative thinking (3) problem solving, (4) decision making, (5) setting goals, (6) self-motivation, (7) self-reflection, (8) self-awareness, (9) self-evaluation (10) self-efficacy, (11) emotions coping, (12) stress coping, (13) planning and control, (14) time management (15) perception of obligations, (16) flexibility. Basically, they are metacognitive processes, which are typical for a mature personality, who is able to accept self and others as human beings who are exceptional in some areas, and in other ones they is lack of professional competence.

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# Science as a cultural activity: comparative study of Brazilian and Portuguese teachers' conceptions about science

Geilsa Costa Santos Baptista<sup>a§</sup>, Graça Simões de Carvalho<sup>b</sup>

<sup>a</sup>Assistant Professor, Department of Education (State University of Feira de Santana), Feira de Santana, Brazil

<sup>b</sup>Full Professor, CIEC-UM, Institute of Education (IE), University of Minho (UM), Braga, Portugal

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## Abstract

This is a comparative study on Brazilian and Portuguese science teachers' conceptions about science and cultural diversity awareness. Interviews before and after the TE-CD course revealed differences between teachers of both countries, which may be associated to their previous teacher training and social context. This preliminary study showed that further research in both countries is of paramount importance in order to elucidate in more detail the differences not only between the science teachers' conceptions about science but also between their teacher training. This can contribute to improve science teacher training curriculum in both countries, with special reference to cultural diversity.

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*Keywords:* Science conceptions; Cultural diversity; Teacher training; Multicultural.

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## Introduction

In the last two decades, it has been increasingly more common the view that science teachers must construct appropriate conceptions about the nature of science (NoS), since only in this way they will be able to convey appropriate conceptions about science they teach (Ameh & Gunstoner, 1985; Rutledge & Warden, 2000; Gil-Pérez et al., 2001; Capps & Crawford, 2013). Appropriate conceptions about the NoS mean those related to the understanding of science as a cultural activity of scientists in particular periods, comprising a set of inherent values and assumptions in the development of the scientific knowledge (Lederman, 1992).

However, most teachers and future teachers have inadequate conceptions about the nature of science (Gil Pérez et al., 2001). One must highlight that in some cases the concepts are missing or made incomprehensible when teachers are unable to express any meaning or fail to conceptualize the scientific concept clearly. Gil-Pérez et al (2001) have identified among science teachers the following seven views about science: 1 - empirical-inductive and non-theoretical (observation and experimentation assumed as neutral, i.e. not influenced by preconceived ideas); 2 - Rigid (algorithmic, exact, infallible, etc.). 3 - non-problematic and non-historical (hence dogmatic and closed); 4 - Exclusively analytical (highlighting the studies demarcation and specialization, their limited and simplifying character, and so forgetting efforts of unification and construction of coherent bodies of knowledge); 5 - Cumulative linear growth (scientific findings as the result of a purely cumulative linear growth, which ignores paradigm crises and major reconstructions); 6 - individualistic and elitist (scientific knowledge is the result of the work of isolated geniuses, ignoring the role of collective and cooperative work with exchanges within and between teams) and 7 - decontextualized (socially neutral).

In science teacher training for cultural diversity, a proper understanding of the nature of science should be stressed in order to allow the teacher to understand the characteristics that are intrinsic to science, as one among the numerous existing cultures. This will contribute to the demarcation of scientific knowledge (school) in relation to other cultural knowledge that can be present in the classroom (Cobern & Loving, 2001). In addition to the didactic transposition of scientific knowledge in the context of the classroom (Chevallard, 1985), the values and social practices should be taken into account (Clément, 2006; Carvalho, 2009). In this sense, the intercultural dialogue between the thought science and other systems of knowledge becomes pertinent. In such dialogues the relationships between the science culture (which is transmitted by the teachers) and the students' cultures should be established in order to make students understand the origin and the domains of validity of various systems of knowledge and systems of values. When this happens, students may develop their visions of the nature enhanced with scientific ideas and apply the acquired knowledge (either from scientific culture or from their own cultures) in contexts and practical situations (El-Hani & Mortimer, 2007).

Considering that a great number of science teachers have inadequate conceptions about the nature of science (Gil-Pérez et al., 2001), it is necessary that they develop epistemological reflections, by analyzing the NoS of their teaching and providing them of

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\* Corresponding author. Tel.: +55-75-31618884; fax: +55-75-31618884.

E-mail address: geilsabaptista@gmail.com

a broader view of knowledge as object of teaching, the curriculum and the methodologies of teaching (Apostolou & Koulaidis, 2010). According to Carvalho (2002), teacher's reflections about the NoS can provide a more adequate understanding of what science is about, how scientists operate as a social group in particular periods, etc. In this way, a more appropriate science teaching is possible so that students can understand better the nature of science they are learning about. Included in this scientific view of knowledge, some relevance has also been given to the cultural knowledge, which can involve the complex set of relationships of plants and animals with the past and present human societies, in the so called field of Ethnobiology (Berlin, 1992).

The NoS can be better understood by teachers if the contribution of history and philosophy of science is taken into account (Clough, 2012), assisting in the epistemology of science, i.e. helping the “*understanding of the structure of science and the space it occupies in the intellectual system*” (Matthews, 1995, p. 165).

In this paper, a comparative study of Brazilians and Portuguese science teachers' conceptions about science are presented and discussed in view of the influence on science teaching course addressing cultural diversity: “*Contributions of Ethnobiology, History and Philosophy of Science for Teacher Education addressing Cultural Diversity*” (in short: TE-CD). The purpose of this course was to create opportunities for teachers to reflect about research and understanding of the cultural knowledge that certain societies and cultures have towards nature and its elements. Data was obtained before and after teachers' training on history and philosophy of science, with particular focus on the consequence of the cultural knowledge demarcation to intercultural dialogue in science education. Addressing cultural diversity in science teaching means to investigate, understand and consider students' cultural diversity in order to promote intercultural dialogue in the classroom. The research questions are the following: (i) how do Brazilian and Portuguese science teachers conceive the science they teach? (ii) What are the similarities and/or differences between Brazilian and Portuguese teachers' conceptions about science? (iii) What are the influences of Brazilian and Portuguese teachers' science conceptions on teaching science addressing cultural diversity in both countries? Stated in other words, what intercultural dialogue can be established between the scientific contents and cultural knowledge of student-teachers?

## Methodology

This qualitative research was carried out with semi-structured interviews (Bogdan & Biklen, 1994), in a multiple-case study (Godoy, 1995; Duarte, 2008).

### Participants

The participants in the Brazilian sample were 9 Biology teachers of public middle school (teaching 15-17 years old students) of different towns in the Eastern Region of the Bahia State. The age of these female teachers was between 28 and 41 years old.

Six Biology teachers composed the Portuguese sample (3 female and 3 male) of public kindergarten and primary school (0 to 12 years old children) of the Northern Region of Portugal. The age of these female teachers was between 26 and 44 years old.

Between the two data collection moments (before and after the TE-CD) dropouts in both samples occurred, being at the end 6 Brazilian teachers and 4 Portuguese ones.

Qualitative research requires consideration of ethical issues, particularly due to the proximity between the researcher and participants (Martins, 2004). In Brazil, the standards of the Resolution 196/1996 on research involving humans of the National Health Council of Brazil were taken into account. Therefore, for this study, a Statement of Consent from each participant was obtained. This term included the following items: explanation about the research, including the freedom to refuse to participate or withdraw his/her consent at any stage of the research; explanation about the social relevance of this research; information about the methodology of the study; assurance that the research would cause no costs for the participants; declaration on confidentiality, ensuring the privacy of the identity of the subjects; respect for cultural values and feelings expressed by subjects, among other aspects. Similar ethical issues were considered in Portugal.

### Teaching module on Ethnobiology

The TE-CD courses on “*Contributions of Ethnobiology, History and Philosophy of Science for Teacher Education addressing Cultural Diversity*” were carried out by the first author in subsequent periods, the first in Brazil and the second in Portugal. In Brazil it had a total workload of 132 hours and was held in the State University of Feira de Santana (UEFS), in the city of Feira de Santana, Bahia, Brazil. In Portugal, the TE-CD course had a total workload of 130 hours and was held at the Institute of Education, University of Minho (UMinho), in the city of Braga, Northern Region of Portugal.

The overall aim of this TE-CD course addressing cultural diversity was to contribute to raising science teachers' awareness of cultural diversity in classroom and how to deal with it in science education. In other words, it was intended to promote the cultural dialogue of science with the students' cultural knowledge. The course had interconnected theoretical and practical approaches and consisted of the following strategies: dialogic presentation; reading and discussion of papers; and preparation and presentation of educational resources in order to carry out intercultural dialogue in science education.

The following themes were discussed with both Brazilian and Portuguese samples: (i) “Ethnobiology and its contributions to intercultural dialogue in science education”; (ii) “Science teachers' training for cultural diversity”; (iii) “Contributions of the history and philosophy of science for the demarcation of cultural knowledge in Science Education”. A further theme (iv) was specific for the Brazilian teachers “Agricultural pest, a possible content for intercultural dialogue in Science Education” and for the Portuguese teachers “Health, a possible theme for intercultural dialogue in science education”.

### Data collection and analysis

Semi-structured interviews were applied to the Brazilian and Portuguese participants. They were recorded and transcribed. The average time was 30 minutes for interviews prior to the TE-CD course and 24 minutes for interviews after the course.

A sequence of codes was given to each interviewed teacher, in order to ensure her/his privacy, as follows: From Brazil: BT-1 (Brazilian Teacher 1), BT-2 (Brazilian Teacher 2), and so on; From Portugal: PT-1 (Portuguese Teacher 1), PT-2 (Portuguese Teacher 2), and so on.

In order to facilitate comparisons, two categories were created *a priori*: (i) before the TE-CD course and (ii) after the TE-CD course. In each of these categories, the answers given by the Brazilian and Portuguese teachers were arranged side by side in tables (see Tables 1 and 2 in “Results and Discussion”).

The analyses was carried out on these two categories by interpreting and comparing the Brazilian and Portuguese answers and discussing them based on the literature in science education and teachers training for cultural diversity. The objective was to identify similarities and/or differences between the conceptions of the participating teachers before and after the TE-CD course.

## Results and Discussion

Of the numerous interview questions, for this paper only the following ones were analyzed and discussed:

*“In your idea what is science? For example: Evolutionism or Intelligent Design? Astronomy or Astrology?”*

### Category 1: Before the TE-CD course

The most relevant speeches of Brazilian and Portuguese teachers answering to the question before attending the course on "Contributions of Ethnobiology, History and Philosophy of Science for Teacher Education addressing Cultural Diversity" are shown on Table 1.

Table 1. Speeches of Brazilian and Portuguese teachers before the TE-CD course

Brazilian Teachers	Portuguese Teachers
Science is a part of our culture that attempts to explain the phenomena in nature ... which tries to investigate solutions to the problems we have and try to know the environment where we live... (BT-1).	Science... to know, isn't it? Knowledge, isn't it? It is... linked to different areas of knowledge... the science is related to the method which can be proved... and also cannot be proved, isn't it? (PT-1).
Science ... is such a big field ... is a range of related knowledge... I don't know, I got lost now ... you shook me ... It's such an abstract thing to say, isn't it? (BT-3).	Science ... has to do a bit with scientific methods ... I don't know ... there are themes ... There is only one science ... science ... There are various issues ... I do not know (PT-2).
It [science] is knowledge about something ... related to something ... it's knowledge... scientific is all that needs to be investigated ... scientifically proven, but I believe they also bring is a... is science, is a popular knowledge, or traditional... (BT-4).	... To say what it is, it's complicated! Science tries... to show by a method, and a goal, to explain the phenomena of nature ... of our day to day, through the scientific method ... there is a method which is the scientific method ... (PT-3)
In the way to study ... there are several sciences ... I guess it is the question of... disclosure ... and the methodology of the study... the academic, he works on steps ... not only disclosure. I think this thing is the method ... (BT-5).	Science ... is what is linked to research ... but it's hard to speak ... it isn't only that science, the one we are used in the laboratory but it is science ... it has to do with methodology... it's theoretically supported... (PT-4).
... it would be linked... to the method, an observation, experimentation and an outcome and a discussion of these results, including a likely ... then a repetition of this ... (BT-8).	Science to me is ... science is the study that has the experience, isn't it? Has an underlying theory experimentation ... (PT-5).

Among the answers given by the Brazilian teachers the conception of **science as culture** emerged. For example, BT-1 said (Table 1):

*“Science is a part of our culture that attempts to explain the phenomena in nature”. (BT-1).*

In contrast, this concept of science as culture was not revealed in the speech of the Portuguese teachers before the TE-CD course.

The conception of science as culture is very close to that hold by most researchers in the science education literature. For example, Lederman (2006) has mentioned that science is one among the various cultures that seeks to describe natural phenomena and, according to Gil-Pérez et al (2001), one must understand the social nature of the scientific development, influenced by the problems and circumstances of the historical moment, and also consider that the scientists' actions have a strong influence on the physical and social environment in which they operate.

Another conception disclosed in the statements of Brazilian and Portuguese teachers was **science as any study or knowledge about something**, as the BT-4 and PT-1 (Table 1) said:

*“It [science] is knowledge about something ... related to something ... it's knowledge”. (BT-4).*

*“Science... to know, isn't it? Knowledge, isn't it? It is... linked to different areas of knowledge”. (PT-1).*

This conception of science as any study or knowledge about something is too general, too wide, which can result of the lack of historical-epistemological studies during the teachers' training in both countries. Delizoicov et al. (2002) as emphasised that a fragmented degree in teaching modules that focuses on specific content learning and lacking discussion about science epistemology and its historic role, ends by leading the future teachers not understanding the nature of science. Therefore, teachers are unable to make boundaries between science and other systems of knowledge, as was evident in the speech of PT-4, who included all forms of knowledge as science:

*“Science ... is what is linked to research ... but it's hard to speak ... it isn't only that science, the one we are used in the laboratory but it is science ... it has to do with methodology... it's theoretically supported”. (PT-4).*



The BT-4 speech also shows to be very influenced by the specific asked questions “For you what is science? For example: Evolutionism or Intelligent Design? Astronomy or Astrology?”:

“Scientific is all that needs to be investigated ... scientifically proven, but I believe they also bring is a... is science, is a popular knowledge, or traditional”. (BT-4).

It is possible that the teachers have interpreted these questions as a collection of choices between the two examples given, as if they were closed questions. So, they struggled to formulate clearly a response to the meaning of science.

In addition, from the BT-4 answer emerges the science conception that traditional knowledge is a kind of science that differs from the one practiced by the scientific community. Indeed, in the view of El-Hani & Bandeira (2008) traditional knowledge is not constructions of science, but rather legitimate constructions of traditional communities and, therefore, valid according to epistemic criteria that are defined in their own cultural patterns. Thus, the differentiation between traditional and scientific knowledge is the entire set of characteristics that are peculiar to each of these forms of knowledge (Bandeira, 2001).

The teachers’ reference that science is knowledge can be explained by the etymological meaning of the term “science” from the Latin “*scientia*”, meaning knowledge. However, how the scientific processes are carried out today are so much specific that the definition of science just as knowledge is too wide. Therefore science must be viewed as one of the several forms of knowledge, with specific modes of knowledge production (El-Hani & Bandeira, 2008). In contrast, Cobern & Loving (2001) admit that all forms of knowledge can be considered as a science, but this view does not contribute to intercultural communication. It rather contributes to the failure to recognize cultural differences in classrooms, in that instead of recognizing the variety of knowledge existing among students, it embraces all different kinds of knowledge in a general form of science. One consequence is that students will not be able to apply their different knowledge in various contexts and situations in which such knowledge may be requested.

The demarcation between science and other forms of knowledge should be preserved in science education addressing cultural diversity. In this way, students can be aware of the structure and scope of the different ways of knowing, and so science education will be valuing cultural diversity by its own criteria of validity and legitimacy (El-Hani & Mortimer, 2007).

Brazilian and Portuguese teachers showed responses that suggest insights that **science has a specific method** and that scientific knowledge is derived from observation and experiences and observations about the natural world. Examples of these responses can be found in the quotations shown on Table 1 of Brazilian teachers BT-5, BT-8 as well as Portuguese teachers PT-1, PT-3, PT-4 and PT-5.

However, as discussed by Gil-Pérez et al. (2001), one must reject the idea that science works with a single method, since the history of the construction of scientific knowledge is marked by a methodological pluralism. This author further refuses the only view of “*an empiricism which sees knowledge as a result of inductive inference from raw data*” (Gil-Pérez et al., 2001, p. 136). After all, scientific data cannot be obtained nor interpreted on the basis of observations in trials only, i.e. data obtained in scientific research should always be interpreted in light of its theoretical framework in order to make sense.

Although accepting the argument that there is no single method for doing science, Irzik & Nola (2011) point out that the scientific method cannot be regarded as less controversial about the nature of science, because there are methodologies and methodological rules that guide the scientific practice in general. Alternatively, these authors propose a characterization of science based on “family resemblance”, being necessary to consider that there is a set of characteristics that are specific to some sciences, but not to others, thus forming a set of family resemblance. In other words, there are differences between the specific sciences, but also similarities between one another (Irzik & Nola, 2011).

Finally, before the TE-CD some teachers, BT-3 and PT-2 (Table 1), were not able to give any understandable explanation of what science is about.

### Category 2: After the TE-CD course

The most relevant speeches of Brazilian and Portuguese teachers answering to the question after attending the course on “Contributions of Ethnobiology, History and Philosophy of Science for Teacher Education addressing Cultural Diversity” are shown on Table 2.

Table 2. Speeches of Brazilian and Portuguese teachers after the TE-CD course.

Brazilian Teachers	Portuguese Teachers
To define [science] is still very difficult for me ... There is Western science, which is the one thing that came out of colonialism, which in turn is related to the seventeenth century, the steps, the method ... is the path that will allow understanding the natural world ... I say it isn't, but sometimes I wonder medicine has been developing studies that show how a patient's faith has helped him improve ... science does not work with the supernatural world but when I see certain things that was not the domain of science being researched, so I'm wondering... (BT-5).	Science is a proved experimental method, through a way which is usually a journal ... and that is recognized by a group as such. Science is one culture, because there are other cultures (PT-1).

There isn't a unique concept [of science] ... it has to do with the natural ... in fact it isn't immutable ... to be scientific, a concept must go through a scientific community... and define what science is... it has features that ... are their own because it is a culture ... the fact that there is not a single definition, it is because of this mutability ... (BT-6).	It is a system that acquires knowledge based on methods, scientific methods. Science is a culture with its own characteristics (PT-2).
Culture... with features, language, ways of communicating... Like other cultural groups also have. It's what makes being validated within it ... science as a way of explaining the nature validated by a group, which is the scientific group (BT-8).	Hey, what is science? Difficult! Science has to do with facts, with the method ... Science has a method, has a goal. It is knowledge that is acquired by various methods, goals. Science has to do with culture, the scientific culture (PT-3).
Community... that produces knowledge and this knowledge is scientific knowledge... studying and allows other scientists to study from their discoveries... something that is not ready... you can always find new discoveries with the day to day... (BT-9).	Science ... it's still hard to explain! Well, science is a cultural activity of scientists... that produces scientific knowledge through scientific methods... That's it! (PT-4).

The attempt to define the term science is not an easy task and, indeed, there is not a single epistemological position among philosophers of science. This difficulty was also identified by Brazilian and Portuguese teachers, not only before (Table 1) but also after their participation in the TE-CD course (Table 2). After the course, teachers BT-6 and PT-3 attributed the absence of a unique concept for the term "science" due to the variability of the scientific activity itself:

*"There isn't a unique concept [of science] ... it has to do with the natural ... in fact it isn't immutable ... to be scientific, a concept must go through a scientific community... and define what science is... it has features that ... are their own because it is a culture ... the fact that there is not a single definition, it is because of this mutability". (BT-6). "Hey, what is science? Difficult! Science has to do with facts, with the method ... Science has a method, has a goal. It is a knowledge that is acquired by various methods, goals. Science has to do with culture, the scientific culture". (PT-3).*

Despite demonstrating difficulties in defining the term science, the Portuguese teacher PT-3 revealed an adequate conception of science as a cultural activity of scientists. In addition, after the TE-CD course he was able to conceive that scientific activities are not conducted by only one method, but rather by several methods (compare PT-3 before and after the TE-CD course, Tables 1 and 2, respectively).

Also after the course, the Brazilian teachers' conceptions of science improved as shown by the above BT-6 speech, but also BT-8 and BT-9:

*"Culture... with features, language, ways of communicating... Like other cultural groups also have... science as a way of explaining the nature validated by a group, which is the scientific group". (BT-8).*

*"Community... that produces knowledge and this knowledge is scientific knowledge... studying and allows other scientists to study from their discoveries". (BT-9).*

They conceive science as a culture that has its own language and investigates natural phenomena (BT-8) and that it is historical and has a specific field of research that conducts and enables new discoveries (BT-9). After the TE-CD course, in general, Brazilian teachers achieved an appropriate definition of science but one of them, BT-5, showed insecurity in her speech, as she not only agrees with the idea that scientific activities are just about the natural world but also accepts the possibility of studying supernatural phenomena:

*"[Science] is the path that will allow understanding the natural world ... science does not work with the supernatural world but when I see certain things that was not the domain of science being researched, so I'm wondering". (BT-5).*

On this issue, one must consider that for defining science it is important to question its nature, including the set of its specific features, which in turn are shared by scientists of a particular period. One of these features, as Cobern & Loving (2001) declare, is that scientific activities are just about the natural world.

After the TE-CD course, the Portuguese teachers extended their conceptions of science, understanding it as an inherent cultural activity of scientists. However, as it happened before the course, they kept focusing their definitions on the methodological aspects of scientific development as the four teachers (PT-1 to PT-4) say:

*"Science is a proved experimental method, through a way which is usually a journal ... and that is recognized by a group as such. Science is one culture, because there are other cultures". (PT-1).*

*"It is a system that acquires knowledge based on methods, scientific methods. Science is a culture with its own characteristics". (PT-2).*

*"Science has to do with facts, with the method... Science has a method, has a goal. It is knowledge that is acquired by various methods, goals. Science has to do with culture, the scientific culture". (PT-3).*

*"Science is a cultural activity of scientists... that produces scientific knowledge through scientific methods". (PT-4).*

These teachers left out the other characteristics that are peculiar to scientific activities, for example, that science is historical. In fact, Cobern & Loving (2001) claim that science involves a set of theories, activities, ideas, habits, norms, values etc. that are shared by the wide scientific community, being socially and historically constructed. The absence of historic and epistemological perspective of science by the participants may be due to the complete lack of these subjects in their regular teacher training process.

## Final Considerations

Before the TE-CD course most teachers did not conceive that in their teaching of science they should assume science as a cultural activity of scientists. By participating in the course on “*Contributions of Ethnobiology, History and Philosophy of Science for Teacher Education addressing Cultural Diversity*”, Brazilian and Portuguese science teachers extended their conceptions about the nature of science.

In a broader sense, this implies that teachers can reflect and assign new meanings to their pedagogical practices in relation to the intercultural dialogue, especially regarding the creation of opportunities for students to understand science as one among the numerous existing cultures. Thus, not assigning hierarchy of science towards cultural knowledge of those students who may have values and contexts that are specific to the social environments where they come from.

It was interesting to note similarities and differences between the Brazilian and Portuguese teachers’ conceptions either before or after their participation in the TE-CD course. In short, the Brazilian teachers, although with some difficulties, showed a broader definition of the term science as compared to Portuguese teachers. The former characterized science as knowledge, as a culture that has its own language and it investigates natural phenomena, being historical and demarked in specific fields of research and that performs and makes possible new discoveries. In contrast, the Portuguese teachers focused their science conceptions to the knowledge produced by scientists and the scientific method.

The fact that there are differences between the conceptions of Brazilian and Portuguese teachers may be directly related with their previous undergraduate training, as well as their wider social and cultural environment. In the case of Brazilian teachers, it is possible that they have more training on the nature of science related to the sociology of science, which considers the influence of external factors on the development of science. In Portugal, the science teachers training may be more linked to the positivist view of science, which is based on the idea of science as a value-free activity and separating the relation between science, technology and society (Gil-Pérez et al., 2001).

It can be concluded from this preliminary study that further research with larger samples of participants in both countries is of paramount importance in order to elucidate in more detail the differences not only between the science teachers’ conceptions about science but also between their teacher training in Brazil and in Portugal. This will generate data that will contribute to improve science teacher training curriculum in both countries, with special reference to cultural diversity.

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# Searching of the concept in Tirilye: an architectural design studio

Zafer Sagdic<sup>a</sup>, Ali Degirmenci<sup>b</sup>

<sup>a</sup>Assist.Prof.Dr., YTU Fac.of Arch., Dept.of Arch. Barbaros Bulv., Istanbul, Turkiye

<sup>b</sup>Asist., YTU Fac.of Arch., Dept.of Arch. Barbaros Bulv., Istanbul, Turkiye

## Abstract

Tirilye is one of the most ancient towns in Bursa Province of Turkey, situated 12 km on the west of Mudanya. It is almost located on the Marmara Sea shoreline. The area, which was inhabited since 5th Century BC, was formerly known as Τρίγλεια, Trigleia or Βρύλλειον, Brylleion in ancient Greek. Trilye has been an important religious center for Greek Orthodox Christians and is a first level protected area since 1980 because of the Byzantine and Ottoman architectural monuments. It is also considered as an open-air museum with various historical buildings. Thus the site is not only an important place with its' history, but also it is one of the precious places of Turkey to have an architectural search on new forms and concepts on an existed historical area. With 20 students of the Faculty of Architecture, Department of Architecture of Yildiz Technical University, The Design Studio 4 has been searched to find the best places and related architectural concepts to create new architectural forms on Tirilye, during the spring semester of 2013-2014 educational year. Thus the paper will have the long process of the Design Studio 4, with the best 5 projects of 20 different location and concept proposal projects to Tirilye.

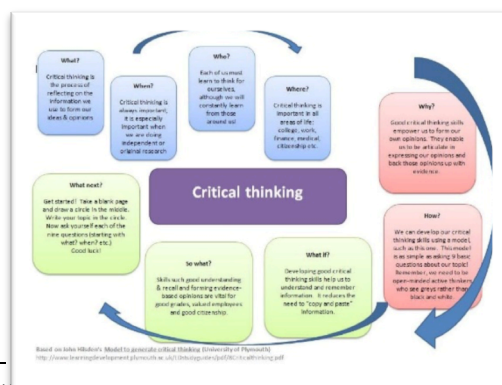
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**Keywords:** design, architecture, creative thinking, thinking creatively.

## Introduction

It is known that there are two specific way of thinking; critical thinking and creative thinking. *Critical thinking* is intellectually disciplined process of actively and skillfully conceptualizing, applying, synthesizing, and/ or evaluating information gathered from, or generated by observation, experience, reasoning, and/or communication, as a guide to belief and action, while *creative thinking* belongs to a phenomenon whereby something new, artistic, aesthetical and valuable is created. Etymologically, critical thinking means exercising or involving careful judgment or judicious evaluation; it means crucial, and discerning judgment, while creative thinking etymologically means having or showing an ability to make new things or think of new ideas; using the ability to make or think of new things: involving the process by which new ideas, stories, etc. are created. Thus, it is seen that, learning methods related with critical thinking, are used generally on either mathematical based lectures, or researches, which have much more concrete results, having equations and formula based structures. Critical thinking does not refer to the theory of thinking, and thus, it defines the intellectually disciplined process of skillfully and actively conceptualizing, analyzing, synthesizing and/ or applying. And it is known that this process is generated by observations, and/ or researches. Creative thinking is the process, which is used to generate new ideas, products, services and innovations. It is essentially the act of changing; combining, reapplying and merging seemingly unrelated things in unique ways in order to pave the way forward to new inventions, concepts and processes. Thus, in many ways creative thinking is visual thinking taking physical form. Also, it requires periods of brainstorming, questioning, playing and self-reflection. According to most authorities it needs time to sprout and grow, yet can come quickly at a moments notice with a little imagination and inspiration. When it comes to visual thinking, the concept of a picture has divided into six distinct categories: metaphors, sketches, diagrams, charts, tables and combos.



\* Corresponding author. Tel: 0090.532.4243115, fax: 0090212. 2240212.

E-mail address: zafer.sagdic@hotmail.com

Fig. 1. Schema of Critical Thinking (Hilsden, 2009).

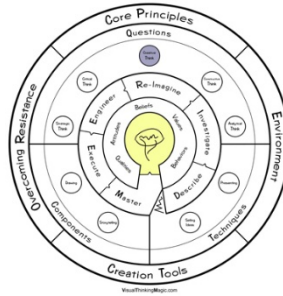


Fig. 2. The cycle of creative thinking to visual thinking, (visualthinking.com)..

## Methodology

Since 2004, it is a common way to use the creative thinking method of Jeffrey and Craft, which is called as a teaching for creativity- teaching creatively (Sagdic, 2013). Their draft method is defined as “using imaginative approaches to make learning more interesting and effective” (Jeffrey; Craft, 89). And they added that teaching for creativity method involves teaching creatively and note that, “young people’s creative abilities are most likely to be developed in an atmosphere in which the teacher’s creative abilities are properly engaged” (Jeffrey; Craft, 90). As it was mentioned before, metaphors, sketches, diagrams, charts, tables and combos are ways of producing the visual thinking, which is the taking physical form of the creative thinking as it is mentioned above. In architecture, producing process is started as metaphors creating, which is called as concept creating. Then drawing part of the process is formulated by creating of not only the plans, but also the sections and elevations as the technical necessities of the architectural designing.

Thus, during the 15 weeks of one semester education on The Design Studio 4 of the Faculty of Architecture, Department of Architecture of Yildiz Technical University, first, it was asked to create one contextual background from each of the 20 students. The project site was Tirilye. Jeffrey and Craft’s *teaching for creativity- teaching creatively theory* method is used during this period to ask an architectural creation to the group in Tirilye. Thus, students searched to find the best places and related architectural concepts to create new architectural forms on the site. The project group went to the site not only to make analysis of Tirilye, but also to create the best concept and select the most suitable place for their projects according to the analysis on the first three weeks of the semester, two times during the week. Students also made some interviews according to their concepts with the citizens of Tirilye. From the 4<sup>th</sup> week to the 8, the process had the synthesis period. During this period, each and every student prepared the synthesis of their projects according to the income datas from the site analysis and the interviews that have been done in the site in the early period of the project process.

## Content And Context Of The Lecture

The project creating process of the Design Studio 4 has 6 main steps:

1.site seeing, 2.making of analysis, 3.preparing of synthesis, 4.the creating of conceptual background, 5.specifying decisions of making ecological based projects or creating contemporary architectural examples, 6.the design process of the project; preparing of the technical drawings, plans, sections and elevations, 7.creating of details of landscape, 8.making presentations on the auditorium, 9.discussions of each project on final jury.

Moreover then this, during 15 weeks long semester, informative seminars related with the history of the site, the economical and cultural potentials of the site were given to the students on the first 2 weeks, and from the 3<sup>rd</sup> week to 10<sup>th</sup>, three digital programs,

which are chronologically photo-shop for architectural representation, sketch up for understanding 3 dimensional modeling quickly and rhino 5 for creating the design of the project, were shown to students on three different workshops. During this process, also 2 seminars about eco-design, 1 about architectural patterns and geometrical form creating and 2 about light-weight structures were given to the group, as well.

In the Design Studio 4 it was known that, the group experience and imagination would be a major part of the process of investigating knowledge using such devices as possibility knowledge (Woods and Jeffrey, 1996) and possibility thinking (Craft, 2002) and according to Lucas (2001), as well. Thus, the method of *teaching for creativity* was used to involve generating ‘learner inclusive’ pedagogy, according to Jeffrey and Craft. This method is tried to develop further here, on this selected group of design studio students (Craft and Jeffrey, in press; Craft, 2003). According to this method, the learner is encouraged to engage in identifying and exploring knowledge. The instructor was encouraging the group to believe in their creative identity; identifying the group creative abilities not only architecturally, but also related with culture; fostering creativity by developing some of the common capacities and sensitivities of creativity such as curiosity, recognising and becoming more knowledgeable about the creative processes that help foster creativity development and providing opportunities to be creative.

### Projects And Discussions

There were 20 submitted projects from the group of the Design Studio 4, on which students searched to find the best places and related architectural concepts to create new architectural forms on Tirilye, during the spring semester of 2013-2014 educational year. The best 5 projects of 20 different location and concept proposal projects to Tirilye are:

1. *Trilye Cultural Center, by Kardelen Akkus*  
TCC, Trilye Cultural Center has halls for exhibitions of old and new pictures of Tirilye. This center is located on one hill of Tirilye, where is a vista point to see the old city view and the sea shore together. Thus, TCC has a specially designed view-ramp, which has many vista points on itself. Photographers or travelers can take pictures of beautiful Tirilye from these vista points.

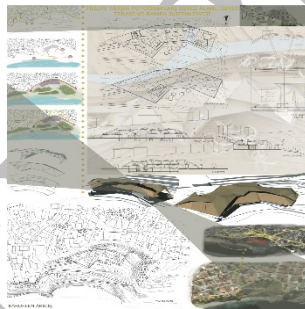


Fig.1. *Trilye Cultural Center, by Kardelen Akkus*

2. *TSEM, Trilye Sustainable Energy Museum, by Begum Samanci*  
TSEM, Tirilye Sustainable Energy Museum is created to show how important is to preserve the already existed sources for producing energy. The special form of the museum is based on a concrete shell form and the TSEM is created as designed as an example of parametric architecture. This museum also has halls for its’ children users.

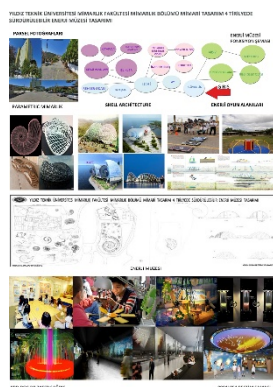




Fig.2. TSEM, Tirilye Sustainable Energy Museum, by Begum Samanci

### 3. BF, Barracks of Fisherman Units, by Duygu Bingul

BF, Barracks of Fishermen units is created to preserve the fisherman culture on the zone and give a new look and renovate the special and traditional barracks of the group of local fishermen on the original place by the shore of Tirilye. BF has units, which are made of containers. These containers have different colors according to their own function. Red one are individual personal units of fishermen and green ones are serving area containers.

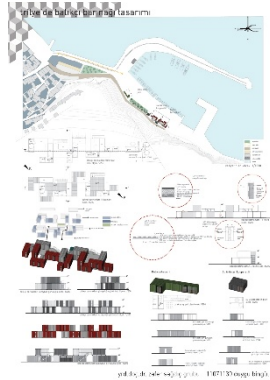


Fig.3. BF, Barracks of Fisherman Units, by Duygu Bingul

### 4. The House of The Horizon, by Duygu Oy

The House of The Horizon is a common house on where visitors can stay free on charge, but helping to the local producers on the season of harvest of olives. They are helping to the production of the olive oil. The name of the commonly used house is related with its' special location from where the horizon can be seen during the day and night. It also refers that all of the people are equal under the same horizon.



Fig.4. The House of The Horizon, by Duygu Oy

### 5. TVH, Tirilye Wine House, by Aslihan

TVH, Tirilye Vine House is designed to vineyard at the back of its' producing on the vine testing menus and a vine shop



### Dazkir

use the vineyards potential of Tirilye. TVH has its' own units. Also TVH has a restaurant, which is specialized to sell traditional produced local vines.



Fig.5. TVH, Tirilye Wine House, by Aslihan Dazkir

## Conclusion

Among multiple benefits of the exercise some that stand out are: (1) students participated in solving a creative design problem, (2) students learned to work on an estimated time period, (3) students familiarized themselves with creating designs on a relationship among context and concept while thinking on architecture, (4) students learned to appreciate different point of views on the same project site, (5) students were able to visualize their designs in context, (6) students learned important digital programs for their future designs.

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# Selected examples of interactive teaching methods in the Centre of Geoeducation in the city of Kielce (Poland)

Anna Świercz\*\*<sup>a</sup> Ewelina Smorzewska<sup>a</sup>

<sup>a</sup>Department of Environmental Protection and Modelling, Jan Kochanowski University, Kielce, Poland

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## Abstract

The article presents the educational activity of the Centre of Geoeducation in the City of Kielce (Poland). The Centre was established in 2012 and thanks to a variety of provided services, it quickly gained a wide audience. By drawing inspiration from a very rich geological assets of the whole Świętokrzyskie Province, the Centre transmits geological, ecological and geographical knowledge, mainly with the use of many interactive teaching methods. The Centre's educational offer involves various activities, i.e. theoretical, practical and field classes. What is more, the Centre of Geoeducation acts as an initiator and coordinator of many cyclical or occasional events which promote geological assets of the Świętokrzyskie Province. The growing number of visits provides evidence for a wide interest of the Centre's activity – in 2013, there were up to 6.2% more visitors than in the previous year. It is worth mentioning that the Centre of Geoeducation is visited not only by organised groups, but also by individual visitors coming from the Province and the whole country, as well as from abroad.

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*Keywords:* geoeducation, informal education, interactive teaching methods

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\* Corresponding author. Tel.: tel. +48 041 349 64 28; fax: +48 041 349 64 18.

E-mail address: swierczag@poczta.onet.pl

## 1.Introduction

The possibility of extending knowledge outside the school environment is of particular importance to the development of children and adolescents. It is widely believed that the informal approach to teaching shapes a world view, develops imagination, and especially increases efficiency at acquiring new, often difficult and complex contents (Malcolm at al., 2003). Learning through practice base its assumptions on the full involvement of both teachers and students, by using interactive teaching methods. Their main aim is not only to strengthen, but also to make the process of enhancing knowledge, developing manual skills and acquiring logical thinking more attractive. Another, but no less important quality of interactive teaching methods is that they help foster interactions among students, while integration as well as collaborative problem solving result, *inter alia*, in equalising differences in students' educational level (Sessoms, 2008; Kedrayate, 2012).

The beginnings of informal education are dated back to the 60's of the 19<sup>th</sup> century (Sharma, 1989), but a real flourishing of various ways to promote learning through practice has taken place in recent years (Hernandez at al. 2013). Moreover, it is believed that the use of interactive teaching methods is gaining popularity thanks to commonly noticeable effects, what indirectly results in improving the quality of human capital and increasing people's standard of living, and in the developing countries – decreasing poverty rate (Handa at al. 2009).

In modern Europe, it can be seen a dynamic growth in the number of centres that specialise in informal ways of transmitting knowledge. One of them is the Centre of Geoeducation in Kielce (Poland) which is based on a very rich geological potential of the Świętokrzyskie Province. Owing to educational offer abounding in many modern interactive tools, the Centre's popularity is gradually increasing what is additionally confirmed by a wide interest of visitors not only from the Province and the whole country, but also from abroad.

## 2.Elaboration

### 2.1.Principles of Educational Offer of the Centre of Geoeducation

The Centre's premises are located in the area belonging to the Wietrznia Inanimate Nature Reserve named after Zbigniew Rubinowski (prominent Polish geologist) in the south-eastern part of the City, and make up the most important point on the route of the Świętokrzyski Archeo-Geological Trail (Fig. 1). The ongoing activity of the Centre of Geoeducation confirms that education is no longer an exclusive preserve of schools, training institutions, or seats of learning, and the process of education has its place beyond the formal educational systems and is fully voluntary. The Centre is a place where ecological, geological and geographical knowledge is transmitted in an accessible way through using modern methods and didactic tools. That is why, its activity is based on benefiting from a very rich geological assets of the whole Świętokrzyskie Province, whose capital city is Kielce. There are numerous geological reserves of high scientific and tourist qualities so that they provide many unique landscapes and at the same time are an excellent opportunity for preserving exceptional values of geological heritage in the Province (Wójtowicz, 2011).



Fig. 1 View on the Centre of Geoeducation

## 2.2. Selected Educational Activities of the Centre of Geoeducation

The Centre of Geoeducation has been classified as a museum and exhibition institution. However, as its ongoing activity shows, the nature and specificity of the educational offer differ greatly from those which are typical for that kind of institutions. The Centre's educational offer is indeed based on interactive teaching methods which guarantee a high efficiency of didactic process, so that for most visitors it seems to be an amazing scientific adventure. It also involves various activities, i.e. theoretical, practical and field classes. Noteworthy is the fact that each of these classes consists of some modules which can be compiled by any manner of means, depending on the needs of visitors.

Theoretical classes, despite their name, are not based on conventional teaching methods, but focus on audio-visual transmission. And for this purpose, many multimedia presentations, visualizations as well as short demonstration films are used, which aim at bringing a particular issue closer to the visitors in a different and thereby attractive way (Fig. 2). Many scientists point out that strengthening any transmission with interactive methods, including audio-visual techniques, may contribute to understanding and more efficient memorising of larger amounts of knowledge (Allen and Gutwill, 2004; Schwier 2010). The thematic scope of the educational offer is consistent with the specificity of the Świętokrzyskie Province, i.e. it mainly concerns geological processes, including karst phenomena and endogenous processes. Furthermore, the proposed issues, thanks to the possibility of their optional modification, can be an excellent introduction, complement or even extension of school curricula, being implemented at every stage of education.



Fig. 2 Exhibition hall where theoretical classes are organised

One of the biggest attractions of the Centre of Geoeducation is unquestionably the 5D capsule called “A Journey inside the Earth”. This simulation, by engaging almost all human senses, produces an imaginary picture of the internal structure of the Earth which for a while becomes virtual reality. Numerous fossils encountered during the journey enable the visitors not only to learn about environments from millions years ago, but also to understand the changes that they had undergone in the past.

Practical classes in the Centre of Geoeducation are in turn based on the idea of educational workshops which, according to many scientists, successfully activate young people (Eshach, 2006). This form of education, by the possibility of developing manual skills of its participants, has chiefly cognitive character. The workshops aim at familiarising their participants with the geological richness of the Province. The most popular activities involve identifying and then grinding selected mineral specimens, coming from the area of the Świętokrzyskie Province. When grinding, they become souvenirs after visiting the Centre. Another proposal for practical classes are workshops on the secrets of fossils, whose attraction is the possibility of making any fossil model by oneself. And younger age groups can participate in art classes which develop imagination and manual skills by doing paleo carvings.

The Centre's educational offer is additionally enriched by field classes on the areas of nearby geological sites. The proposed trip programmes include two nature reserves, i.e. the Wietrznia Nature Reserve, where there are numerous karst phenomena (both paleokarst and modern karst) and well-preserved Devonian fauna fossils, such as four-radial corals, siliceous sponges, brachiopods, crinoids, as well as fossil fishes (Fig. 3); and the Kadzielnia Nature Reserve with a number of interesting geological phenomena, such as fauna remains (e.g. corals, brachiopods, crinoids, and fossil fishes), calcite ore mineralisation, tectonic and karst forms, as well as rock vegetation relics (Nita and Myga-Piątek, 2010). For elder age groups, the Centre of Geoeducation also proposes a trip to the Ślichowice Nature Reserve named after Jan Czarnocki (prominent Polish geologist), which abounds in interesting tectonic forms as well as numerous preserved herbaceous and shrub vegetation (Wróblewski, 2008).



Fig. 3 View on the Wietrznia Nature Reserve named after Zbigniew Rubinowski

Theoretical and practical classes in the Centre of Geoeducation last 45 minutes, while duration of field classes depends on the visitors' age and thematic scope being discussed during trips. But they do not usually exceed 120 minutes.

Interactive education of the Centre of Geoeducation is also realised through a series of events and initiatives addressed to various age groups. These activities can be cyclical as the project "Winter Holidays with Geology" or occasional as the project "Nature Close to the Blind" which was addressed to disabled people. In order to ensure continuity of activities, the projects are realised at fairly regular intervals, and additionally with increased intensity during each holiday season, due to demand for attractions of that kind. Also noteworthy is that in order to provide high-quality services and appropriate teaching standards, the Centre of Geoeducation is still expanding its educational offer by cooperation with numerous scientific institutions, research and development institutes as well as non-governmental organisations, including the Świętokrzyskie Branch of the Polish Tourist and Sightseeing Society in Kielce.

### 2.3. Interest in the Centre of Geoeducation

The Centre of Geoeducation has been realising educational activities since 2012 and it very quickly gained a wide audience. The growing number of visits provides evidence for this. In 2013, i.e. a year after the Centre's opening, there were 39 136 visits, which indicates up to 6.2% more visitors than in the previous year. Noteworthy is the fact that a great interest in the Centre's services has a permanent character, with increasing tendency during the spring and early-autumn periods (Fig. 4). Thus the table below confirms the need to increase the frequency of educational activities at that time.

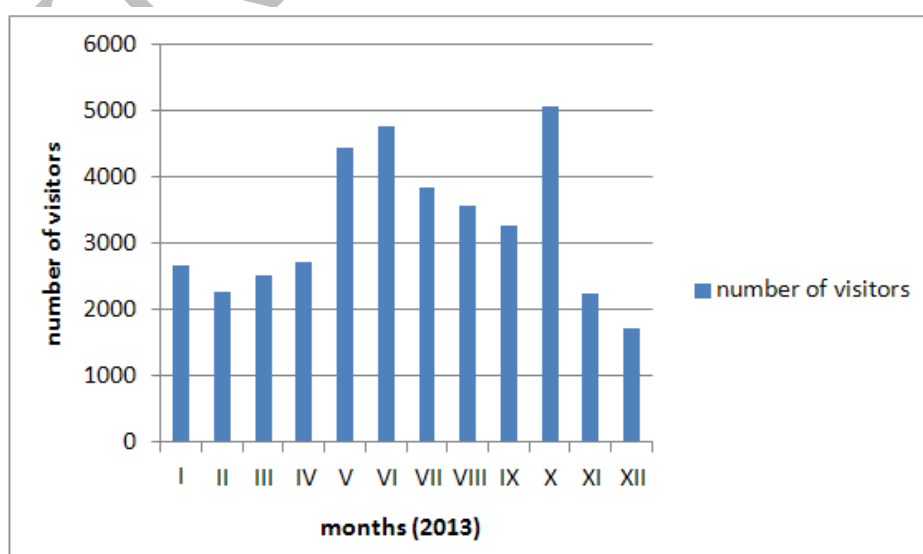




Fig. 4 Number of visitors benefiting from the educational offer in the Centre of Geoeducation in 2013 by individual months

There is a slight dominance of organised groups among the recipients of the educational offer (56%), while the rest of the visits are made by individual visitors (Fig. 5). During the spring and autumn period, there was a greater interest in the Centre's services among organised groups, consisting mainly of pupils and students. An increasing interest among individual visitors is observed in turn during the summer period. This means that the Centre of Geoeducation is regarded as the place of high-cognitive values, which offers alternative ways of spending leisure time.

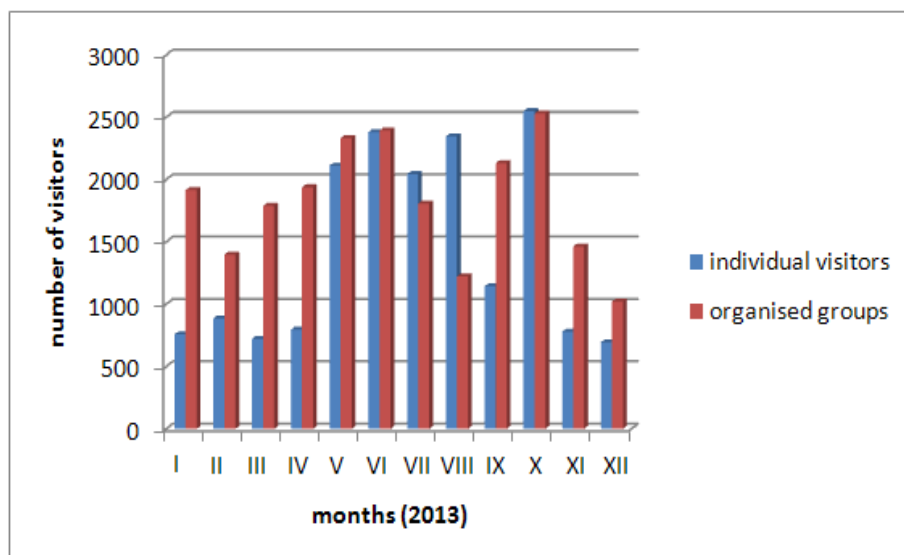


Fig. 5 Variability in the number of visitors benefiting from the educational offer in the Centre of Geoeducation in 2013 by individual months

The Centre's educational activity is innovative and unique as evidenced by the great interest of visitors not only from the Province, but also from the whole country (29%). It is also worth mentioning the fact that the Centre was additionally visited by 19 foreign organised groups in 2013.

### 3. Conclusions

Despite the fact that it can be seen a dynamic growth in the number of museum and exhibition institutions, the Centre of Geoeducation, by benefiting from natural conditions of the Świętokrzyskie Province, distinguishes itself from other institutions of that kind in the country. A wide range of the Centre's educational activities is based on theoretical, practical and field classes, which are complementary to one another and transmit the knowledge about geological conditions of the Świętokrzyskie Province in a comprehensive and accessible way.

What is more, the Centre of Geoeducation offers a number of occasional and cyclical initiatives addressed to the general public. It should be noted that its educational offer is free of charge and available for everyone as well. In addition, it is a domain of free choice so that it is treated not only as an opportunity to enhance knowledge and complement school curricula, but also as one of the effective ways to interest young people in natural sciences. The growing number of visitors, also outside the Province and from abroad, provides evidence for the success of these educational activities.

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# Self esteem among college students: a study of satisfaction of basic psychological needs and some variables

Durmuş ÜMMET <sup>††</sup>

Marmara University Atatürk Educational Faculty 34722, "İstanbul", Turkey

## Abstract

The aim of this study is to examine college students' self esteem according to the satisfaction of their basic psychological needs and some certain variances. The sample of the study consisted of 342 students studying in college. The data was collected through Coopersmith Self Esteem Inventroy, Basic Psychological Needs Scale and an information form developed by the researcher. When the obtained data was examined, it was found that the satisfaction of autonomy and relatedness needs of the students significantly predicted their self esteem, while the satisfaction of competence need did not predict self esteem. Also, self esteem of the students showed significant difference as to educational level of mother, income level and perceived parent attitudes by them, whereas educational level of father and gender did not have effect on self esteem.

**Keywords:** Self esteem, Satisfaction of Basic Psychological Needs, College Students

## 1. Introduction

Many psychological movements make their own description about self concept. However, the most detailed definition was made by Carl Rogers, who developed person-centered approach. According to Rogers, the sense of self of an individual includes the individual's thought about oneself, perceptions and opinions. Sense of self summarizes how the individual sees oneself. Rogers believes that to develop positive sense of self, the individual must grow up in an environment of unconditional love. When there is an inconsistency between exhibited behavior and sense of self of the individual, anxiety comes out. Rogers says that if the individual deceives oneself, anxiety level will increase and the sense of self will not be preserved in time. Carl Rogers accentuated on three important points of parent-child relationship for developing self esteem. The first is to reflect acceptance, concern, compassion and warmth towards the child. The second is allowance and punishment. The third critical point is the democratic attitudes of parents. The child raised with these three criteria will have higher self esteem (Hall & Linzey, 1957; Morgan, 1990).

Self esteem can be defined as a form of self-acceptance, personal appreciation and subjective respect of one's own (Morganett, 2005). Self esteem is to evaluate the difference between their image of self and ideal self. We understand the self esteem level of the individual by looking at the discrepancy between how the individual perceive oneself and the self they would like to be (Pişkin, 20014). Self esteem represents the individual's feelings such as self acceptance, personal appreciation, overall acceptance of the personality and self-love (Adams and Gullota, 1989). Rosenberg (1965) defines self esteem as negative and positive attitude of the individual to oneself. According to him, self esteem arises in the result of self-evaluation of the individual. The judgment attained as a consequence of self-evaluation is indicative for the level of self esteem. Self esteem is the judgment of worthiness related to the concept of self.

One of the important variables of forming the background of and in the development of self esteem is the satisfaction of basic psychological needs, as it has been a need since the birth of the individual. Self determination theory is one of the most current theories and tries to explain the psychological needs and traits of the individuals. The theory, which has been improving for 40 years and increasing its effect, was founded by Edward L. Deci in 1970's, and elaborated with Richard Ryan by collaborative work. Aiming to explain the factors for the sake of healthy development of individuals and societies, Self Determination Theory shows that there are three basic needs of an individual: *Autonomy, Competence and Relatedness*. These basic needs are necessary to structure the individuals' own social development and state of well-being. According to the theory, in case of meeting the needs, they work effectively and develop healthily; however, if they are prevented, people exhibit unwilling behaviors and negativity signs (Andersen, 2000; Deci & Ryan, 1985, Kesici et. al. 2003).

According to the theory, autonomy can be defined as when a person take into consideration one's own intrinsic processes, have the ability of acting independently and self approval while deciding. Autonomy is also to exhibit strong-willed behaviors and show self-approval. This need is met by leading and controlling one's own life, and making one's own choices. These people generally approve their behaviors and accept the consequences of one's actions. It was stated that autonomy is considered

<sup>††</sup> Corresponding Author. Tel: +90-216-345-90-90; fax: +90-216-338-80-60  
E-Mail address: dummet@marmara.edu.tr

particularly more important than competence and relatedness (Mithaug et.al., 2003; Ryan, 1995; Ryan and Deci, 2002; Ryan & Lynch, 1989). Competence is the ability of making necessary regulations and organizations for reaching the person's goal, and having the perception of self confidence for accomplishing them. Personal competence is achievement, the others' success, the person's belief of his own success and his psychological state. Competence is formed by the individual's learning, adaptation and interaction with environment. Insofar as the person has that perception, it is more likely to be successful (Deci ve Ryan, 1985; Carver and Scheier, 1990; Garcia & Pintrich, 2009). The other psychological need of the individual, relatedness is identified as to feel sympathy and satisfactory closeness to the people that are regarded as important by the individual, feel belongingness with one's social environment and perform common satisfactory actions with the people in that environment. Relatedness can be defined as a form of confidence to others' support and guidance. According to Self Determination Theory, the opponent of relatedness is not autonomy. The opponent of relatedness is being independent defined as not to have confidence to others' support or help. A person can be autonomous but dependant to others. If a person considers another person as supportive, then he/she may have confidence to the other's concern and attention (Deci, Ryan, 2008; Kowal and Fortier, 1999). Self determination theory defends that social environment and the individual as a variable should be handled together. Human behaviors should be regarded as an ongoing relationship between social-environmental factors and personal traits (Vallerand, 1997).

The satisfaction of basic psychological needs of people is closely related to the state of psychologically well-being. It was asserted that there is a positive correlation between life satisfaction, which is the cognitive aspect of well-being, perceived as positive by the individual and self esteem (Baumeister et. al., 2003; Ntoumanis, 2009). Ryan and Recı (2000) alleged that dependence and autonomy are the basic needs of people in all cultures. The more socialization mechanisms support these needs, the more well being states of the children increase. The family is the most basic socialization mechanism of the individual. According to psychosocial development theory, mother is the representation of external world and mother is the person meeting the needs of the infant from birth until one and half year. Feeding the baby when he/she is hungry, putting the diaper when it is dirty, meeting the needs regularly, while doing those actions touching her baby, making the baby feel love produce a special relationship between mother and child. This positive relationship between mother and child constructs the base of self-confidence (Erikson, 1984).

Within the framework of theoretical explanations and conducted studies, emphasizing the importance of the family's effect on satisfaction of basic psychological needs, it can be said that there are studies presenting the high self esteem proposes to have positive and good relationship with the parents (Gecas and Schvelbe, 1996; Felson and Zielinski, 1989). The most dominant factor of these studies is that parents positively affect their children's affirmative perceptions to them by behaving with love and respect, showing necessary warmth and concern, and meeting the needs of their children.

### *1.1. Problem Statement*

The aim of this study is to examine college students' self esteem according to the satisfaction of their basic psychological needs (autonomy, competence and relatedness) and some certain variables (gender, parents' educational level, income, perceived raising children attitude).

## **2. Method**

### *2.1. Participants*

The sample of the survey consists of 342 students in total (125 female and 217 male students) studying at collage in Turkey. All students selected on voluntary basis and randomly.

### *2.2. Measures*

To determine the demographic information of the students, 5-item personal information form (gender, parents' educational level, income, perceived parental attitude) was used. The form developed by the researcher. The following measuring instruments were used in data collection:

*2.2.1. The Self Esteem Scale:* Developed by Coopersmith (1986) and adapted by Pişkin (1997) to Turkish, The Coopersmith Self Esteem Inventory was used to measure the self esteem of the students. The short form of the scale consisting of 25-item can be answered approximately 8-10 minutes. According to the results of KR-20, reliability coefficient of the short form of the scale was found to be .76 and internal consistency reliability coefficient was found to be .81. Total score of self esteem was obtained by adding the items based on the individual's own perception and associating this perception to personal competence. The scale items are answered as "yes" or "no". Each student are asked to put an X mark on the "yes" column if the item is suitable for the student, if not, put an X mark on the "no" column.

*2.2.2. The Basic Psychological Needs Scale:* The scale was developed by Deci and Ryan (1991) and adapted to Turkish by Cihangir-Çankaya and Bacanlı (2003). The scale is a twenty one-item and seven point Likert-types, and it has three dimensions (autonomy, competence and relatedness). According to the results of reliability analysis of the sub-dimensions and total score of the scale, Cronbach-Alpha coefficients was found to be .82 for autonomy sub-dimension, .80 for competence sub-dimension and .81 for relatedness sub-dimension (İlhan, Özbay, 2010). In the result of retest, the correlation coefficient was found to be .71 for Autonomy, .60 for Competence, .74 for Relatedness and .83 for total Need Satisfaction Scale.

### 3. Findings

The result of the analysis conducted to determine whether or not participants' satisfaction of basic psychological needs (autonomy, competence and relatedness) predict their self esteem were stated in Table 1. Accordingly, it was seen that 7% of the variances were explained by all the basic psychological needs ( $F=8.705$ ,  $p<.001$ ). The examination of Standardized Beta coefficient shows that both autonomy need ( $\beta=.241$ ,  $p<.001$ ) and relatedness need ( $\beta=.121$ ,  $p<.050$ ) significantly and positively predicted self esteem.

**Table 1.** Hierarchical regression analysis for satisfaction of basic psychological needs and self esteem

Predictor	<i>B</i>	<i>S. Error</i>	$\beta$	<i>T</i>	<i>R</i>	$R^2$	<i>F</i>
Autonomy	.577	.135	.241	4.281***			
Competence	-.299	.143	-.092	-1.599	.268	.072	8.705***
Relatedness	.267	.122	-.121	.2185*			

\*\*\* $p<.001$  \* $p<.050$

The result of the analysis conducted to determine whether or not participants' gender differentiates their self esteem were stated in Table 2. According to the results, gender variable significantly differentiated the participants' self esteem ( $p>0.50$ ).

**Table 2.** Independent sample *t* test for gender and self esteem

	Gender	n	Mean	s.d.	<i>t Test</i>		
					Df	T	P
Self Esteem	Female	125	86.91	6,20	340	-2.273	.076
	Male	217	89.05	7,22			

The result of the analysis conducted to determine whether or not participants' some variables differentiate their self esteem were stated in Table 3. According to the results, it was seen that fathers' educational level did not significantly predict their children's self esteem. However, the increase of mothers' educational level ( $\chi^2=13,516$ ;  $p<.050$ ), the increase of income level ( $\chi^2=9,980$ ;  $p<.050$ ) and perceived parental attitudes as being democratic ( $\chi^2=21,833$ ;  $p<.001$ ) significantly differentiated the participants' self esteem compared to other categories of variables.

**Table 3.** Kruskal wallis-H test for some variables (mothers' educational level, fathers' educational level, level of income perceived parental attitudes) and self esteem

<i>Variables</i>		<b>n</b>	<b>Mean Rank</b>	$\chi^2$	<b>Df</b>	<b>p</b>
Mothers' educational level	Illiterate	8	79,32	13,516	5	,019*
	Literate	14	162,62			
	Elementary School	132	173,86			
	Secondary School	75	175,77			
	High School	89	174,06			
	University	24	183,00			
	Total	342				
Fathers' educational level	Illiterate	3	124,94	6,598	5	,292
	Literate	9	128,33			
	Elementary School	81	164,39			
	Secondary School	90	163,24			
	High School	124	173,11			
	University	35	199,01			
	Total	342				

Income Level	Low	16	118,31	9,980	2	,007*
	Medium	289	169,81			
	High	37	207,69			
	Total	342				
Perceived parental attitudes	Democratic	105	196,52	21,833	4	,000***
	Authoritarian	43	144,65			
	Protective	142	168,86			
	Indulgent	35	178,74			
	Neglecting	17	92,06			
	Total	342				

\*\*\* $p < .001$  \* $p < .050$

#### 4. Discussion and Conclusion

While examining the findings of the research, it was seen that satisfaction of autonomy and relatedness needs, the basic psychological needs, positively predicted the individual's self esteem. Defined by Self Determination Theory, the satisfaction of these needs positively affects the state of well-being included positive self-perception. (Cihangir & Çankaya, 2009; Garcia & Pintrich, 2009; Özer, 2009; Ryan & Deci, 2000). Ryan and Deci (2000) averred that particularly relatedness and autonomy are the basic needs of people in all cultures and the state of well-being of the children will be enriched by supporting these needs. Autonomy is closely related to positive sense of self and self-confidence in order to maintain the interpersonal relationships in a healthy manner (Sheldon & Elliot, 1999). One of the basic statements of the theory is, when compared, autonomy is considered as more important than competence and relatedness by the individuals (Ryan, 1995; Ryan and Deci, 2002). The findings of this study showed us that the most predictive need of the individual was autonomy and this result is coherent to the literature.

Another findings of the research showed that the individuals' self esteem did not differentiate considering gender. In other studies, the same findings were stated (Eriş & Ekiz, 2013; Gürşen, Otacıoğlu, 2009; Öztürk, 2006; Özdemir, 2009; Uyanık Balat & Akman, 2004). It can be asserted that some other variables are more effective on developing self esteem than the gender factor. Especially for satisfying the psychological needs, it can be thought that parents' general attitudes are more effective rather than the gender of the child.

It was seen in the research, mothers' educational level of the participants had an effect on the participants' self esteem. According to the results, the more mothers' educational level increases, the more the children's self esteem increases. In parallel, the more fathers' educational level increases, the more the children's self esteem increases, however, this increase was not regarded as significant. In other studies done in the field, the same findings were stated (Dinçer & Öztunç, 2009; Kahriman, 2005; Özkan, 1994; Yılmaz, 2000). The increase of the parents' educational level enables them to be more consciousness about how to raise a child. Educated parents satisfy their children's basic psychological needs with a healthily approach.

The other findings showed that the more the participants' income level increases, the more their self esteem increases. People should have a certain income to feel them comfortable, valuable and competent enough to have an active role in their lives. Therefore, the relationship of income and self esteem can be regarded as an expected outcome. Karadağ et.al. (2008) stated the same findings in their research. In the literature, it was emphasized that having higher income affected self esteem positively (Dinçer & Öztunç, 2009; Özdemir, 2009; Özkan, 1994).

According to the last finding of the research, it was seen that perceived parental attitudes had an effect on the individuals' self esteem. Accordingly, perceiving parents' attitude as democratic increases self esteem. Other negative parental attitudes, particularly neglecting attitude, negatively affect the individual's self esteem. Democratic parents are identified as modest, accepting, encouraging autonomy and not insisting on psychological control. The children of these parents are most likely to be active, socially positive and independent as well as amiable, creative and friendly towards their environment and oneself (Sarı, 2007; McGinn et. al. 2005; Olmuş, 2001). According to Rogers, democratic attitudes such as acceptance within the family, compassion and warmth will affect positively and directly to the child's self esteem in the adulthood period (Hall & Linzey, 1957). It is obvious that raised in such a family environment, the child's self esteem would be high. The other conducted studies presented the same findings (Erikçi, 2005; Gecas and Schvelbe, 1996; Gürşen, Otacıoğlu, 2009; Özdemir, 2009; Turan et. al., 1998). In conclusion, it was seen that this finding is consistent to the findings in similar studies had conducted in the literature.

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# Self-directed learning, andragogy and the role of alumni as members of professional learning communities in the post-secondary environment

Rita Egizii\*

University of Calgary, 2500 University Drive N.W., Calgary T2N 1N4, Canada

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## Abstract

Framed around the context of the historical policies and practices that have brought us to the current state of affairs in the education sector, this paper presents several key themes which focus on the need for schools to provide educated adults who can enter the society and the workplace fully prepared and ready to contribute to the organizations and corporations of a 21<sup>st</sup> century global economy. This preparedness now includes both *work readiness* and the development of *global citizenry* (diversified, culturally sensitive and fully contributing social citizens). The challenge of educating such citizens becomes particularly poignant to post-secondary (PSE) institutions. The paper explores self-directed learning, a stronger focus on andragogy (versus pedagogy) and re-visiting the role of the multidimensional stakeholders who have a vested interest in the success of adult learners. A theory of action is presented as a starting point for educational leaders to leverage collaborative relationship-building, connectivity and linkage to key groups such as alumni and community leaders.

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**Keywords:** workplace readiness, global citizenry, distributed leadership, andragogy, personalized learning, self-directed learning, society involvement, alumni, community stakeholders, collaborative culture

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## 1. The challenge: adult learners preparing for societal 'readiness'

Hargreaves & Shirley (2009) provide a poignant review of the educational movements that have impacted didactic reform over the past seventy-five years. The mid-40's to the mid-70's were a period of complete teacher autonomy and innovation, but also, inconsistency. The next decade introduced the first concepts of privatization and performance targets. This quickly morphed into another ten year period of massive standardization (in curricula and assessment) and established the fierce competitive arena which still exists today. The new millennium introduced the concept of "New Public Management" (Hargreaves, 2007) and the increased role of government in driving policy and establishing goals. The introduction of the No Child Left Behind Policy Act in 2001, which legislated that every child deserves access to quality teaching & learning, sealed that fate for many American schools (Leithwood et al., 2004; Webber & Scott, 2012).

The shift from an industrial economy to a knowledge economy has seen many of our educational institutions struggling with revolutionary cultural shifts, loss of direction and vision, re-invention of identity, and the re-defining of leadership. Concurrent with these transformations is an emergence into a 'new era' – a period that promises a strategic focus and renewed engagement by a multidimensional group of broad stakeholders (students, staff, faculty, alumni and community members). The exploration of partnerships with external stakeholders became a key strategy in re-defining policy (Elmore, 2010; Labaree, 2011; Pawlowski, 2009; Robinson, 2006). The current environment has now expanded to include the importance of defining an inspiring and inclusive vision, strong public engagement, achievement through investment, corporate educational responsibility, students as partners in change and 'mindful' learning which embraces personalized learning and lively learning communities (Christensen et al., 2011; Hargreaves & Shirley, 2009; Harris & Jones, 2010; Holmes, Clement & Albright, 2013; Labaree, 2011; Leithwood et al., 2004; Pawlowski, 2009; Stewart, 2004; Wahlstrom et al., 2010; Willms et al., 2009).

It is, indeed, a brave new world. And one which now seems to be defined by the need to provide educated adults who can enter the workplace fully prepared and ready to contribute to the organizations and corporations of a 21<sup>st</sup> century global economy (Christensen, et al., 2011; Collini, 2012; Ferguson, 2012; Hargreaves & Shirley, 2009; Selingo, 2013; Wagner et al., 2006). In the context of this paper, this 'preparedness to contribute' includes both *work readiness* and the development of *global citizenry* (diversified, culturally sensitive and fully contributing social citizens). This challenge becomes particularly poignant to

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\* Corresponding author. Tel.: +1-403-220-2699

E-mail address: egizii@ucalgary.ca

PSE institutions and in particular, to professional faculties within those institutions (such as science, engineering, medicine, business and law) which focus on disciplines critical to a knowledge-based economy in the midst of recovering from the recent financial tsunami that has shaken our economy-based world to its core. Wagner et al. (2006) point out that the industrial economy of the early twentieth century needed only a small number of college-educated citizens:

It wasn't until the 1950s that half of our students received a high school diploma; even through the 1960s, a majority of midlevel managers in businesses did not have college degrees. Throughout the twentieth century, students who dropped out of high school were able to seek and hold good stable jobs that paid a middle-class wage. (p. 9)

Wagner et al. (2006) postulate that not only have those secure blue-collar jobs all but disappeared, the basic requirement for a young adult to be considered 'work ready' now includes completion of not only secondary school, but also finishing a college diploma (at the very least), and better still, a University undergraduate degree. This seems to suggest that the purpose of elementary and secondary schools has changed from skill and competency training to preparing our youth to become 'college-ready' (Leithwood et. al., 2004; Willms, Friesen & Milton, 2009). It has also created interesting discussion amongst philosophers and scholars of educational theory about the historical and re-defined purpose of public education (Labaree, 2011; Stewart, 2004) and the role of universities in particular (Collini, 2012). If one was to embrace this new paradigm – that elementary/secondary schools prepare our youth for higher education – then this shifts the onus of preparing young adults for the world (in the broadest sense), to the post-secondaries, colleges and universities. The adaptive challenge of reinventing any type of post-secondary institution now becomes very much about how we teach adults for the purpose of preparing them to 'take their places in society' (Independent Schools Queensland, 2012), including initial entry into the workforce (or re-entry via a new career) and taking on the role of a global citizen.

## 2.The opportunity: Self-directed learning, andragogy and engagement of vested stakeholders

The concept of 'flow' – deep absorption in an activity that is so intrinsically interesting that people see it as worthwhile even if no further goal is reached – provides an understanding of the experiential factors which may be critical in providing an 'optimal experience' for human learning (Nakamura & Csikszentmihalyi, 2005; Willms et al., 2009). The concept of learning, for learning's sake, is further expanded in the findings of Dunleavy et al. (2012) who demonstrate that intellectual engagement is highly linked to flow, and subsequently, results in both higher grades and a richer learning experience.

### 2.1 Self-directed learning

Expanding on the concept of intellectual engagement, Hargreaves & Shirley (2009, p. 85) posit an interesting, and simple set of questions which help contextualize 'personalized learning': Does the learner have a passion? Is the learner good at it, or can (s)he become so? Does it serve a compelling social need? Cross (1981), in her review of adult learning, suggests that self-directed learning (SDL) as a vehicle for personalized learning is a highly effective method, supported by motivational theory which takes into consideration important factors that impact the learning process in adult learners (point in their life cycle, cultural and personal preferences and interest in the subject matter). Self-directed learning is not for everyone. It does seem to better suit a characteristic type (Cross, 1981; Stockdale & Brockett, 2011) with an inherent interest in the flow model of intellectual engagement. The author's personal assessments indicate that self-directed learning (as a sub-set of personalized learning) can be one solution that supports several key opportunities currently available to post-secondary institutions targeting adult learners. These include needing to: 1) engage in continuous program improvement; 2) consider andragogical methods over pedagogy; 3) meet recent changes in accreditation standards that require increasing experiential learning and assurance of learning; 4) better meet the needs of a demographically and culturally diverse student body; 5) develop expansion initiatives to ensure programs keep current with the shifting needs of employers and 6) engage with community (alumni, donors, community and business leaders).

Table 1  
*Possible Strategies and Actions for Implementing an SDL Program*

Strategy	Action
Focus on improving teaching & learning for the purpose of increasing societal readiness.	<ul style="list-style-type: none"> <li>• Establish a culture where instruction is 'student-centred' (Cornelius-White, J.H, 2010) and held as a 'gold' standard; SDL is faculty <i>facilitated</i>, for maximum benefit to the student (as <i>the student</i> defines that benefit).</li> <li>• SDL is identified, by the leadership, as a priority solution for preparing eligible adult learners to take their place in society and in the workplace;</li> </ul>

Develop teachers who support SDL.	<ul style="list-style-type: none"> <li>• Recruit teachers who value student-centred instruction;</li> <li>• Encourage and support personal performance goals which include participating/leading student-centred experiential projects;</li> <li>• Establish Professional Learning Communities (PLCs) and Communities of Practice (CoP) specifically for the purpose of discussing SDL: what defines an ‘SDL-eligible’ student? how do SDL students learn? how do we assess and measure learning in an SDL program? what needs to be changed in current teaching methods to accommodate this type of learning?</li> <li>• Explore what is needed for a teacher to guide an SDL learner. (Grow, 1991);</li> <li>• Consider ‘team teaching’ approaches (assign 3-5 core faculty per SDL project) which invite diversity in teaching methods and provide a richer student/teacher interface;</li> <li>• Welcome and engage teacher coaches – trusted ‘experts’ who enrich course content, ensure applicability to real-world situations and have joint responsibility for the accountability of the student; this could be a key role for alumni.</li> <li>• Encourage on-going personal reflection and the self-testing of assumptions and beliefs that could be blocking movements forward;</li> <li>• Provide teachers with additional pay, course release or equivalent merit allocation for their participation in SDL courses.</li> </ul>
Build infrastructure & technology needed to support an SDL program	<ul style="list-style-type: none"> <li>• Build trust and ensure that the conditions teachers need to improve SDL student outcomes are in place;</li> <li>• Establish a variety of e-site, virtual and open source learning forums (myVLE, Moodle, Studifi, etc);</li> <li>• Provide on-going training for staff who are uncomfortable with new technologies or the means in which they are used;</li> <li>• Create physical learning &amp; study spaces (other than a traditional classroom) where SDL students can gather, share, discuss and assist one another.</li> </ul>
Develop a comprehensive SDL program	<ul style="list-style-type: none"> <li>• Develop intake criteria for SDL students using reliable measures of self-directedness (e.g. PRO-SDLS, Stockdale &amp; Brockett, 2011);</li> <li>• Determine and set ambitious learning goals for SDL students;</li> <li>• Set an andragogical framework for student-driven SDL programs.</li> <li>• Each SDL project must work directly with a business and/or community partner, incorporating out-of-the-classroom engagement and demonstrating applicability to real-world problems; this is another key role for alumni.</li> <li>• Integrate a fully-blended rigorous learning experience which includes attending selected classes, on-line learning, internship, and both a written and oral ‘defense’ component;</li> <li>• Leverage existing non-credit ‘co-curricular’ opportunities to incorporate a credit component (e.g. student club and community projects).</li> <li>• Position SDL opportunities as capstone courses in the last year of a multi-year program.</li> <li>• Encourage graduate and PhD students to work with undergraduate students on SDL courses.</li> </ul>
Reallocate resources	<ul style="list-style-type: none"> <li>• Engage and/or hire expert facilitators (alumni) to help. A ‘multi-dimensional’ CoP needs to stay focused on improving teaching and learning (through SDL programs) and not drift into fulfillment of self-interest. (Pawlowski (2009); Pawlowski (2011); Robinson, 2006).</li> <li>• Re-assign internal advancement staff (development/fundraising, marketing/communications, alumni relations, community outreach) to search for ways to support the mechanisms needed for SDL-focused programs.</li> <li>• Consider the use ‘sports coaching’ techniques to motivate and support SDL students.</li> </ul>
Assess ‘assessment’ and make data-based decisions at specified times	<ul style="list-style-type: none"> <li>• Develop a detailed, specific rubric for SDL courses, encompassing the 3 R’s of ‘effective instruction’ (rigor, relevance and respectful relationship) – in both content <i>and</i> instruction. (Wagner et al., 2006). Success in an SDL will be highly dependent on these 3 core competencies working together;</li> <li>• Ensure that there is consistency in the usage of the rubric (meeting assurance of learning</li> </ul>



along a defined continuum.	<p>and accreditation identified criteria), including timely and accurate collection of data.</p> <ul style="list-style-type: none"> <li>• Measure progress regularly.</li> <li>• Ensure 1:1 interaction that includes face-to-face (and not just technology);</li> <li>• Develop testing of reasoning and application of knowledge, focusing on what students should be <i>able to do</i> once they complete an SDL (that they wouldn't have been able to do through completion of a traditional course).</li> </ul>
Develop collaborative relationships with alumni and key community partners	<ul style="list-style-type: none"> <li>• Establish clear lines of authority;</li> <li>• Ensure alumni and community partners remain an integral part of any learning networks – develop partnership agreements with external individuals/groups who wish to join the CoP and/or PLC;</li> <li>• Establish clear communication channels for teachers to communicate with partners, and partners to communicate with both the SDL students and with each other;</li> <li>• Work with the Alumni Office staff to identify, build, strengthen and steward relationships and seek new interest;</li> <li>• Work with Development Office and Career Centre staff to identify funding and placement opportunities that provide a defined return on investment for alumni and partners;</li> <li>• Recognize, acknowledge and celebrate SDL partners.</li> </ul>

## 2.2. Andragogy versus pedagogy

Merriam (2001) offers a provoking discussion on the emergence of andragogy (the art and science of helping adults learn) as a distinct professional field of practice – its own scientific discipline different from that of pedagogy (the art and science of helping children learn). Wlodkowski's (2008) groundbreaking work presents four motivational conditions he believes to be critical in teaching (motivating) adults: Creating an atmosphere that promotes a learning community where everyone feels respected and connected (establishing inclusion); helping learners see relevance to their experience (applicability); creating challenging and engaging experiences that value learners' viewpoints (enhancing meaning); and helping learners recognize that they have been successful in their learning – according to their own standards (confidence and asymmetry). Knowles (1980) presents five assumptions underlying andragogy. These describe the adult learner as being an individual who: Is independent and wanting to direct their own learning; has learning needs related to changing social roles; has an 'accumulated reservoir of life experiences'; is problem-centered and interested in immediate application of knowledge; and is primarily motivated by intrinsic rather than extrinsic factors. A key differentiator between the adult classroom and the child's classroom is the existence of mutuality between teachers and students as 'joint inquirers'. In other words, adult curriculum should be student-directed as opposed to teacher-directed (Cornelius-White, 2010).

## 2.3. Engaging invested stakeholders

Alumni, as a sub-group of community, are an exceptionally relevant unit to any educational institution (Dolbert, 2002; Flynn, 2012; Shakil & Faizi, 2012; Singer & Hughey, 2002). Their achievements directly reflect the success of their alma maters and, reciprocally, any enhancements to the quality of education at their schools automatically increases the perceived value of a graduate's degree. The nature of this connection creates a highly synergistic relationship. Alumni are valued, vital, lifelong stakeholders of an educational community and, should be kept informed and involved in its vision and priorities. They are their schools' best ambassadors. They bring real world experience to the contemporary learner. They are in a unique position to provide advice and counsel. Opportunities can be developed for involvement at all levels: governance, advisory councils, as members of PLCs, special task forces and projects; in the classroom they can provide mentoring, guest lecturing, knowledge exchange and funding for scholarships, program support, research and faculty/staff salary support; in the work place, they can offer practicums, summer and co-op placements.

Ultimately, faculty, staff, students, alumni and community/industry leaders have a vested interest in coming together in a sharing of responsibility for teaching and learning that is school-wide, university-wide and district-wide. This interest supports the features recommended by key researchers (Birman et al., 2000; Guskey, 2000; Killion, 2002; Pugach & Johnston, 2002; Zepeda, 2012) as being critical to designing a collaborative culture that 'works': A reform approach; a significant duration of time for planning; diverse participation; content focus; strategies designed around active learning; and encouraged coherence. Preparing to fully engage multidimensional stakeholders begins by taking a look at the "no shame, no blame, no excuses" approach suggested by Wagner et al. (2006, p. 144). In addition to alumni, social venture businesses, socially responsible corporations, government organizations and community organizations are embedded in societies around the world. They meet specific needs unique to the communities they serve. They embrace local values, pride of place, integrity and commitment to

civic duty.

Trusting these groups for the purposes of assisting with curriculum and/or course re-design is not instinctive. The fear of 'letting outsiders in' is an on-going challenge for many educational institutions. Moving from co-operation to true collaboration means having to identify reciprocities and overcoming the fear of being critiqued and losing control (Pawlowski, 2007). The importance and necessity of developing strategic, healthy partnerships with those who share the responsibility for educational needs is prevalent in the literature (Jeynes, 2007; Pawlowski, 2009; Pugach & Johnson, 2002; Steinmann et al., 2008; Wagner, et.al., 2006). PSE School highly encourages the role of students in its decision-making (Astin & Astin, 1996; Louis et al., 2010, Pugach & Johnson, 2002). They have also been exceptionally successful at identifying and sustaining key external partnerships. Advancement professionals, already employed in key roles such as alumni relations, community outreach, fundraising and government relations, can be deployed to ensure that external partnerships are fully collaborative alliances which are reciprocal and: i) serve to fulfill the school's mission of improving teaching, learning and/or student outcomes; ii) clearly identify roles; iii) take into consideration underlying motivators important to both partners and iv) support valid business motives such as corporate citizenship and return on investment (Pawlowski, 2009; Pawlowski, 2011). Incorporating best practices in volunteer management is also key. Educators are encouraged to seek advice and counsel on volunteer management from exemplar local volunteer organizations who have engaged these stakeholders very successfully through their not-for-profit work. The time, effort and resources given to building external relationships can result in invaluable rewards, including: Objective advice; sharing of 'real-world' expertise, knowledge and talent; mentorship; advocacy; financial contribution; and the offer of internships and employment opportunities for PSE School graduates (Pawlowski, 2009; Steinmann, et al., 2008). Examples of opportunities that can be offered to alumni, in particular:

- Invite alumni to create their own Community of Practice (CoP) that would bring content experts together with students, key staff and faculty members to explore the repertoire of skills and knowledge that influence work readiness, citizenship and continuous learning, and, how self-directed experiential courses can teach and strengthen these skills.
- Expand PLCs to bring in as much diversity, and gather as many multiple perspectives, as possible. Expansion can include multidisciplinary alumni – those who may have participated in SDL as students, prospective funders, leaders in religion, arts, social sciences, the not-for-profit sector, businesses and professional associations.
- Utilize surveys and focus groups of alumni and employers to determine whether former students who participated in self-directed learning (either at your school, or elsewhere) were better prepared for their post-graduation worlds. Also of interest would be whether participation and scoring on key national and global school rankings improves because students feel they had better hands-on experiences through self-directed learning. This could be tracked through analysis of historical data and conducting targeted sample surveys.

### 3. Managing the Change Process

The effective use of critical data creates the need for urgency that often begins moving organizations forwards towards meeting many of the difficult challenges identified in this paper. Wagner et. al. (2006, p. 133) suggests that the way to move from one's current reality to a future desired state involves moving through specific staged 'whole-system' phases of the change process. These phases include *preparation* (a thorough understanding of the problem the school is trying to solve), *envisioning* (exploring what success could look like) and *enactment* (implementing a new practice). These authors recommend the use of critical 'change levers' which have been proven to help ensure successful implementation: strategic use of data, accountability by all stakeholders (internal and external) and a keen understanding of relationship building.

Authentic change is not about simply 'fixing' an existing product, but taking the nucleus of that product through an innovative revolutionary adaptive change – one which is intentional and planned, involves many organizational components, and eventually creates a better or more effect product (Cawsey & Deszca, 2007; Holmes, Clement & Albright, 2013). Basom and Crandall (1991) pinpoint several barriers that cause resistance to educational change innovation. These include an interrupted sequence of leadership, the tendency to cling to tradition, competing needs and the possible under-representation of faculty in the decision-making process.

Tangible change is about taking an old concept and adding a disruptive innovation which could have impactful consequences. Disruptive innovation is a term coined by thought leader Clayton Christensen and which he refers to as 'the innovator's dilemma'. According to Christensen (1997) and Christensen, et. al. (2011), a new concept begins to take root at the 'bottom of a market' and then consistently and relentlessly moves up the market (because of demand), eventually displacing established systems. In this case, the author is postulating that the 'disrupter' is the student – the adult learner seeking new ways of learning through a format that meets both individual learning style and the need to participate in highly experiential 'real-world' application that contributes to finding his or her place in society and gaining a competitive advantage in the workplace upon

graduation. The disruptee is our current university educational system. This system accepts the concept of self-direction but operates within the current paradigm of putting the teacher ‘in charge’.

In turn, creating the need for urgency begins with by an objective, thorough self-analysis. Wagner et. al., (2006) suggest incorporating four key components – context, culture, conditions and competencies (4C model) – to set the arena for change.

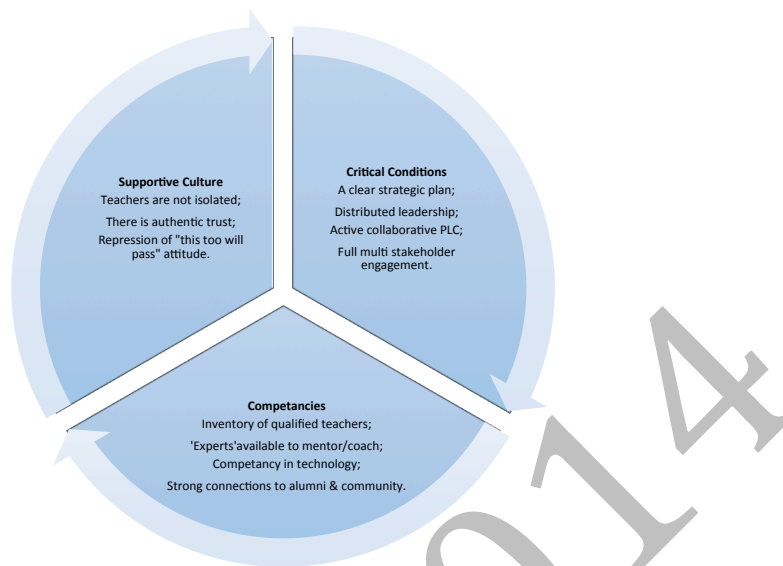


Figure 1: A 4C self-analysis system framework for a post-secondary institution. PLC: Professional learning community.

#### 4. Theory of action and the role of leadership

##### 4.1 Theory of action

If we believe that our purpose is to educate our students to take their place as ethical, responsible and contributing global citizens, and that our alumni and valued stakeholders (members of our professional, business and civic community) are treasured, lifelong partners of an educational institution, then we must include them in the shared responsibility and shared accountability of supporting continuous improvement of learning for these students.

##### 4.2 The role of leadership

Beyond establishing trust and realizing the importance of communication skills, instituting a collective culture – at the individual, school and district level – depends strongly on leadership. The literature fully supports the concept that distributed leadership, in particular, makes a difference in improving learning (Alberta Education, 2009; Burns, 2002; Datnow, 2011; Fullan, 2001; Fullan, 2007; Leithwood et. al., 2007; Robinson, 2006; Scott & Webber, 2008; Spillane, 2010). There appears to be a multitude of perspectives as to what the actual definition of distributed leadership is, what role each of the players (the principal, the teacher, parents, alumni, community and business leaders) should take, and who is ultimately responsible and accountable for it (Elmore, 2010; Hargreaves & Shirley, 2009; Leithwood et al., 2004; Wahlstrom et al., 2010). Robinson (2006) suggests the technique of ‘backward mapping’ to ground leadership in the core business of teaching and learning – looking at how a particular teacher makes a difference to the achievement of their students, identifying the conditions that support this outcome and then selecting those that can best assist that teacher to create those conditions. An interesting model on shared leadership is presented by Hoy & Tarter (2008). The authors introduce a normative matrix for ‘participative’ decision-making which looks at the relevance of an individual’s expertise, personal commitment to student outcomes (personal stake) and the trust placed on making a decision for the best interest of the organization (versus personal gain) – to determine the type of decision ‘situation’, the degree of involvement, and the different leadership roles that can be taken on by different individuals within various structures of decision-making groups. The author’s role in this process involves continuing as a member of the School’s advancement and senior leadership team, serving as an active PLC participant and leveraging her position with alumni and community stakeholders.

## 5. Conclusion

Hargreaves & Shirley (2009) state that the Fourth Way is about purpose and partnership. They postulate that through an inspiring and inclusive vision, strong public engagement, achievement through investment, corporate educational responsibility, students as partners in change and mindful learning which embraces personalized learning and lively learning communities, we can move forward in 'creat[ing] the schools that will undergird and catalyze our best values to regenerate and improve society'.

Zepeda's (2012) concluding remarks auger well for the desired outcome to create an inclusive, effective and sustainable collaborative culture which will take higher education organizations to the next level: "[Collaboration] is not easy work. Getting to the destination is a never-ending journey ...[as]...the work associated with it emphasizes continuous learning", (p. 286). Many business schools teach the 'kaizen' approach to continuous improvement. It is a process identified by improvements that are based on many small changes rather than radical ones, ideas that come from the talents of an existing workforce, and the expectation that *all* stakeholders are expected to take ownership and continually be seeking ways to improve their own performance (Imai, 1986). Ultimately, success will be determined by the development of key performance indicators and metrics that will definitively quantify improvement in student outcomes as a result of curriculum changes that can be directly related to involvement with alumni and the cultivation of sustainable business and community stakeholder partnerships.

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# Self-reflection with critical friends and multisource feedback via online social media for students' oral presentation and self-esteem

Pattapee Malisuwan<sup>a††</sup>, Jaitip Nasongkhla<sup>b\*</sup>, Siridej Sujiva<sup>c</sup>

<sup>a</sup>Ph.D. Student <sup>b</sup>Associate Professor <sup>c</sup>Associate Professor

Department of Educational Technology and Communications, Faculty of Education, Chulalongkorn University, Bangkok and 10330, Thailand

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## Abstract

When students feel better about themselves, they do better in life. This research studies self-reflection process from critical friends and multisource feedback that effects the development of students' self-esteem and academic oral presentation via online social media. Students use video recording for self-reflection practice, receiving critical friends positive advice for improvement, and finally multisource feedback for improving their oral academic presentation ability. Online social media appears to be a new communications channel that student practice an oral presentation skill through a network feedback, meanwhile building up a self-esteem through their self-reflection techniques.

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*Keywords:* Self-reflection, Critical Friends, Multisource Feedback, Online Social Media, Oral Presentation, Self-esteem;

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## Introduction

One of the academic activities in universities is oral presentation, including class report, presentation, and public speaking. Efficient speaking is the process that speaker can convey meaning and idea to audience successfully. However, not all people are good at speaking and presenting. For some students, oral presentation is one of nightmare. Many students avoid such situations and feel shameful about it. Psychologically, people who fear of public speaking are called "Public Speaking Phobia". Public speaking phobia often referred to as speech anxiety or stage fright, involves a central fear of being scrutinized or evaluated by others (Botella, Hofmann & Moscovitch, 2004; Wallach, Safir & Bar-Zvi, 2009; Pull, 2012). The Counseling Center of University of Wisconsin explains that this fear is often accompanied by a variety of physical and emotional reactions that can significantly interfere with a person's ability to successfully give a speech or presentation, including intense feelings of anxiety, worry, nervousness, trembling or shaking, sweating, and/or dizziness.

Oral presentation is one of the reasons of low self-esteem that a reflection of central negative beliefs about the self (Fennell, 2005). Most of the students who have fear of oral presentation intense to avoid making presentation or taking courses that require active participation. Self-esteem is a defining factor if students want to become an excellent speaker, trainer, and consultant or coach because they have to be a successful communicator first and outmost. Their abilities to communicate in turn depend on their view of themselves, which is based on how they feel about themselves. Students with low self-esteem on the other hand will not think highly of themselves. They will constantly depend on other people's approval of them. They have little confidence; they are not able to look at themselves realistically. They overrate their shortcomings and undervalue their uniqueness, their skills, talents and personality. They feel threatened by people who evaluate, let alone, criticize them.

However, Psychological Counseling Department of Istanbul Bilgi University (2011) says that it is not a disorder but certainly a problem. Because it makes students feel bad and decreases their performance in class. According to the information from Psychological counseling Department of Istanbul Bilgi University, people who have fear of public speaking tell that they are mostly afraid of others' judgments. For this reason, encouragement, positive words, encouraging students to review their actions is very important to develop the ability of oral presentation.

Self-reflection is defined as a purposeful thinking toward a goal (Dewey, 1933). Self-reflection is related to inquiry and critical thinking. This inquiry is processed through thinking and action as thinkers learn from their actions. The aspects that stimulate reflective thinking can be surprising or doubtful topics, ineffective thoughts and actions, differences between reality and ideal, or differences between actual and expected situations (Peter, 1991). Schön (1983) describes two types of reflection: reflection-in-action and reflection-on-action. Reflection-in-action happens when we apply past knowledge or experiences to cope with current situation as immediate feedback, while reflection-on-action happens after experiencing the situation, thus requiring careful thinking about previous history. Thinker will analyze advantages and disadvantages of doing or not doing something, and

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\* Corresponding author: Pattapee Malisuwan. Tel.: +6-689-216-7388, Jaitip Nasongkhla. Tel.: +6-686-909-3416  
E-mail address: mspattapee@gmail.com, jaitip.n@chula.ac.th

summarize into learning to be applied for future situations. Therefore, self-reflection is one method used to strengthen students' oral presentation skills and self-esteem.

Nowadays, social media have a role in everyday life. The online social media is generally developed to offer opportunities for reflection (Lamy & Goodfellow, 1999). It is helpful for students to build their own knowledge if an automatic mechanism could be designed to assist them to focus on learning and to guide their engagement in reflection. Many researchers have studied students' reflection that facilitates their problem-solving and deep thinking and understanding through online systems. For example, Saito & Miwa (2007) have designed a system that supports reflective activities for information seeking on the Web and found students' performance is supported and improved by the system. The study of van den Boom, Pass & van Merriënboer (2007) concludes that reflection combined with peer feedback positively affects students' self-regulated learning outcomes. In fact, there were reports that people are more likely to disclose suicide plans to a computer than to a human being (Proudfoot et al., 2003). According to Zabinski, Celio, Wilfley, & Taylor (2003), on-line interventions also offer practical advantages. Time constraints are removed and communication can be done asynchronously. Therefore, this method is able to enhance relaxed attitude of students who practice oral presentation.

One way to increase oral presentation skills and self-esteem is giving positive feedback. Critical friends and multisource feedback are based on positive feedback that motivates students to achieve self-esteem and confidence to speak in public. Gibbs & Angelides (2008) suggest that critical friends is within the nature of their friendship, which extends prior to and beyond the specific of the critique. The worthiness of the critical intervention is based on trust and respect for the vulnerability and wellbeing of both partners who have mutual concern, status and regard. Like critical friends, multisource feedback is one of the better tools that may be adopted and implemented to provide feedback and guide performance when interpersonal, communication, professionalism, or teamwork behaviors need to be assessed and guidance given (Lockyer, 2003).

These reasons encourage research to study self-reflection process from critical friends and multisource feedback that effects the development of students' self-esteem and academic oral presentation via online social media. Advantages of online social media promote self-reflection and openness to get feedback of oral presentation from Critical Friends, which allow friends and family to involve in sharing comments, thus enhancing self-esteem and oral presentation skills. Interaction with people allows students to obtain alternative, non-biased ideas and to reduce self-misunderstanding. Experience sharing causes relaxation and collective learning, promoting sustaining development.

### **Objectives of the study**

The objective of this research is to propose a model for developing "Self-reflection with Critical Friends and Multisource Feedback via Online Social Media" to enhance students' oral presentation ability and self-esteem.

### **Method**

This research is Qualitative Research which consists of 1) Documentary Research and 2) In-depth interview. The processes are as follows;

Documentary Research includes study of concepts, theories and research about 1) Self-reflection 2) Critical Friends 3) Multisource Feedback 4) Online Social Media 5) Oral Presentation and 6) Self-esteem. Findings will be synthesized for further analysis.

In-depth interview applies Opened Form Structured interview to study insights of specialists in psychology, education, and education technology. Researcher will gather findings for Content Analysis.

### **Result**

The focus of the proposed model is how self-reflection with critical friends and multisource feedback via online social media enhance students' oral presentation ability and self-esteem. This model is called PCPSP that includes 1) Problem identification 2) Cause analysis 3) Positive Feedback 4) Summary 5) Planning.

PCPSP model has 5 factors that cause oral presentation skills and self-esteem are self-encouragement, friends feedback, compliment of others, self-accomplishment, and replanning. The activities also involve self-reflection, critical friends, and multisource feedback. Instructor acts as advisor to observe behaviors of respondents. Data will be gathered week by week to regularly analyze improvement of oral presentation and self-esteem.

Students write and prepare the oral presentation outside of class. The topic may be informative or persuasive; instructor is set. Each presentation is 3 minutes. The topic should be assigned early in the program. Instructor builds in periodic due dates to make sure students stay on track. Oral presentation evaluation is the guidelines for effective speeches. Students are scored on a scale of 1-4 in Presentation content, Visual aids, and Performance. The evaluation includes eye contact, voice, knowledge and



understanding of the topic, enthusiasm, and audience awareness. Instructor must to give students the oral presentation rubric ahead of time so that they know and understand what they will be scored on.

Students need to record videotape their oral presentation. Instructor makes sure they are aware that they follow a description. Each oral presentation recording is determined by camera direction, camera angle, and camera distance. All oral presentations are recorded and uploaded to social networking sites that can publish video such as YouTube, Voice Thread. When students have seen their own oral presentation recording, students will reflect on their capacity to analyze weaknesses and strengths in their oral presentation including explain feelings about themselves and plan the next oral presentation. Friends will serve as critical friends. The friends who will act shall be selected as a qualifying match for critical friends to promote self-esteem to actually happen. Parents and teachers have a role in multisource feedback. It is one of the better tools that may be adopted and implemented to provide feedback and guide performance. Figure1 shows the PCPSP model.

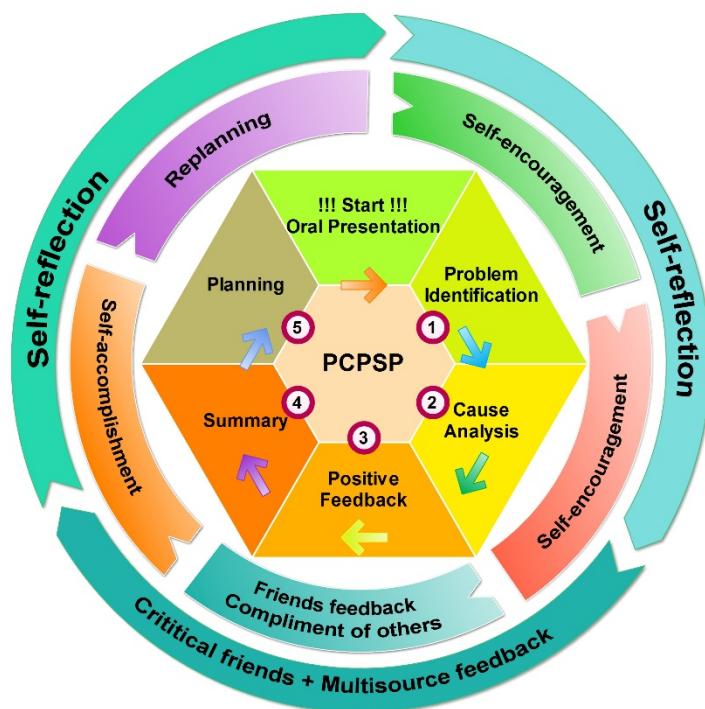


Figure1. The PCPSP Model

## Discussions and Recommendations

The model proposes that self-reflection exposes expectation, awareness, and feeling about experiences through speaking or writing, with the objective to analyze and compare data, formulate planning, and develop solutions. Self-reflection is related to self-observation and analyzing that cause new perspectives and ideas, leading to understanding of others. Students need to learn about self-reflection from oral presentation which facilitates review of learning and speaking. Such self-reflection leads to critical thinking which is beneficial for knowledge development and problem-solving capability for further speaking. Self-esteem promotes positive thinking and self-respect, social acceptance, and self encouragement. Students can gain support from recommendation and admire of others through critical friends process so as to enhance own value and appreciation. Critical friends can provide constructive feedback by observing oral presentation and share facts based on sincerity and trust. This shared experience can improve oral presentation skill and promote pride for speaker. Multisource feedback provides various insights to evaluate oral presentation and allow speakers to understand strengths and weaknesses from constructive feedbacks. Furthermore, the process leads to participative atmosphere that create effective communication and mutual trust. Such activity is conducted through online social media to avoid social exposure and increase confidence of speakers. Online social media can be applied to improve oral presentation skills and self-esteem. Features of online social media allow user to share identity and background, take note, create photo album and video, and create friend groups or networks via internet.

Self-reflection plays an important role in encouraging self-esteem and oral presentation because persons who are capable of reflecting themselves are open-minded for ideas, despite negative feedbacks. Such people can accept the truth that their concepts may not be right because they are sincere and dare to reveal their own feelings and perceptions. Self-reflection can lead to both negative and positive truth. Persons who accept unfavorable truth without applying defense mechanism may suffer from pressure, confusion, and mental discomfort. Persons who cannot tolerate such pressure may ignore negative effects of self-reflection by



delaying thinking or finding deceptive reasons to protect themselves. This process obstructs true feedback so people need supports from others to ensure that self-reflection is continued. Once persons gain benefits from self-reflection, they can relax and reduce pressure.

Future research may also examine the effects of PCPSP process on oral presentation and self-esteem and the model has been developed based on past research. The model needs to be tested empirically.

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# Self-regulation and academic self-efficacy of Czech university students

Jitka Jakešová<sup>a,§§</sup>, Jan Kalenda<sup>b</sup>, Peter Gavora<sup>c</sup>

<sup>a, b, c</sup> *Research Centre, Faculty of Humanities, Tomas Bata University in Zlín,  
nám. T. G. Masaryka 1279, 760 01 Zlín, Czech Republic.*

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## Abstract

The paper presents findings on self-regulatory behavior in Czech adults, as measured by SRQ-CZ, an instrument originally developed by Brown et al. (1999), and on self-efficacy in learning as measured by SEQ, an instrument developed by Jakešová (2014). The two results correlated low, which indicates that SRQ-CZ measures the generic ability while the SEQ measures domain specific beliefs. As expected, the scores on positive dimensions of SRQ-CZ (Goal Orientation and Decision Making) were above the midpoint of the scale used, while in negative dimensions (Self-direction and Impulsivity Control) the scores were below the midpoint.

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*Keywords:* self-regulation; academic self-efficacy; formal education; university students.

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## Introduction

In comparison with other living beings, humans have the unique capability to control their inner feelings, impulses and processes. In general, people are able to adapt their behavior based on set standards (external factors) and also to focus on their own goals (internal factors). The term self-regulation is often described as the ability to develop, implement, and maintain planned behavior in order to achieve one's goals (Brown, Miller & Lawendowski, 1999).

Self-regulation broadly indicates the processes of goal setting, self-direction, decision-making and impulse control. It includes dealing with a range of challenges which individuals may face when trying to achieve something important but difficult to attain (Mischel, Cantor & Feldman, 1996). This phenomenon is considered for example in relation to organizational learning (Boekaerts, Pintrich & Zeidner, 2000) and is also examined in other contexts, such as health behavior (Ridder & Wit, 2006), drug use (Baumeister & Heatherton, 2009), alcohol abuse (Wills, Sandy & Yaeger, 2002) and truancy (Veenstra, Lindenberg, Tinga & Ormel, 2010).

Researchers have attempted to uncover the phases or stages of self-regulation. A three-phase theory consisting of self-monitoring, self-evaluation, and self-reinforcement was introduced by Carver and Scheier (1982). Subsequently, this model was extended by Kanfer (1970) and Miller and Brown (1991) to seven phases, consisting of self-evaluation, informational input, instigation to change, planning, search, implementation and evaluation. However, when this model was empirically tested, the result of factor analysis led to a single-dimension solution (Carey, Neal, & Collins, 2004). Another research (Neal & Carey, 2005) demonstrated two self-regulation phases.

As previous research yielded inconclusive results concerning the number and sequence of dimensions and phases of self-regulation, it opens new challenges for further research. In the present study we endeavor to continue in this direction. In addition, we shall provide data on the processes in self-regulation of non-Anglo-Saxon respondents, thus expanding the research field and offering a possible cross-cultural comparison.

## Research methodology

There is a large volume of studies that aims at self-regulation in learning (e.g., Zimmerman, 1990; Winne, 2001; Pintrich, 2004). However, relatively little effort was made to investigate self-regulation in a wider range of life situations. Ample examples of this line of effort are given by studies conducted by Brown, Miller, & Lawendowski (1999), Carey, Neal and Collins (2004) and Neal and Carey (2005).

This study explores the broad, or generic, self-regulatory ability with the aim to shed more light on how this is self-perceived by respondents throughout their life. In addition, the ability for self-regulation will be compared to self-efficacy, which is an important factor related to self-regulation.

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\* Corresponding author. Tel.: +420-576-038-007  
E-mail address: jjakesova@fhs.utb.cz

The basic research purpose was to determine the achieved level of self-regulation of students in the Zlín region and to determine the differences of this level by gender and age. Another purpose was to determine the relationship between self-regulation and perceived self-efficacy in learning.

Due to the nature of the research purpose, we grounded our research on a quantitative approach using exploratory methods. Data were analyzed using the statistical program Statistica v. 12 Base and IBM SPSS v. 21.

## 1. Measurements

Two self-report instruments were used to gather data, the Self Regulation Questionnaire and the Self-Efficacy Questionnaire. The Self Regulation Questionnaire (SRQ-CZ) is a Czech version of the original Self-Regulation Questionnaire (SRQ) by Brown, Miller & Lawendowski (1999). The original instrument was constructed to measure generic self-regulation, i.e., the ability to regulate one's behaviour in a broad range of everyday situations. The authors define self-regulation as the ability to develop, implement, and flexibly maintain planned behaviour to achieve one's goals. Based on Kanfer's (1970) theoretical model, they claim that self-regulation of behaviour proceeds in seven consecutive steps from receiving relevant information to making a plan of action and assessing the results of the implementation of the plan. Brown, Miller & Lawendowski's (1999) original instrument has seven subscales corresponding to the seven step-theoretical model of planning and executing behaviour. There were two attempts to prove the empirical validity of the seven-step theoretical model; however, none of them was successful. In their study Carey, Neal and Collins (2004) demonstrated a single-factor model, while data by Neal and Carey (2005) yielded a 2-factor model. In our previous study where we used a sample of 360 university students in the Czech Republic the best factorial solution was a 4-factor model (Gavora, Jakešová & Kalenda, in press).

For the purpose of this study we re-validated the instrument with a broader sample. It consisted of 1,238 respondents from the region around Zlín in the Czech Republic. The age of the respondents ranged from 19 to 83. The best solution proved to be a 4-factor model with dimensions entitled Goal Orientation, Decision-Making, Self-direction and Impulse Control. The current form of SRQ-CZ has 22 items. Dimensions, number of items per dimension, item examples and dimension Alphas are illustrated in Table 1. Items in the first two dimensions (Goal Orientation and Decision Making) were positively worded, thus the higher the score the better the self-regulation. The latter two dimensions (Self-direction and Impulse Control) were negatively worded, therefore the lower the score, the better the self-regulation (see Table 1).

Similarly to previous studies, it was not confirmed that self-regulatory behaviour is necessarily performed in seven successive steps (represented by the seven dimensions of the questionnaire) as claimed in Kanfer's (1970) theory. The alternative interpretation offered is that even if such steps do exist, while filling in the questionnaire, respondents did not relate their behaviour to them. Rather, they considered each questionnaire item as a separate entity. The reliability of the questionnaire was .85 (Cronbach Alpha).

Table 1. Dimensions, number of items, item examples and dimension Alphas of SRQ-CZ.

Dimensions	Example of items	No. of items	Cronbach Alpha
Goal Orientation	I usually proceed to accomplish my aims.	5	.713
Decision Making	A new problem is an immediate challenge for me to find solutions.	6	.720
Self-direction	I fail to learn from my mistakes.	7	.705
Impulse Control	I give up easily when facing an obstacle.	4	.692

The Self-efficacy Questionnaire (SEQ) is a 10-item instrument developed by J. Jakešová (2014) in which respondents self-rate their belief in the ability to study efficiently. The factor analysis with this sample revealed a single factor model with Cronbach Alpha of .90. Example of an item: "If I concentrate sufficiently I can learn even a very hard subject matter". Both SRQ-CZ and SEQ used scale items ranging from 1 (strongly disagree) to 5 (strongly agree).

The two instruments were administered in group sessions of respondents. Online administration was rejected because of the threat of a low response-rate.

## 2. Sample

The base sample consisted of 1,244 respondents from the region of Zlín in the Czech Republic who were students in a medium-sized university. Out of the base sample, three subsamples were selected for this investigation as seen in Table 2. The students were registered at bachelor, master's and doctoral degree programmes at the University of the Third Age. For statistical calculations the age of the respondents was divided into three categories: (1) 19-25 (65%), (2) 26-45 (19%), and (3) 60 and over (16%). The age group 46 to 59 was not taken into consideration because it was underrepresented. The majority of the respondents was female (903 or 73%), the number of males was 333 (27%).

Table 2. Subsamples.

Age groups	N	%
19-25	800	64.3
26-45	236	19
60-83	192	15.4
Missing	16	1.3
In total	1.244	100

## Results

First, we shall present the descriptive data on self-regulatory behavior, and then data on self-efficacy in learning. The descriptive statistics showed that respondents scored on Goal Orientation ( $\bar{x} = 3.99$ ,  $SD = .65$ ) and Decision Making ( $\bar{x} = 3.53$ ,  $SD = .59$ ) above the midpoint of the five-point scale used in the questionnaire (see Fig. 1)<sup>\*\*\*</sup>. This indicates a rather good level of perceived self-regulatory behavior. On the other hand, students achieved lower scores in Self-direction ( $\bar{x} = 2.93$ ,  $SD = .48$ ) and Impulse Control ( $\bar{x} = 2.81$ ,  $SD = .79$ ). As these dimensions were negatively scored, this signifies that respondents can control their impulsivity and can self-direct their behavior. The results showed that the respondents achieved above-midpoint on the Self-efficacy scale ( $\bar{x} = 3.38$ ,  $SD = .43$ ), which shows that they judge their self-efficacy as being rather high.

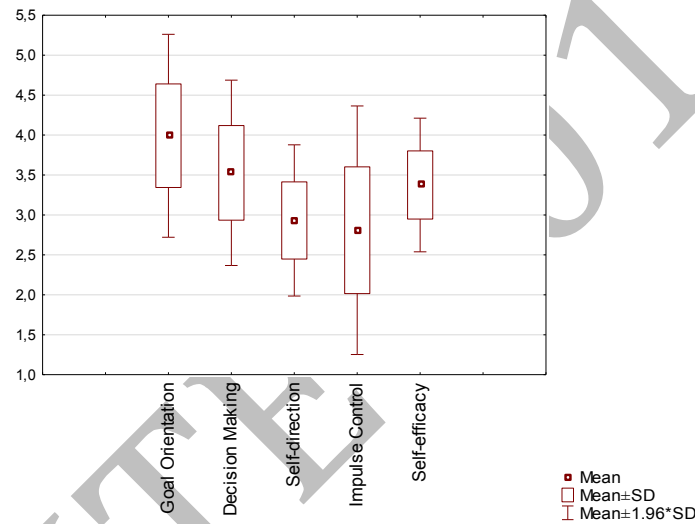


Fig. 1. The average scores on self-regulation and self-efficacy.

Regarding the relationships between dimensions, there was a positive correlation between the Goal Orientation and Decision Making dimensions ( $r_s = .464$ , statistically significant at the 5% level; Table 3). A positive correlation was also found between Self-direction and Impulse Control ( $r_s = .455$ ). We can say that respondents who are goal-oriented (i.e. "I reward myself for progress toward my goals") also scored high in decision-making (i.e. "I am willing to consider other ways of doing things"), and vice versa. On the other hand, respondents who had higher scores in Self-direction also reached higher scores in controlling impulsivity, and vice versa. These findings confirm the existence of inverse relations between positively and negatively worded dimensions of self-regulation in this questionnaire<sup>†††</sup>.

Self-efficacy scores had positive and statistically significant correlations with the positive dimensions of self-regulation, i.e. with Goal Orientation ( $r_s = .345$ ) and Decision Making ( $r_s = .305$ ), and low and negative correlations with negatively worded dimensions of self-regulation. This indicates that the two variables are mutually dependent entities.

Table 3. Correlations of self-regulation and self-efficacy.

Components	$\bar{x}$	SD	Decision Making	Self-direction	Impulse Control	Self-efficacy
Goal Orientation	3.99	.65	.464	-.146	-.294	.345

<sup>\*\*\*</sup> It would be worth comparing our data with American studies that used SRQ. However, they used scores that summed up all item points, while our sample was scored on a 1-5 point scale.

<sup>†††</sup> To get an idea of how many percentages of the variance are involved in two variables the coefficient of determination ( $r^2$ ) was calculated. In the first case ( $r_s = .464$ ) variables reached 22% of the shared variance, and in the second case ( $r_s = .455$ ) it was 21%.

Decision Making	3.53	.59	-.139	-.353	.305
Self-direction	2.93	.48		.455	.035
Impulse Control	2.81	.79			-.044
Self-efficacy	3.38	.43			

Note: Correlation is significant at the .05 level.

The results show statistically significant differences in Goal Orientation ( $p = .024$ ,  $p < .05$ ) and Impulse Control ( $p = .000$ ,  $p < .05$ ) between men and women (Table 4). Women achieved higher scores on Goal Orientation than men but lower scores on Impulse Control. In other words, women are better goal-oriented but are likely to control their impulsivity less than men do.

Table 4. Findings on self-regulation and self-efficacy by gender and age.

Components	Gender					Age						
	man		woman		p	19 – 25 years		26 – 45 years		over 60 years		p
	$\bar{x}$	SD	$\bar{x}$	SD		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	
Goal orientation	3.91	.71	4.02	.62	<b>.02</b>	3.91	.65	4.16	.61	4.14	.62	<b>.00</b>
Decision Making	3.56	.62	3.52	.58	.08	3.41	.57	3.73	.53	3.77	.62	<b>.00</b>
Self-direction	2.94	.47	2.93	.49	.62	2.88	.45	2.89	.47	3.19	.55	<b>.00</b>
Impulse control	2.66	.81	2.86	.78	<b>.00</b>	2.87	.78	2.59	.75	2.85	.85	<b>.00</b>
Self-efficacy	3.38	.43	3.37	.43	.62	3.36	.42	3.42	.39	3.40	.48	.26

Note:  $\bar{x}$  = represents the average value on a scale of 1 to 5; SD = standard deviation; p = nonparametric test (K-W ANOVA, M-W U test).

The age of the respondents affects all four dimensions of self-regulation, though differently. It was found that the youngest age subgroup scored the lowest on most of the assessed dimensions. The middle aged subgroup of respondents (26-45) were the most goal-oriented. Conversely, respondents aged 19-25 scored lowest on Goal Orientation. Similar results were also achieved in Decision Making. The ability of decision-making increases with the age of respondents. In other words, the oldest respondents, aged over 60, provide the highest level of decision-making. The youngest respondents, aged 19-25, showed the lowest level in decision- making (see Table 4).

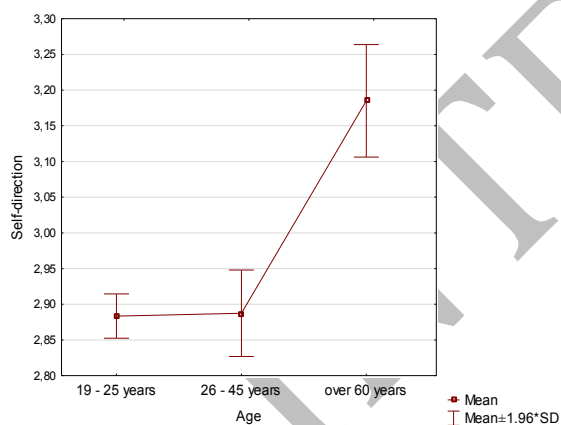


Fig. 2. Self-direction by age.

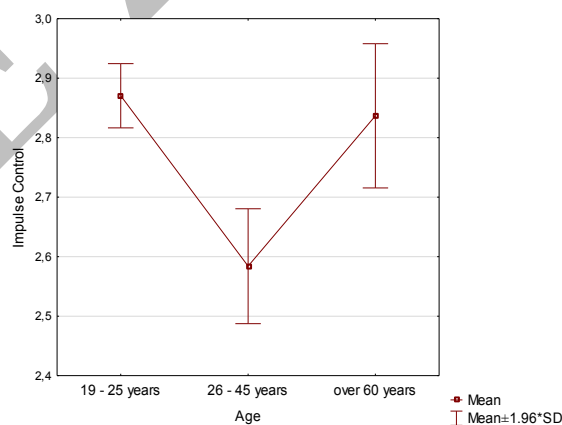


Fig. 3. Impulse Control by age.

The divergent results were shown in the two negative dimensions of self-regulation, where achieving lower scores is perceived as indicating a greater ability in self-regulation. According to descriptive statistics and hypothesis testing, it was proven that respondents aged 60 and over reached the lowest level of self-direction (i.e. "I can't learn from my mistakes"). Younger respondents achieved similar results (see Fig. 2).

Respondents in the middle age subgroup (26 to 45) showed better control of their impulsivity (i.e. "Even if I decide for something, I have a problem to realize it"). In contrast (see Fig. 3), for the youngest and oldest respondents the impulse control presents a greater issue.

The level of self-efficacy, which can be seen as the belief that an individual has about himself/herself, was not related to gender or age. This result together with the low correlation between the dimensions of self-regulation of behaviour and self-efficacy in learning suggests that the former is a generic concept covering a wide range of life situations while the latter is domain specific and concerns learning contexts.

## Summary and discussion

The concept of self-regulation relates to a wide range of life situations. According to Brown, Miller & Lawendowski (1999) it is seen as the ability to develop, implement, and flexibly maintain planned behaviour in order to achieve one's goals. Self-regulation is accepted as an important skill for today's successful student, as well as for the successful individual in contemporary society.

The main aim of the study was to determine the achieved level of components of self-regulation, namely Goal Orientation, Decision Making, Self-direction and Impulse Control and to determine the differences in the scores by gender and age. Another objective was to find out the relationship between the components of self-regulation, detect the perceived level of Self-efficacy in learning and uncover the relationships between and differences in Self-regulation and Self-efficacy according to gender and age.

The 1.244 respondents from the region of Zlín in the Czech Republic who were students in a medium-size university completed the Self-Regulation Questionnaire (SRQ-CZ) and the Self-Efficacy Questionnaire (SEQ). The original instrument (SRQ) was constructed to measure generic self-regulation, i.e., the ability to regulate one's behaviour in a broad range of everyday situations (Brown, Miller & Lawendowski, 1999). For the purpose of this study we revalidated the instrument with a broader sample of 1.238 respondents. The ages of the respondents ranged from 19 to 83. The best factor solution proved to be a 4-factor model with dimensions entitled Goal Orientation, Decision Making, Self-direction and Impulse Control. The current form of SRQ-CZ has 22 items with a reliability of  $\alpha = .85$ .

The presented results showed that students achieved higher than average scores on the scale's midpoint in Goal Orientation and Decision Making. On the other hand, they reached lower values in Self-direction and Impulse Control. The research also focused on Self-efficacy, which is an important factor related to self-regulation. According to the descriptive statistics, respondents achieved above-average levels on the scale's midpoint in self-efficacy, highlighting the strength of students' belief in their own ability to learn successfully.

Positive correlations were found between positive components of self-regulation (Goal Orientation and Decision Making) on the one hand, and between negative components of self-regulation (Self-direction and Control Impulsivity) on the other.

Gender had an impact on Goal Orientation and Impulse Control, while the results of testing by age identified significant differences in all four components of self-regulation. Women achieved higher levels in Goal Orientation than men but lower levels in Impulse Control. It was found that with increasing age goal orientation and decision-making also increases. Middle-aged respondents (26-45 years) were the most goal-oriented and the ability of decision-making increases with the age of respondents. A different situation was revealed within the negative components, where achieving lower values is perceived as a better ability of self-regulation. The oldest respondents aged 60 and over reached the lowest levels in self-direction and together with respondents between the ages of 19 to 25 Impulse Control represents a greater issue.

There are two main points of discussion emerging from the present results. The first concerns the interpretability of the original instrument to measure self-regulation of behavior, SRQ by Brown et al. (1999), upon which the Czech adaptation was based. The SRQ contains 7 dimensions which were theoretically developed to capture the seven phases of planning and execution of an individual's behavior. Our previous attempt (Gavora, Jakešová & Kalenda, in press) with a smaller sample of adult respondents had already failed to confirm the 7-phase model. This attempt yielded a 4-component model, which was reconfirmed in the present study. This suggests either that the planning and execution of one's behavior does not proceed in the sequence as anticipated by Brown et al. (1999), or that while filling in the questionnaire respondents did not relate the items to the self-regulatory *phases*. Rather, they responded to questionnaire items as to separate, disconnected phenomena. Another feasible interpretation is that the situations in SRQ items were unspecified. Thus, they might elicit virtually infinite self-regulatory associations because respondents could relate them to any event or action, either real or fictitious. Further research is needed to uncover how the questionnaire findings relate to real-life self-regulatory situations, probably using research methods such as observation and think-aloud procedures.

Another point of discussion is the relationship between self-regulation of behavior and self-efficacy in learning. They are two distinct variables, since self-efficacy in learning is the *belief* in one's abilities to learn, while self-regulation of behavior is the *ability* to plan and perform a broad range of actions. However, we determined statistically significant correlations between positively-worded components of self-regulation (Goal Orientation and Decision Making) and Self-efficacy in learning. This suggests that the two variables share similar properties. Obviously, belief in one's learning efficiency at university requires good goal planning and decision-making abilities. On the other hand, low belief in one's learning abilities coincides with inefficient self-direction and learner impulsivity.

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# Semiology in the teaching of history of art

Lütfiye GÖKTAŞ KAYA\*

*Karabuk University  
The Faculty of Literature  
The Department of History of Art, Karabuk, 78050, TURKEY*

## Abstract

Everything which is related to human being is actually a communication tool. Art is also one of the communication tools which are related to human. Building an effective communication depends on using the common language by sides and comprehending one another. History of art is a visual discipline whose material is indicators. Consequently, comprehension of the art depends on analyzing of the indicators. This study exemplifies and highlights the importance of iconography and symbol analysis which are included in the field of history of art and plan, map, architectural and urban reading. It is aimed that the main purpose of an art historian should be construing not describing. The ways of construing is reading the indicators. Therefore more courses or contents related to the relationship between history of art and semiology should be included in undergraduate education of history of art.

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*Keywords:* History of art; semiology; iconography; symbol; indicator in history of art

## 1.Introduction

When the definitions of art which have been made from antiquity to the present are evaluated it can be seen that there are different extensions of those definitions<sup>\*\*\*</sup>. According to Sözen & Tanyeli (1996, p.208); the art which changes in accordance with individuals, ideas, aims, period of time, and societies is a technique of crafting stimulus with the aim of developing satisfactory artistic experiences. The art is an important tool in conveying feelings and opinions, images and assets by means of symbols.

History of art is an academic discipline analyzing historical evolution of the art<sup>§§§</sup>. It analyses the appearance of artistic work and relationships with the other works and society. History of art bounds to the environment where the work is made. Various factors such as geographical location of the work, socio-cultural, economical, politic, and regional factors and belief and religion affect the work of art and, of course, history of art. Therefore the history of art is related to the other disciplines such as geography, history, anthropology, sociology, psychology, archeology, economy, the history of politics, and theology.

The art is one of the components which compose the society and means of communication of the society. Human being is in the environment surrounded by images, symbols and various indicators from coming into being. They try to communicate by giving meaning to those images and indicators.

## 2. The relationships of indicator-semiology and history of art

Indicators are a situation, an action or an entity which substitute for a concept in our mind. They can be kept as a word a picture. They inform about the situation. The information or the input which indicator gives is the reflection of the entity or the object in our mind. This concept is the acquired knowledge (Erkman-Akerson, 2005, p.17-25).

Semiology is an art which evaluates the process of emerging, analyzing, and interpreting of indicators which exist in every part of life.

\* Corresponding author. Tel.: +0-370-433-8294; fax: +0-370-433-8264

E-mail address: lgktaskaya@karabuk.edu.tr

\*\*\* Refer to different definitions of art; (Bozkurt, 1995, p.16-18), (Türkdoğan, 1984, p.11), (Erzen, 1997, p.1607).

§§§ Refer to different definitions of the history of art; (Mülayim, 1994), (Kırıçoğlu & Stokrocki, 1997), (Eyice, 2003).



In order to analyze and interpret the indicators they, firstly, need to be seen. Because indicators of being an art built over “visuality” an art historian should be a good “viewer”. So, what is the definition of “a good viewer?”

The verbs “to look” and “to view” are different. But these terms either are used for each other or misused like other diverse terms or concepts. While “looking” is an action which every healthy eyes can take, “viewing” is a fact having lots of dependents. The usage of these terms in our daily life gain dimension and content when it is moved to the fields of art and science. Consequently, each eye looking at something doesn’t mean that they are viewing it. Eye is a visual organ which is not equipped with the feature of “viewing”. At this point, while “to look” appears as a team, “to view” appears as a concept which has diverse extensions. “To view” is related to the knowledge.

Being a mean of communications art is molded with indicators. Apprehending of art and enjoy the work of art depends on equally apprehending of indicators by receiver and sender. Therefore receiver’s knowledge about message and subject knowledge are important in interpreting of each type of message. Thus knowledge is required to interpret the indicator.

Indicator is variously classified into categories by semiologer. While Charles Sanders Peirce classifies the indicator into indicator visual indicator and symbol from the aspect of the object of the indicator, Pierre Guiraud categorizes the indicator into four categories from the aspect of used norms as natural indicators, reflective indicators or images, nominal indicators, and image-symbol compound indicators (Guriaud, 1984, p.13).

Günay (2008) classifies the types of indicators as natural and artificial. While iconography which can be classified into two sub-groups as reflective and nominal ones is the type of reflective-visual indicator, symbol is the type of nominal-artificial indicator.

The study field of history of art is related to iconography and symbol indicators. Consequently the new definition like “history of art is a visual academic discipline composed of iconography and symbol indicators” can’t be evaluated as wrong.

### 3. Art historical indicators

#### 3.1. Iconography

It is the type of indicator composed of the subject and contents of the work of art. It is also an academic discipline comparatively analyzing the subjects and the contents. Apprehension, understanding and evaluation of the work of art depends on acquisition of iconography (Cömert, 1980).

Iconography, which is a visual indicator, can be more easily perceived compared to the other indicators. According to the Adam and Bonhomme (2003, p.56); the relation of proximity and similarity can be constructed between visual indicator and the object (Günay, 2008, p.4).

#### 3.2. Symbol

It is the most frequently used type of indicators which can be easily perceived by people, but comprehension and acquisition of this indicator is difficult.

Symbol is defined as “the mark which has appeared through reflecting or representing it.” This mark can exist as a figure, an object, an indicator or a word.<sup>\*\*\*\*</sup>

Symbols are visual and aural facts expressing things more than demonstration. It is a complicated item. It is a tool of abstraction. It is always a concrete indicator of abstracts.

Picture carries the common characteristics of demonstrative and the things which are demonstrated. However, “symbol” is described as a mark which doesn’t have the relation of causality and isn’t constructed over the natural relations.<sup>††††</sup>

Representation of an abstract thing with a concrete thing changes in accordance with the society, community, groups, individual, culture, language, religion and numerous variables. Any symbol exists in different periods and cultures through change of meaning without demonstrating any formal changes. Therefore the symbol which is unique to a specific culture either cannot be comprehended by a foreigner or the meaning can be changed although the form is the same.

An symbol is never arbitrary or empty. They need to be apprehended, analyzed, and comprehended. Therefore, it requires more detailed knowledge. Symbol arises with the result of the relation between indicators and the object. Comprehension of symbol depends on learning the object itself and analyze of symbol depends on acquiring the relation between the indicator and the object (Günay, 2008, p.4).

Symbols are capable of conveying the subjects which can take long time to explain with succinctly but profoundly. These characteristics strengthen their capable of expressing diverse things with using little things. They have not only content richness but also easy and fast systematic of meaning as a formal language. Thence belief, discipline and approach which have every types of philosophical profundity on earth are surrounded with symbols.

Symbol is an indispensable part of culture, art, language and literature, religion and mythology. Not only social sciences but also natural sciences completely possess symbolic language. Especially math, physics and chemistry are disciplines completely constructed with a symbolic structure.

\*\*\*\* Metin Bobaroğlu, “Simge Kavramı ve Simgesel Düşünme ” [www.anadoluyadinlanma.org/Yazilar/simge\\_kavrami.pdf](http://www.anadoluyadinlanma.org/Yazilar/simge_kavrami.pdf)

†††† Metin Bobaroğlu, “Simge Kavramı ve Simgesel Düşünme ” [www.anadoluyadinlanma.org/Yazilar/simge\\_kavrami.pdf](http://www.anadoluyadinlanma.org/Yazilar/simge_kavrami.pdf)

Iconography and symbol are artificial indicators which human beings created. Actually iconographic and symbolic analyses are the type of study related to cognitive process. Visual symbols reach more people than verbal symbols. Beside the rate of learning through viewing is high in scientific studies.

According to scientific studies; %1 of acquired items by tasting, %1, 5 of them is acquired through touching; %3, 5 of them is acquired by hearing and viewing, respectfully. According to the study conducted with the aim of perceiving and acquisition of information %10 of read items, %20 of heard items, %30 of viewed things, %50 of both viewed and heard things, %70 of utterances, and %90 of actions which are taken while uttering can be stored in mind (Günay, 2008, p.11).<sup>\*\*\*</sup>

Because of having visuals sustained by iconography and symbol indicators as a working material in the history of art it is essential to know what iconography and symbol is, to view and to interpret through analyzing. At this point some examples can be given so as to embody the subject from the aspect of the discipline “history of art”.

#### 4. Art historical icons

##### 4.1. The maternity goddess

It was started to confront the term “maternity goddess” in Çayönü, Anatolian, in the years between 7200-6250 BC. The symbol “Maternity Goddess” which turned into a cult after a while reached a certain standard in Çatalhöyük. The woman was seen the reason of everything because of her fertility and was apotheosized. Abundance was symbolized as a body of woman giving lots of birth (see Fig. 1-2).



Fig. 1. Neolithic Period.  
Çatalhöyük. Anatolian Civilizations  
Museum, Ankara.



Fig. 2. Late Neolithic Period.  
Hacilar. Anatolian Civilizations  
Museum, Ankara.

##### 4.2. Lion

Lion is the symbol of strength, power, the sun, light and the water (Öney, 1971, p.1; Öney, 1992, p.40). It is a guardian and protector from evil. It is a spirit which helps shamans in their journey in the sky and earth, according to old Turkish belief. It is used as a spirit in graveyards, the protector from evils in castles, towns, thrones and palaces, the water and light in the palaces such as fountain, both and gargoyles (see Fig. 3-6).

The other symbolic meaning of the lion is related with horoscopes. According to this opinion which reached to Mesopotamia, Egypt, Greece and Rome and was prevail in the whole Islamic world in middle ages several stars belong to solar and lunar

<sup>\*\*\*</sup> Günay has received this information from Sönmez (2005, p.122).

system are related with the one of the animals symbolizing twelve horoscopes. The reason of the usage of the sun and leo together is the sun's relation with leo.

The leo was commemorated as the home of the sun in old Egypt (Kerametli, 1972, p.14). Moreover it has been the symbol of (the most important day of Assyrian calendar) nawruz, which is also the beginning of agricultural year since 4000 BC. in the Near East.



Fig. 3. Wall-door. Late Hittite Period. Aslantepe, Malatya. Anatolian Civilizations Museum, Ankara.

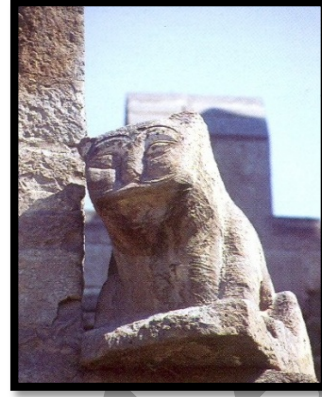


Fig. 4. Citadel, Kayseri. 1224 dated. Seljuks Period.



Fig. 5. Bronze Door Knocker. 11th Century. David Collection, Denmark.



Fig. 6. The Liquid Container. BC The End of the 8th Century. Anatolian Civilizations Museum, Ankara.

Lion is one of the good examples of the situation which symbols can change their meaning in accordance with the culture or group without changing their form. Hz. Ali is called as “the lion of the God” (in Quran) referring the event taking place during ascension (Noyan, 1985, p.50-52; Fiğlalı, 1911, p.247-249). Therefore lion is the symbol of Hz. Ali. It is seen in “Vilayetname of Hacı Bektaş-ı Veli” that Hacı Bektaş Veli makes a great number of miracles through turning into a lion. So lion is also the symbol of Hacı Bektaş Veli (see Fig. 7-8).



Fig. 7. Balım Sultan Candlestick.  
Hacıbektaş Museum, Nevşehir.



Fig. 8. The base of the Balım Sultan's Candlestick.  
Hacıbektaş Museum, Nevşehir.

#### 4.3. *Sitting cross, chalice*

“Sitting cross” is the symbol of sovereignty based on the traditions of Central Asian Turks (Esin, 1969/70; Esin, 1970/71). Nobody can sit cross except the emperor. Retinues of the emperor kneel. It was written in Kutadgu Bilig that servants mustn't sit across (Yusuf Has Hacıp, 1991, p.298) (see Fig. 9-12). This culture affected the west and emperors and kings confronted us sitting cross (see Fig. 13).



Fig. 9. The Stone Relief of the  
Castle of Konya. 1220 dated. Anatolian  
Seljuks Period. İnce Minareli Medrese  
Museum, Konya.



Fig. 10. Ceramic Cruse Fragment.  
11.-12th Century. Great Seljuks Period.



In addition chalice is also the symbol of sovereignty tracing back the traditions of Central Asian Turks (Roux, 1982, p. 102-108). When social structure and way of living is carefully taken into account the figures holding chalice in their hand in description symbolize the emperor (see Fig. 9-12).



Fig. 11. Bronze Candlestick.  
12.-13. Centurie. Anatolia.  
Mevlana Museum, Konya.

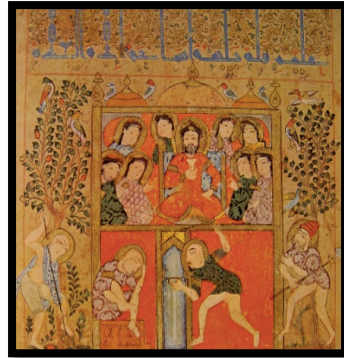


Fig. 12. Sultan Pavilion. Kitab-el Tiryak.  
1199 dated. MS. Arabe 2964, Old Page 27.  
National Bibliotheque, Paris.  
(Ettinghausen, 1977).



Fig. 13. Painting Ceiling Panel.  
Middle of the 12. Century.  
Feasting Ruler with Attendants.  
Capella Palatina, Palermo.  
(Ettinghausen 1977).

#### 4.4. Dome

Architecture is also built over symbolic meanings. Dome is the symbolic architectural element which is seen as hemisphere. Circle is the symbol of eternity because of ambiguous points of start and finish. This symbol accords with Islamic philosophy and religion. Gathering people under the only dome by creating a continuous place also accords with the philosophy and the religion mentioned above. Moreover, the belief “the God is in the sky” is backed with the dome rising to the sky. The history of East and west architecture tried to build the biggest and the highest dome. The purpose is to reach the God. Dome which is an architectural element is the symbol of the vault of heaven and reaching the God. Therefore the construction rises gradually in the mosques built especially in the classical period of Sinan the architect and the duty of element in every grade is actually to help the emphasis of central dome (see Fig. 14).



Fig. 14. Sultanahmet Mosque. 1609-1617 dated. İstanbul.

## 5. Art historical readings

Reading is not an activity that you only read written items as most of the people think. Benamou (1979, p. 10) described reading as 'receiver's process of inference and the activities that he takes in towards meaningful context which was previously built. In parallel, reading plan, reading map, architectural reading, and even reading cities are included in this group and are one of the fields which history of art works. While reading the items mentioned above indicators are, firstly, analyzed. Plans and maps are comprised of symbols (see Fig. 15-16). Most of the architectural element has symbolic meaning as well as their static duties.

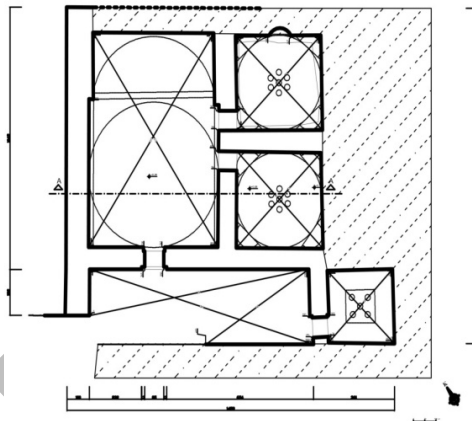


Fig. 15. Hamamlı III Bath Plan. 19th century. Eskipazar, Karabük.

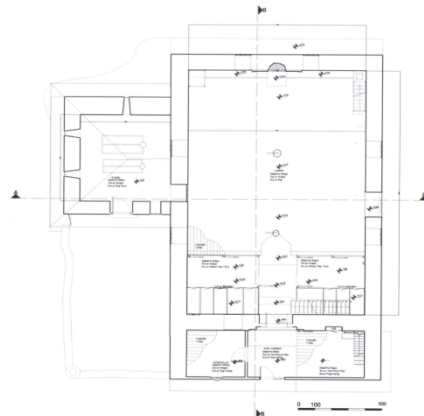


Fig. 16. Demirli Mosque Plan. 1485 dated. Eflani, Karabük.

A city carries abstract meanings coming from different cultures besides having concrete features seen by everyone. The description of the culture can be made as physical and moral values created in the process of historical and social development

and the process of transferring those values to next generations. Transferring of the values occurs with abstraction, usage of symbols and, mainly, systems developed by language (Doğan Topçu, 2005, p. 238).

An architectural symbol as an object of usage is a demonstrator which has a viewer possessing absolute and agreeable straight meaning when evaluated from the aspect of the conveyed meaning. The first demonstrated thing of a house is its function of living space in the dimension of straight meaning. But turning an architectural symbol into the functional ones depends on grounding its past processes of encoding and reconciliation even if it is in the dimension of straight meaning. If created architectural symbols are not related with reconciliations already known it can't be comprehend and used. But if symbols gain different meanings, it refers another function in the dimension of straight meaning.

For instance the important feature of couches in traditional Turkish houses is being always located in the south side of the most beautiful wall. They function like impressive altar delicately created from floor to ceiling. While the first function of this wall is to symbolize the direction of Mekka in conformity with the Islamic belief in the dimension of straight meaning, in the dimension of connotative meaning this wall symbolizes the supremacy of the God and is the reflection of the love and admiration (Doğan Topçu, 2005, p.243).

## 6. Conclusion

It is possible to increase the history of the art indicators and the examples of reading materials. Iconography and symbol analysis, plans, maps, architectural and urban readings are among the fields over which the discipline 'history of art' works and they are difficult and complicated side of the discipline when especially evaluated from the aspect of the students.

The courses under the title of Semiology which are related to the topics mentioned above are among the postgraduate courses. However, implementing this kind of courses to undergraduate curriculums will be beneficial. The student graduated from the undergraduate degree of 'History of Art' gets the title 'art historian' even if he doesn't continue to his academic career. Therefore an art historian should know the relation between the history of art and Semiology and he should put it into practice. The job of an art historian should be giving meaning to the indicators not only describing them.

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# Serious games effects: an overview

Hans W. Giessen

Universität des Saarlandes, Information Science, Gebäude C5.2, R. 106.1, D-66041 Saarbrücken, Germany

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## Abstract

"Games und Gamification" were declared by the "New Media Consortium" as one of the important trends in E-Learning for the near future. If the NMC's assumptions are correct, we need a discussion on whether Games, especially so-called "Serious Games" indeed help in learning. The paper wants to give an overview on the state-of-the-art of what can be expected by Serious Games, according to the research already done.

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*Keywords:* Serious Games, E-Learning, Media Effects, Language Learning

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## Serious Games

It is widely known that fear, stress - or also boredom, for that matter - activate the amygdala, whilst knowledge and information connected with positive emotions is absorbed by the hippocampus and then transferred to the cortex for further processing. Thus, learning content should be prepared in a way that activates the hippocampus, not the amygdala, that is, should be transmitted in a somewhat pleasant way that evokes interest and positive emotions.

In this context it seems to be manifest to use ludative methods of teaching and learning (Sanchez 2011; Knautz 2013).

Following the rise of digitalisation, games can be composed with the help of the computer, or can even be adopted for and with the computer, in order to "learn by playing" (a term used by Blumberg 2014; similar, for example, Ritterfeld 2011).

Meanwhile *Serious Games* clearly have become a genre of its own right in computer-based ludative teaching and learning (overview: Ritterfeld et al. 2009; Fromme/Unger 2012; Bredl/Bösche 2013). More so, this genre has become more and more important in recent years, as can be concluded for example from the fact that the "New Media Consortium", an international expert group with members in the fields of educational technologies who work in universities, museums or other (mainly American) institutions, in its latest annual reports declares "Games und Gamification" a trend most likely to make a significant impact within the near future, that is, in a time horizon of the next two or three years (NMC 2013: 20ff.; NMC 2014: 40ff.).

## Theoretical and empirical questions

On the other hand, question is in how far games can be used for pedagogical purposes. For example, Kerres et al. (2009) discuss (insofar referring to Oerter 1999) whether a "game" that is "exploited" for didactical purposes is still a "game". The authors acknowledge that almost every game transmits experiences that can be used for reflection and thus are connected with teaching and learning (not only motor learning, but also acquiring declarative information). Therefore, it seems to be possible to utilise games for teaching and learning; however, the topic remains somewhat fuzzy (see for example Szilas / Sutter Widmer 2009).

Apart from the theoretical discussion, there are problems in appliance. For example, many learners try to avoid "learning modes" in order to as fast as possible return to a "gaming mode" (again, Kerres et al. 2009).

At least, *Serious Games* have to find a balance between the ludative element that exists for its own sake, and didactical or pedagogical goals that should neither be all too intrusive, nor lose sight of the aims.

Within these manifold and differing aspects it seems to be still uncertain whether *Serious Games* indeed help to improve learning results. In regard of what has been said before, two assumptions are possible: (1.) result might be a certain predominance of the ludative aspect that could even be so intense that it hinders learning; or, and on the other hand, (2.) result might be an intensification that, by activating the hippocampus, enforces successful teaching and learning.

Of course, the question on whether teaching and learning in the context of / with computer-based games is discussed so acutely as this question itself is quite fresh: whereas *Serious Games* exist as a didactical tool since some two decades, the games develop and change so fast and so divert that every specific assertion has to be verified again and again, as it very much depends on specific games, their character, the very medium, and thus is very much time-dependant, too (Ke 2009).

## State-of-the-Art

In consequence, all meta-analyses we found (Squirre 2003, Kirriemuir/McFarlane 2004, Heers 2005, Vogel et al. 2006, Arnseth 2006, O'Neil et al. 2005, or, more recently, Ritterfeld et al. 2009 or Wouters et al. 2009) state that until now there exist but meager findings in regard of the teaching and learning effects of *Serious Games*; O'Neil et al. (2005) and Wouters et al. (2009: 232) both even use the drastic term of "scant". Clarke et al. (2010) state that there is no prove whatsoever that *Serious Games* enhance teaching and learning, and the result of the overview by Vogel et al. is as follows: "no significant advantage was found" (Vogel et al. 2006: 229).

The reasons for this assessment are comprehensible: Ke (2009) stresses for example the difficulties to come to basic conclusions when so many different games - and even genres of games - exist that can hardly be compared with each other. Not only the games are different, but also the topics, and the content that has to be learnt. Also, different games have different designs and structures, respectively. Thus, every game has specific possibilities of how it's effects would be.

Ke wanted to examine (1) what the cumulative qualitative and quantitative evidence for using computer games for learning would be, and (2) what the factors that weigh in an effective application of instructional gaming would be - "if any", as he added (2009: 2). Indeed he found out that the success of *Serious Games* very much seems to depend on the context and the content, but also on the pedagogical competences of the teachers who include the very game in their lessons, and the topic. Advantages were found in regard of higher-order thinking (e.g., planning and reasoning) and affective outcomes, whereas the effects of games on factual or verbal knowledge acquisition were weaker. These results correspond with the findings of Breuer and Bente (2010).

The results of a meta-study by Sitzman (2011) point in the same direction. She emphasizes the importance of an active (instead of a passive) acquisition of learning contents. Also, a game must not stand alone but should be included in a context with other learning assets. All in all, activation of the learner is the crucial criterion, according to Sitzman. However, she found that up to now computer games seem to assign the students mostly to a passive role. However, even when learners from an experimental and from a control group both were able to take over an active part the progress of learners who did not play with a computer-based game as a rule was more convincing. Similar results were presented by Domagk et al. in 2010.

The meta article by Wouters et al. (2013) at least declared that the research situation has improved within the last five years up to then. The main reason seems to be that the technical development has improved, enabling new implementations and new realizations. Still, results are not definite. Most studies still show that when comparing a test group with a control group that learnt in an ordinary classroom context the results don't differ from those found out already by Ke (2005) or Sitzman (2011): Learning in the context of digital games needs training as well as suitable preparation and follow-up activities in order to be successful. - Quite interesting is the fact that the achievements were higher for example with language learning then with other topics, according to Wouters et al. (2013). The content or the topics thus seem to be an equally important factor (see also Cruz-Lara et al. 2011).

Language learning itself touches different areas, the majority of them not belonging to the sphere of higher-order thinking where Ke (2005) found the most convincing results in game-based learning. So it is quite surprising to read with Wouters et al. (2013) that there even exists a study that proves positive results with vocabulary learning with English learners from Hong Kong, obviously even significant in the statistical sense (Yip/Kwan 2006). My own research added a similar study from Iran, according to which vocabulary learning again was significantly more effective in the context of gaming (Alemi 2010). So it seems language learning is a sphere where computer-based games are quite convincing. A French study saw positive motivational effects with language learning in a three-dimensional game (Amoia et al. 2012). - Other studies quoted by Wouters et al. (2013) that proved positive effects of game-based learning in languages refer to reading competences (with children from Chile: Rosas et al. 2003) or with hearing, reading and writing comprehension (in Korea: Sug et al. 2010).

Yet another very recent meta article is by Hamari et al. (2014). The authors examine 24 empirical studies focussing on *gamification* for learning purposes. Again it could be shown that digital games are able to boost the learner's motivation and interest, and yet again that embedment and user behaviour are crucial aspects for the success of *gamification* in education.

## Future Tasks

All in all, the overview showed that *gaming* itself is not clearly defined and might refer to very different ways of how to proceed. The research papers use the general term for example for "Video Games" (Rosas et al. 2003), "Websites with Online-Games" (Yip/Kwan 2006) or a "massive multiplayer online role-playing game" (Suh et al. 2010). In regard of these multifold possibilities to play on and with the computer in a learning context (and assuming that these multifold possibilities might be a cause for success or failure), Ke (2005) already stressed that all empirical results are time-based, or rather dependant on the technical development and the tools used. Thus the current state-of-the-art should not primarily lead to the question of *whether* games should be integrated in a learning environment (or not), but on *how* this could be done best, with what topic, at what opportunity, in what embedment (thus, with what kind of "instructional game design"), maybe even with what kind of learners. In any case a careful planning of the external and internal support is compulsory, external support referring to the classes and the game's embedment, a positive gaming environment, and well structured cooperative gaming scenarios; internal support referring to elaborated ways to give feedback or the multimodal presentation of the learning content.

Thus, we are still far away from a general result on whether computer-based gaming or *Serious Games*, for that matter, are successful or not. Of course, a convincing integration of gaming and learning is compulsory in each new effort to create a

computer-generated game. However, success is not guaranteed, nor is failure necessary. We still have to "try out", as Petko said already in 2008 (11).

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# Should national accounts be taught by macro-economists or statisticians?

Stanislava Hronová<sup>a</sup>, Richard Hindls<sup>b</sup>

<sup>a</sup>University of Economics, nám. W. Churchilla 4, 130 67 Prague 3, Czech Republic

<sup>b</sup>University of Economics, nám. W. Churchilla 4, 130 67 Prague 3, Czech Republic

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## Abstract

National Accounts as a subject taught at economics-oriented universities is a field on the borderline between macroeconomics and (economic) statistics. It is based on the logic of economic theory, on which a system of quantified statistical indices is built. However, will economic knowledge be sufficient for the student's understanding of not only the substance and logic of national accounts, but also of the substance of indices and their mutual relationships, constructions and the balance documents of the national accounts? The authors of the present paper have, for many years, been teaching National Accounts at universities, to both statisticians and non-statisticians.

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*Keywords:* national accounts; macroeconomics; economic statistics

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## 1. Introduction

National Accounts as a subject taught at economics-oriented universities<sup>§§§§</sup> is undoubtedly a field on the borderline between macroeconomics and (economic) statistics. This fact is implied by the very substance of National Accounts<sup>\*\*\*\*\*</sup> as a descriptive model of the national economy based on macroeconomic statistical considerations. It stems from the logic of economic theory, on which a system of quantified statistical indices is built. Without economic theory, national accounts would be not a system but just a collection of indices. And vice versa: without statistics, national accounts would be just a description of notions and their mutual relationships without the ability to quantify them. In other words, statistics takes from economic theory its notions and their mutual relationships, looking for the (best) corresponding indices and ensuring that the relationships between indices (i.e., variables) derived from relationships between notions were also valid<sup>††††</sup>.

We have to keep these basic ideas in mind in order to answer the question asked in the title of this paper. Who should be teaching National Accounts to university students of economic fields? Economists? Statisticians? Moreover, will mere economic knowledge be sufficient for the student's understanding of not only the substance and logic of National Accounts, but also of the substance of indices and their mutual relationships, constructions and the balance documents of the national accounts (in particular input-output tables and integrated economic accounts)? Is it possible to work with the national accounts data without knowing (at least on the user level) statistical procedures for data collection and processing, methods of statistical deflation, and other statistical methods and procedures?

## 2. From economic theory to statistics

Let us have a look at the basic problem in the relationship between the economic theory and economic statistics, which seems to be a key one from the viewpoint of our main question; we will show it as a simple example of a path from a relationship defined within economic theory to a relationship between indices and their values in the system of national accounts. This simple case may enable us to realise that, once we progress from notions to indices, we have to consider not only their definitions, but also their properties, methods of valuation, etc. And in national accounts we must add relationships between indices that make up the basic structure of the system – national accounts form an extensive system of mutually intertwined indices and their values.

Following the Keynes economic theory<sup>†††††</sup>, which is the economic basis for national accounts, equality between resources and

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\* Corresponding author. Tel.: +420731443263; fax: +420224095695.

E-mail address: hronova@vse.cz

§§§§ Cf. for example Archambault and Boeda (1999), Hronová et al. (2009), Lequiller and Blades (2006), Malherbe (1992).

\*\*\*\*\* In this paper, "National Accounts" (capitalised) is used for the university subject, while "national accounts" (in lower case letters) stands for the system of the accounts used in the national economy.

†††† Cf. Giovanninni (2008).

††††† Cf. Keynes (1991).

use of goods and services is given as follows:

$$Y = C + I + G + NX, \quad (1)$$

where  $Y$  – output,  $C$  – consumption,  $I$  – investments,  $G$  – government purchases of goods and services, and  $NX$  – net exports.

Formula (1) represents a relationship between notions, i.e., it is an economic formula based on the fundamental method of social sciences, namely, abstraction. The theory is not interested in whether these relationships are also valid quantitatively. When we come to a verification of such a relationship on the basis of statistical data, we have to ask which indices are used to replace the general notions in formula (1). What is output  $Y$  here? Will it be domestic product or national product? Whether domestic or national, will it be net or gross? Perhaps the output index is even meant? And what is consumption here? Is it just the households' consumption? And does it stand for the households' consumption expenditure or their actual consumption? We can even hear that  $Y$  is the gross domestic product (hereinafter GDP), total output (or the quantity of manufactured output), total income or total expenditure. But all of these variables are different! It may not be a problem from the viewpoint of theoretical economists, but a statistician cannot accept such an approach: not even as an essential idea. Output and GDP are indices that are fundamentally different from each other both formally and by their contents; and, naturally, their values are different as well!

Arguments which theoretical economists bring forward to support the validity of Formula (1) are based on their methodology. By Formula (1) they want to represent the basic economic relationships that are valid within the "thought model" as a basis of economic theory. It is an approach possible within the framework of teaching macroeconomics, even if such unclear definitions of notions do not enable students to understand how the validity of Formula (1) (and other, similar formulae) can be proved. Should they be able to verify it in a real economy, they must look for the corresponding indices – it means, turn to statistics, which provides indices that (more or less) express the economic notions used. Let us go through the ideal procedure to be followed by students progressing from economic notions to indices and their relationships and values so that the statistical data are understood and properly processed. It is clear that this way is not an easy one: a simple notion-index translation table is not a solution, and methods for representing national accounts play the key role.

As mentioned above, a balance between resources and the use of goods and services is valid in economic theory. Translating this observation into a form of index relationships<sup>§§§§§</sup>, on the left hand side stands the value of goods and services produced and imported in the national economy, and on the right hand side we have their use for intermediate consumption and final consumption by the population and government, investments and exports. Hence it is true that

$$O + Im = IC + FCE + GCF + Ex, \quad (2)$$

where  $O$  – output,  $Im$  – imports of goods and services,  $IC$  – intermediate consumption,  $FCE$  – final consumption expenditure,  $GCF$  – gross capital formation, and  $Ex$  – exports of goods and services.

Statistics will not, however, be satisfied with expressing relationships between indices as variables copying the macroeconomic balance formula. Statistics must prove that the relationships are not only valid between the variables that represent the quantified forms of economic notions, but also between the values of these variables. An obstacle preventing the left and right hand sides of Formula (2) from being equal to each other is given by the fact that different types of prices are used in the definitions of different indices (output is expressed in basic prices, imports in CIF prices, intermediate and final consumption and the gross capital formation in purchase prices, and exports in FOB prices. If Formula (2) is to hold quantitatively, an "appraisal correction" must be added to its left hand side – so-called net taxes on products, representing a difference between purchase and basic prices. Formula (2) is thus transformed into Formula (3).

$$O + Im + NTP = IC + FCE + GCF + Ex, \quad (3)$$

where  $NTP$  – net taxes on products.

There is no economic reasoning to justify the addition of net taxes on products on the side of resources in Formula (2); such addition simply does not follow from the general equality between resources and use. It follows from the purely statistical substance of the observed indices, that is, by their definitions and the types of prices in which they are established and published. Economic theory does not pay any attention to such aspects. Here it is statistics which unambiguously defines all properties of the indices entering the formula for balance of resources and the use of goods and services.

Another modification of Formula (2) takes us to the final statistical form of Formula (1): now it is clear what is understood under product (namely, GDP in purchase prices); consumption and expenditure by general government are replaced with an index of final consumption expenditure by households, general government and non-profit institutions serving households; investments with an index of gross capital formation and imports and exports with indices of imports of goods and services and exports of goods and services. All of these indices and their values are found in the national accounts<sup>\*\*\*\*\*</sup>.

<sup>§§§§§</sup> Interval indices are called transactions in national accounts.

<sup>\*\*\*\*\*</sup> More exactly on the account of the national economy and the account of the Rest of the world.

$$GDP = FCE + GCF + (Ex - Im), \quad (4)$$

where  $GDP = (O - IC) + NTP$  is the gross domestic product in purchase prices.

Is Formula (3) a true expression of Formula (1)? We cannot say precisely; but it is the only possible expression, and therefore the only possible "proof" of the validity of the formula derived on a theoretical basis. But, is it really so? Is the statistically expressed identity (4) between resources and the use of GDP a real proof that the theory is true? Perhaps statistics just "adapts itself" to the relationships defined within economic theory. If students are to understand which subject is the decisive one in this relationship between economic theory and statistics, the substance of statistical inference must be explained to them.

The national accounts on which the values of (not only) the above-mentioned indices can be found form a logical (though rather complex at first sight) system of tables and indices. Investigation of source information for the annual national accounts requires rather extensive statistical inference – mainly sample surveys. Before the statistical office publishes the values of major aggregates derived from the established data, a procedure in several stages takes place. At least, in addition to the data acquired from statistical records, there is aggregation of data from administrative and other resources, and also model estimates (where data sources from inference are lacking). Then modifications come, in particular conceptual (methodological<sup>†††††</sup>) adjustments, and adjustments for exhaustiveness (to include legal but uncovered, as well as hidden and illegal parts of the economy). After these demanding and laborious stages, balancing is carried out; in our example, the index values are adapted to comply with Formula (4). The resulting index values in Formula (4) are given by the requirement that the equality between the resources and the use of GDP must hold. Here economic theory is a dominant factor: values of macroeconomic indices are adapted so that the basic balance relationships hold on which national accounts are based<sup>†††††</sup>. Nonetheless, this fact will only be understood by those who know the substance of statistical inference.

Statistics thus adjusts the resulting values of the macroeconomic indices according to the balancing relationships stemming from economic theory; on the other hand, it infringes on these relationships, depending on the valuation of indices in Formula (4). Namely, Formula (4) holds if aggregates are expressed in current prices and "classical" constant prices<sup>§§§§§</sup>, but it does not hold with respect to valuation in chained previous years' prices, reference  $n$ ; in other words, in this case it only holds in years  $n$  and  $n + 1$ . This notion of chained previous years' prices<sup>\*\*\*\*\*</sup> (for simplicity, but incorrectly, sometimes presented by some statistical offices as constant prices, reference  $n$ ) is usually hard to be grasped by the normal user who does not know the statistical substance of this notion. This statistical substance is implied by elementary relationships of index theory.

We can imagine an aggregate value in year  $n + k$  in the previous years' prices chained to the basis of year  $n$  as the given aggregate in year  $n$ , expressed in current prices, multiplied by a sequence of year-to-year Laspeyres chained volume indices. In fact, practical application goes the other way around when coming from valuation in current prices to previous years' prices chained to the basis of year  $n$ : namely, aggregates are deflated in current prices with the aid of Paasche pricing indices. These procedures result in non-additiveness of Formula (4)<sup>†††††</sup>, hence the equality between resources and the GDP use is not valid any more. This is a principal infringement on the relationships defined by economic theory, and it cannot be understood without knowledge of statistics. It is one of the most difficult parts of National Accounts to explain the system of valuation of major aggregates, and especially the chained previous years' prices. Statistical interpretation of this concept is, however, a necessary precondition for students' understanding the data on national accounts, as well as relationships between major aggregate values expressed in different prices.

Let us once again consider Formula (3), which not only expresses the basic balance with respect to goods and services, but also serves as a basis for one entire section of national accounts devoted to description and analysis of the origin and use of goods and services, resulting in the input-output tables. The substance of these tables must be explained on the basis of Formula (3), which holds not only for the national economy as a whole but also for individual products (according to their classification). For each index in Formula (3) we thus get a vector of values, and a matrix in the case of intermediate consumption. Adding entries for industry's added value and production into the intermediate-consumption matrix we get the basic logical structure of the input-output tables (i.e., supply and use tables and symmetric input-output tables). Additional treatment of the contents of the input-output tables (valuations, transfers of by-products, trade margins, transportation margins, and conversion of resource-and-use tables to symmetric tables) would be inconceivable without knowledge of the statistical substance of that notion. In its turn, understanding the statistical basis of the input-output tables is a precondition for coming from descriptions of table structures to analyses based on those tables. At this point, econometricians may take the lecturing floor from statisticians.

Looking for a reply to the question cited in the title of this paper, we have chosen a simple but important balance relationship,

††††† Methodological adjustments are aimed at explaining the differences between the corporations' and national accounts and other sources of data and the methodology of the ESA 1995 Standard (or rather ESA 2010 now).

††††† We deliberately use plural here: the rule of value balancing in compliance with generally defined relationships governs not only Formula (3), but the entire system of national accounts.

§§§§§ Classical constant prices (when goods and services in all observed years are valued by prices valid in the chosen reference year) have now ceased to be used for valuation of macroeconomic indices. Previous year's prices have replaced them.

\*\*\*\*\* Sometimes they are simply called chained prices.

††††††† Except for years  $n$  and  $n + 1$ .

in fact, the first among those a student learns about when studying National Accounts. The entire description and analysis of the origin and use of goods and services is based on the idea that the production is followed on national accounts according to what is produced<sup>\*\*\*\*\*</sup>. From a simple Formula (3), which is based on a balance Formula (1) defined in economic theory, we get as far as the input-output tables – an extensive statistical document; unfortunately, not a very user-friendly one. By looking at individual stages on the way from Formula (1) via Formulae (3) and (4), we tried to demonstrate (on one of the balance relationships that are valid on national accounts) that, without understanding the statistical substance of indices (implied by their definitions, valuation, and methods of inference), students cannot grasp the ideas of the National Accounts, which prevents them from using such ideas in practice. The national accounts represent a very rich resource of information; unfortunately, the extent of the use of such information does not seem to correspond to that fact. One of the reasons is the misleading appearance of complexity and the large scope of this information system; but in many instances also a simplistic method of teaching, which prevents students (who later become potential users) from getting to the statistical aspects of the data presented. If National Accounts are presented to students as a purely economic model without their statistical aspects, students find it difficult to orient themselves in real statistical documents of the national accounts (input-output tables, accounts of sectors, national economy and the rest of the world, and integrated economic accounts); later (in practice) they either grow resigned to using them, or they use them incorrectly. In other words, the subject of National Accounts should be taught by a statistician experienced in both statistical theory and the practice of government statistics; and this subject should only be included after completion of macroeconomics and (at least) basic statistics.

### 3. Conclusions

The authors' experience with many years of teaching show that students are, without basics of statistics, unable to understand National Accounts to an extent that would allow them to make use of all data provided by this system of statistical information. The concept of National Accounts should not only make use of lectures but also tutorials at which students have hands-on experience with the contents of and differences between individual indices and their valuations. It is the only means for to understanding their substance, mutual relationships between index values, and the structure of the resulting documents of national accounts (input-output tables, accounts of sectors, the national economy and the rest of the world, and integrated economic accounts) and to the students' orientation in them. The structure of National Accounts is logical: its logic stems from economic relationships, but is ensured by the statistical basis of the information contained in them. National Accounts as a university subject should therefore be taught by statisticians, that is, within statistical subjects, and should only be included as late as in master studies at universities of economic orientation.

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\*\*\*\*\* Another, more extensive part of national accounts follows the production according to who is the producer and deals with describing and analysing the formation, distribution and use of the income generated by the production. The principles mentioned in this paper equally apply to that other part of national accounts.



# Sınıf Öğretmenlerinin okuma güçlüğü yaşayan öğrencilere yönelik kullandıkları eğitsel uygulamaların belirlenmesi

Fatma SUSAR KIRMIZI<sup>a</sup> , İbrahim Halil YURDAKAL<sup>b,\*</sup>

<sup>a</sup> Doç. Dr., Pamukkale Üniversitesi Eğitim Fakültesi, Denizli, 20100, Türkiye

<sup>b</sup> Arş. Gör. , Pamukkale Üniversitesi Eğitim Fakültesi, Denizli, 20100, Türkiye

## Abstract

Araştırmada öğretmenlerin okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamaları belirlemede nicel yöntem kullanılmıştır. Veri toplamada Yurdakal ve Susar Kırmızı (2014) tarafından hazırlanan “Okuma Güçlüğüne İlişkin Eğitsel Uygulamalar Ölçeği (OGİEUÖ)” kullanılmıştır. Ölçekten elde edilen veriler SPSS( Statistical Package for the Social Sciences) 15.0 paket programı ile analiz edilmiştir. Öğretmenlerin okuma güçlüğüne yönelik kullandıkları eğitsel uygulamaların cinsiyet, yaş ve kıdem boyutlarında farklılaşması incelenmiştir. Cinsiyet boyutunda farklılaşmada t-testi, yaş, okutulan sınıf ve kıdem boyutunda farklılaşmada ise tek yönlü varyans analizi (ANOVA) kullanılmıştır. Analiz sonuçlarında farklılaşmaların hangi gruplar arasında belirlemede ise scheffe testi kullanılmıştır. Araştırmanın evrenini, 2013-2014 eğitim-öğretim yılında Denizli ili merkez ve merkez ilçede görev yapmakta olan, tüm ilkokullardaki sınıf öğretmenleri (1., 2. , 3. ve 4. sınıf öğretmenleri) oluşturmaktadır. Evren içinden 359 sınıf öğretmeni örnekleme dahil edilmiştir. Araştırma sonucunda sınıf öğretmenlerinin okuma güçlüğü çeken öğrencilere yönelik eğitsel uygulamaları ile cinsiyet arasında anlamlı bir farklılık olduğu bulgulanmıştır. Bu farkın erkekler lehine olduğu belirlenmiştir. Öğretmenlerin kıdem değişkenleri ile eğitsel uygulamalar arasındaki farklılaşmaya bakıldığında 1-5 yıl çalışan öğretmenlerin, 16 ve üstü yıl çalışan öğretmenlerin ve 6-10 yıl çalışan öğretmenlerin ölçekten alınan puana göre okuma güçlüğüne yönelik uygulanan uygulamalara ilişkin görüşleri 11-15 yıl çalışan öğretmenlere göre daha olumlu olduğu belirlenmiştir. Eğitsel uygulamalar ile yaş arasında ise anlamlı bir farklılığın olmadığı belirlenmiştir. Okutulan sınıf ile ölçekten alınan puanlara göre farklılaşmaya bakıldığında öğretmenlerin okuttıkları sınıf düzeyi ile ölçekten alınan puanlar arasında anlamlı bir farkın olduğu, 1., 2. ve 4. sınıf okutan öğretmenlerin ölçekten aldıkları puanlar 3. Sınıf okutan öğretmenlere göre daha olumlu olduğu bulgulanmıştır.

**Keywords:** Okuma güçlüğü, nicel araştırma, sınıf öğretmenleri, eğitsel uygulamalar

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## 1.Giriş

Günümüz çağı bilgi çağı olup toplumların ve sistemlerin yapısı her gün hızlı bir biçimde değişmektedir. Bireylerin bilgi çağına ayak uydurması için bu değişimlere ayak uydurması gerekmektedir. İçerisinde yaşadığımız toplumun hızla değişen yapısına ayak uydurmanın yolu okumaktan geçmektedir (Yılmaz, 2008). Bu sebepten ötürü günümüz bilgi çağına ayak uydurmanın yolu okuma becerisinden geçmektedir. Okuma becerisi sadece okumaktan ibaret olmayıp okuduğunu anlama, analiz etme ve eleştirme gibi üst düzey becerileri de içermektedir. Okuma alışkanlığı olmayan ve okuduğunu anlayamayan öğrencilerin derslerinde başarılı olması, söz varlığını geliştirmesi, yeni deneyimler kazanması beklenemez (Ünal, 2006: 62). Okumanın bir çok araştırmacı tarafından farklı tanımları yapılmıştır. Demirel (1999: 59) okumayı “bilişsel davranışlarla psiko-motor becerilerin ortak çalışmasıyla, yazılı sembollerden anlam çıkarma etkinliği” olarak tanımlamıştır. Bir başka tanıma göre ise okuma birçok dilsel ve bilişsel becerinin gelişimine katkıda bulunan önemli bir beceridir ( Sylva ve Hurry,1996). Sever (1997,s.12)’e göre okuma etkinliği duygu ve düşüncelerin kavranması, çözümlenmesi ve değerlendirilmesi gibi fizyolojik, zihinsel ve ruhsal yönleri bulunan karmaşık bir süreçtir. Bu tanımlara bakıldığında okumanın basit bir süreç olmadığı okunulan verilerin kavranması, analiz edilmesi, çözümlenmesi ve çözümlenen verilerin eleştirel süzgeçten geçirilerek değerlendirmesi gibi basamakları içeren komplike bir beceri olduğu görülmektedir. Okuma, okuyucunun yalnızca sözcükleri okuması değil; aynı zamanda okuduklarının anlamlarına ulaşması ve eş zamanlı olarak birbirine bağlı birçok görevi yerine getirdiği karmaşık bir süreçtir (Miller ve Schwanenflugel, 2006). Güneş, (2007)’ye göre Okuma süreci yazıların zihinsel kavramlara çevrildiği, anlamlandırıldığı ve beyinde yapılandırıldığı için okuma zihnin gelişimine en büyük katkıyı sağlayan öğrenme alanıdır. Okuma, okuyucunun metni anlamaya uğraştığı, anladıklarını ve ön bilgilerini birleştirerek yeni anlamlar ortaya koymaya çalıştığı, uygun bir ortamda gerçekleşen, okuyucuyla yazar arasındaki bir görüş alış-verişidir (Akyol, 2007: 15). Bütün bu tanımlara bakıldığında okumanın önemi görülmektedir. Okuma sadece eğitim sürecinde değil bireylerin tüm hayat boyu ihtiyaç duyduğu bir beceri olmasından dolayı bu becerinin kazanılması çok önemlidir. özellikle ilköğretim 1. Ve 2. Sınıflarda okuma-yazma öğrenmenin kritik dönemi olması dolayısıyla bu becerinin kazanılması öğrencilerin ileriki hayatlarında başarılı bir eğitim-öğretim hayatı ve etkin bir birey olmasında önemli bir etkiye sahiptir. Bu yönüyle okumanın hayat boyu bir öğrenme kaynağı olarak kullanılması, bir

\* Corresponding author. Tel.: +905448459589

E-mail address: iyurdakal@pau.edu.tr

alışkanlık halini almasını da sağlamaktadır (Balci,2013). Okuma sürecinde algılama, kelime tanıma, anlam bilgisi, cümle diziliş bilgisi, dilsel süreçler ve anlama süreçleri gereklilik arzeder (Kırkkılıç ve Akyol, 2009). Okuma güçlüğü (Disleksi) günümüzde sıklıkla duyduğumuz bir kavram olup birçok araştırmacı tarafından farklı tanımları yapılmıştır. Bireyler için bu kadar yaşamsal öneme sahip okumanın tanımına yönelik birçok görüş vardır. Ancak tanım üzerinde ortak bir görüş birliğine varılmamıştır. Demirel (1999: 59) okumayı “bilişsel davranışlarla psiko-motor becerilerin ortak çalışmasıyla, yazılı sembollerden anlam çıkarma etkinliği” olarak tanımlarken, Özdemir (1983: 12)’e göre okuma, “basılı sözcükleri duyu organları yoluyla algılayıp bunları anlamlandırma, kavrama ve yorumlamaya dayanan zihinsel bir etkinliktir”. okuma, bilişsel davranışlarla psiko-motor becerilerin çalışmasıyla, yazılı sembollerden anlam çıkarma etkinliğidir (Razon, 1980). Bu tanımlara bakıldığında okumanın basit bir beceri olmadığı fiziksel ve bilişsel işlevlerin eşgüdümü ile meydana gelen bir beceri olduğu görülmektedir. Temel okuma becerisinin kavranması ve bu becerilerin günlük yaşama geçirilmesi son derece önemlidir. Bu bakımdan okuma becerisinin 4–15 yaş arasında kazandırılması zorunluluğu ileriki yaşlarda karşılaşılacak güçlüklerin yenilmesinde büyük bir öneme sahiptir (Gülerer ve Batur, 2004). Özellikle ilkököl 1. ve 2. sınıflar okuma becerilerini kazanmada kritik dönemleri oluşturmaktadır. İlk sınıflarda iyi okuyamayan öğrencinin anlatımı zayıf olduğu için ileri sınıflarda kitaplardan gereği gibi yararlanamaz (Avcıoğlu ve Akçamete, 1996). Bu bakımdan ilkököl 1. ve 2. sınıfların okuma becerisini kazanmada kritik döneme sahip olduğu söylenebilir.

İlkokuma yazma öğretiminde her çocuktan aynı düzeyde başarılı olmasını beklemek olanaksızdır. Normal sınıflarda karşılaşılan öğretim sorunları büyük ölçüde çocuğun bireysel farklılıklarına dayanan ve başarı düzeyinde büyük ölçülerde farklılaşmalara yol açan sorunlardır (Yangın ve Sidekli, 2006). Bu farklılaşmaya yol açan sebeplere ise genetik faktörler, ailenin sosyal ve ekonomik yapısı, çevresel faktörler ve çocuktan kaynaklanan bireysel farklılıklar gösterilebilir. Bazı durumlarda öğrencilerin okuma ve yazma süreçlerindeki başarısızlıkları aile ve öğretmenlerin kafasını karıştırabilir. Her ne kadar bu öğrenciler sınıftaki akranları ile aynı düzeyde eğitim alsalar bile akranlarından okuma ve yazma gibi temel becerilerde geride kalırlar. Bu gibi durumlarda ilk bakılması gereken öğrencide okuma güçlüğü olup olup olmadığıdır. Okuma güçlüğü, zekâ düzeyi bakımından normal, öğretim koşulları ve sosyoekonomik düzey bakımından uygun fırsatlara rağmen okumayı öğrenmede yaşanan güçluktur (Bruck, 1988). Bunun dışında sözel ve yazılı dilde gerilikler, sesleri etkin bir şekilde kullanmada ve sıralamada aksaklıklar, temel okuma kuralları ve alfabe ilkelerini çözümleyememe, sözel okumada yavaşlık ve yanlış okumalar, yaşına uygun sözcük kapasitesinin olmaması, öğrendiği kelimeleri düzgün telaffuz edememe, okuma sürecinde kelimeleri atlama, okuduğu metinleri anlayamama, tahtada yazan kelime ya da cümleleri deftere geçirirken hatalar yapma, yavaş veya zayıf bir el yazısı, aynı kelimeleri farklı zamanlarda farklı şekilde seslendirme, ay, hafta veya günleri ezberleyememe ya da yanlış sırayla ezberleme, zamanı söylemede sorunlar yaşama, telefon numaraları gibi önemli sayı veya numaraları unutma, sol ve sağ kavramlarını karıştırma gibi belirtiler okuma güçlüğüünün göstergeleri olabilir.

## 2.Yöntem

Araştırmanın nicel desenle hazırlanmıştır. Araştırmada nicel desenlerden tarama modeli kullanılmıştır. Tarama modeli insanların tutumları, inanışları, değerleri, alışkanlıkları, düşünceleri gibi bilgi türlerini belirlemede kullanılan bir araştırma modelidir (Mcmillan ve Schumacher, 2001). Araştırmada öğretmenlerin okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamaları belirlemede nicel yöntem kullanılmıştır. Veri toplamada Yurdakal ve Susar Kırmızı (2014) tarafından hazırlanan “okuma güçlüğüne ilişkin eğitsel uygulamalar ölçeği (OGİEUÖ)” kullanılmıştır. Ölçekten elde edilen veriler SPSS( Statistical Package for the Social Sciences) 15.0 paket programı ile analiz edilmiştir. Öğretmenlerin okuma güçlüğüne yönelik kullandıkları eğitsel uygulamaların cinsiyet, yaş ve kıdem boyutlarında farklılaşması incelenmiştir. Cinsiyet boyutunda farklılaşmada t-testi, yaş, okutulan sınıf ve kıdem boyutunda farklılaşmada ise tek yönlü varyans analizi (ANOVA) kullanılmıştır. Analiz sonuçlarında farklılaşmaların hangi gruplar arasında belirlemede ise scheffe testi kullanılmıştır. Denizli ili merkezde görev yapmakta olan 1678 sınıf öğretmeni vardır. Araştırmada evrenin tamamına ulaşamayacağından evrenden bir örneklem kesiti seçilmiştir. Örneklem, belli kurallara göre, belli bir evrenden seçilmiş ve seçildiği evreni temsil yeterliği kabul edilen küçük kümedir. Araştırmalar çoğunlukla örneklem kümeler üzerinde yapılır ve elde edilen sonuçlar ilgili evrenlere genellenir (Karasar, 2005, s.110-111). Araştırmada olasılıklı örnekleme türlerinden basit tesadüfî örnekleme türü kullanılmıştır. Basit tesadüfî örneklemede evreni oluşturan her elemanın örneğe girme şansı eşittir. Dolayısıyla hesaplamalarda da her elemana verilecek ağırlık aynıdır (Arıkan, 2004: 141). Araştırmanın evrenini, 2013-2014 eğitim-öğretim yılında Denizli ili merkez ve merkez ilçede görev yapmakta olan, tüm ilkökullardaki sınıf öğretmenleri (1., 2. , 3. ve 4. sınıf öğretmenleri ) oluşturmaktadır. Evren içinden 359 sınıf öğretmeni örnekleme dahil edilmiştir.

Araştırmaya katılan sınıf öğretmenlerinin cinsiyetine ilişkin bilgiler tablo 1’de gösterilmiştir.

Tablo 1: Sınıf öğretmenlerinin cinsiyetlerine ilişkin tablo

Cinsiyet	N	Yüzde
Bay	164	%45,7
Bayan	195	%54,3
Toplam	359	%100,0

Tabloda görüldüğü gibi öğretmenlerin %45.7'si erkek, %54.3'ü bayandır. Öğretmenlerin 164'ü erkek, 195'i ise bayandır. Tabloda görüldüğü gibi katılımcıların cinsiyete göre dağılımları büyük farklılıklar göstermemektedir.

Araştırmaya katılan sınıf öğretmenlerinin meslekte çalışma yıllarına (Kıdem) ilişkin bilgiler tablo 2'de gösterilmiştir.

Tablo 2: Sınıf öğretmenlerinin çalışma yıllarına ilişkin tablo

Kıdem Yılı	N	Yüzde
1-5	38	%10,6
6-10	41	%11,4
11-15	67	%18,7
16-ve üstü	213	%59,3
Toplam	359	%100,0

Tabloya göre öğretmenlerin büyük bir çoğunluğu 16 ve üstü kıdem yılına sahiptir. Bunun sebebi araştırmanın Denizli merkez ilçelerde yapılması ve bu ilçelerde genellikle kıdemli öğretmenlerin görev yapması olabilir. Tabloya bakıldığında öğretmenlerin 38'i 1-5 kıdem yılına, 41'i 6-10 kıdem yılına, 67'si 11-15 kıdem yılına, 213'ü ise 16 ve üstü kıdem yılına sahiptir. Kıdem yılı 1-5 olan öğretmenler tüm öğretmenlerin %10.6'sını, 6-10 yıl olanlar %11.4'ünü, 11-15 yıl olanlar %18.7'sini, 16 ve üstü olanlar ise %59.3'ünü oluşturmaktadır.

Araştırmaya katılan sınıf öğretmenlerinin yaşlarına ilişkin bilgiler tablo 3'te gösterilmiştir.

Tablo 3: Sınıf öğretmenlerinin yaşlarına ilişkin tablo

Yaş	N	Yüzde
20-30	54	%15,0
31-41	78	%21,7
42-52	184	%51,3
53-ve üstü	43	%12,0
Toplam	359	%100,0

Tabloya bakıldığında 54 öğretmenin 20-30 yaş arasında olduğu (%15.0), 78 öğretmenin 31-41 yaş arasında olduğu (%21.7), 184 öğretmenin 42-52 yaş arasında olduğu (%51.3) ve 43 öğretmenin ise 53 ve üstü yaş arasında olduğu (%12) görülmektedir. Tabloya göre öğretmenlerin büyük bir çoğunluğunun 42-52 yaş arasında olduğu (%51.3) görülmektedir. 20-30 yaş arası öğretmen sayısının az olmasının sebebi merkezde çalışan öğretmenlerin genellikle tecrübeli ve 15 ve üzeri kıdem yılına sahip olması gösterilebilir.

### 3.Bulgular

Öğretmenlerin okuma güçlüğüne yönelik uygulamalarına ilişkin ölçek puanlarının cinsiyete göre farklılaşıp-farklılaşmadığına bağımsız gruplar t testi ile bakılmıştır.

Analiz sürecinde bağımsız gruplar t testini kullanabilmek için dağılımın normal olması gerekmektedir. Dağılımın normal olup olmadığını belirlemek için Kolmogrov-Smirnov testi kullanılmıştır. Örneklem büyüklüğünün 50 ve altı olması durumunda dağılımın normalliğini bulmada Smirnov testi ile 50'nin üstünde olması durumunda ise kolmogrov testi kullanılmaktadır. Araştırmanın örneklemini 50'nin üzerinde olduğundan kolmogrov testinin kullanılması uygundur (Büyüköztürk, 2011).

Tablo 4: Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğine ait Kolmogorov testi sonuçları

Kolmogorov testi sonuçları			
Statistic	df	Sig.	
Toplam	,143	359	,200

Tabloya bakıldığında kolmogrov değerinin 0.200 olduğu görülmektedir. Dağılımın normalliğine karar vermek için p(Sig.) Değerine bakılmalıdır. Sig. Değeri(0.200) .05'in üzerinde olduğundan dağılım normaldir (Seçer, 2013).

Dağılımın normal olduğu belirlendikten sonra ölçekten alınan puanların cinsiyete göre farklılaşıp farklılaşmadığını belirlemek için bağımsız gruplar t testi kullanılmış olup bağımsız gruplar t testine ilişkin tablo aşağıdadır.

*Tablo 5: Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğinin sonuçlarının cinsiyete göre farklılaşmasına ilişkin tablo*

Cinsiyet	N	$\bar{X}$	S	sd	t	p
<b>Bay</b>	164	173.80	13.68	357	3.20	0.01
<b>Bayan</b>	195	178.11	11.84			

Tabloya göre öğretmenlerin okuma güçlüğüne ilişkin uygulamaları cinsiyete göre anlamlı farklılık göstermektedir,  $t(357)=3.20$ ,  $p<0.05$  (Büyükbaş et al., 2011; Ekici et al., 2013). Bu sonuçlara göre daha olumludur. Kısaca okuma güçlüğüne yönelik uygulamalara ilişkin ölçek puanları ile cinsiyet arasında anlamlı bir ilişki vardır ve bu ilişki bayanlar lehinedir.

Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğinden alınan puanların yaşa göre anlamlı farklılık içerip içermediğini belirlemede tek yönlü varyans analizi (ANOVA) kullanılmıştır.

*Tablo 6: Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğinin yaşlara göre betimsel istatistikler.*

Yaş	N	$\bar{X}$	SS
20-30	54	177.16	13.40
31-41	78	175.71	13.93
42-52	184	176.45	11.68
53- ve üstü	43	174.32	15.23

Tabloda ölçekten alınan puanların betimsel istatistikleri görülmektedir. Ölçekten alınan puanların kıdeme göre manidarlık düzeyini gösteren ANOVA sonuçları tabloda gösterilmiştir.

Tablo 7: Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğine ilişkin varyanslarının homojenliği

Levene Statistic	df1	df2	Sig.
1,250	3	355	,291

*Tablo 8: Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğinin sonuçlarının yaşlara göre farklılığına ilişkin ANOVA sonuçları*

	Kareler toplamı	df	Ortalama kareleri	F	Sig.
Gruplar Arası	230,787	3	76,929	,461	,709
Grup İçi	59182,389	355	166,711		
Toplam	59413,175	358			

Tabloya bakıldığında sig değerinin 0,709 olduğu görülmektedir. Buna göre ölçekten alınan puanlar ile öğretmenlerin yaşları arasında anlamlı bir farklılığın olmadığı görülmektedir. ( $p= 0.709$ ,  $P>0.05$ )

Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğinden alınan puanların kidede göre anlamlı farklılık içerip içermediğini belirlemede tek yönlü varyans analizi (ANOVA) kullanılmıştır.

*Tablo 9: Öğretmenler için okuma güçlüğü yaşayan öğrencilere yönelik yapılması gereken eğitsel uygulamalar ölçeğinin sonuçlarının kidede göre farklılığına ilişkin ANOVA sonuçları*

	Kareler toplamı	df	Ortalama kareleri	F	Sig.
<b>Gruplar Arası</b>	1869,580	3	623,193	3,845	,010
<b>Grup İçi</b>	57543,595	355	162,095		
<b>Toplam</b>	59413,175	358			

Tabloya bakıldığında Sig değerinin 0.010 olduğu görülmektedir. Bu değere göre öğretmenlerin kıdemleri ile ölçekten alınan puanlar arasında anlamlı bir fark olduğu görülmektedir.  $F(3,355)=3.845$ ,  $p<.01$ . Kıdemler arası farklılığın hangi gruplar arasında olduğunu bulmak amacıyla yapılan Scheffe testinin sonuçlarına göre 1-5 yıl çalışan öğretmenler (X=77,6), 6-10 yıl çalışan öğretmenler (X=78,4) ve 11-15 yıl çalışan öğretmenler (X=79,3) arasında anlamlı bir fark olduğu görülmektedir. 11-15 yıl çalışan öğretmenlerin okuma güçlüğüne yönelik uygulanan uygulamalara ilişkin algıları 11-15 yıl çalışan öğretmenlere göre daha olumlu olduğu belirlenmiştir.

Tablo 10. Kıdeme göre farklılaşmaya ilişkin scheffe testi sonuçları

	Kıdem	N	Subset for alpha = .05	
			1	2
Scheffe(a,b)	11-15	67	171,6716	
	1-5	38		176,7368
	16-ve üstü	213	176,8404	176,8404
	6-10	41		179,3171
	Sig.		,198	,761

#### 4.Sonuç

Araştırma sonucunda sınıf öğretmenlerinin okuma güçlüğü çeken öğrencilere yönelik eğitsel uygulamaları ile cinsiyet arasında anlamlı bir farklılık olduğu bulunmuştur. Bu farkın erkekler lehine olduğu belirlenmiştir. Öğretmenlerin kıdem değişkenleri ile eğitsel uygulamalar arasındaki farklılaşmaya bakıldığında 1-5 yıl çalışan öğretmenlerin, 16 ve üstü yıl çalışan öğretmenlerin ve 6-10 yıl çalışan öğretmenlerin ölçekten alınan puana göre okuma güçlüğüne yönelik uygulanan uygulamalara ilişkin görüşleri 11-15 yıl çalışan öğretmenlere göre daha olumlu olduğu belirlenmiştir. Eğitsel uygulamalar ile yaş arasında ise anlamlı bir farklılığın olmadığı belirlenmiştir. Okutulan sınıf ile ölçekten alınan puanlara göre farklılaşmaya bakıldığında öğretmenlerin okuttukları sınıf düzeyi ile ölçekten alınan puanlar arasında anlamlı bir farkın olduğu, 1., 2. ve 4. sınıf okutan öğretmenlerin ölçekten aldıkları puanlar 3. Sınıf okutan öğretmenlere göre daha olumlu olduğu bulunmuştur. Araştırma sonucunda şu öneriler sunulmuştur. MEB sınıf öğretmenlerinin sınıflarında en çok karşılaştıkları sorunlardan olan okuma güçlüğüne ilişkin öğretmenlere hizmet içi eğitim verebilir. YÖK eğitim fakültelerine okuma güçlüğü ile ilgili bir ders koyabilir. MEB ve Üniversiteler işbirliği ile sınıf öğretmenlerine okuma güçlüğüne ilişkin konferans, seminer ya da bilgilendirici eğitimler verilebilir. MEB ilkokullarda sınıfların fiziksel özelliklerini düzenlerken okuma güçlüğü yaşayan öğrencilerde göz önünde bulundurulmalıdır. MEB ilkokullara araç-gereç temin ederken okuma güçlüğü yaşayan öğrencilere yönelik ve onların fiziksel ve bilişsel özelliklerine uygun araç-gereçler temin edebilir. MEB okuma güçlüğü yaşayan öğrencilerin velilerine okuma güçlüğü ile bilgilendirici ve öğrencilere ilişkin okuma-yazma becerisini kolaylaştıracak eğitsel faaliyetler ile ilgili bilgilendirici etkinlikler yapabilir. MEB öğretmenlere, okuma güçlüğü (disleksi) yaşayan öğrencilere yönelik okuma-yazma metodları ve yöntemleri hakkında bilgilendirici eğitimler verebilir. Sınıf öğretmenleri öğrencilerinin okuma güçlüğüne yaşadıkları problemleri belirlemeli ve bunlara uygun yöntem ve stratejileri kullanmalıdır. Okuma güçlüğü yaşayan öğrencilerin sosyal bağlamda yaşadıkları düşünüldüğünde, sınıf öğretmenlerinin bu öğrencilere yönelik işbirlikçi ortamlar yaratması gerekmektedir.

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# Significance of supportive services in education: school social work as a new horizon in Turkey

"Nurullah Calis, Sirin Targan Calis" ·

*Hacettepe University I.I.B.F., Ankara 06800, Turkey*

*ASPB Ankara İl Mudurlugu, Ankara 06250, Turkey*

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## Abstract

Since problems are essentially parts of life, it is not surprising for students to face problems in their education. Problem solving experiences contribute their personal development. However, we face a balls-up when problems are not solved and people who have similar problems increased. Increasing risky behaviors amongst students such as violence, drug use, sexual abuse, committing crimes, drop outs etc. point out a failure of Turkey in terms of dealing with students' problems. In this regard, this study emphasizes on the importance and configuration of school social work practices which is a recent trend for Turkey.

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*Keywords:* Social work in school settings, school social worker, student problems, new trends in education

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## 1.Introduction

When school life begins for a child, it will turn into a journey that is going to continue for many years for him or her. Actually, this journey is not only about education but also is a long way which prepares children to years ahead. This process will involve a child's bio-psycho-social development, new friendships, achievements, pleasures and so on. However, only good things will not be involved in this life and school would be the place of and reason for pains, sadness, disappointments, victimhood, offences etc. Problems as an inherent part of life that bother human beings at schools as well.

When considered that a student spend a large part of his or her daytime at school, we can understand that how important the school is in students' life. As an education and study place, schools has an important role in process of socialization by equipping children with knowledge, skills and values for their future.

Education process indeed is established on a base of some expectations for students. It is expected by Turkish national education system that education process make individuals stable and healthy, freethinking, open world-viewed, respectful for human rights, responsible for society, creative and efficient persons (National Education Basic Law, 1973). These are some aims of education and list can be extendable. Is this possible to make such a 'well-designated' person in a world full of problem?

Problems inevitably arise in school life because students keep growing biologically, psychologically and socially as an individual. When problems that faced are solved, the consequent experience will contribute person's development. However, when problems are not solved and the number of people who share similar problems increased, we can understand we face a social problem.

It can be mentioned that a student would face lots of problem in his or her education. These problems can be school-related or not. Family relationships, bad friend groups, low motivation for courses, low self-esteem, bullying, peer pressure, health issues, drop-out of school... All these matters may be the factors of undermining student's education process. Parents, health institutions, social service agencies and of course educational institutions are in the position of taking responsibility for such a young person's development.

Studies conducted in recent years have indicated that most of problems especially in primary and secondary schools need to come up with a solution. In this respect, it is needed to constitute multidisciplinary approach based practices to tackle students'

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· Corresponding author. Tel.: +90-312-297-6364; fax: +90-312-297-6365.

*E-mail address:* n.calis@hacettepe.edu.tr

bio-psycho-social problem and to provide them with supportive services inside and outside the school. Based on this conceptualizing, this study pursues possible acquisitions of social work practices in school settings in Turkey. Yet, Turkey has not a formal social work system and this can be addressed as a new horizon for the years ahead.

## 2.School social work

School social work is a subfield of social work which is specialized for school settings. It focuses on biological, psychological and social factors that impact students' academic performance and general well-being. Solving student problems and giving them supportive services in a teamwork perspective aim to make students' education consistent and progressive (SSWAA, 2014).

School social work practices have a broad perspective on student problems to focus on their social life circumstances as well as their school based conditions. This perspective arises from social work's theoretical base which addresses 'person-in-environment', systems and ecological systems. A person is a whole of different aspects of his or her life. For example, a female student is not only a student as a person. She is also a woman, maybe an adolescent who is getting her sexual identity. She may have two siblings and have lost her father. She can be a good learner but may be an average student. Perhaps, she have low self-confidence although she can be good at public speaking. Person in environment requires to assess people in all their aspects. Systems (or system perspective), explain that human being, for example, is a system whose parts operate coordinately. Therefore, a non-functionality of a parts of system impacts whole system. For instance, if a student has a mental or psychical health problem, this would affect his academic performance or social relations in a negative way. At last, ecological system perspective says that systems are interrelated. In this point, we can define persons, schools, families, peer-groups, neighborhoods as systems. According to ecological system perspective, all these systems which a person interact with are interrelated and influence personal well-being. An accordance is required amongst systems the person touch (Zastrow, 2004; Duyan et al., 2008).

What kind of student issues does social work concern with? In a conceptualization, it can be stated as following (Buyuktopcu, 1989, cited in Aykara, 2010, p. 67):

*Home/family related problems:* Disliking family environment, cultural conflicts, being abused or neglected, doing housework, poverty and so on.

*Incompliance with school requirements:* Irresponsibility, absence, lack of interest, low-academic performance, delinquency, bullying, fighting, sexual harassment and so on.

*Psycho-social problems:* Fears, anxiety, depression, dyslexia, conduct disorders, behavior disorder, anti-sociality, drug use and so on.

*Psychical and mental issues:* Psychical impairments, chronic disease, mental health problems etc.

### 2.1.Social work practices in school settings

A school social worker seek solutions for students' school related problems by taking account of his or her all life conditions. Regarding this goal, social worker employs several professional approaches and techniques. Working with individuals, families, groups and community in social work are basic working levels which have their own special practice techniques.

School social workers give consultation to students about their education life. However, this consultation does not substitute the practice carried out by school 'psychological counseling and guidance teacher'. In current practice, teacher titled as psychological counselor and guide give support to students for their academic achievements, personal development, orientation, school-related problems, education activities etc. When school social worker is involved in this area, he or she will bring additional promotive approaches to enhance school's supportive services. In this regard, it is expected that social worker and school counselor will come together in a team.

Unlike school psychological counselor, school social worker is more interested in students' social life outside the school as well as school based circumstances. Therefore, when psychological and social aspects is considered together better results could be obtained.

School based social work practices bring some advantages from different points of view. Therefore, the works which would be carried out by school social worker can be pointed out as (Yildirim, 2007, p. 440):

- Support students to increase their academic accomplishment,
- Support students psychologically and socially,
- Work with families to get them involved with their children's education,
- Work with families who are in need of economic support, psychological support, better family environment etc.



- Work with community to make better school environment,
- Deal with bullying, peer-pressure, violence and anti-social behaviors in school,
- Deal with tobacco, alcohol and drug use amongst students,
- Conduct group works with students on different issues (e.g. group counseling, group therapy for students show harmful behaviors)
- Carry out extracurricular courses (e.g. training courses, personal development, communication skills, awareness)
- Enable an effective child/young protection approach (preventing child abuse and neglect, unwanted pregnancy, improper sexual behaviors etc.)
- Organize social, cultural, sportive and vocational learning activities.

List can be extendable. Social workers serves every single students and care about them. On the other hand, some specific groups of students such as those who have low academic performance, those who are in need of special education, those who come from low socio-economic background, those who live in an institutional care facility, those who are prone to violence or offence etc. are prior to be made functional. All these works are vital to be practiced at school in these days Turkey is going through. However, these psycho-social aspects of education are undermined or ignored for many years (Duyan et al., 2008, p. 170).

Families are important targets of social work intervention as well. Because a child's world is largely shaped by his or her family. Some families may need to receive social services. Some may have lack of interest in their children's education. Some may be overprotective whereas others are abusive. In this regard, some important works such as giving courses, seminars, home visits, regular meetings, individual interviews would be carried out with families.

### **3.An overview of Turkey's case**

Although school social work is a widespread efficient practice in schools over the European Union and the United States, there is no available services provided by social workers in schools in Turkey. National Education Ministry does not employ social workers for public schools.

There were some efforts to do social work in school settings in the past. In the year 1961, in Istanbul University, students' health, social, cultural and economic problems which was related to their academic and personal development were remarked and some solutions were looked for. From this point of view, a medical-social service unit were established in university in 1966. Psychologists and social workers had been employed in that service unit and service areas had been broadened in time (Tan, 2000 as cited in Ozbesler & Duyan, 2009). Medical-social service facilities were established other universities as well over the years. Nevertheless, this was not actually a school social work practice specialized for school settings.

In the Fifth Five-year Development Plan, which was announced by State Planning Organization in 1983, it had been proposed that guidance and psychological counseling services would have been provided by a school social service unit consisting of psychologist, doctor, counselor and social worker (Duman, 2000, p. 49). However, this planning was not put into practice.

In the year 2001, National Education Ministry put a new legislation into force and stated that social workers will be employed in Counseling and Research Centers over the country. Nonetheless, social workers still were not employed in schools. The limited number of social workers all over the country were an important handicap to be employed in school settings because vast majority of social workers were already employed in other state institutions. Today, social workers are still not involved with school practices.

School social work courses are generally placed in curriculum of social work departments in universities. And also, some of social work undergraduate students do their mandatory final-year internships in a school if they desire.

The latest document that will indicate the establishment of school social work is The Strategy of National Children Rights and Action Plan which comprise the years between 2013-2017. According to this strategy plan, which is announced by Family and Social Policies Ministry, social service units are planning to be set up in all public schools by the year 2016. The rationale for this is stated as "providing needed collaboration between child, family and school management and detecting children who have violence history and support them in a psycho-social way." This projection is the most tangible step so far to make social workers enabled in school settings.

### 3.1. Postgraduate studies about school social work

Academic research studies about school social work in Turkey is really limited. They can be counted on the fingers of one hand. Duman (2000), in her doctoral thesis, focused on school gangs and studied on students who have risks of joining gangs. She reported that some student groups are potentially tend to join such gang groups in terms of certain risk factors. She underlined school social work practices to deal with students' anti-social behaviors. This research report is the only doctoral level study till now.

Aykara (2010) studied on socialization issues of physically handicapped students for her social work master thesis. She researched socialization problems of handicapped student in schools and reasons for these matters. In her report, she addressed school social work for efficient school environment for such students.

In another social work master study, which was carried out Karakaya (2012), it is studied on parent participation in student's education. It is determined that many parents do not involve their children's education and there is no encouraging mechanisms to get them involved. Therefore, she addressed a necessity of social workers in schools as well.

### 4. Conclusion

Existing conditions in Turkey requires school social work policy and practice. Social work comes into prominence with its comprehensive assessment perspective about problems, ability to work outside the school (with families, other institutions, and community), different practice approaches and techniques, predisposition towards co-operation and teamwork, adopted roles (such as mediating, facilitating, advocacy, and mobilize). The aim of social work practices in school settings is to make students' education better in all aspects related to their life. To conclude, it is expected that school social workers will begin to work for students' improvement in a close future.

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# Situational triggering factors - adult's "readiness to learn"- connected to certain life-stages and age?

Christin Tønseth

Norwegian University of Science and Technology NTNU. Department of Adult Learning and Counselling. 7491 Trondheim. Norway

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## Abstract

New research findings concerning adult's participation in learning, supports earlier studies, indicating that participation in adult learning are frequently caused by certain changes or situations in adults lives. Such situations can become situational triggering factors that updates and actualize participation in learning. Theories used to explain such situational triggering factors are often connected to life stage and lifespan theories, indicating that triggering factors for participation in adult learning are connected to certain stages in adult's life and development, closely related to a person's age. Findings presented in this paper indicate that triggering factors not necessary are tightly associated with certain age or within phases in the lifespan.

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*Keywords:* Reainess to learn; life-phase; triggering factors

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## 1.Introduction

In articles published in Adult Education Quartely (Jacobs, 1959; Whaley & Whaley, 1967; Elias, 1979; Merriam & Mullins, 1981; Knox, 2002), the concept "readiness to learn" is used in not less than two different ways. One definition deals with the development of the ability to be self-directed in the learning process, while another definition is associated with the "right" time for participation in adult learning and studies (Knowles, 1988; Rubenson, 2000). Both definitions are originally associated with a lifespan perspective, which assumes that certain stages in adults development give rise to situations where the "readiness to learn" is optimal. These stages or certain moments is said to be closely related to age. This paper concerns "the proper time for recruitment and participation in learning" as a definition to the "readiness to learn" concept. In this paper "readiness to learn" refers to how likely a person actively seeks participation in learning activities and the triggering factors that actualize this "readiness".

\*Corresponding author. Tel.: +4773592800; E-mail address: christin.tonseth@svt.ntnu.no

## 2.Background and assumptions

The topic "readiness to learn" is closely related to motivation and reasons for participation in learning activities; which is a much studied topic in the adult education research field (Cross, 1982; Bandura, 1986; Rubenson, 1976). Although adults often have specific motives and seems to be very motivated for learning (Rubenson, 1976; Cross, 1982), other aspects must also be in place in order to really effectuate these motives (Tønseth, 2011). In order to explain why adults participated in learning activities, Aslanian and Brickell (1980) was testing a hypothesis assuming that transitions, such as job changes, marriage, the arrival of children and retirement, required adults to seek new learning. They found by telephone interview that 83 % of 744 adult learners named some transition in their lives as the motivating factor that caused why adult participate.

In order to explain adult's readiness to learn, lifespan theories developed by Lindeman (1926), Havinghurst (1953, 1972), Erikson (1959), Maslow (1972, 1987) and Knowles (1988, 1989) have been commonly used. All these theories assume that life is divided into phases or stage that is related to age, with certain indicators or happenings occurring at each stage. According to these theories, the exact starting point for participation will be connected to changes or special situation in adult's lives that commonly occurs at a certain age (Havighurst, 1953; Cross, 1982; Levinson, 1978; Knowles, 1988). Havinghurst (1972) identified the developmental tasks associated with different stages of growth that give rise to a person's readiness to learn different things at different times and to create "teachable moments". One of Lindeman's (1926) key assumptions about adult

learners was that adults are motivated to learn when they experience needs and interests that learning will satisfy. Adult's orientation to learning is life-centred, which means that every adult finds themselves in specific situations with respect to work, recreation, family life, community life etc. Situations which call for adjustments (Lindeman, 1926). Also Knowles et al (1998) claimed that adults become ready to learn things they need to know and do in order to cope effectively with real-life situations. Cross' "response-loop model" merges several theories and models about adult learning (Cross, 1982). Dimensions in the model is the individual self-perception, educational attitudes, consideration of the learning importance and goal achievement, life phase/-crises, possibilities and barriers and access to information.

A contradiction to these well known life phase theories is well described, for instance in a report concerning lifelong learning in Norway (Ministry of Education and Research 2007). In this report several statements contradicts the life phase perspective as a foundation for adult participation in learning. *"The development in the modern society is so rapid and it demands for competence is so high, that learning can not longer be limited to certain life-phases. Learning has to take place continuously, in different contexts"* (ibid). A number of researchers have turned to theories of late and post modernity to account for these trends (Edwards, 1997; Bauman, 2005; Field, 2006). For instance Giddens (1991) and Beck (1992), who are reflexive modernisation theorists, suggests that individuals must continually cope with recurrent and complex transitions in life, where learning is actualized.

The focus in this paper is research findings related to certain situational triggering factors that causes recruitment and participation in adult learning, as adult's selves describes it. These findings actualizes the contradiction between lifespan-theories and certain ages as the central trigger, versus new research indicating situational triggers as the most important. The research question is: What are the situational triggering factors that lead to participation in learning among adults? Are such triggering factors always tightened to certain stages in adults lives?

### 3. Life span and age as triggering factors – readiness to learn

The core contribution that life-span development theories gives, are the andragogical principles of adult learning that clarifies and refining adult readiness to learn. The premise of all these theories is that there are certain predictable types of changes that occur throughout an adult's life. Life change is seen as adult's primary driving force for learning. As the core principle of andragogy, adults are most ready to learn when the learning meets an immediate life need, and are most motivated when it fills and internal that need. Predictable changes in adult's life then means that such changes occurs in a certain pattern that one can spot in an actual phase in life as adults mature. Grounded in the premise that certain predictable types of changes occur in an adults life, these changes is seen as triggers to learning need. As a part of such predictable changes, Knowles (1988) identified five andragogical assumptions of the adult learner related to life-phases and age:

- As a person matures, he or she moves from dependency to self-directedness.
- Adults draw on their experiences to aid their learning.
- The learning readiness of adults is closely related to the assumption of new social roles.
- As a person learns new knowledge, he or she wants to apply it immediately in problem solving.
- As a person matures, he or she receives motivation to learn from internal factors.

An essential point in both Knowles (ibid) and Maslows (1987) theory was the assumption that the development stages in our life give rise to the readiness to learn and to teachable moments. Even so, Maslow placed special emphasis on the role of inner safety and not on situational triggering factors.

Perhaps the best known of this group of theories describing the life course, is Levinson's phase theory (1978). Levinson divides adult life into three phases: early adulthood (17-45), middle adulthood (40-60) and late adulthood (60+). Life then consists of alternating periods of stability and transitions. Each era brings with it certain predictable tasks and each transition between eras certain predictable challenges.

Table 1. Levinsons (1978) phases

Developmental period	Age	Task
Early adult transition	17-22	Explore possibilities and make tentative commitments
Entering the adult world	22-29	Create first major life structure
Age 30 transition	29-33	Reassess life structure
Settling down	33-40	Create second life structure
Midlife transition	40-45	Ask "what have I done with my life?"
Entering middle adulthood	45-50	Create new life structure
Age 50 transition	50-55	Minor adjustments to middle life structure
Culmination of middle adulthood	55-60	Build second middle life structure
Late life transition	50-65	Prepare for retirement and old age
Late adulthood	65+	Create late life structure and deal with declines of old age

Another widely known and influential theory is Eriksons (1959) theory of identity development. Erikson proposed that adults' identity develops through resolution eight stages.

Erikson believes that during successful early adolescence, mature time perspective is developed and the young adult acquires self-certainty as opposed to self-consciousness and self-doubt. Young adults come to experiment with different roles (through the first 5 stages). In later adolescence, clear sexual identity - manhood or womanhood - is established. The adolescent seeks leadership and gradually develops a set of ideals (stage 6-7). If these seven psychosocial crises have been successfully resolved, the mature adult develops the peak of adjustment, integrity and independence. The adult has now found a well-defined role and self-concept in life. The adult can be intimate without strain, guilt, regret, or lack of realism; and he is proud of what he/she creates - the children, work or hobbies. If one or more of the earlier psychosocial crises have not been resolved, adults may view their self and their life with disgust and despair (ibid).

These theories are merely descriptive of typical and predictable changes experienced by adults. There is no normative hierarchy intended, so one phase is not better than another. The theories seek merely to describe typical or expected changes. Many of the life-span role development theories fit into this category (Knowles, 1988). When thinking about my life and the many changes I have experienced, many of them seems to be typical for many adults – going to school, studying, setting out a home, attending working life, getting married, having children, death of a parent, etc. But is there some predictable developmental order implied here, or is it simply a sequence of events?

#### **4.Newer theories about triggering factors. Continuous adjustments and lifelong learning.**

Adult learning research as well as policy and practice have been strongly influenced by postmodernism (Field, 2006). Postmodernism has changed our focus, the way of thinking and broadened the domain and sites for learning. The postmodern society is associated with growth in the service industry and new models for production, globalisation and technological growth. In the postmodern society there is an increasing focus on the consumer, on lifestyles and identities (Field, 2006). An increased focus on individual rights, choices and self-realisation has paved the way for lifelong learning as an individual project. It has become an individual responsibility to make adequate provision for the creation and preservation of one's own human capital. Investment in learning and financing, has become primary an individual responsibility (Marginson, 1997).

In times of postmodernity the search for identity represents the struggle to escape from uncertainty (Bauman, 2005). However, identities, especially in the field of practice, are in transition. One reason is the change of policy and public commitment. As Filander (2005) has demonstrated, the transformation of public service into private-like enterprises under a new public management rule has deprived many of a fixed and settled identity as 'public sector benefactors'. As a result of rapid technological, economic, cultural and social change, individuals are constantly faced with transitions in their personal and professional circumstances. Governments exhort their citizens to prepare for a life of permanent adaptation and flexibility. Education in adult life becomes both a resource for individuals seeking to promote their employability and mobility, and at the same time a cause of further uncertainty and risk (Field, 2009).

The occurring growth and fragmentation of the adult education field, and at the same time, new modes of teaching and learning (Jarvis et al, 1998), are also part of the postmodern condition. A characteristic of this condition is described as de-differentiation, i.e. "a general decentring of educational authority, control and provision and the breakdown of clear demarcations between different sectors of education and between education and cognate field" (Usher et al, 1997). The results are "diversified fields of education" (Carr-Hill, Carron & Peart, 2001), which questions the conception of adult education or lifelong learning as a formally constituted field. Since learning now is increasingly recognized as located in a variety and diversity of social practices, these concepts are best understood as metaphors that brings to the fore the boundlessness of learning (Usher et al, 1997). Edwards (1997) has therefore suggested "moorland" as more appropriate, resonant and resourceful in relation to the ongoing processes of globalisation and postmodernity. In this "moorland", learning becomes a continuously ongoing "activity" in every context adults participates. The concept of phases and age-related changes actualising learning can in these circumstances be very difficult to spot.

Knowledge about how the individual interprets the world cannot by itself give an understanding of the readiness to learn. Only when we include structural factors and analyze the interaction between them and the individual conceptual apparatus does an interpretation become possible. Adults' readiness to learn and the barriers preventing it - in its broadest interpretation - can be understood in terms of societal processes and structure, institutional processes and structure and individual consciousness and activity. Applying this to the expectancy-valence paradigm on participation (Rubenson, 1977), one has to take into account the crucial "circumstances" in which expectancy and value get socially constructed. In accordance with Giddens (1994), there is a dualism between structure and agent and it is important to focus also on processes through which a human being as an active agent governs his/her relationship with adult education.

One reason that modernity is so troubling is that institutionalized reflexivity, according to Beck (1992) and Giddens (1991), exposes all social practices and arrangements to doubt and revision. This applies in the private and intimate sphere as much as in the open and public sphere, to family life and lives as much as to work and politics. Change is so pervasive that the self becomes what Giddens calls “a reflexive project”, which must be constantly explored and reconstructed (Giddens, 1991, p.32). In circumstances where the “proportion of life and the proportion of the biography which is open and must be constructed personally is increasing”, individuals must continually produce and re-produce their own biographies (Beck, 1992, p.135).

*“In the individualized society the individual must therefore learning, on pain of permanent disadvantage, to conceive of himself of herself as the center of action, as the planning office with respect to his/her own biography, abilities, orientations, relationships and so on. Under those conditions of a reflexive biography, “society” must be individually manipulated as a “variable” (Beck, 1992, p. 135).*

As an answer to this contradiction to the concept “readiness to learn” and trends towards a more reflexive modernisation perspective, I then assume that; (i) participation in learning activities is no longer so tightened up to situations or happenings related to certain life phases and age in adults lives, but is a result of continuous reflexive practice and adjustments in a rapid changing society. Further I question; (ii) does this means that adults “readiness to learn” merge the demand for continuous adjustments in the knowledge-society?

## 5.Method

The findings are based on qualitative interviews among 25 adults participating in different adult education programs, from short leisure-time courses to longer university educational programs. Included in the interviews there were 6 males and 19 females. The interviews lasted for 1-2 hours. All adults participated in *voluntary* education, and the different education programs were arranged by different adult education organizers and the courses varied from classroom lecture, correspondence course to data based distance education.

Some of the courses were prestigious, in the sense that they had strict requirements in relation to admission and completion. Some courses were structured in a way that they made great demands in terms of being able to work independently and structured. First and foremost the intention with the interviews was to investigate the whole process, from recruitment to finishing the courses. Therefore the participants were interviewed three times during their participation. Adult learning motives, recruitment and choice of courses, organization of everyday life where learning activities are included, support and counselling, financing, mastering and outcomes of adult education where the central themes. In connection to this I also tried to identify and describe life situation and the reasons for picking the actual time for participation. The data material used in this article is a part of the data material used in my doctoral thesis.

Table 2. Selection of respondents. Organizer, course, age, family, previous education and occupation. N = 25

	<i>School/organizer</i>	<i>Course</i>	<i>Age</i>	<i>Family</i>	<i>Earlier education</i> §§§§§§§§	<i>Work</i>
Marit B	Online School	Psychology	42	No family or children	Low Education	Project manager
Hilde	Online School	Pedagogy	36	Family with one child	Medium Education	Not working
Christopher	Online School	Management and organization	28	Partner. No children	High Education	Team leader
Solfrid	Online School	Health and Care	45	Single parent. One child	Low Education	Health and care
Kenneth	Online School	IT-study	32	Family with two children	High Education	IT consultant
Sigrid	Online School	Management and organization	27	No family or children	Medium Education	Audiologist
Laila	Online School	Psychology	49	Family with three children	High Education	Teacher
Rune	Correspondence courses	Supervisor school	40	Divorced. Three children	Low Education	Railway worker
Mia	Online School	Psychology	35	Family with four children	High Education	Not working
Kjellfrid	Online School	Management and	38	Divorced (new partner) two	Medium	Petrol station

§§§§§§§§ Low education corresponds to the primary/elementary, middle education equivalent education at the secondary school level, while high education college/university education.

		organization		children	Education	
Kathrine	Online School	Secondary school	30	Family with one child	Medium Education	Post-official
Ellen	Correspondence courses	Pedagogy	24	No family or children	High Education	Teacher
Nils	Correspondence courses	Janitor school	50	No family or children	Low Education	Janitor
Ann	Online School	Business and Economics	29	Family with two children	Medium Education	Economy Secretary
Marit	High school for adults	Health and care	45	Family with two children	Low Education	Not working
Tor	education association	Boatmanship license	48	Family with two n foster children	Medium Education	Electrician
Solveig	education association	Supervisor school	45	Divorced (new partner). Two children.	Medium Education	Team Leader agent
Hege	High school for adults	Secondary school	31	Family with two children	Low Education	Not working
Kjersti	Private high school	Secondary school	30	Family with one child	Low Education	Not working
Hanne	Education association	Secretarial and office	39	Family with two children	Low Education	Secretary
Eilif	Education association	Spanish course	35	Partner. No children	High Education	IT consultant
Berit	Education association	Administration and Management	45	Divorced (new partner). Four children	Medium Education	Office clerk
Siv	Education association	Law	22	Lived with her sister. No children	Medium Education	Farmer
Silvie	Education association	Interior and design	31	Divorced. Two children	Medium Education	Seller
Karin	Education association	Cleaning	38	Family with three children.	Low Education	Cleaner

The qualitative interview material includes 25 respondents. This is acceptable amount. It weakens the material, however, that about half of the interviews were conducted by telephone and then by interviewing people who participated in correspondence courses or Online. Although it was a challenge to achieve the same confidential conversation on the phone, which is achieved face to face, so we were aware of this in interviews and spent time in relation to creating a foundation for a confidential conversation. As in other studies based on voluntary participation, there is a risk that those who join are gifted individuals who like to expose themselves and who are confident in their own abilities to communicate. The interviewees conveyed via the organizers, could also be interviewing people who organizers said could give a positive impression of the course by promoting and providing good references. It may also be that those who volunteered, felt that they had something special they wanted to convey, that they had a special story to tell. Such items include, however, in the general debate about who agree to participate in surveys.

Among the interviewees there is a gender imbalance with more women than men. The average age among the respondents was 37 years and this constitutes a heterogeneous group located in different life situations. Some of them have children they must prioritize time related to, while others have no family obligations. Some are married or having partners, while others are single. Some are employed full-time while others have education and learning as their main occupation. Several of the participants were highly educated from before.

Although the motives for participation often were work related, the participation in learning was a direct result of special life situation were participation in learning was seen as a solution or a mean to change or to repair a problem or a dilemma in life. To create a new life or a new orientation in life was a fundamental goal for nearly all adults.

## 6.Findings

In questioning about adult learning motives, the immediate answers to the question about reasons for participation were mostly related to something they wanted to accomplish related to work; a new job, advancement in currant job or increased salary. I addition to these reasons I also discovered that there often were special situations or occasions in their life's that update and actualized the need for education and learning. All the respondents reported one or several specific events, changes or situations that actualized participation. One important reason was the actual life situation, with children who have grown more independent. This brought more time that they could fill with new activities (Solveig, Tor, Kjellfrid, Berit, Solfrid, Rune, Laila, Sigrid). Divorce and breakups were also reported as a directly cause (Solveig, Silvie, Berit, Rune, Kjellfrid), in addition reorganization and downsizing in the workplace was cited as a direct cause (Rune, Marit, Kathrine, Nils) that made learning relevant. The

triggers that other respondents pointed out was that they had got some sort of financial support (Hege, Christopher, Eilif, Hanne, Karin, Kenneth, Marit B) that they have not had before, they had friends (Marit, Kjersti), relatives (Siv) or coworkers (Ellen, Hilde, Ann, Kathrine) taking the same course and who inspired and influenced them. Retraining due to illness/rehabilitation (Kjersti, Mia and Nils) was also mentioned as another causative factor. Such triggers seemed to be what was needed to start an education or a course that you have had a desire for long or short time. Although there were more women than men in the sample, the women commonly reported changes in the private sphere as triggers, while men reported events or changes related to work as triggers.

#### 6.1. Now it's my turn!!

Time left over after giving priority to the husband or partners career and that one's own children has become more independent, seems to be one of the triggering factor actualizing participation in learning activities which is most connected to life stage and age. Children getting more independent are in some way a predictable change in adult's life, though letting one's own education step aside in favor of the partners career development maybe not always a predictable cause.

Hanne said:

*"To be thirty years old means that one feels more self-confident. I also feels that I much more knowledge than before. Connected to this ... the latest eight years I have been taking care of my kids and my home – nothing else. When my husband had received the education and profession he wanted, I thought .... Now it is my turn in life. I thought that I had the opportunity to do something about my life."*

Hege said:

*"My husband for example, he thinks it's okay for me to take this course and supports me. I have supported him through his education and work – so it's payback time. The kids thought it was a little odd that I should not be at home when they got home as usual, but they learned fast to take care of themselves and to participate in some housework."*

Hege refers to the expectations from her children and her own conscience that dictates her thought that she really should have been more at home and done her "duties" there as usual. The legitimacy of releasing more time for study and put greater demands to the children in the family when mom not always present, is compensated by the fact that she gets full support from her husband. The choice of participation in learning involves that both Hege herself and her family have to change their daily routines. The family gets a little less time together, and some of the practical duties and tasks in their household had to be distributed in a different way than before. She sees this as a positive opportunity to change the distribution of housework and to involve the children in a different way than before. The same release of time in their families is also true for many of the women I interviewed, such as Solveig, Tor, Kjellfrid, Berit, Solfrid, Rune, Laila and Sigrid.

#### 6.2. Divorce – a new starting point

The reason that Solveig joined the Supervisor course was that her husband had moved out. She found out that she had to do something with her life, both in terms of giving her life a new meaning and direction, as well as to demonstrate to her selves and others that she actually managed to stand on her own. To increase confidence in her-selves and make new contacts and friends in a new environment, the course has become a kind of guiding factor. Solveig says:

*"I found that I needed a little more education. Because I really began to work in an early age, while my husband was finishing his education. So when he moved out last year, I found out that now I have to do something for myself too. Then I got hold of the course catalog and began to look there. "*

With the help from friends and a psychologist after the breakup from her boyfriend, she found that more education would be a way to start over and create a more independent life. It was her turn to bet on herself in order to create the basis for a "new" life, with emphasis on security, recognition and autonomy.

Divorce was also the direct cause that Silvie began at her course. She needed some time to think about her life and she came to the conclusion that she wanted to create a new direction in life. For her, the Interior school has been a dream for a long time. She has always been interested in colors, decor, design and inside renovation. Silvie is very clear about her goal by attending the course, and the end she wants to start her own business. She likes to decide and have influence, and she wants to experience



some freedom and flexibility at work. Silvie wants to combine vocational training in cleaning and interior, and offer her services as a consultant in different construction projects, where the combination of interior constructions and effective cleaning is something she believes is a neglected area. Silvie says:

*"It was always a dream I had really. I found that I would reboot after the divorce, and create a new life for me and my children. [...] I have always been very interested in colors, design, interior, and renovation. So I imagined a new opportunity to get a new job and a fresh start somehow."*

She feels that life has taken a new direction that she will exploit and use to their advantage. She will create a separate platform and a "new life".

### *6.3. Job cuts - adjustment with new opportunities*

Rune has a job at the railway company. He has received some signals from management that the tasks he is doing today will not be relevant in a few years. He would thus be redundant and must obtain a new job. He said:

*"I only know that the job I have now gone on a four year time. Then I make sure to get me a slightly different perspective. So in addition to this supervisor course, I read mathematics for high school. I get paid education and I hope maybe to get a severance package with one year of continuing education. I can use it to get myself a new professional platform."*

Because of the lack of formal education, Marit was not allowed to perform all types of duties included in her job performance and therefore she did not get the responsibility that the job demanded. She said:

*"I had to formal educated in relation to the tasks I should do and did in my work."*

She experienced to be at a standstill in the workplace and the boss asked if she would be interested in some more formal education. The employer was very pleased that she took the initiative to participate in this program and decided to pay the course fee. It was several parallel circumstances that together actualized learning for her. The triggering factors for her were that she lacked formal education, she received support from employer and her daughter started training together with the same curriculum and textbooks at another institution. It gave her inspiration and motivation to start. Rune, Marit, Kathrine, Nils also mentioned Job change as the triggering cause that made learning relevant. Other informants mentioned inspiration from friends (Marit, Kjersti), relatives (Siv) or coworkers (Ellen, Hilde, Ann, Kathrine) as triggers.

### *6.4. Health difficulties – adjustments to a new life direction and new possibilities*

Mia has been fully employed ever since she completed basic training 19 years ago. Because of health problems, she could not continue her job and she was in a prolonged sick leave. A new profession where she could work and experience success in spite of betrayal brushes health was needed. She wants to become a consultant and conducting training in organizational culture and organizational psychology.

*"So the health problems really gave me a push in a new direction, and a sudden space where I could think about my life and my opportunities."*

Kjersti had worked as a florist for several years, when her back gave her health problems and caused periods of long-term sick leave. Using counselors at the employment services, she got the opportunity to retrain and considering changing profession. She decided that she would try a more sedentary office job, where her back strain becomes less painful.

*"I hope that this opportunity to new education can help ensure that I stay healthy and that I can contribute and stay in working life much longer."*

### *6.5. Unexpected funding opportunities*

Solveig have been promised to get reimbursed the course costs from her employer. She justifies the employers payment with the relevant skills that she achieves that is related to the job and gives credit to her employer. She says:

*«I have spent much money already on this course. I expect, that my employer reimbursed the costs after application ( ...) Both the colleagues and the boss supports me in several ways. I get the acceptance and the time to study, but there is no on standing cheering.»*

In addition to financial support, motivational support from the work environment and time to study perceived as positive for Solveig. For her, it gives a kind of legitimacy and understanding that she spent some of my time to read. She expects that the employer will pay for the skills the employer would benefit from- that is her triggering factor and her motivation. Also Chris' employer has agreed to fund the course costs. Christopher says:

*" The employer covers the expenses and by that he motivated me to take this course ( ...) I have my own computer at home, but sometimes I can also use the computer at work . ( ...) Not during working hours, but in the evenings. I see that as very positive and supportive and facilitating factors"*

Christopher agreement with the employer means that he can use the computer equipment at work but not use working time to study. He attends a course that is expected to provide an expertise that the employer will have a direct benefit from the event, and thereby experience acceptance and support from employers and colleagues, but at the same time they also experience the pressures and expectations (in order to complete with good results), claims (if not taking the course too fast and not use of working hours) and the promise of reward (such as you get a refund, a new position and/or higher wages). The employer may at times have a less committed worker, who may also want something more absences and more in need of relief at work. The statements show that there are certain expectations that employers should get something in return by investing in employee training and act as supportive way. Other respondents that also pointed out that they had got some sort of financial support was Hege, Eilif, Hanne, Karin, Kenneth and Marit B.

## 7. Discussion

By interviewing adults who participated in different educational courses, I discovered that there often were special circumstances that functioned as triggering factors that made adults take the final step towards participation in different learning activities. Released time and time left over for study, divorce and breakups, reorganization at work, dismissal, illness and financing opportunities was occasions/triggers that in some way demanded new orientation in life and in other ways gave the opportunity to realize a long time interest for learning and education. In one way such triggers forced adult in taking more education even if they are not as motivated, but for some adults it was what was needed to embark an education or a course that they had a desire for a long time. These dichotomy can be related to Knowles book " The modern Practice of Adult Education, From Pedagogy two Andragogy" (1988), where the focus is on individualistic theory with emphasis on intrinsic motivation and autonomous adults, where the individual needs orientation is the basis for adult learning. As opposed to this, the focus directed towards a more radical and Marxist-inspired tradition, where the triggers are related to empowerment and structural triggers that contribute social change, as Giddens (1991) and Beck (1992) pointed out. Mezirow (1991) and his transformational theory also attempts to integrate both the individual and collective/structural orientation. This theory applies primarily to individual learning, which indirectly may have collective change goals (ibid). As I interpret it, we find the various theoretical perspectives linked to the goals of lifelong learning (i) personal fulfillment and development throughout life, (ii) active citizenship and social inclusion and (iii) employment, wealth creation and social change. The triggers mentioned in this study are certainly connected to these goals – for instance can a divorce drive the persons involved towards a new direction in life and to develop themselves as persons through learning and education.

Few triggers mentioned in the sample could directly be connected to a specific age or life- phase. These triggering factors were more related to different events and circumstances occurring in life. Divorce, illness, changes in the workplace is not necessarily predictable and limited age-related changes as a part of Levinsons' (1978) phases. What is more predictable is that small kids are getting older and more self-reliant and that this release more time for learning. This shows that some of the triggering factors may in some way be age and phase related, but that others can be unpredictable and not really related and limited to a certain age and life phases.

The findings show that triggers are often related to transitions in adult's life. A divorce means transition from married to single, two-parent to single parent. From employee to unemployed, from one job to another, from healthy to sick. This transitions all means changes with certain risks and uncertainties, as Beck (1992) emphasizes. One of the most central theories about adults motives for learning are focusing on life-crisis, or particular happenings in adult's lives that makes adults re-value their own lives and life-situation in order to find new solutions or new direction in life (Erikson, 1959 and Levinson's phase theory 1978, 1986). Life situations that create a need to know is also something that Knowles et al (1998) and Havinghurst (1972) emphasized. This perspective is something that (Mezirow, 1991) also emphasize in his transformative learning theory. However Mezirow focused on the learning process and not primary on recruitment to learning activities. Changes in life situations, follows what Mezirow (1991) termed as a disorienting dilemma, which seems to be a catalyst in transformative learning processes. The causal

conditions that leads to transformative learning begin with a disorienting dilemma such as a life event, an adult education experience, or a new or revised life role (Kroth & Boverie, 2000).

In a continuously interaction between individual needs and interests and the environments requirements and expectations, adults seems to be in a state of continuous readiness for acquiring new knowledge. There are transitions and events in life that cause us to question about the world and ourselves and this questioning is fundamental to adult learning (Mezirow, 1991; Jarvis et al, 1998). These events are not necessary linked to a specific life-phase, but is more about reorientation and a reassessment and restructuring throughout life (cf. Edwards, 1997). This suggests that we perhaps should do some rethinking about adults learning, in the way that perhaps adults enter the so-called autonomous stage much earlier than before, while they are young pupils at school and young students at the university. Early in life we learn about our opportunities and requirements in relation to reflexivity (Giddens, 1991; Beck, 1992).

Good relations, healthiness and employment are important for our identity. Fundamental changes in life means identity disorders that one would strive to enhance or reinforce, in order to create safety and security (Beck, 1992). Such changes mean reorientation in life. Today, divorce and partner change are not a strange thing – it happens all the time. So we all need to be more adaptable and willing to change. At the same time we can more freely shape our identity regardless of class, which previously increasingly posed a straitjacket, that could not be changed (Giddens, 1991). The new modernity poses new challenges - but also greater manoeuvrability.

The andragogical theory is based on earlier AE-theories. The AE ideal assumes that individuals take control of their learning, and focus on the reality of limitations in taking control of their own decision-making. In making decisions related to participation, adults will fully determine the learning needs required to achieve their personal goal(s). Knowles (1988) claims that adults become ready to learn when their life situation creates a “need to know”. But as the findings indicate and as Giddens (1991) points out, age will increasingly be less suited to determine the stage of life. It is the individual and his or her situation or life cycle that more commonly determines the individual’s needs and wants.

As an answer to the initially described contradiction I can say that; (i) participation in learning activities is not automatically tightened up to situations or happenings related to certain life phases and age in adults lives, but is also a result of continuous reflexive practice and adjustments in a rapid changing society. This means that adults “readiness to learn” in some extent merges the demand for continuous adjustments in the knowledge-society. Even so, the findings show that there are both individual and structural triggers, related to both to the private and intimate sphere as much as to the open and public work related sphere.

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# Skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs

Ya-Ling Wu <sup>a</sup> Jia-Jen-Hu <sup>b</sup>

<sup>a</sup> Professor, Graduate Institute of Technological and Vocational Education, National Pingtung University of Science & Technology, Pingtung, Taiwan, R. O. C.

<sup>b</sup> Graduate student, Graduate Institute of Technological and Vocational Education, National Pingtung University of Science & Technology, Pingtung, Taiwan, R. O. C.

## Abstract

In Taiwan, an increasing number of junior high school students have been studying in technical education programs rather than general programs. Thus, this study aims to investigate the skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs as well as the relationships between these variables. In this study, data were collected from a questionnaire survey of 270 Taiwanese junior high school students who study in the technical education programs. Data were analyzed by statistical methods, including t-test, one-way ANOVA, Pearson's product-moment correlation, and multiple stepwise regression analysis. The following are the results of this study:

1. The junior high school students of technical education programs held positive skill learning attitudes while their skill learning motivation was not strong.
2. Most of the junior high school students of technical education programs were satisfied with the curriculum of technical education programs.
3. The junior high school students of technical education programs had moderately high level of vocational self-concept.
4. Skill learning attitudes and satisfaction of curriculum significantly predicted vocational self-concept.

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**Keywords:** technical education; skill learning attitudes; satisfaction of curriculum; vocational self-concept

## 1. Introduction

In Taiwan, an increasing number of junior high school students have been studying in technical education programs rather than general programs. Thus, this study aims to investigate the skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs as well as the relationships between these variables.

## 2. Research hypothesis

Based on the literature review, the model of research hypotheses of this study are shown in Figure 1. Overall, this study aims to test the four hypotheses: H1: The Skill learning attitudes positively influence satisfaction of curriculum; H2: Satisfaction of curriculum positively influences vocational self-concept; H3: The skill learning attitudes positively influence vocational self-concept; H4: Satisfaction of curriculum mediates the skill learning attitudes on vocational self-concept.

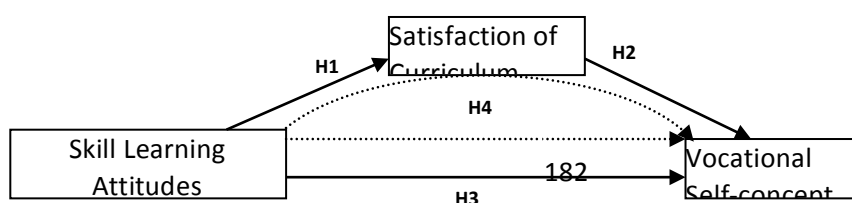


Figure 1: Research hypotheses

### 3. Methods

#### 3.1 Participants

For the purposes of the study, a questionnaire survey was used to collect data, and the study population consisted of 270 Taiwanese junior high school students who study in the technical education programs. To collect useful and representative information, a stratified sampling method was used to select 13 junior high schools according to their geographical location, including eastern, northern, central, and southern regions of Taiwan. Of the 13 universities, 4 universities located in the north, 1 in the east, 3 in the center, and 5 in the south were sampled according to the proportion of schools in the four regions. The, a stratified cluster sampling method was used for distributing the questionnaire surveys. Anonymous questionnaires were distributed to 288 participants in the 13 selected schools, and 93.8% (N=270) of the questionnaires were returned and usable. Of the participants, 121 are males (45.0%), and 148 are females (55.0%). Altogether, 69 participants (25.6%) attended the engineering classes of technical education programs, 162 (60.0%) attended the business classes, 224 (83.0%) attended the domestic economy classes, 182 (67.4%) attended the agricultural classes, and 42 (15.6%) attended the marine classes.

#### 3.2 Data collection and analysis

The scales of the study were adapted primarily from various published sources . Each item of the scales was measured on a five-point Likert scale (1=strongly disagree to 5=strongly agree). A pilot study was conducted on all the scales, and the item analysis and principal component analysis via Direct Oblimin rotation were conducted. The Cronbach's  $\alpha$  values for reliability in all scales were higher than 0.82, and the loadings of all items were greater than .50. Thus, all of the scales had good reliability and validity. In this study, SPSS 19.0 was used as the statistic software. Descriptive statistics, one-sample t-test, dependent-sample one-way ANOVA, dependent-sample t-test, and path analysis of multiple regression analysis were employed to analyze the data.

### 4. Results

#### 4.1 Skill learning attitudes

As seen in Table 1, the participants scored 3.10 on the skill learning attitudes scale, higher than the scale's median value (3), which suggests that the Taiwanese junior high school students of technical education programs perceived that they were had moderately appropriate skill learning attitudes. Of the three dimensions, the level of habits of skill learning and mastery of skill learning were higher than the level of motivation for skill learning.

Table 1. Means, standard deviations and dependent-sample one-way ANOVA of the skill learning attitudes (N=270).

Dimensions	M	SD	F	Post hoc comparison
Skill learning attitudes	3.10	0.63	F=7.60**	3>1; 2>1
Motivation for skill learning	2.77	0.90		1. Motivation for skill learning 2. Mastery of skill learning 3. Habits of skill leaning
Mastery of skill learning	3.48	0.71		
Habits of skill leaning	3.71	0.83		

\*\* $p<0.01$

#### 4.2 Satisfaction of curriculum

As seen in Table 2, the participants scored 4.00 on the satisfaction of curriculum scale, higher than the scale's median value (3), which suggests that the Taiwanese junior high school students of technical education programs were moderately satisfied with the technical programs. Of the three dimensions, the level of content was higher than the levels of teaching styles and equipments.

Table 2. Means, standard deviations and dependent-sample one-way ANOVA of satisfaction of curriculum (N=270).

Dimensions	M	SD	F	Post hoc comparison
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<b>Satisfaction of curriculum</b>	4.00	0.65	F=10.69**	2>1; 2>3
Teaching styles	3.97	0.67		1. Teaching styles
Content	4.10	0.70		2. Content
Equipments	3.96	0.71		3. Equipments

\*\* $p < 0.01$

### 4.3 Vocational Self-concept

As seen in Table 3, the participants scored 3.84 on the vocational self-concept scale, higher than the scale's median value (3), which suggests that the Taiwanese junior high school students of technical education programs had moderately positive level of vocational self-concept. Of the four dimensions, the levels of vocational ability and vocational aspirations were higher than the levels of vocational values and vocational awareness.

Table 3. Means, standard deviations and dependent-sample one-way ANOVA of vocational self-concept ( $N=614$ ).

Dimensions	M	SD	F	Post hoc comparison
<b>Vocational self-concept</b>	3.84	0.69	F=10.30***	1>3,4; 2>3, 4
Vocational ability	3.84	0.79		1. Vocational ability
Vocational aspirations	3.98	0.80		2. Vocational aspirations
Vocational values	3.75	0.79		3. Vocational values
Vocational awareness	3.77	0.78		4. Vocational awareness

\*\*\* $p < 0.001$

### 4.4 The Relationships between the skill learning attitudes, satisfaction of curriculum, and vocational self-concept

This study used path analysis of multiple regression analysis to examine the relationships between the skill learning attitudes, satisfaction of curriculum, and vocational self-concept. The assumptions of the regression model were checked. Because the zero-order correlations coefficient between the independent variables was 0.58, the Variance Inflation Factor (VIF) values were 1.38, and tolerance statistics were 0.65, there was no evidence to suggest that the data suffered from multicollinearity. The Durbin-Watson statistic was also between 1 and 2 (1.88), implying that errors in the regression were independent (Tabachnick & Fidell, 2007). Standardized residuals were examined to detect the presence of outliers. Three cases were determined to have standardized residuals between 2.72 and 2.83. Because none of those four cases had a Cook's distance (a measure of the overall influence of a case on the model) greater than 1 and the sample size was large, none of them had undue influence on the regression model (Field, 2005). The assumptions of normality, linearity, and homoscedasticity were checked by considering standardized residual scatter plots to examine whether the residuals were normally distributed around the predicted scores of self-perceived employability. It was discovered that the residuals had a linear relationship with the predicted scores of self-perceived employability. Overall, all assumptions were therefore met (Tabachnick & Fidell, 2007).

The regression results showed that the skill learning attitudes had a positive effect on the satisfaction of curriculum ( $\beta=0.57$ ), and explained 37% of the variance of the satisfaction of curriculum (Table 4). Additionally, the skill learning attitudes and satisfaction of curriculum both had positive effects on vocational self-concept ( $\beta=0.30$  and  $\beta=0.61$ , respectively), and explained 70% of the variance of vocational self-concept (Table 5).

Table 4. Multiple regression coefficients for the effect of the skill learning attitudes on satisfaction of curriculum ( $N=614$ ).

Predictors	R <sup>2</sup>	F	B	$\beta$
Skill learning attitudes	0.37	299.89***	0.55	0.57

\*\*\* $p < 0.001$

Table 5. Multiple regression coefficients for the effect of the skill learning attitudes and satisfaction of curriculum on vocational self-concept ( $N=614$ ).

Predictors	R <sup>2</sup>	F	B	$\beta$
Skill learning attitudes	0.70	750.01***	0.28	0.30
Satisfaction of curriculum			0.58	0.61

\*\*\* $p < 0.001$

Overall, all of the first three hypotheses concerning the relationships among the variables were supported at the 0.001

significance level (H1: the skill learning attitudes→ satisfaction of curriculum,  $\beta=0.57$ ; H2: satisfaction of curriculum→ vocational self-concept,  $\beta=0.61$ ; H3: the skill learning attitudes →vocational self-concept,  $\beta=0.30$ ). The results showed that, the participants' skill learning attitudes positively affected their satisfaction of curriculum; the participants' satisfaction of curriculum positively affected their vocational self-concept.

In order to investigate whether the indirect effect of skill learning attitudes on vocational self-concept through satisfaction of curriculum was significant, the Sobel test was used in this study (Baron & Kenny, 1986). The test results showed that satisfaction of curriculum significantly mediated the influence of skill learning attitudes on vocational self-concept ( $Z=13.28 \geq 1.96$ ,  $p < 0.001$ ). That is, the fourth hypothesis of the study was supported at the 0.001 significance level (H4: the skill learning attitudes→ satisfaction of curriculum →vocational self-concept). Therefore, all of the analysis results suggested that the skill learning attitudes of the Taiwanese junior high school students of technical education programs both significantly directly and indirectly affected their vocational self-concept vis-à-vis the effect on their satisfaction of curriculum. The relationships among these variables are shown in Figure 2. The estimates of the direct and indirect effects of the skill learning attitudes and satisfaction of curriculum on the vocational self-concept of the Taiwanese junior high school students of technical education programs are shown in Table 6. Of the two predictors, the skill learning attitudes had the greater impact on the vocational self-concept among the Taiwanese junior high school students of technical education programs (estimate=0.65).

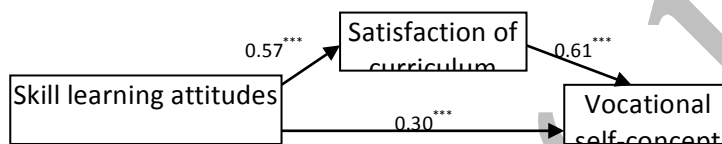


Figure 2: Results of testing the hypotheses.

Table 6. Estimates of the direct and indirect effects of the skill learning attitudes and satisfaction of curriculum on vocational self-concept.

Casual path	Direct effect	Indirect effect	Total effect
Satisfaction of curriculum →vocational self-concept	0.61	-	0.61
Skill learning attitudes →vocational self-concept	0.30	$0.57 \times 0.61 = 0.35$	0.65

## 5. Conclusion

This study aims to investigate the skill learning attitudes, satisfaction of curriculum, and vocational self-concept among junior high school students of technical education programs as well as the relationships between these variables. In this study, data were collected from a questionnaire survey of 270 Taiwanese junior high school students who study in the technical education programs. Data were analyzed by statistical methods, including t-test, one-way ANOVA, Pearson's product-moment correlation, and multiple stepwise regression analysis. The following are the results of this study. 1. The junior high school students of technical education programs held positive skill learning attitudes while their skill learning motivation was not strong. 2. Most of the junior high school students of technical education programs were satisfied with the curriculum of technical education programs. 3. The junior high school students of technical education programs had moderately high level of vocational self-concept. 4. Skill learning attitudes and satisfaction of curriculum significantly predicted vocational self-concept.

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# Social inclusion of young people from the most disadvantaged social strata of the population in their community and school

Leila Maria Ferreira Salles<sup>\*</sup>

*IB/UNESP, Av. 24A 1515, Rio Claro, 13506-900, Brasil*

*<sup>b</sup>Second affiliation, Address, City and Postcode, Country*

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## Abstract

This paper analyses the social inclusion of young people from the most disadvantaged social strata of the population in a community, in Brazil. Focal interviews were conducted with two groups, protagonists and non protagonists of violence, in two public schools. The analysis indicates the two groups attend different places, have different expectations of leisure, and life activities are also differentiated. Young people not considered protagonists of violence believe in shape their own future and the importance of the school. The protagonists don't. For them, school is just for fun, not to conquer a better future.

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*Keywords:* young people; school; violence.

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## Introduction

The purpose of the paper is to characterize and analyze social inclusion ways of young people in a Brazilian city belonging to the most disadvantaged social strata of the population in their community, schools and leisure spaces.

The research was conducted in an area with large socioeconomic deprivation and high rates of urban violence and criminality. Social indicators of violence and poverty are high. Neighborhoods infrastructure is missing where standard popular housing predominate. Research area is considered one of the most violent areas of the city. During the research it was possible to note that robberies, fights, deaths, police action and drug abuse are common facts. These neighborhoods present high density population along with low socioeconomic index. There are neither green areas nor leisure spaces for the local population. There are several churches and a large number of bars, but few public health clinics and schools. The economic activities are mostly related to petty trading and informal service.

City Schools in the neighborhood attended by young people are the focal point of this research, which we are denominating School 1 and School 2. Both schools serve students in Elementary Cycle II School (5th- 8th grades) and High School students. The building of the School 1 is quite vandalized and has broken walls around and his painting lies dirty and tarred. The school does not cause a good impression given the lack of conservation, the state of abandonment and penury. The building is dark and lacking hygiene. Police action is common within the school. The school shows marks of vandalism and intrusions that are almost on a daily basis. The other school, the School 2, already makes a good impression. The building is very well maintained, clean and free of graffiti. The concern towards the conservation of the school building is constant, however some students eventually spray paint the school which makes it constantly to be painted and repainted. Family breakdown, domestic violence, minor in social risk and without basic health care and nutrition, early access to the labor market and the use of illicit drugs become part of the lives of the students of this school. Facts that are recent history of this institution, although situated in a neighborhood of impoverished urban outskirts that had no previous problems, and it is considered to be a good school.

This study consisted of two groups in each school: one with students considered violence protagonists, which we will call here the GV1 and GV2 as being students of Schools 1 or 2, respectively; and another with students not considered violence protagonists (GNV 1 and GNV2 as the origin is the School 1 or School 2). The GV group was formed from the analysis of the occurrence school records and the statement of the management team. Both boys and girls participate in the groups and their ages ranged from 14 to 17 years old. Focal interviews (GATTI, 2005) with students of these groups aimed to map the locations

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<sup>\*</sup> Corresponding author. Tel.: +00 55 1933718972.

E-mail address [leila@rc.unesp.br](mailto:leila@rc.unesp.br)

frequented by them, identify the meaning of becoming part of the community and also the meaning they impute to school and studies. The discursive regularities present in their statements were analyzed and are presented below.

### **The place where they live: neighborhoods and the community**

The typical urban landscapes of impoverished outskirts of Brazilian cities are present in the speech of students interviewed. The poor infrastructure in the region is constantly cited:

They (the city hall) say that they will asphalt our streets but it is all stones (GV2). This neighborhood has nothing working (GNV1). The childcare they were building stopped for a few months. I think that the money ends up. We pay taxes and do not have money for anything. (GNV1).

However, sometimes, interviewed youth individuals from GNV Group attenuate the criticism of City Hall to mention that some local young people damage the existing public works, indicating a process of "naturalization" of the conditions of the neighborhood: Only because of the youths living there. The socioeconomic level do not appear to be an explanation for the precarious situation in which they live and the neighborhoods where they live. However the absence of the Government apparatus in the neighborhoods is noted and faithfully manifested in their statements indicating the non-existence of government people among residents:

They (mayor, politicians) begin and do not end. They are not living in the neighborhood (GNV1). Or mention the presence of illicit drug users and dealers in the neighborhoods:

Interviewer: Tell us how the neighborhood is? It is full of junkies; you go out into the street and you can smell the entire day (GV1).

Interviewer: Smell what? Marijuana (GV1). It's everywhere (GV1)

They concern, as an attempt to solve the problem, the presence of police. For them the absence of any authority of the State in the neighborhood allows dealers to establish their own rules and arrangements for the organization and operation of the site:

Thus, for example, the thief steals your home and you discover who he is, if you are going to beat him it will be bad for you. So the bandit helps you. (GV2).

When asked about their feelings about the neighborhood, youngsters show they like the place. However, public service shortages, insecurity and lack of rule does not stimulate some form of "civic compassion" (SENNETT 2008, p 373.), favoring the formation of complex resigned filiations:

Interviewer: What do you think could be done? You want to change something in the neighborhood? I do, Take these junkies out of our neighborhood. But there's no way. Everywhere is like that, filled with junkies (GV1). They should create a neighborhood to junkies (GV1)

The existence and experiences of common elements in the community that could facilitate aggregation and make the space community filiations is simultaneously the desire of exclusion and / or restriction to the coexistence of other young people. Thus, the relationship with the other kids in the neighborhood seems to go beyond a simultaneous stay.

### **The use of their free time, leisure activities and frequented locations.**

The activities on their free time, distracted with school shifts indicate some heterogeneity: stay home, take charge of household chores, biking, fly kites, go to malls, theaters and churches. Occasionally doing some informal paid work.

In GNV Group activities after school are generally related to the frequency of extracurricular courses such as English and Information technology, sports and cultural activities. In this case, the after school activities make a more explicit purpose of individual formation. Through extra courses they seek access to a labor skill that would leave the precarious state in which they live. Attending to courses where they learn handcrafting, music and sports have a more direct relationship with their leisure and free time. In the other group being at the streets are related to hanging out with friends, wandering and sticking around aimlessly. In both groups access to nightly activities as parties are negotiated with family

Being at the streets with friends are present and part of everyday life, but all the statements suggests a low level of friendships because many youngster of GNV Group say they have no friends . Several of the members of GNV Group, both boys and girls , say they do not like to leave home, have few friends, and that their friends are , in general, their relatives; that the relationship with other young people of the neighborhood is small and that schoolmates hardly become your friends. Therefore, while deepening into the speeches we realized that having few friends seems to be particularly true when the reference are friends who live in the neighborhoods where they live. The friendships seem to be closer to relatives, such as cousins and young residents of other neighborhoods. But such a situation is not characteristic of this group only, as it is also found in the GV group, where we find demonstrations on replacement activities with friends in favor of activities with family.

The youngsters of GNV group, in general, seem to have a more controlled leisure attending a few environments where they may be exposed to violence and crime. However, the prohibition of parents to illicit drug abuse is present in the speech of all the people in both groups. There are, however, in their speeches, an indication of the constant presence and ease of access to legal and illegal drugs. Access to illicit drugs seems to solely depend on their desire:

I do not use. Anyone uses if they want. There is no law that arrests users if you want to use. Because if I come up with a joint

and offer it to others, only smoke who wants. Now if the guys arrive to me and offer me another kind of drug and I do not want to, I do not want it, period. (GV2)

Family interventions appear to be ineffective as prohibitions on drug usage, being more effective in relation to the prohibition of frequented spaces.

The street, the neighborhood, the youngster of other neighborhoods, schools and families are significant in the composition of friendships to activities related to their free time. However, the frequented spaces and leisure activities at this time do not refer, in the interviewees, joint activities indicating only simultaneous and parallel stays. The testimonies of GNV Group, the tendency to isolation or self isolation is remarkable, since it's imposed by them, because parents want them to leave, have fun and make friends. There seems to adopt avoidance logic of other local young people who are seen as drug addicts.

All of this indicates that there is not a common denominator that can match together young people from impoverished neighborhoods. Statements of the youths of the two groups refer the idea of a cluster of people living together your day by day, but do not share it between themselves. Here there is an indication of filiation's complex or affiliation supported by confluent stays more in common space than any other gregarious element. The filiation's complexes in leisure spaces, where the relations of friendship prevail seem to be fluid, short-lasting and permanent.

### **The other group**

The references in the speeches of the other youth groups practically focus on the existence of "junkies" and their ways to stay in their neighborhood, at school and in leisure spaces:

They steal things, even the equipments in the playground they stole. Also steal copper wire to sell and buy "stone"(crack). Another day stole up the wire of school and we lost power for a week (GV1). They disturb us. They usually is messing with others who are on the street (GNV1). It's scary to leave the house, feels like they will do something to harm you. (GNV2).

The junkies are appointed by the members of GNV Groups CNG as justification for not having a friendship in the neighborhood and strengthening the statements about the importance of choosing the places where you go, not attend punk ballads and parties, to choose the companies with whom they hang out, even if it means having few friends.

The daily presence of "junkies" attracts the police in spaces for conviviality: They (junkies) are not afraid of the police. The police are afraid of them, if there is a police car and there is a group of junkies, they do not stop. They pretend you never saw them (GV1). I skipped school classes lesson and they stopped me and my colleague, they body checked and send us away (GV1). Last week, they (the police) came here at school and we were just sitting there. No one was doing anything, but they arrived as if we were a bunch of thug. Made everyone raise their hands up, screaming (GNV1).

The police actions thus appear in the speeches sometimes associated with "junkies", sometimes associated with them and sometimes described with neutrality and sometimes with indignation of the brutality. It is evident; however, between the GV groups an idea that some illegal drugs are tolerable since the routine does not disrupt the boundary or affect other daily tasks, as shown in this dialog:

I smoke drugs in my house, for anyone to see. You have to smoke it for you and not for others. That one only watches television. He just sits there sipping tea (smoking marijuana). Oh the guys here, calling me a junkie Tea is a drug? Tea is tea. (GV2)

The constant depredation that the School 1 is subjected, which is attributed to the junkies of the neighborhood, is highlighted in the speeches criticizing this behavior. Striking-episodes as placing a boy upside down the toilet or hanging in another one in the sports court is counted and recounted. The junkies that are addicts, thugs, hooligans and troublemakers tend to be blamed for the precarious situation of the School 1.

The word junkie comes almost as a category encompassing any kind of addict, employed by drug trafficking or not, that spends their days seeking ways to maintain their addiction. References to other youth groups are sparse. Only the group of young people who attend churches seems to have power to connect to another group.

## The school

The school as a space of confluence for simultaneous stays and reference to the possible formation of friendships has some similarity to the leisure environments traits.

As soon as I entered this school they sometimes smoked (marijuana) in the bathroom. I got to see. Then I never saw anything like that (GNV1). There are only a few using drugs at school (GNV1). In the school, I never saw it (GNV1). There was a boy in the classroom who took the chair, the top of the chair and hit the glass, then the whole damn glass fell on the other side (GNV1). There was a fight with the teachers, sometimes it is a mess here. There was a teacher who hit the boy (GV2).

Thinking of the school as autonomous space, although inserted in the neighborhood is difficult. Thus, interviewees speak of depredations and acts of vandalism committed by young people in school, as shown in this dialogue between students of GV Group at School 1

They broke girl's bathroom. t's people from within the school. Just like last month, people stole the wiring and fans I guess they should call the school police because there's always people jumping the walls, there are people who are on the street and drop bombs inside.

The presence of the police who eventually enter the School 1 is commented, generating controversy and contributing to the confusion rather than border demarcation between the logics of the street and the school:

When I came here I was scared too, had lots of police, lots of drugs, lots of fighting, even with scissors. It was scary. I wanted to get out, but then I got used to it, now I do not go out of here (GNV1).

The eventual presence of police, the fact that the students use drugs, the school being constantly vandalized, approaches the logic that prevails in the streets making it an indistinct spot of the others: When I joined in here they told me: you will die; you will get shot (GNV1). How many days we were in classes and had junkies smoking weed (GNV1)

School / neighborhood / street differentiation is difficult, because the school is perceived to be penetrated by the district and its logics. Students seek, however, to differentiate it by saying that the motivations to act this way in schools stems from specific aspects of the school and not for the lack of family supervision:

I have used drugs within the school, even smoked, used ecstasy. No one realizes, it's just you get smart and be quiet. Interviewer: Why do you use in school? Because we are tired of teachers who only want to send us away (GV2).

Also at School 1 students say:

I think it's because they feel sorrow by teachers, I think they don't like teachers (GV1) because there are lacking teachers every day. Sometime we go to school and come back because there is nobody there (GV1). We go out too early, do not come out right on schedule and there is a lack of teachers to give lessons (GNV1).

However, shortening explanations to organizational factors of the school seems to be insufficient so that students from GNV Groups feel ultimately responsible so they cannot distinguish the specificity of the school against other spaces:

They discuss about which teacher is hotter. They keep saying to teacher to make porn videos. (GNV1) Some teachers leave the classroom crying. There was a student that punctured all four tires of a teacher because he yells so much in class. (GNV1). This way they end up proposing the expulsion of some students of the school in an attempt to preserve, differentiate and rescue it from the logic of the street: You should send all away (GNV1). Expelled from school (GNV1).

From one side there is a negative image of the school which causes even fear to study there and other side the pleasure to be there, to study there because the image of the school should not be confused with the actual facts:

Some of my relatives said they had a mess here, prostitution and drugs. They wanted me to study elsewhere. But I think there is not this kind of thing they say, prostitution, drugs and smoking. Now the bad thing is the mess. It's a bit of overstatement (GNV1).

The logic of the street penetrates the school and tenses relations both at School 1 and School 2, despite the separation in School 2 school district that seems to be more marked, perhaps by the best physical conditions and preservation of the school.

School space differs from the streets or recreation spaces by the specificity that is characteristic of the school; however, their proposals are sometimes mixed up when switching elements. In this picture the teaching ends, particularly among young GV Groups, and do not represent the basis for future life project design. The importance of the school seems to be better preserved for the young protagonists of non-violence. For them, the expectation of a better future is associated with school, but this depends on personal effort. For the youth of GNV Groups the school has an importance in the future life projects that cannot be affronted except in terms of educational quality.

## Final considerations

The neighborhood was established as a site for daily coexistence. Thus, the characteristics and implications that are inherent to living in the neighborhood periphery inhabited by low-income individuals appear regularly in the discursive manifestation. Living in these neighborhoods sometimes evokes moments and desires of self isolation and hinders the development of filiations'

complex or relationship affiliation making it hard to establish shared everyday relationships. This situation divided into confined and unlinked spaces ( SENNETT 2008 , 2004) , hinders the perception of the possibility of political action or exercising any resistance and intervention in this space . Readings and interpretations are prejudiced because daily life occurrences consisting of factors transcending the boundaries of a normal life that could exit the social micro relations as the axis to interpret and explain the world. When considering the possibility of community, even fragile, also lies in the existence of some natural " type of shared understanding ' "and "tacit" " (BAUMAN , 2003 , p.16 ) , the narratives of the participants apparently have not shown some understanding as the reflections are specific and singled

The permanence of the enlarged family image as a strong reference in intimacy relations accentuates the perception of spaces for spending free time extra family to not appear as a catalyst to social integration. The school, recreation spaces and even the neighborhood remains generally as a place for crowded people in concomitant stays, disconnected and without any The school spaces gaining street contours eventually lose its meaning in building life projects. This is the reason why school environment is not composed as a potential breakout point of everyday relationships. As Arendt (2011) says the gradual loss of the school specificity as a privileged space for reflection and also as a material failure to perform such instrumentalization, catalyzes the evanescence of resistance.

Anyway, their statements refer to the idea of a cluster of people living together their day to day, but not sharing it. Young people seem to be shuffling emotions ranging from isolation, taboos and beliefs in personal effort pointing to a non overview so that resistance to living do not extrapolate the individual, summarizing and being channeled for personal effort. There is not a sense of common destiny, shared so that each one will live his life as possible, without the perception of any connection between them. In other words, there are not life experience sharing, but clusters of people, each isolated in their own world, making it difficult to build a sense of community and collectivity. The living resistances do not go beyond the individual. This is the way young people do and become invisible in and for the city.

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# Socrates on teaching: looking back to move education forward

Lynda George \*

Faculty of Education, Central Connecticut State University 1615 Stanley Street, New Britain Connecticut 06053, USA

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## Abstract

This paper discusses the myriad of pedagogy enacted and/or discussed by Socrates within Plato's dialogues. Methodologies including dialectics, elaboration by example, allegories, analogies, imagery, story telling, recollection, and thoughtful inquiry scattered throughout the dialogues. Educators spend time on "the what" of teaching while "the how" to engage, enlighten, and nurture the love of learning and desire to know is often ignored. This paper provides explicit examples of Socrates teaching and connects his pedagogy to present-day instructional strategies that promote relevance and meaning within the context of contemporary teaching and learning.

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*Keywords:* Pedagogy, Teaching and Learning, dialectics

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## 1. Introduction

Socrates' teaching methods as well as his thoughts on teaching and learning are dispersed throughout Plato's texts. In and of themselves the dialogues are philosophically rich and their meaning has been studied, interpreted, and debated for centuries. It is not the intent of this paper to further such discussion but to address the teaching methods Socrates used as well as his views on teaching and learning and their relevance in the on-going present day debates and deliberation on education paying particular attention to the question: what are the best ways to teach? Plato's use of dialogue, rather than explanation, is a gift that gives us the experience of dialectics. It allows the reader to observe and become a part of the discussion(s). Not only do we see Socrates using dialectics to teach using the method that bears his name but also why it is important. Other teaching methods and strategies are woven throughout the dialogues to promote or nurture insight and understanding through thoughtful inquiry. Socrates also gives an account of his encounters with his teacher Diotima. Her use of teaching strategies is looked at in relation to the thoughts and ideas discussed in other dialogues.

Much time is spent within public schools developing and enacting curriculum while little time is spent on the pedagogical aspect involving the art of teaching. Teachers are telling students what they need to know and textbooks are being read that lead students to answer literal questions asked at the end of each chapter. Thus much time is spent on rote learning with little time spent regarding the understanding that comes from making connections, reasoning, constructing meaning and nurturing thinking. Most public schools and/or school systems have curriculum specialists but not specialists in pedagogy or ways of teaching and learning. The "what" of what needs to be known and support for content is available while the "how" to engage, empower, enlighten, and nurture the love of learning and desire to know is often missing, lost, or has been stolen from the learning experience. Within the United States national and state legislation has led to hyper-accountability and exacerbated the technocratic practice of drill and practice through massive testing and teacher evaluations based on student test results. Socratic pedagogy encourages the love of learning and the desire to know and is thus worthy of our looking at for advice and wisdom.

## 2. Conceptual Framework

This research investigation is a pedagogical content analysis of the ancient primary source texts of Plato. The conceptual frame for the study was to uncover Socrates teaching methods and learning strategies as presented by Plato. Particular attention was given to the works where the focus of the dialogue is between Socrates and students rather than his discussions with peers. Within the study dialectics the technique of question and answer and the definition of dialectics was examined. This led to the uncovering of various teaching methods and strategies strategically woven into the dialogues to promote understanding, further inquiry, and clarity. The means and methods of teaching that nurture learning and curiosity were identified. Attention was also paid regarding present-day ideas and ideals regarding learning such as student empowerment, the enactment of constructivist theory and student engagement.

### 3. Findings and Discussion

An analysis of Socrates' use of various teaching methods and approaches goes from multiple examples exhibiting themselves in any number of texts to specific examples deeply and richly used but once. As one would assume, dialectics was found to be the dominant teaching methodology within the dialogues while other methods and teaching strategies were woven within to promote understanding. Dialectics is also defined and its rationale given by Socrates. Another teaching strategy that occurred multiple times was elaboration by example. Vivid images imbedded within analogies are another strategy often used to make connections, provide clarity, construct knowledge and again promote understanding. The dominant use of metaphor is found in *Theaetetus* (Plato, trans. Jowett) when Socrates likened himself to a midwife. The richly detailed allegory of the cave found in Book VII of Plato's *Republic* (trans. Bloom, 1968) is also vivid imagery. The idea of recollection as it relates dialectics is worth noting. Also worth noting in a discussion on Socrates regarding teaching and learning is his teacher and her teaching methods.

Given that dialectics is the central teaching method with other methods lending support it is appropriate to lead off the discussion of dialectics and its merits with the metaphor that brings understanding to the method. Socrates refers to himself as a midwife of the soul assisting in the birth of ideas within the text of the *Theaetetus* (Plato, trans. Jowett, 1952). Socrates' description of the role and work of the midwife goes beyond present-day understanding of the term and thus an elaboration of what she (the midwife) does, brings more meaning and understanding to the method and enriches our understanding of dialectics. *Theaetetus* tells Socrates that he struggles to answer questions that he has heard Socrates ask. Socrates answers that they are "pangs of labor...something within you which you are bringing to the birth (148e)" and that he can and will assist in their delivery. He further states that not only do midwives assist in labor, they are also past childbearing age but are not barren "because human nature cannot know the mystery of an art without experience (149c)." The importance of experience as the way of knowing is expressed here. The importance of experience as a learning theory has been articulated, discussed and encouraged by distinguished education scholars John Dewey (1938) and Paulo Freire (1970). Yet experiential learning it is rarely mentioned in the debates among legislators and education today. Socrates goes on to say that the midwife has the potions, skills and knowledge to make difficult labor easy as well as if need be cause a miscarriage in the early stages of the pregnancy. She is also said to be a skilled matchmaker with the knowledge to know a good union to produce good offspring. He refers to himself as a midwife of the soul assisting in the birthing and examination of ideas. He expounds on the commonalities and contrasts between the two types of birthing experiences and the need for the midwife/teacher to assist students to bring forth worthy ideas and to rid themselves of phantom ones. The dialogue continues with *Theaetetus* stating that knowledge is perception and Socrates responds: "And now, let us examine together this conception of yours, and see whether it is a true birth or a mere, wind-egg (Plato, trans. Jowett, 1952. 151e)." The subsequent discussion between *Theaetetus* and Socrates enacts the analogy as they discuss the nature of knowledge in which their conceptions of knowledge become phantoms. Socrates and *Theaetetus* come to consensus and agree that perception is not knowledge, as *Theaetetus* first

thought. The dialogue ends with the need to continue the search to understand the nature of knowledge. Socrates' analogy and the subsequent enactment provide the reader with the "what" and "why" of the method in action. The use of metaphor as teaching tool or method helps to build and construct meaning by bridging what is not known or understood with that that is known and understood. Today this approach is referred to as Constructivist theory and again is rarely mentioned in present day debates on teaching and learning. The use and misuse of dialectics in teaching and learning is found in *Philebus* (Plato, trans. Jowett, 1952). Timing is important to ensure learning and the teacher must incorporate the necessary steps to ensure understanding has taken place.

...This, as I was saying, is the way of considering and learning and teaching one another, which the gods have handed down to us. But the wise men of our time are either too quick or too slow in conceiving plurality in unity. Having no method, they make their one and many anyhow, and from unity pass at once to infinity; the intermediate steps never occur to them. And this, I repeat, is what makes the difference between the mere art of disputation and true dialectic (16e-17a).

This statement addressed the fact that dialectics, according to Socrates, is not about arguing, debating or disagreeing. Dialectics is a teaching tool enacted through discussion with reasoning as the means for coming to: an understanding, or a discovery, or the realization that what one thought one knew or believed to be true after deliberation is seen as not true. It is a method of constructing or deconstructing knowledge and understanding. When deliberating on when and how to educate the citizens within the design of the ideal city (Plato, trans. Bloom, 1968) Socrates states "... We have set dialectic above all other studies to be as it were the coping-stone (top) – and that no other higher kind of study could rightly be placed above it...(534e)."

When disputes within the dialogues take place it is important to note that Socrates is speaking with people who purport to know something while Socrates doubts their knowing. This is evident during the discussions Socrates has with Meno and Protagoras in their respective dialogues. When he questions them they appear to care more about winning the argument and proving their point than seeking truth or understanding. On the other hand when Socrates discusses ideas with the youth of Athens they appear to be more willing to question and be led than the adults he speaks to. One might call it manipulation or see it as nurturing thinking, constructing knowledge and/or guided inquiry that will empower the student. An example of this is found in Socrates' conversation with the boy in Meno (Plato, trans Guthrie, 1989). This also serves as an explanation of Socrates' belief that knowledge is within us and only needs guidance to be recollected. Socrates argues that we have this knowledge from prior lives but have forgotten it. He demonstrates this to Meno within the context of a geometry lesson. Socrates questions a boy servant on how to double the size of a square. First the student thinks he knows then discovers that he does not know becoming perplexed but still curious. The two, teacher and student, continue the pursuit by Socrates guiding and not telling the youth the information. It is the bringing out of knowledge not the pouring in which Socrates terms recollection. Learning is achieved through questioning as opposed to didactic instruction. Socrates sets dialectics above all other studies (*Republic*. trans. Bloom, 1968). Within the dialogue *Lysis* (trans. Wright, 1961) the student becomes the teacher when Socrates asks him to remember and repeat what he learned to his friend. Socrates' often recaps or reviews midway or at the end of a dialogue as a means to establish clarity and ensure student understanding.

It is also important to note that within *The Symposium* (trans. Joyce, 1989) Socrates speaks "...of some lessons he was given...by a Mantinea woman called Diotima – a woman who was deeply versed in this (love) and many other fields of knowledge (201d)." He not only speaks of her as his teacher but also credits her with the method that bears his name within the Joyce translation of the Symposium "...I think the easiest way will be to adopt Diotima's own method of inquiry by question and answer (201d)." When it is Socrates' turn to speak he recollects his time spent with her in dialogue speaking both her and his parts. They discuss or study a number of the ideas, which reoccur in other dialogues when he is questioning the youth of Athens. She explains recollection as the coming and going of knowledge. She guides Socrates to an understanding of "right" opinion, the mean between wisdom and ignorance. She uses a myth of Eros to bring a visual imagery of the mean. The dialogue is on love and together they explore the greater and lesser mysteries of love, which embraces and enacts the love of wisdom. The history of Western education would look quite different had Diotima been given the credit and status for influencing Socrates' thinking and his teaching. She would be seen as an historical figure as opposed to her near invisibility brought on by the masculine-centric scholarship of male classicists (George, L., 2007). Socrates used



common everyday situations and images to promote understanding and construct meaning through the use of analogies. To explain that knowledge must be more than perception he has Theatetus imagine the human mind as a block of wax and when images come into our mind the perceptions are imprinted. How long the perception last depends on the density and consistency of the wax. Once the imprint is rubbed the image is forgotten and needs to be reminded in order for it to imprint again. When Socrates asks Meno (Plato, trans. Jowett) what virtue is Meno's response is a list of virtues. Socrates asks him to define the nature of virtue, that which all virtues have in common rather than merely listing the virtues. When Meno continues to reiterate the many instead of the one Socrates likens what he is looking for to a swarm of bees. Bees are different but each has the essence or nature that gives them the name bee. He uses the image of smashing a plate into many pieces and explains that each piece is still a part of the plate. Socrates advocates the use of analogies and visual images when teaching. Within the Republic (Plato, trans. Bloom, 1968) he says: "...listen to the image so you may see still more how greedy I am for images (488a). Socrates uses the phrase by example or an example no less than 30 times within four dialogues where the preponderance of text is between a student and himself (*Theatetus*, *Meno*, *Lysis* and *Phaedrus*). Examples are given when asked to clarify a thought or further elaborate on a point.

The classic use of allegory, within Plato's texts, as the means for teaching is found within Book VII of Plato's Republic (trans. Bloom, 1968). Socrates tells a story using visual images as the means to clarify and promote understanding. It is extremely vivid and active as can be witnessed by the hundreds of drawings and dozens of YouTube interpretations posted on the Internet. The allegory is an approach that builds understanding using prior knowledge reflects the teaching strategy referred to as scaffolding (giving support to the learner as knowledge or understanding is under construction). It is learner-centered in that it employs a variety of approaches to enact learning. Not only do we see the use of allegory as a teaching method but also gain insight into Socrates' interpretation of the problems of an education that lacks understanding, relevance and active engagement. Preceding the allegory Socrates says "...make an image of our nature in its education and want of education, likening it to a condition of the following kind. (514a trans Bloom)." The allegory begins with the image of a dark cave where prisoners are in chains and cannot move. Shadows of images are reflected off the wall from the light of a fire behind them. Due to an echo the naming of images, for the prisoners to learn, are not correct. When one is freed and emerges into the light from the darkness of the cave he at first cannot see. He initially sees only shadows and images reflected in water but in time the true images are seen. When he returns to the cave going from light to dark he stumbles and when he tells of what he has seen and experienced and tells that what they know is not true he is put to death. Following the allegory Socrates equates it to the previous discussion; "...the prison-house is the world of sight, the light of the fire is the sun, and you will not misapprehend me if you interpret the journey upwards to be the ascent of the soul into the intellectual world according to my poor belief, which, at your desire, I have expressed whether rightly or wrongly..." (517b). Much has been written and said about this allegory; interpretations from learned philosophers abound. One may assume that from an educator's perspective learning within the cave is through rote memorization and even that is once removed from truth due to the echo. Socrates concludes this portion of the discussion with an interesting statement that suggests he was speaking to or disagreeing with John Locke who wrote in the 1600s in his *Essay Concerning Human Understanding* that we are born as a blank but receptive slate. More recent behaviorist theory holds that as blank slates knowledge needs to be poured into us. As Socrates put it "...then, if I am right, certain professors of education must be wrong when they say that they can put a knowledge into the soul which was not there before, like sight into blind eyes (Plato, trans. Joyce, 1989. 518).

## Conclusion

Reading the dialogues through the lens of an educator rather than a philosopher, paying particular attention to the relationship between teacher and student brought forth several insights and a renewed sense of the importance of Socrates' teaching methods and strategies. The abundance of images as a way to construct meaning and nurture inquiry was quite overpowering and reinforced the importance of using multiple approaches when teaching to promote and insure understanding. This study supports the use of questioning as a necessary method for educators to enable, empower, and guide student learning. It also brings into consideration the need for educators to take the necessary time to think and question ideas to promote understanding and practice thinking. Teaching that promotes a

love of learning and a desire to know goes beyond the pouring in of knowledge that comes from just lecturing and/or repetitive drill and practice. Socrates has much to say on how to engage, empower and enlighten students. Great teachers don't just know the content of the subject(s) they teach but also know how to make learning meaningful and relevant. Great teachers engage, make the uninterested curious, change the minds of those who think they know but don't, and take the time to enable understanding. Wisdom comes through understanding, an understanding that brings relevance and meaning, leading not only to remembering but also providing the building block for further and deeper learning. Socrates is said to have been a great teacher and looking to his work to uncover his thoughts, ideas and practices provides us with an opportunity to enact experiences that lead to more powerful and successful outcomes for all students.

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# Sound art and architecture: New horizons for architecture and urbanism

Justyna Borucka\*

Gdansk University of Technology, Narutowicza 11/12, Gdansk 80-288, Poland

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## Abstract

The article discusses the crossroad between art and architecture. It sketches out the theoretical and practical aspects of involving art into architecture and multisensory dimensions of space. The analysis is based on examples of innovative experimental activities for architecture: educational projects such as workshops, seminars and courses, combining art and architecture, with special emphasis on sound art, and the consequences of such synergy for the perception of the space. Specifically, it aims to understand how this interdisciplinary approach in architecture can emphasize our understanding of the potential of non-visual aspects of space and stimulate architectural creativity.

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*Keywords:* Architecture; Sound Art; Pedagogy; Spatial Experience;

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## Introduction

What we experience with our bodies and senses differs dramatically from the theoretical concepts of pure space as proposed by scientists. Space can be defined by surfaces, lines, points. But besides this obvious physical nature of the space there exists its character, not measureable as easily – the phenomenal space. Our own human experience of space is quite different from a hypothetical concept of pure space because we are embodied beings and experience our environment with all senses available to us. Prominent philosopher Maurice Merleau-Ponty (1948-2002) points this out and argues that we are all part of that space, we are one with it. Similar statements are expressed by Charles Landry with his remark that *“People are the part of urban story otherwise physical remains the empty shell”* (Landry 2006). This suggests that personal experiences in relations to space uncover sensual nature of architecture.

Sometimes architecture and, more generally, art itself, serves to provide the experience that directs our consciousness towards the world and our sense of self. It also helps us experience ourselves as spiritual and embodied beings. Such was the stipulation of a well-known theoretician and architect, Juhani Pallasmaa (2005). Building upon the phenomenological concepts of philosopher, Merleau-Ponty, Pallasmaa argued: *“Architecture is the art of reconciliation between ourselves and the world, and this mediation takes place through the senses”* (Pallasmaa 2005). His proposal was to interpret architecture in more profound ways, as an expression of our relationship with the world, and not simplistically, as a mere practical, functional aspect of life, providing shelter, workplace, school, and other functions. (Pallasmaa 2005)

The education in the fields of architecture and design should encompass those very complex sensory phenomena of the space and to attempt to pose questions about them and propose solutions. The challenge becomes to introduce such pedagogical practices and educational design strategies that would reflect the profoundly rich space experience.

In order to search for experiential activities to explore above mentioned issues we could turn to art. As Vitruvius mentioned in his groundbreaking work on architectural theory: architecture is a combination of several arts and abilities. (Vitruvius 2001) Today, postmodernity opened relationships with the public which in turn led to a creative dialogue between art and architecture. Cooperation ensued between architects specializing in the designing process, aesthetic discourse and spatial and conceptual issues as well as landscape projects. This model of work has developed in the recent years and scientists are now often working with artists, musicians with architects. (Fernie 2006)

In order to provide a unique perspective and to teach new competencies to architects this project proposes to concentrate on the complex sound environment. This can be done by learning to listen, performing sound and implementing sound to the architecture practice increase sensory sensitivity. Outlined below are specific examples that illustrate practice-based assignments which incorporate using art, with special emphasis on sound art, in experimental activities for architectural education.

## Listen to the sound of the city

*“A sound-walk is an invitation to give our ears priority over other senses”* (Westerkamp 2014, 1974)

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\* Corresponding author. Tel.: +48-58-347-1944; fax: +48-58-347-1315.  
E-mail address: justynaborucka@gmail.com

The soundwalk "Listen to the City" was the type of excursion focused on listening and was a part of the experimental activity introduced to students within the soundlab during the Light City Sound Workshop in cooperation with the sound artist Krzysztof Topolski. (Fig.1.) (Fig.2.)

a.

b.

Fig. 1. (a) (b) Soundwalk in the Gdansk shipyard

This unique practice stems from the acoustic ecology and soundscape movement. It was initially developed in the 1960s by Canadian composer Raymond Murray Schafer (1977) and his team of researchers and titled: "World Soundscape Project". It focused on creating an increasing acoustic awareness of the sound environment and on exploring the space between art and science and our own presence within it and our experience of it.

Soundscape of the city is constantly changing oscillating between orderly cacophony, sometimes noise and many other sounds communicating information. It is only occasionally when some aggressive noise hovers over the soundscape or as some strange happening silences the environment that we notice just how strange is the sound of silence in the city. Soundwalk experiment was centered on listening, then recording and finally analyzing the acoustic terrain of the city recordings of the soundscape. In its final stage was focused on soundmapping, that is documenting and sketching the sounds into particular terrains of the city, such as the city center as well as the industrial outskirts and suburban areas. Geographic map was overlaid with a symphony of sound created to reflect it.

The methodology of this study consists of the analysis of soundscape: the sound environment of the city. The sound recordings consisted of a broad range of sounds uniquely significant for a given area. Selected recordings were used to create a sophisticated map of the area. It included sound recordings of each of the walks with specific information about the area and the location of the recording. This recording become a sound reference for the geographic map of the city and could serve as a type of soundtrack to the city.

The inspiration for the soundlab comes, among other things, from the 1960s trend of sound ecology, which was promoted starting in mid 1960s of 20th-century by R. Murray Schafer and his research group: "World Soundscape Project." According to him the sound environment is contaminated and the modern western culture is centered on visual aspects while neglecting the importance of the sound perception. The focus on visual perception diminishes the importance of sound, but Schafer's acoustic ecology insists that our environments should in fact be perceived as a piece of music. The idea of sound ecology is centered on the concept of the environment as a musical piece. (Schafer 1977) According to Schafer, analyzing and understanding the soundscape of the environment is a necessary step leading to a conscious process of shaping such an environment. The practice of recording and listening to sound recordings of geographic terrain is an integral part of the artistic process proposed by the composer. It has an important pedagogical aspect. Learning to listen and sound education in general leads to building increased sensitivity and creates a different perspective and competence. It can create more awareness about non -visual values of the space.

## Perform the sound of the city

The second step in this approach was the performance of the sound spectacle – a unique live concert of soundscape of the city. Using the methodology (Fig.3.) and the idea of sound spectacle by the artist Zorka Wollny, this experiment called for utilizing strange and often unexpected instruments and tools including our own bodies.<sup>1</sup>

This work was conducted within the WIRE 2014 - Winter School International Research and Education; Art and Architecture introducing art into architecture and design practice.

The spectacle investigated sensorial aspects and characteristic of the space and was composed to the specific architecture and acoustic environment. The central goal of this workshop was to create a sound of the city and the final composition consisted of a sequence of exercises. The members of the group had to get to know each other and explore their individual personalities. At the same time they were analyzing the qualities and sound capabilities of the space and of their own role within it. The spectacle consisted of personal input of each of the performers and was the final and most important part of this workshop. The performers were inspired by the acoustical sensations of the space and created music and sounds using everyday objects such as their bodies and voices. They were inspired by what they observed in those urban spaces such as the sounds of people talking to each other or walking by or hearing nature and more specific sounds of a bustling urban environment. The culmination of this experimental performance was a transformation of these separate individual sounds into a complete abstract musical piece which represented the sound environment of the city.

The final composition titled the “Sound of the City” was a unique experimental performance. Each audience member could interpret it differently using their own sensory experiences. The emerging non-visual representation of the space and of the architecture of the city was a unique way to stimulate the architectural creativity of the performers as well as to stimulate the audience to look at their environments in a completely different way.

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with natural sounds of space and human voices.

a.

b.

Fig. 3. (a) (b) Sonic experiments at the Gdansk University of Technology

2013, by

workshops  
installations

Fig. 4. Experiencing of sound art project within the Narratives Art Festival, Gdansk 2012

### Implementing the sound of the city

Another way of introducing the issue of multi-sensory perception of the space was the creation of a sophisticated online visual and sound representation of the city based on the prior excursions and walks through the city environment. An important part of this stage was incorporating the experiences of the participants in the art city festival attended at the same time and which served as an additional methodological inspiration. (Fig. 4.)

The city was mapped using traditional visual methods but, in addition, a sound map was created to provide unique sound to each separate city section. Each location was additionally represented by films and pictures as well as narratives of personal experiences of those who focused on that particular location. The final product was a unique multidimensional and nontraditional architectural representation of the area with a map as well as soundscapes and individual narratives creating a sophisticated cityscape. (Fig.5.)

Soundwalks and soundmaps document and investigate the city in ways that traditional architectural representations do not. Participants of soundwalks are encouraged to critically assess sounds of the environment and to think about how they contribute to the sonic environments while sound walks provide a unique sonic route to follow along the terrain, and to incorporate sound into their experience of the city. ( Truax 1978)

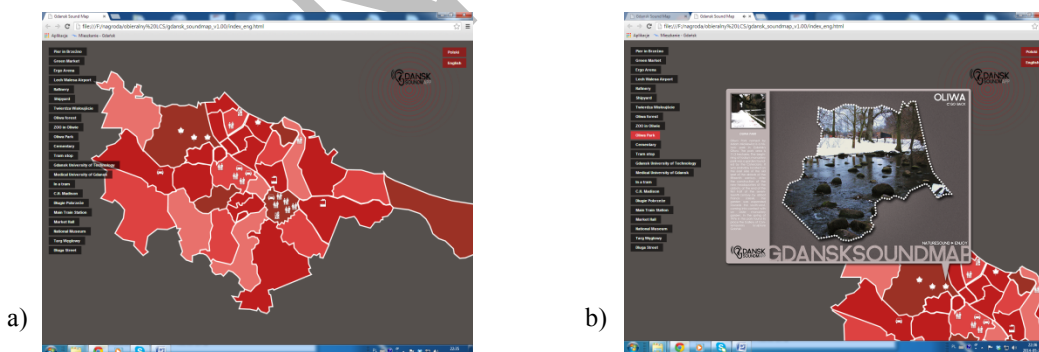


Fig. 5. (a) Digital soundmap of Gdansk; (b) Digital soundmap of Gdansk district - example

## Conclusion

The future of architecture depends on the interdisciplinary character of the discipline and the progressive, innovative ways in which it is practiced. This project demonstrates that art provides means to approach architecture in innovative ways. It is using art that we can develop new approaches as well as communicate architectural concepts to a wider audience. Using art to communicate architectural concepts can serve as a feedback loop through which the community can reflect on the evolution of the discipline, provide feedback about the use of space and articulate ideas about architectural design.

The exercises described above represent a highly multidisciplinary approach, linking such disciplines as architecture, arts, electronics, sociology of the city, anthropology and media design. It is based on the assumption that most advanced and promising phenomena are emerging on the very edge of the blurring borders between traditional disciplines. The problem of training new architects is widely discussed within Europe, as for example during panels of the European Association for Architectural Education. It is becoming evident that future practitioners will have to establish their highly-specific competences and strengthen entrepreneurial capabilities to successfully face global challenges. The proposed new kind of educational activities promote new methods for teaching architecture.

Such new methods often focus on processes of understanding and designing the multisensory dimension of public spaces and thus strengthening awareness about their phenomenological characteristics. This approach has been neglected for far too long, and providing new opportunities and design studios may help to change that, and to bring the focus to new innovative ways of architectural design. The future approaches could advance the discipline, and influence better understanding of its contemporary manifestations.

In addition to enriching theoretical foundations such new methods and approaches will help practitioners and students acquire skills in using the advancements of different disciplines in architecture and urban planning. Expected learning outcomes will also provide new directions, unique propositions for broadening existing learning programs in architectural schools by adding to their knowledge about sound art and new technologies and scientific research.

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# Spiritual approach in managing work-related stress of academicians

Salasiah Hanin Hamjah<sup>a\*\*\*\*\*</sup>, Zainab Ismail<sup>a</sup>, Fariza Md. Sham<sup>a,b</sup>,  
Rosmawati Mohd. Rasit<sup>a</sup> & 'Adawiyah Ismail<sup>a</sup>

<sup>a</sup>*Faculty of Islamic Studies, Universiti Kebangsaan Malaysia, 43600 Bangi Selangor, Malaysia*

<sup>b</sup>*Institute Islam Hadhari, Universiti Kebangsaan Malaysia*

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## Abstract

Work-related stress is an imbalance between work-related demand and individual capacity. If not appropriately handled, it may adversely affect individual emotions. Work-related stress is also experienced by academicians in institutions of higher learning due to various aspects. Various measures have been taken by academicians to overcome stress so that it will not adversely affect academic excellence and scholarship. Hence, the aim of this research is to identify the perceptions of academicians regarding their career and to examine the role of the spiritual aspect in managing stress experienced by them. This research is designed as a survey study. 37 out of 108 academicians at the Faculty of Islamic Studies, National University of Malaysia (Universiti Kebangsaan Malaysia) have been randomly selected as study sample. Questionnaires are used as instrument of data collection. The data obtained is analysed using the descriptive statistical technique. Research results find that the respondents' perception of their academic career shows they experience stress due to the burden of heavy workload leading to emotional and physical fatigue, and also whenever they receive new assignments. This research also finds that a spiritual approach may play a role in alleviating stress among academicians.

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*Keywords:* work-related stress, work motivation, academicians, spiritual, work environment

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## 1.Introduction

An individual with a career faced with various career challenges may experience work-related stress which negatively affects his work, family and health (Fatimah Omar & Suryani Supardi, 2000). Jaafar Muhammad (1997) has discovered three main causes which potentially create work-related stress. The first cause is the environment factor comprising of economic uncertainty, political instability and technology. Second is the organizational factor which involves organizational structure, organizational politics, role ambiguity, excessive workload, tedium and lack of group support. Third is the personal factor comprising of behaviour, changes in life and role conflict.

In this regard, it is necessary to identify an approach in order to assist academicians in managing work-related stress. Islam proposes a suitable spiritual approach. A spiritual approach may become the inner motivation to induce a more positive attitude towards work and responsibilities in academicians. Thus, motivation is important to an academic career. It is important in the academic world because of the numerous inevitable challenges encountered. These challenges are sometimes easily manageable but at other times can be very difficult to overcome so much so that academicians lose their diligence. Motivation is very important at this point in time and may be likened to a catalyst for spiritual development towards the realization of aspirations and expectations built. Therefore, motivation has to be nurtured, it will not come on its own. Nurturing motivation consistently will increase work motivation and finally make work as something meaningful in life (Friedlander 1966). Work motivation is also important to form a positive attitude and improve work performance (Hung-Wen Lee & Ching-Hsiang Liu 2009; Wijono 1997). A study by Wernimont, et.al (1970) finds that one of the methods which assist in increasing work motivation is to have a versatile employer, a challenging career and participation in decision-making. Besides this, Katzell & Thompson (1990) find that motivation may be increased by job satisfaction, a worker who attains job satisfaction is more

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\*\*\*\*\* Corresponding author. Tel. : +603-89213505; fax +603-89213152

E-mail address : salhanin@ukm.edu.my



inclined to be more productive. Further, a study by Salasiah et al. (2012) shows that one of methods to increase motivation is to strengthen spiritual relation with God.

Despite the importance of motivation in an academic career, it cannot be denied that sometimes work motivation decreases due to work pressure, such as pressure from the employer who requires academicians to achieve Key Performance Indicator (KPI) even though academicians may not have the ability to do so. Other than that, academicians also feel pressure from students, particularly problematic students who write inferior working papers, from the problem of plagiarism and the problem of less competitive students. A study by Pelletier et.al (2002) shows that academicians actually feel pressure from the top (employer) as well as stress from below (students). This pressure or stress may adversely affect work motivation. Looking at stress as a factor which causes decline in work motivation of academicians, this research is conducted to identify the perceptions of academicians towards their career and to study a spiritual approach in managing work-related stress of academicians in the field of Islamic Studies.

## 2. Purpose of Research

The purpose of this research is to identify the perceptions of academicians concerning their career and to study the spiritual approach in managing stress experienced by academicians in the field of Islamic Studies.

## 3. Research methodology

This research is designed as a survey study. 37 academicians have been selected out of a total population of 108 academicians in the Faculty of Islamic Studies. Selection is done by systematic random sampling. Data is collected using questionnaire consisting of four parts. Part A concerns the background of respondents, Part B relates to the family background of respondents, Parts C, D and E concern the problems they face in increasing work motivation and Part F concerns the methods which assist in work motivation among academicians in the Faculty of Islamic Studies. Data is analysed descriptively and presented in the form of percentage, frequency and mean.

## 4. Research Findings and Discussion

Prior to discussing the spiritual approach in managing stress which may affect work motivation of academicians, it is necessary to first discuss the perceptions of academicians towards their career. The result of analysis based on mean finds that item “My work is never done ” has the highest mean value, i.e., mean =3.00, followed by the item “ I feel very tired spiritually, emotionally and physically after work” (mean=2.86) and “ I feel stressed whenever I get a work assignment”(mean=2.41). This shows that academicians experience work-related stress, particularly, they feel that work is never done, thus causing weariness spiritually, emotionally and physically. Among them are also those who feel stress whenever they get a new work assignment.

Table 1: Academicians' Perceptions of their Career

No.	Perception	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean
1	I feel stressed whenever I get a new work assignment.	6 (16.2%)	16 (43.2%)	10 (27.0%)	4 (10.8%)	1 (2.7%)	2.41
2	My work is never done.	6 (16.2%)	9 (24.3%)	5 (13.5%)	13 (35.1%)	4 (10.8%)	3.00
3	I am bored with my work.	15 (40.5%)	13 (35.1%)	8 (21.6%)	1 (2.7%)	0 (0.0%)	1.86
4	Workload is too much so I prefer to adopt the attitude “so long as I do my work”.	15 (40.5%)	10 (27.0%)	8 (21.6%)	3 (8.1%)	1 (2.7%)	2.05
5	I feel very weary spiritually, emotionally and physically after work.	5 (13.5%)	10 (27.0%)	8 (21.6%)	13 (35.1%)	1 (2.7%)	2.86
6	I feel dissatisfied with my work.	9 (24.3%)	12 (32.4%)	9 (24.3%)	7 (18.9%)	0 (0.0%)	2.38
7	I am frequently moody, irritable and impatient during work.	14 (37.8%)	15 (40.5%)	6 (16.2%)	2 (5.4%)	0 (0.0%)	1.89
8	I frequently feel frustrated during work.	16 (43.2%)	14 (37.8%)	6 (16.2%)	1 (2.7%)	0 (0.0%)	1.78
9	I am thinking to resign or change workplace.	20 (54.1%)	10 (27.0%)	4 (10.8%)	3 (8.1%)	0 (0.0%)	1.73
10	I have no enthusiasm for work.	21 (56.8%)	9 (24.3%)	6 (16.2%)	1 (2.7%)	0 (0.0%)	1.68

In addition, this research also finds that there are academicians who are dissatisfied with their career such as “ I feel dissatisfied with my work ” (mean=2.38), “ Workload is too much so I prefer to adopt the attitude, so long as I do my work ” (mean=2.05 ), “I am frequently moody, irritable and impatient during work” (mean=1.89), “I am bored with my work ” (mean=1.86), “ I frequently feel frustrated during work” (mean = 1.78), “ I feel like resigning or changing workplace” (mean=1.73) and “ I have no enthusiasm to work” (mean=1.68). Even though the mean value obtained is not high, this clearly shows that a minority of academicians are not too happy with their career so that they feel dissatisfied with their career, become less diligent in work, become moody, irritable, bored, lose enthusiasm to do work and think of resigning or changing workplace. All these matters show that academicians experience stress in their academic career.

The perceptions of academicians towards their career seem a little negative leading to the researcher to study the approach taken by them in dealing with stress. The most popular approach is the spiritual approach. This research finds that the spiritual aspect plays an important role in overcoming stress faced by academicians in the field of Islamic Studies at the Faculty of Islamic Studies of UKM. Mean analysis finds that the item with the highest mean is “Contentment with Allah’s providence” (mean=4.84) followed by item “ Keep proper worship (*ibadah*)”, “ Constantly purify the heart from bad traits such as envy, anger and so on” and “Faith in Allah’s help” each with a common mean value (mean=4.81). Then followed by item “Purify the intention to work as worship (*ibadah*)”(mean=4.78) and “Establish night vigil prayers (*qiyam al-lail*)” (mean=4.46).

Briefly, this research finds that the spiritual practices implemented by academicians in dealing with stress are fostering contentment with Allah’s providence, keeping proper worship, purifying the heart from bad traits, having faith in Allah’s help, purifying the intention to work as worship (*ibadah*) and establishing *qiyam al-lail*.

Table 2: Spiritual Practices in Managing Stress

No.	Spiritual Practice	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean
1	Keep proper worship.	0 (0.0%)	0 (0.0%)	1 (2.7%)	5 (13.5%)	31 (83.8%)	4.81
2	Constantly purify the heart from bad traits such as envy, anger, etc	0 (0.0%)	0 (0.0%)	1 (2.7%)	5 (13.5%)	31 (83.8%)	4.81
3	Faith in Allah’s help.	0 (0.0%)	0 (0.0%)	1 (2.7%)	5 (13.5%)	31 (83.8%)	4.81
4	Contentment with Allah’s providence.	0 (0.0%)	0 (0.0%)	1 (2.7%)	4 (10.8%)	32 (86.5%)	4.84
5	Purify intention to work as worship ( <i>ibadah</i> ).	0 (0.0%)	0 (0.0%)	1 (2.7%)	6 (16.2%)	30 (81.1%)	4.78
6	Establish night vigil ( <i>Qiyam al-lail</i> ) prayers	1 (2.7%)	0 (0.0%)	3 (8.1%)	10 (27.0%)	23 (62.2%)	4.46

Source: Questionnaire UKM-PTS-063-2010

## 5. Discussion

The spiritual aspect is important to academicians at the Faculty of Islamic Studies, UKM to deal with career stress. Fariza (2005) in her research on stress, finds two forms of implementing the spiritual approach, i.e., through social and personal support. Social support comes from counselors and preachers who guide their souls/psyches to build spiritual strength. In terms of personal support, the self-purification (*tazkiyyah al-nafs*) approach cultivates praiseworthy (*mahmudah*) qualities such as contentment, patience, gratitude and trust in (*tawakkal*) Allah s.w.t.

Research results find that respondents apply spiritual practices such as fostering contentment with Allah’s providence, keeping proper worship (*ibadah*), purifying the heart from bad traits, having faith in Allah’s help, purifying the intention to work as worship (*ibadah*), and establishing night vigil prayers (*qiyam al-lail*) in order to manage career stress as academics. This finding is in line with findings by Graham et al. (2001), Stanley et al. (2011) and Yong et al. (2011) that the spiritual element if applied to a career helps to alleviate stress. The study by Yong et al. (2011) shows that after a spiritual program given to nurses in Korea, stress was reduced and spiritual well-being and leadership value increased. Similarly, the study by Hsiao et al. (2010) finds that the spiritual health of students can be a mechanism for nursing students to manage their stress, to reduce depressive symptoms and to enhance health-promoting behaviours. In addition, Salasiah et al. (2012) in her study finds the same result, i.e., a spiritual approach can alleviate stress experienced by students of Islamic studies and increase their motivation to learn.

There are respondents who keep proper worship to manage stress. This is in accordance with Islamic teachings which encourages Muslims to keep their worship, especially prayers (*solat*) because a slave pleads for God’s help in prayers when he faces difficulties in life (al-Baqarah 2:153). Prayers accompanied by *al-himmah* (inner strength), giving full attention and focus

on Allah including internalizing the significance of what is spoken or done, will bring peace of mind (Al-Ghazali 2000). Besides, prayers give humans the opportunity to personally interact with his Creator. A person may use this opportunity to pour out all his hidden and suppressed feelings from his heart until his burden feels lifted (Che Zarrina Sa'ari 2001; Ayyub 1996). This is reinforced by another study of Salasiah et al. (2014) which finds that through prayers, one may gain happiness. Research results also find that respondents practice "Contentment with Allah's providence" in their approach to alleviate work-related stress. This is in line with Islamic teachings to encourage Muslims to always think good of Allah in every situation and to have full confidence or faith in the wisdom behind any stress that afflicts him (Al-Ghazali 2000). Such feelings and attitude significantly calms one's soul or psyche and helps one to persevere as well as accept any form of challenges in life. In conclusion, research results show that the spiritual approach may be taken as one of the steps in overcoming stress in the world of education.

## 6. Conclusion

This research concludes that work-related stress among academicians, particularly relates to excessive workload, emotional and physical weariness as well as boredom with career. A minority of academicians are not too happy with their career to the extent of losing diligence in work, becoming moody, irritable and bored during work, losing enthusiasm and feeling like resigning or changing workplace. One of the methods to deal with work-related stress is by strengthening spirituality such as being contented with what Allah has given, keeping proper worship (*ibadah*), striving to cleanse the heart from bad or negative traits, putting faith in Allah's help and establishing *qiyam al-lail*. (night vigil prayers). These findings show that work-related stress may be overcome by a spiritual approach.

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# Starting and today of the interior architecture education; a comparative research on the models of mimar sinan fine arts university, sanayi-i nefise mekteb-i alisi (former mimar sinan fine arts university) and ecole des beaux arts

Cem DOĞAN<sup>a</sup>, Elif ÖZDOĞLAR<sup>a</sup>

*\*Mimar Sinan Fine Arts University Faculty of Architecture Department of the Interior Architecture Meclis-i Mebusan Cad.No:24 Fındıklı Beyoğlu, İstanbul, Türkiye (Turkey)*

## Abstract

The aim of the research is to examine the education model and architecture and decorative arts programmes formed by taking the “Ecole des Beaux Arts” as model in which Alexander VALLAURY, the founder of the Sanayi i Nefise Mekteb-i Alisi which is the first school that trains certified architect in the Ottoman and Turkish Republic, received education and to compare it with the MSGSÜ Department of Interior architecture. This research covers the France, Ecole des Beaux Arts Department of architecture (approximately 1796-1907), Sanayi-i Nefise Mekteb-i Alisi Departments of Architecture and Decorative Arts (Turkish Republic Education Board published in hijri 1340) and MSGSÜ, Faculty of Architecture, Department of Interior Architecture. For this research, the resource and literature review have been done and the data belonging to the first education model which has been determined to continue till 1930 and regulations and programmes have been examined and the comparisons have been made.

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**Keywords:** Vallaury; Interior Architecture; Education; Ecole Des Beaux Arts; Sanayi-i Nefise Mekteb-i Alisi

## 1. Introduction

Regarding the family of French origin Levantine architect Alexander Vallaury who was born in 1850 in İstanbul, different information takes place in many resources. It has been said that he took his high school education in İstanbul Saint Joseph French High School which was an institution affiliated to the French Society of Priests ("Frères des Ecoles Chrésiennes") whose foundation was put by Saint Jean-Baptiste de la Salle in the city of Reims of France in the year of 1860. As the foundations of the school building were put in the year of 1857, this seems possible and as the school was evacuated during the First World War, the documents before 1920 got lost. It has been determined during the interview made with the Saint Joseph High School that it will not be possible to verify this due to this reason.

In the 3<sup>rd</sup> November 1839, the Tanzimat Reform which can be considered as the first steps of the democratization and westernization movements in the Ottoman history opened the doors of a new world understanding and this changing process have also affected the design and architectural areas which are open to continuously have metaphor with the social events and agenda. In this period, the parents directed their children to the profession of architecture which they thought that it was promising and Vallaury was also directed to Paris for getting education and he took education that lasted for eight years in M.Cogurt workshop at Ecole Nationale Supérieure des Beaux Arts.

When he returned to İstanbul, the friendship of Vallaury exhibiting his projects, surveying and other works with Osman Hamdi Bey played an important role in the establishment of Sanayi-i Nefise Mektebi. The first building of Sanayi-i Nefise Mektebi, İstanbul Archeology Building Asar-ı Atika (ancient monuments) was the artifact of Alexander Vallaury, and he established the Sanayi Nefise Mektebi Department of Architecture in 1883 with the support of Osman Hamdi Bey and he gave education in the field of Architecture and transferred his experiences to the future generations for 25 years as of its establishment. The Architectural works which were executed by the masters getting education in Hassa Mimarları Ocağı till the 19<sup>th</sup> century before the establishment of the Sanayi-i Nefise Mektebi reached to the undergraduate education level with the opening of the first school that educates certified architect with the establishment of the Sanayi-i Nefise Mektebi. (Yavuz, 1976) Till the new system that Professor Arnold Egli brought, the architecture education was given over the foundation which was formed by Alexander Vallaury and shaped with the Ecole Nationale Supérieure des Beaux Arts ecole. In this context, Vallaury was not only the founder of the Sanayi Nefise Mektebi Department of Architecture, but also he was the creator of the first education model that educated diplomaed architect in Turkey.

## 2. Methodology

For this research, the resource and literature review have been done and the data belonging to the first education model which has been determined to continue till 1930 and regulations and programmes have been examined and the comparisons have been made.

### 3. Results and Discussion

According to Article 19 of the Chapter 3 Education of the Ordinance of Turkish Republic Education Board Sanayi-i Nefise Mekteb-i Alisi (Fine Arts Academy Regulation) which was published in hijri 1340 by İstanbul Matbaa-i Amire, 'The education of the Department of the Decorative Arts is the same with the Education of the Department of Art. The student which finishes only the second grade with the success selects one or two of the expertise sections such as the (1) Decorative embroidery (2) Interior decorations (3) Industrial decoration (4) Frescoes and panels. After the second grade, the exercises of the practice studies of the student are realized over the issues depending on the expertise section on which they select the competitions. Among the students who complete second grade, the (composition) competition is made for four times in every year and the drawing competition is made for four times in every year.'

Table 1

No	Name of the department	Content
1	Embroidery Ornamentation	Shop panels, poster, announcements, door covers, ornamentation... etc.
2	Interior Ornamentation	Interior Ornamentation of the buildings with certain styles, furniture, flooring...etc.
3	Official Industrial Ornamentation	Carpeting and similar fabrics, tiles, wallpaper, pearl, leather and glass and metal artifacts pictures ... etc.
4	Frescoes and Panels	Wall, ceiling and dome ornamentation and theatre decors...etc.

By the Mimar Sinan Fine Arts University, Faculty of Architecture Department of the Interior Architecture, the areas to which the Interior Architects serve are generally listed as follows.

1. They take place in the team realizing the process from the first stages of the space design till the end of the applications (decision making implementation). They determine the dimension and usage data of the space specific furniture (equipments) in the direction of the data obtained and realize their authentic forms.

2. It is a fact that the rearrangement of the interior space is required more frequently than the construction of a new building. They analyze and arrange the new function foreseen in the interior spaces of the buildings whose construction has been completed or to which a new function will be gained other than the old function according to the living and behaviour forms of the people.

3. They determine the interior spaces of the old buildings which are determined as the cultural inheritance or the historical asset and the elements taking place in these places (furniture, building elements etc.). By this way being an intermediary for the adaption and promotion of our traditional art and culture falls within the working area of the interior architects.

In the direction of these definitions, according to Article 19 of the Chapter 3 Education of the Ordinance of Turkish Republic Education Board Sanayi-i Nefise Mekteb-i Alisi (Fine Arts Academy Regulation) which was published in hijri 1340 by İstanbul Matbaa-i Amire, the article that 'The Department of Decorative Arts can be regarded as the starting of the Today's Interior Architecture Education According to the article 4 of the Structuring Chapter 1, 'The certificate of decorator is given to the ones who complete their decorative arts classes with success and obtain the values requested to be gained in the competitions also verifies this.

According to the Article 10 of the Fine Arts Academy Regulation ANNEX Chapter 2 Entrance Exams, the entrance exams of the departments of the Teacher Education in Arts and Decorative Arts are as follows.

Art: Ornament or bust from the plaster models with charcoal drawing. Its duration is 2 hours.

Modelage: Ornament or bust from the plaster models with the Pipeclay. Its duration is 2 hours.

The school administration may not require to take the students to the examination who get the grade corresponding to the very well from the art and modelage in the high school education. For the success in the entrance exams of the departments of the Teacher Education in Arts and Decorative Arts, it is required to get at least grade of five from both courses. Today, the student admission to the Department of the Interior Architecture is still realized with the two stage pattern examination. In the first stage, the figured composition is requested and in the second stage, the drawing of a space composition is requested. However, the pattern is drawn with the pencil instead of the charcoal drawing. The concept of the modelage examination has been abandoned. The art courses in the high school education are not considered and the students who come from the fine arts high schools have the additional score advantage.

Some of the important articles related to the Regulation take place below. In this content, the general result for the whole of the education process has also been compared with the general structures of the Fine Arts Academy and Mimar Sinan Fine Arts University and some articles taking place in the regulation are given places and with the table, the differences and similarities are tried to be explained by also adding the Ecole de Beaux Arts school which was taken as basis from the first education model.

According to the Structuring Chapter 1 Article 5, there is a free workshop-gallery which was added to the school afterward for the purposes of the selecting and separating students for the departments of the school. The ones getting the permission to continue to the free workshop do not have the student rights and they are obliged to act according to the regulation of the school.

According to the Article 6 of the Admission Conditions Chapter 2, the age of the student cannot be less than 15 and more than 25

According to the Article 6 of the Admission Conditions Chapter 2, it is required that the ones that will enter to the department of architecture must be graduates of high school and the ones wanting to enter to other departments must complete the first semester of the high school and secondly, they must be successful in the entrance exam of their department.

According to the Article 9 of the Admission Conditions Chapter 2, the ones who cannot be successful at the courses which are given in one year in the examination at the end of the first year are required to be successful in the second year examinations. The ones cannot be successful at the courses which are given in two or more years in the examination at the end of the first year are taken to the examination over the two year curriculum at the end of the second year. The examination of the course whose education is given in three years is also subjected to the same procedure. The ones who cannot succeed in the one-year courses in two years as of their entrances to the department and the ones who cannot succeed in the two-year courses in three years as of their entrances to the department and the ones who cannot succeed in the three-year courses in their fourth year as of their entrances to the department cannot benefit from the rights and privileges of the academy student afterwards and the financial rewards that they will win in the school competitions are given to the student who comes from them till they succeed in their courses.

According to the Article 11 of the Education Chapter 3, the education of the Fine Arts Academy is theoretical and applied. The examinations of the theoretical courses are made at the end of the education year and the make-up exams are realized at the starting of the forthcoming education year. The examinations of the applied education are realized at the times to be determined with the regulation and generally at the ends of the first and second semester and the competitions which are repeated for four times in a year are even realized at the first and second halves of the first and second semesters. The first semester is from the starting of the October till the fifteenth of the January and the second semester is from the fifteenth of the January to the end of the May.

According to the Article 20 of the Chapter 4 Examination and Competitions, the success grade of the students in the theoretical courses is determined with the scores that they will at the examinations. Their success grade in the applied education is also determined with the competitions and the grades that they will obtain in the competitions and the values to the grades correspond. The grade from ten to zero is given in the examinations.

According to the Article 21 of the Chapter 4 Examinations and Competitions, for passing the class in the departments of the school including the class distinctions, primarily it is required to get the grade of five from every course and secondly, to obtain a score in the amount of two thirds of the total of the full scores of the theoretical courses included to the class education and forming a whole.

According to the Article 22 of the Chapter 4 Examinations and Competitions, the success grades that the student will take from the competitions are as follows.

Admired = 3 value (Appreciated = 3 value)

Very well = 2 value (Excellent = 2 value)

Well = 1 value (Good = 1 value)

Medium = 0.5 value (Medium = 0.5 value)

Weak or Insufficient = (Weak or inadequate =)

When the full score is accepted as 10, the appreciated corresponds to 10, excellent to 9, good to 8, medium to 6-7. The weak or inadequate expresses the rejection.

According to the Article 23 of the Chapter 4 Examinations and Competitions, the artifacts getting the first two ranks in the Competitions and the drawings gained reward in the construction and competence competitions and all artifacts getting the financial rewards become the properties of the school.

According to the Article 24 of the Chapter 5 Examination Board, the Examinations are open to everyone and they are realized before an examination board. The examination board is partially composed of the experts inside the school and partially composed of the experts outside the school. The school principal is also the chairman of the examination board.

According to the Article 14 of the Fine arts Academy Regulation ANNEX Chapter 3 Examinations and Competitions, the student who gets a score of less of five points in a course or who cannot fulfill the grade average even though s/he passes every course is accepted to a make-up exam from a course from which s/he gets less scores.

According to the Article 14 of the Fine arts Academy Regulation ANNEX Chapter 3 Examinations and Competitions, obtaining of a right of entrance to the year-end examinations of a student is dependent on the realization of the following conditions by him/her.

- 1) That the average of the scores that s/he gets from the teachers during the education year as question or duty applied working score must be more than the score of (5)
- 2) That s/he must complete and deliver the duties that the teacher gives within a certain duration
- 3) That his order of attendance to the course or workshop must be stable– namely, stability of the fact that s/he participates to at least two thirds of the course or workshop hours
- 4) That the albums and other drawings belonging to the education must be given to the administration
- 5) S/he must make his/her name registered one day before the examination day.

Table 2

Mimar Sinan Fine Arts University	Ecole de Beaux Arts	Sanayi-i Nefise Mektebi
There is not age limitation sought in the students for entering to the examination	The ages of the students must be between 15-30 for being able to enter the exam	The ages of the students must be between 15-25 for being able to enter the exam
The students cannot benefit from the studentship rights after the first 4 years.	The students can benefit from the studentship rights till the age of 30.	The students cannot benefit from the studentship rights after the first 5 years of his/her education.
If the students cannot graduate in the first four years, they can continue their educations till they graduate. There is no age limitation.	The students are obliged to make 6 clear 6 sketch projects for graduating. However, they can make more projects if they want till the age of 30.	The students can use the workshops till the age of 30 even though they graduate.
The workshops are not open to the usage of the ones other than the school students.	The workshops are open to everybody having age of less than 30 and having French origin regardless of having relations with the school or not.	The workshops are not open to the usage of the ones other than the school students. However, the student candidates can use the free workshop with the permission.
Generally, the competitions are not arranged by the school for the students. The competitions are organized by the sector. The participation is the individual preference of the students. It does not affect the grade or graduation.	With the competitions organized by the school, the highest ranked student is selected. It is required for the grade or the graduation.	The competitions are organized by the school for the students. It is required for the grade or the graduation.
It is required to be a high school graduate.	It is required to be a high school graduate.	It is required to be a high school graduate or to complete the first part of the high school.
The department of the interior architecture is entered with the university examination realized by ÖSYM and dual stages ability examination.	It is entered with the descriptive geometry, history, architectural design, drawing, and mathematics examination.	The decorative arts department is entered with the art and modelage examinations. The school administration may not require to take the student who has obtained the grade corresponding to the very well from the art or modelage in the high school education to the examination.
The attendance obligation for the students is 70% for the theoretical courses and 80% for the applied courses.	There is no attendance obligation for the courses other than the course of Building science.	The student is obliged to prove his/her existence at the school at 9 o'clock in the days other than the holidays. The student who has been determined not to attend the school for ten days during one month without any excuses from the records of the attendance ledger is exposed to one (warning). The student who is exposed to warning for three times during one education year is regarded to resign from the school.
The recommendation letter is not requested.	The recommendation letter is requested.	The recommendation letter is not requested.

There are common courses among the courses in the education model. Today, there are also common courses between the departments and in the post-Republican period, the course of the History of the Atatürk Principles and Revolutions took place the course of History and the history of design took place the course of the history of art. The foreign language information has been added to the pool of the common courses for the purpose of looking to the globalized world from a wide perspective. The course of aesthetics and the courses covering the concept of the aesthetic are still given in the Fine Arts University and they have been removed from the common course pool. Today, the Turkish Language is also among the common courses given. The elective course pool has been formed for the student to develop himself/herself in the direction of his/her knowledge and skills as of the 2<sup>nd</sup> semester. The students from the different departments of the university and department can select courses. Especially, in the art and design, it is very important that the students must graduate as versatile and original individuals. This application or its similar one is not encountered in the Fine Arts Academy Regulation. The common courses and their durations available on the curriculum in the institution of Sanayi-i Nefise Mekteb-i take place below.

Table 3

The one giving the education	Interdepartmental Common courses:
Aristoklis Efendi (Master)	History– 2.3.1883 – 1894.

Sakızlı Ohannes Efendi (Master)	History of Art - 1890 - .
Vâhid Bey	(Son-in law of Osman Hamdi Bey)– History of Art– 7.12.1908 –1931.
Celâl Esad Arseven	History of Architecture - 10.6.1924 – April.1943.
Ahmed Haşim	– Fine Arts (Aesthetic) – 1927– October 1933. (Demir, -2010)

Table 4

Sanayi-i Nefise Mektebi hijri 1340	Mimar Sinan Fine Arts University Gregorian 2014
History	History of Atatürk Principles and Revolutions
History of Art	History of Design
History of Architecture	History of Architecture
Aesthetic	-
-	Foreign Language
-	Turkish Language

In the starting of the Interior Architecture education, the courses were annual and even some courses were multi-annual and today, the courses are given for semester in the interior architecture education. The majority of the courses given in the 1<sup>st</sup> grade are based on the hand drawing and general ability for both semesters.

Table 5

1 <sup>st</sup> grade	Sanayi-i Nefise Mektebi Department of Decorative Arts
	Copy Drawing: Ornament, body parts, full body from the plaster models with the charcoal drawing
	Pattern and Mechanic: With the India ink and ruler pen
	Decoration Drawing: Free hand draws, general views of the plants and analysis parts
	Imaginary Drawing: Separate issues
	Modelage: Ornament
	Calligraphy:Cufic
	Applied Perspective
	Decorative Arts Theories
	Drawing under the fixed light



Table 6

1 <sup>st</sup> Grade semester	1 <sup>st</sup> Mimar Sinan Fine Arts University Department of Interior Architecture	1 <sup>st</sup> Grade semester	2 <sup>nd</sup> Mimar Sinan Fine Arts University Department of Interior Architecture
	Eng 101/Ger 101/Fre 101 Foreign Language I		Eng 201/Ger 201/Fre 201 Foreign Language II
	Tur 102 Turkish Language I		Tur 202 Turkish Language II
	Icm 121 İm Introduction to Design I		Icm 221 İm Introduction to Design II
	Icm 122 İm Descriptive Geometry		Icm 222 İm Perspective
	Icm 123 İm Basic Education		Icm 224 İm Technical Drawing II
	Icm 124 İm Technical Drawing I		Icm 225 İm Building Science II
	Icm 125 İm Building Science I		
	Icm 129 İm Spatial Design		Icm 228 İm Computer Aided Design I
	Icm 223 İm Vocational Basic Education		Icm 229 İm Space Organizations in residences
	Ink 701 History of Atatürk Principles and Revolutions I		Ink 801 History of Atatürk Principles and Revolutions II

In the starting of the Interior Architecture education, the courses given in the 2<sup>nd</sup> grade were the courses having the attribution of the continuation of the 1<sup>st</sup> grade and being based on the hand drawing and general ability and today, the technical courses are dominant in the 2<sup>nd</sup> grade in the interior architecture education.

Table 7

2 <sup>nd</sup> grade	Sanayi-i Nefise Mektebi Department of Decorative Arts
	Copy Drawing: Live model with charcoal drawing, oil painting still life and drapery
	Pattern: Architectural drawings (related to the general history of architecture)
	Decoration Drawing: Decoration of the surfaces
	Imaginary Drawing: Combined issues
	Calligraphy: Cufic and Sulus Compositions
	Modelage: Ornament and bust
	Perspective
	Decorative Arts Theories
	History of Fine Arts
	General history of architecture
	Anatomy
	Drawing under the fixed light

Table 8

2 <sup>nd</sup> Grade semester	1 <sup>st</sup> Mimar Sinan Fine Arts University Department of Interior Architecture	2 <sup>nd</sup> Grade 2 <sup>nd</sup> semester	Mimar Sinan Fine Arts University Department of Interior Architecture
	Eng 301/Ger 301/Fre 301 Foreign Language III		Eng 401/Ger 401/Fre 401 Foreign Language IV
	Icm 320 İm Introduction to Furniture		Icm 420 İm Structure in Furniture
	Icm 321 İm Building Equipment I		Icm 421 İm Building Equipment II
	Icm 322 İm Material I		Icm 422 İm Material II
	Icm 324 İm Project I		Icm 424 İm Project II
	Icm 325 İm History of Design I		Icm 425 İm History of Design II
	Icm 327 İm Detail Analyzing		Icm 429 İm Spatial Design II
	Icm 328 İm Computer Aided Design II		Mim 491 History of Architecture II
	Icm 329 İm Spatial Design I		
	Mim 391 History of Architecture I		

In the starting of the Interior Architecture education, the courses given in the 2<sup>nd</sup> grade were the courses being based on the hand drawing and general ability having the attribution of the continuation of the 1<sup>st</sup> grade and today, the protection repair and design focused courses are dominant in the 3<sup>rd</sup> grade in the interior architecture education.

Table 9

3 <sup>rd</sup> Grade	Sanayi-i Nefise Mektebi Department of Decorative Arts
	Copy Drawing: Academy portrait and man in clothes from the live model with the oil painting
	Pattern: Architectural drawings (Related to the general history of the architecture)
	Decoration Drawing: Tile and carpet drawings imitation and copyright watercolor painting
	Imaginary Drawing: Combined issues and movement
	Calligraphy and ornamentation: Composition and ornamentation appropriate to the certain surfaces
	Modelage: Academy and composition
	History of Fine Arts
	Anatomy
	General History of Architecture
	Aesthetics
	Education and Training Method
	Drawing under the fixed light: Kur dö suvar (night course)

Table 10

3 <sup>rd</sup> Grade 1 <sup>st</sup> semester	Mimar Sinan Fine Arts University Department of Interior Architecture	3 <sup>rd</sup> Grade 2 <sup>nd</sup> semester	Mimar Sinan Fine Arts University Department of Interior Architecture
	Icm 520 İm Identity in Furniture		Icm 620 İm Experimental Furniture
	Icm 522 İm Application Project		Icm 624 İm Project IV
	Icm 524 İm Project III		Mim 682 Conservation and Restoration
	Icm 528 İm General Lighting		Mim 691 Mi Surveying II
	Mim 591 Mi Surveying I		

In the starting of the Interior Architecture Education, the courses given in the 2<sup>nd</sup> grade were the courses being based on the hand drawing and general ability having the attribution of the continuation of the 1<sup>st</sup> grade and today, the vocational hardware and field focused courses are dominant in the 4<sup>th</sup> grade in the interior architecture education.

Table 11

4 <sup>th</sup> Grade	Sanayi-i Nefise Mektebi Department of Decorative Arts
	Copy Drawing: Full body and man in clothes from the live model with the oil painting.
	Giving expression to the face
	Imaginary Drawing: Oil painting draft=sketches, combination(composition) depiction and illustration
	Decoration Drawing: Combination = composition
	Calligraphy and ornamentation: Composition and ornamentation appropriate to the certain surfaces
	Modelage: Academy composition
	History of Fine Arts:
	Aesthetics:
	Drawing under the fixed light: Kur dö suvar

Table 12

4 <sup>th</sup> Grade 1 <sup>st</sup> semester	Mimar Sinan Fine Arts University Department of Interior Architecture	4 <sup>th</sup> Grade 2 <sup>nd</sup> semester	Mimar Sinan Fine Arts University Department of Interior Architecture
	Icm 723 İm General Law Knowledge		Icm 823 İm Vocational Law Knowledge
	Icm 724 İm Project V		Icm 824 İm Graduation Project
	Icm 726 Construction Management and Economics		Icm 827 İm Furniture Application Studio II
	Icm 727 İm Furniture Application Studio I		

#### 4. Conclusion

In the general meaning, the hand drawing and the general ability protect their importance in the interior architecture and especially it is the most efficient method in the sketch and thought stage and the possibilities that the technology brings and the possibility to make drawing, design and production in the digital environment have played an important role in the transfer of the weight given to the hand drawing and general ability. The design realized in the digital environment and easiness of the storing and archiving of the designs in the digital environment, being a method saving time, easiness of being exhibited via the digital exhibitions have provided the approval of the advancement of the education in this direction by the academicians and becoming easier of the integration process. The issues such as vocational law is an important step in terms of providing awareness about the law of intellectual and artistic works that prevents the problems such as copying and reproduction that can arise from these easiness by the students even at the education process. The project courses have taken their places as a method of thinking and conveying what you think that forms the most important process of the interior architecture education and gives meaning by combining the design oriented courses with the pattern weighted courses. In the today's world in which the capital gains importance day by day, the building economy has also gained value and making the one to be made with the most appropriate price and the calculation of the cost of the building have gained importance. In the courses such as the Furniture Application workshop, it is aimed that the students reveal projects in the world norms by revealing original designs and they are prepared for the market from the design process to the production process. In this context, in the starting, the interior architecture education was art and design based and today, the data preparing the student to the sector have been added to the interior architecture education on this base. In the starting of the interior architecture education, the production of new decorations was focused and today, the determination of the available issues and the protection methods are dominant in the interior architecture education.

According to the Article 40 of the Fine Arts Academy Regulation ANNEX Chapter 5 Education, the expression that “At the time of giving of the issue of the Decorative Arts Department Competition- which one of the expression styles of –Lavi-Watercolor Painting -Garizay-Kamayo-Oil Painting – mud is requested and the completion duration are determined” is given place. Today, the competitions are organized by the sector and the students participate to the competitions that attract their interests with the free participation.

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# Stimulating the development of creativity and passion in children and teenagers in family and school environment - inhibitors and opportunities to overcome them

Małgorzata Wolska-Długosz,

*The Jan Kochanowski University, ul. Żeromskiego 5, 25-369 Kielce, Poland*

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## Abstract

Developing students' creativity is becoming one of the important goals of educational activities. This interest stems predominantly from the need of various sectors of the economy to train future staff, who will generate new technological solutions, which will be a vital part of the economic future of many parts of the world, including the European Union. The importance of staff creativity for social development is also being increasingly emphasized.

A key role in developing the creativity of students in all ages is played by formal education. Teachers have become responsible for stimulating the creative abilities of students, shaping their personality traits and attitudes conducive to creativity, as well as for teaching students the skills of creative thinking and creative problem solving. School and family environment should "develop skills and install the spring which will elevate the student to a higher level of his development." In order to do this, it is necessary to: take children's work and efforts they put into their own education seriously; elicit the knowledge acquired by students; convey knowledge which is a necessary raw material for creative activity; organize meetings with people whom students can see as excellent role models of creative attitude; and, finally, teach students how to take up efforts and persevere in their work, because creativity requires perseverance and long-term commitment. Therefore, it is worth knowing the inhibitors of creativity and ways to overcome them. This is a challenge parents and teachers have to face up to. It is difficult but not impossible.

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\* Corresponding author: Małgorzata Wolska-Długosz Tel.: +0-00-000-00-00.

*Mail address*

## Main text

Developing students' creativity is becoming one of the important goals of educational activities. This interest stems predominantly from the need of various sectors of the economy to train future staff, who will generate new technological solutions, which will be a vital part of the economic future of many parts of the world, including the European Union. The importance of staff creativity for social development is also being increasingly emphasised.

A key role in developing the creativity of students in all ages is played by formal education. Teachers have become responsible for stimulating the creative abilities of students, shaping their personality traits and attitudes conducive to creativity, as well as for teaching students the skills of creative thinking and creative problem solving. Therefore, it is worth knowing the inhibitors of creativity and ways to overcome them. This is a challenge parents and teachers have to face up to. It is difficult but not impossible.

Undoubtedly, creativity opens a lot of doors, presents a lot of opportunities and gives hope. What is creativity, then? According to E. Landau, "Creativity is an attitude that, on the one hand, allows you to find new aspects in the old and familiar, and on the other hand, enables you to face the new and the unfamiliar and process it into a new experience thanks to the knowledge you already have." In other words, creativity is the ability to see something unusual in ordinary and common things and to create something new. It is a skill of thinking outside the box and of effective problem- and task-solving.

Fig. 1. What is creativity?

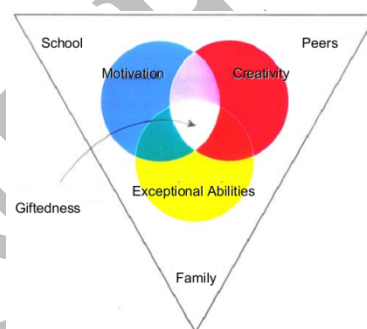


Source: <http://dzieciacybazar.blogspot.com/>

Next to creativity, there are also other concepts: abilities and interests. A. Gurycka believes that an interest is a mental feature which takes the form of a targeted cognitive activity of certain intensity and manifests itself in selective relation to phenomena surrounding the individual. A. Kamiński associates interests with motivation. They are some sort of an internal engine behind our mental "appetite." Interests stimulate initiative in the field of desire and will, and also activate the intellectual progress.

Both creativity and interests affect human abilities, which are the result of creative thinking and creative actions. Abilities themselves are formed by a number of factors, which are often independent of one another. Figure 2 presents the multifactor model of giftedness.

Figure 2. Multifactor model of giftedness by F. Mönks



Source: Limont, W. (1994). *Synecletics and creative abilities*. Toruń: UMK.

Interests of a child may manifest themselves in many different forms of activity. They develop through play, reading, watching movies, mass media, and contacts with peers, etc. Children learn different behaviours by observing and imitating their family members, other adults and peer environment. If these patterns are inappropriate, the child is in the so-called risk group.

Just as is the case of abilities, the development of interests is also influenced by a variety of factors. They can be divided into two main groups:

- biogenetic factors which include age, sex, abilities and physical development;
- socio-cultural factors which include social environment, socio-economic standing, as well as teaching programme and teaching methods at school.

The fundamental condition for the development of interests is the child's active approach to getting to know the world around him/her. The motto of educators, i.e. of parents and teachers, who want to bring up active and enlightened people, should be: children must get to know the world by themselves – we are just their helpers and guides in the process. Our efforts will have value only if we teach children how to acquire knowledge about the world by themselves, if we arouse their cognitive passion, if we evoke their deep curiosity to know everything and channel their cognitive activity so that they become specialists in certain areas.

Schools consider parents to be excellent partners in the process of shaping children's interests. Their work is particularly valuable, because it can be more individualised, tailored to the capabilities and needs of the child, and, above all, carried out from an early age.

The educational process aimed at the formation of new interests must create opportunities in which features typical of particular interests can manifest themselves and be modified in the desired direction. Therefore, the pattern of each process of interests carried out at school, at home or elsewhere must include the following elements:

1. Identifying a problem which refers to the selected content of particular interests.
2. Giving children tips on how a problem can be solved, i.e. teaching them techniques to solve similar problems, providing them with references to appropriate literature and telling them where to find necessary information.
3. Creating conditions in which children can conduct their independent research in accordance with specific instructions.
4. Taking educational care of the results of children's efforts and making their surroundings aware of the effects they have managed to obtain in their independent work .

The above process should be repeated by teachers and parents many a time until they notice the first signs of a newly-aroused interest. The most important signs are children's questions, i.e. independently formulated problems aimed at further research endeavours. It is then when an educator should limit his own actions in this area and allow the young to independently determine problems and thus mark out a course of their further actions. An educator should also gradually reduce the range of provided instructions, giving children greater freedom of exploration.

Parents or teachers should therefore be able to use problems and questions, not statements and axioms. Instead of serving children with ready-made knowledge, they should prepare them to be able to gain this knowledge by themselves. Instead of formally eliciting the facts children have memorised or skills they have acquired, they should reinforce the research endeavours of children and teenagers, making them want to explore and try more.

The selection and orientation of the youth's interests must be properly synchronised with the entire developing personality and serve to achieve multilateral educational goals. In order to arouse new interests, problems must be formulated so as to incite students' cognitive anxiety and make them work hard before they arrive at solutions. When presenting a problem, it must be selected and formulated in a way which makes it interesting to children, even the youngest ones, and for parents. The answer cannot be a simple reproduction of the already-possessed information; the mere yes/no answer must be impossible. Problems-puzzles make children think. What is important here is the type and range of instructions given to a child before he/she starts his/her independent work, and also determining the conditions and time of the child's independent work aimed at solving problems initially presented by a parent. It is worth noting that creating conditions which are favourable to children's independent work is the best way to shape their interests .

Parents who want their child to have particular interests must necessarily find time and place in their domestic schedule and enable children to pursue their passions. If it is completely impossible in the house, if parents do not feel sufficiently prepared for this type of contact with the child, or if they do not have the time, they have to provide the child with access to institutions that can take on the responsibility for shaping children's interests.

It is extremely important to create an atmosphere of respect for the child's efforts.

A good way to develop creativity is drawing/painting; it also enhances the child-parent communication. However, it should be noted that the manner of drawing interpretation should be discussed with a psychologist.

Activities which might seem dull at first might also turn out to be very creative. One of them is being bored. Studies confirm that children who are allowed to do nothing from time to time are the most imaginative and creative. A child needs to feel bored at first to discover new layers of creativity .

In order to develop creativity in a child, it is necessary to create opportunities for action, for creative problem-solving and for discovering new things. Children learn to memorise and use facts.

Below, there are a few tips on how to help a child develop his/her creativity:

1. Do not suggest ready-made solutions. Let your children try new things, make mistakes and reach the essence of the problem on their own. Let your children create their world by themselves! When giving your children toys they have not seen before, do not show them how to play with them right away. Let them work out their own ways to play with them.
2. Allow your children to ask questions and ask questions yourself. Questions are a prelude to creative thinking. An ability to ask the right questions makes it easier to find the answer. Questions are signs of curiosity about the world around us and problems. If you want your children to develop their creative thinking, ask unconventional questions, e.g. What does a rose smell like? or How many flavours does a vegetable salad have? If you don't know the answer to some questions, just admit you don't know and check.
3. Read. All of us know that images served by TV do not stimulate imagination. But the opposite is true for reading books. Although it is obvious, we often forget about it, being busy with our everyday routines. However, during our spring walks or on our way back home from a kindergarten or school, we might look up at the sky and try to guess if a cloud we see is a lamb, or maybe a bear. Ask your child to tell you what he/she considered the most interesting during today's classes, what questions he/she asked and why.

4. Inspire and reward. Children need motivation and support to play in a creative way, that is why you should not criticise their ideas even if you know they are not the best ones. Let your little ones find it out by themselves and look for other solutions. Show your interest in what your children are doing. Appreciate their efforts.

5. Support. If your child has an unusual hobby and collects some knick-knacks, e.g. bottle caps or little stones, do not criticise it even if you think it is unnecessary. Let him or her do it. Praise your child when he/she is doing something that is difficult for him/her.

6. Stimulate all senses. Remember to stimulate the development of all the child's senses (vision, hearing, touch and taste) during play. Make the play broaden your child's horizons .

The second half of the twentieth century, and, more specifically, its last decades have brought a new look at the methods of children and youth education. The pedagogy of creativity became triumphant and was possible only with the active cooperation between students and teachers. Interesting views on the education of a small child were presented by prominent musicians and educators of the 20th century – Emil Jaques-Dalcroze, Carl Orff and Zoltan Kodaly. They proposed pedagogical methods focused on activeness, creative expression and freedom of imagination. They emphasised that the best results are achieved when learning goes hand in hand with experience and one's own actions .

How can teachers help students develop their creativity?

Here are some practical tips:

1. Let creativity be one of the objectives of education! Prepare classes which value creativity.

2. Designate space for creativity. During some of the classes, you can prepare a special table for creative discussions, a stage to play out some topics in the form of drama, or a colourful area on the floor where students can or have to break certain patterns, etc.

3. Join or form a special programme aimed at developing the skills of creative thinking! Such programmes (e.g. Odyssey of the Mind, EXPLORY) enable young people to meet and compete in finding solutions in a creative manner.

4. Try to engage students' emotions. Studies show that the most motivating situations for the development of creativity are the ones which stimulate emotions. Think about topics which are important for your local community, e.g. how to effectively help the elderly and those who are lonely.

5. While solving problems, use scientifically verified and globally applied models of creative thinking, e.g. the Osborne-Parnes model. These types of models have a very strict structure and, at the same time, encourage free thinking.

6. During group discussions, praise creative students. Creative people often diverge from the main topic, digress and ask seemingly unrelated questions. Write down questions asked by such students and show them that you appreciate them. Find time to answer those questions.

7. Think to what extent tasks you give your students require the two types of thinking which are necessary for creativity. It is important to maintain the right balance between coming up with many potential answers to a specific problem with the use of free associations and remote connections, and logical analysis and selection of the best solution.

8. Create a principle of freedom in expressing one's views. Students should feel safe and have the courage to express their opinions, which are often diverse and mutually exclusive. Be open to the coexistence of diversity.

9. Tolerate mistakes. Only those who do not learn do not make mistakes. If you want your students to learn a lot, they should have the opportunity to err and to draw meaningful conclusions from their mistakes.

10. Set aside time for questions and free exploration. During certain classes, you should set aside time for the so-called brainstorming when students can develop their curiosity and ability to question the status quo.

11. Give students space for independent thinking. Let them take responsibility for their learning process. Provide them with clearly formulated goal and access to sources. You will be surprised to see how good they are at accomplishing the assigned tasks!

12. Find ways to connect different subjects. Creativity often occurs at the interface of different fields by associating distant facts. Find ways to connect e.g. Music with Maths, Arts with History, Dance with Geography, etc.

13. Be a role model of creative behaviour. Show your students that you are open to the new and the unknown.

14. Get inspired by existing resources. There are a lot of materials about supporting and fostering creativity at school. Surf the Internet to find books on this subject; join the programme which develops creativity at schools .

In both teachers' and parents' work, it is important to motivate children to learn and be creative.

Motivation is a regulatory process which controls the behaviour so that it leads to a specific effect (goal), boosts the energy to act and directs it to a specific target. Motivation organises individual reactions into an integrated pattern and maintains the individual's activeness until the conditions which triggered the motivation become changed. The strength of motivation depends on the extent to which the goal is attractive and to which one believes he is capable of achieving that goal. A motivational process gets initiated if there is motivational tension and if a person is particularly sensitive to the stimuli able to reduce this tension .

According to Maslow's theory, there is a positive desire to grow and to meet our various needs in every one of us. Human needs create a permanent hierarchy, which determines the order in which they are fulfilled. Needs which are higher in the hierarchy actualise only when one fulfils the needs on the lower level (which are more basic) .

M. V. Covington compares learning to a game with complicated rules determining the way prizes are distributed. He distinguishes between two types of motivation: race of skills and a game of equal opportunities. Race of skills is not necessarily the motivation to learn, but to compete with others in order to maintain the reputation of a gifted child with advanced skills, or the motivation based on the fear that others will do better. According to the author, these kinds of motivation have a detrimental effect on children, because they draw them away from real successes, eliminate the desire to make attempts and promote hurtful comparisons with others.

M. V. Covington proposes a positive kind of motivation to learn – a game of equal opportunities. There are five rules of equality that are conducive to excellent results achieved by a child:

- ensuring equal access to rewards;
- rewarding achievement and curiosity;
- appreciating many different skills;
- offering alternative motivations;
- proposing tasks which are engaging enough for a child to work.

The list of questions formulated by the British Office for Standards in Education (OFSTED), quoted by Robert Fisher, is a potential source of inspiration for teachers interested in stimulating the creativity of their students.

Factors which curb the creative approach are sometimes called "inhibitors"; obstacles or barriers to creativity. The complex nature of school barriers to creativity is a direct result of the complexity of the school environment, which in turn stems from the interaction of psychological, social and cultural factors present at school and, finally, from the complexity of the school as an institution. Creative potential of students is inhibited because of the education system, the way the school itself is organized as an institution, the adopted teaching methods, teachers and students themselves, conditions (physical and financial) associated with their actions, psycho-social relations between those who participate in school life, and the whole atmosphere at school and the school's organizational culture.

The below-mentioned barriers co-occur in the school environment or condition one another. These include:

- immanent barriers - related to the goals and tasks presented at school, and to the features of school as an institution;
- barriers associated with the content and methods of teaching and education;
- personal barriers - associated with the person of the teacher and student;
- barriers associated with the conditions of the physical school environment of the student's activity.

School barriers to creativity, even the ones which are firmly rooted in the tradition of school education, are not an insurmountable obstacle. They may inspire us to change our perception of school education. In order for this to happen, however, the change must occur at the level of "needs." What needs to change is the way we think about the meaning of creativity in human life and about the value of creative activity in the development of the student. We must start to perceive the "need" to develop creative potential as a vital goal of school education.

School and family environment should "develop skills and install the spring which will elevate the student to a higher level of his development." In order to do this, it is necessary to: take children's work and efforts they put into their own education seriously; elicit the knowledge acquired by students; convey knowledge which is a necessary raw material for creative activity; organize meetings with people whom students can see as excellent role models of creative attitude; and, finally, teach students how to take up efforts and persevere in their work, because creativity requires perseverance and long-term commitment.

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# Strategies for distance learning to increase academic achievement of high school students in risk area of the Southernmost of Thailand

Wasant Atisabda<sup>a†††††††††</sup>, Charuwan Kritpracha<sup>b</sup>, Ophat Kaosaiyaporn<sup>c</sup>,  
Amornpan Pattaro<sup>d</sup>

<sup>a,c</sup>Department of Educational Technology, Faculty of Education, Prince of Songkla University, Thailand

<sup>b</sup>Department of Medical Nursing, Faculty of Nursing, Prince of Songkla University, Thailand

<sup>d</sup>Office of Academic Resources, Prince of Songkla University, Thailand

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## Abstract

A qualitative approach was employed with 5 steps: (1) a study of environment in tutoring management of high schools in the sensitive areas of southernmost provinces, including the SWOT analysis and the Balanced Scorecard framework, (2) an analysis and synthesis to set the goals of the project, (3) a specification of strategic framework for distance learning system development, (4) a strategic plan developed from a strategic framework, and (5) a proposal of model and strategic plan of high school students academic achievement high school in the sensitive areas.

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*Keywords:* Strategies; Distance Learning, Academic Achievement

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## 1.Introduction

Upper-secondary education takes significant roles in academic preparation of students for their further study in tertiary education, which includes providing students with grounding in the subjects required for the university entrance examination and the basis for their university courses. The key factors affecting the quality of education system in the southernmost areas of Thailand are the unrest situation and the education system of Islamic private schools. The Islamic private schools' curriculum covering both general education and religious education inevitably result in the students' insufficient time for general education as compared to learning periods of students in non-Islamic secondary schools. It leads the students in the southernmost regions obtain low learning achievement scores which are below national standards. In order to solve such a problem, technology integration in distance learning, in which the internet network serves as a medium of communication and instruction between teachers and learners, learners and learners, and learners and specialist teachers, anywhere and anytime, is introduced to assist the education management of the schools in the southernmost areas. As a result, students will get more opportunities and equal access in learning, and be able to exchange ideas and share knowledge among one another more rapidly, which then helps develop a learning society.

In the information age and knowledge-based society, students' competencies in new areas that need to be promoted are: (1) reflection, (2) inquiry, (3) technology use, and (4) knowledge construction (Atisabda, 2003). Technology innovation plays an important part in creating more learning environments that have no limits on time and places. The effective new learning environment consists of 4 elements: (1) learner-centered approach, (2) knowledge-centered approach, (3) community-centered approach, and (4) assessment-centered approach (Riel, 2002 and Atisabda, 2003).

The strategic management is the process of internal and external environments analysis to establish strategic plan and goals. The strategic management process consists of three stages: strategy formulation, strategy implementation and strategy evaluation. The strategy formulation includes developing a vision and mission, identifying an organization's opportunity and threats, determining the internal strengths and weaknesses (David, 2005, Wheelen and Hunger, 2002, Pakaphaswiwat, 1998, Decharin, 2001). Based on Kaplan and Norton's strategic management (2004), the Balanced Scorecard is a tool for describing strategies for creating value. It includes: financial perspective, customer perspective, internal perspective, and learning & growth perspective.

Thus, this study is to develop the strategies for distance learning with the purposes of increasing academic achievement of high school students in risk areas of the southernmost provinces of Thailand, preparing students for their further study in higher education, creating new learning environments in knowledge-based society, and promoting learning based on the new learning concept.

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\* Corresponding author. Wasant Atisabda<sup>a</sup>  
E-mail address: vassan.a@psu.ac.th

## 2.Objectives of Study

1. To examine the current state and problems in providing distance learning for the upper secondary school students in risk areas of the southernmost provinces of Thailand.
2. To study the guidelines for distance learning with the aim of increasing academic achievement of the high school students in risk areas of the southernmost provinces of Thailand.
3. To develop strategies for distance learning with the purpose of increasing academic achievement of the high school students in risk areas of the southernmost provinces of Thailand.

## 3.Research Methodology

The research procedure consists of five steps:

- Step 1: Examine environments in upper-secondary education management in risk areas in the southernmost area;
  - 1.1 Analyze external factors including opportunities and threats
  - 1.2 Analyze internal factors including strengths and weaknesses
- Step 2: Analyze and synthesize data in order to determine goals and visions
- Step 3: Identify strategic issues for the development of distance learning system for the upper secondary education in risk areas in the southernmost area;
- Step 4: Formulate the strategic plan based on strategic issues
  - 4.1 Construct the draft strategies
  - 4.2 Evaluate and examine the strategies
- Step 5: The strategies obtained were analyzed, summarized, and reviewed by a connoisseurship.

## 4. Findings

Four strategic frameworks were applied based on the Balanced Scorecard for the strategic planning of the distance learning to increase academic achievement of

high school students in risk area of the southernmost of Thailand (Kaplan and Norton, 2004; Tayler , 2007; Aljardeli, Kadeli, & Levy-Tadjine, 2012; Banwet & Deshmush, 2006).

- 1. Human resources:** teachers, resource persons, full-time teachers in schools in the risk areas
- 2. Customers:** students in risk areas in the southernmost provinces who are the target group
- 3. Curriculum and instruction, instructional media and information technology:** curriculum design for supplementary teaching, learning management process, the utilization of instructional media and technology, and learning innovation
- 4. Internal process:** the management of distance learning media centers, and terminal schools

### SWOT Analysis

**Strengths:** Some students showed readiness in learning. Most teachers were able to attract students' interests and make students enjoy learning experiences through their good teaching methods and techniques. Technology innovation played an important part in enhancing learning. Regarding school management, the target schools showed interest and agreed to cooperate on the research project.

**Weaknesses:** Some students had low learning achievement and lacked basic knowledge, motivation, and technology literacy whereas teachers lacked good skills in teaching lower average students and in technology literacy. There was the gap between university instructors and students. Some instructional media became outdated. Concerning the management, it was found that mixing students of various education levels in the same classroom affected the instructional management, the location of distance learning media centers were not suitable, and there were coordination problems between the supplementary learning center and the terminal schools.

**Opportunities:** The communities' economic strengths were good. Regarded as the special region, the southernmost areas which border countries attaining some forms of advancement in education got good cooperation from many organizations. As located in the risk areas, such border provinces received strong support for solving any problems.

**Threats:** Different economic backgrounds affected the participation in activities of teachers and students. The unrest situation in the south also had an impact on the organizing of in-depth activities for developing teachers and students. Moreover, the location of the southernmost provinces proved an obstacle to the field trips/activities in such risk areas.

The strategic frameworks and strategies for distance learning were designed and developed, with the approval of connoisseurs, the research findings were as follows:

## **Human Resources**

### *Objectives*

- To enable teachers to acquire content literacy,
- To enable teachers to acquire technology literacy,
- To enable teachers to understand and apply new instructional approaches.

### *Strategies*

- Seek collaboration with Tutoring schools in developing teachers' tutoring techniques,
- Develop a procedure for the selection of full-time teachers and mentor teachers,
- Promote the cooperation with neighboring countries in enhancing teachers' academic skills development,
- Provide teachers with training in technology innovations for instruction,
- Promote the cooperation between the hub school and terminal schools,
- Organize training programs for staff of the terminal schools regularly,
- Provide teachers with training programs to enhance their skills in teaching students with low academic achievement,
- Encourage teachers to conduct classroom researches,
- Promote the cooperation among schools in order to share knowledge and experiences.

## **Customers**

### *Objectives*

- To increase learners' academic achievement,
- To change students' attitudes towards learning.

### *Strategies*

- Develop a model of tutoring approaches by focusing on the student-centered approach,
- Develop a model of learner grouping,
- Promote collaboration with the tutoring schools in organizing the instructional management in some units in order to generate learning motivation and motivation for students,
  - Develop achievement motivation in students participating in the project,
  - Promote a peer learning approaches (Share knowledge + Share experiences + Share success)
  - Enhance students' learning experiences until their graduation and offer encouragement to students obtaining good academic achievement scores in a form of rewards.

## **Curriculum/ Instruction/ Instructional Media and Information Technology**

### *Objectives*

- To organize suitable instructional approaches in classroom,
- To develop teachers' instructional skills with the utilization of appropriate instructional media and technology innovations.

### *Strategies*

- Implement the integrated instructional approaches, tutoring approaches, and drill & practice approaches,
- Organize both synchronous learning and asynchronous learning for students,
- Develop appropriate technology for learning,
- Develop instructional media and technology promoting distance learning,
- Promote collaboration with the distance learning media center in sharing instructional media with the terminal classrooms,
- Encourage cooperation with the tutoring schools in the support for instructional media, teacher development, and the development of innovative tutoring system.

## **Internal Process/ Management**

### *Objectives*

- To develop classroom management system,
- Promote the cooperation between the hub school and the terminal schools.

### *Strategies*

- Grouping students in tutoring classroom based on their levels of prior knowledge/ class levels,
- Put the proactive public relations of tutoring projects in practices,
- Develop a system for classroom management,
- Organize activities promoting collaboration between the hub school and the terminal schools,
- Collaborate with terminal schools in setting tutoring schedules suitable for the schools.

## 5. Discussions

Human resource development, one of the strategies, was found to be congruent with Prasit Sangpinit's study (2004) indicating problems of organizing distance general education, particularly the ones concerning teachers at community learning centers, who still lacked knowledge in how to use technology and instructional media necessary for the teaching and learning management. Instructional materials were insufficient. The teachers expressed their needs in the development of knowledge of curriculum content, teaching skills, and techniques for learning process, as well as innovation and technologies contributing to the effectiveness of teaching. Consequently, based on the problems founded in the studies, the researchers promoted the teacher development in several aspects including providing the teachers at the community learning centers with training programs to enhance their knowledge of the curriculum and instruction as well as the utilization of instructional media, conducting group seminars on techniques for the management of distance learning activities, organizing field trips, and supervising and monitoring the process. After the project, the target group gained knowledge and showed readiness in applying what they had learned and trained for their instruction. It could be concluded that the collaboration of related personnel, particularly teaching staff, was necessary for the human resource development.

The customer strategies were congruent with the findings of Nattapat Wungsrikeaw (2001) who conducted the comparative study of academic achievement on 10th grade students using satellite distance learning media with continuity activities between individual, group of three students, and group of five students. The group of three and five could empower learning more than individual learning. In addition, it was compatible with the concept of creating new learning environments to support effective teaching and learning which focused on learning-centered approach, knowledge-centered approach, community-centered approach, and assessment-centered approach (Riel, 2000 and Atisabda, 2003).

It was found that the strategies on curriculum and instruction, and instructional media and information technology complied with the two studies conducted by Orachorn Janchai (2011) and Pimporn Fonglum (2012). In Orachorn Janchai's research on the development of lower average students' competency by using remedial instruction, data from behavioral observation and students' academic achievement showed the students' higher learning achievement scores, more eagerness in learning, and the increase in their competency after participating in remedial teaching. Similarly, Pimporn Fonglum indicated problems of the instruction concerning the students and the teachers were students' lack of prior knowledge, skills and interest in learning. Besides, the teachers' being strict in classroom, stressful learning atmosphere, no instructional media used in teaching, the teachers' inability to attract students' interest in learning and give clear explanations of the lessons were listed as common problems of learning and teaching. The organizing of remedial instruction once a week was recommended in Fonglum's work. It was also important to create the new learning environments enhancing the students' competencies in such areas as reflection, inquiry, technology-use, and knowledge construction (Atisabda, 2003).

Moreover, strategies on internal process and management corresponded with the previous studies conducted by Kidanan Malithong (2005), Non-formal Education Department (1996) and Somsit Jitstaporn (2002). Malithong made a remark about the timing of interaction in distance learning and suggested that distance learning could be organized in two ways: asynchronous distance learning and synchronous distance learning occurring when the teachers and their students interact in different places but during the same time. In Non-formal Education Department's research, the necessity and advantages of detailed lesson plans and advance preparation of teachers and students at end schools were clearly stated. According to Jitstaporn, when being assigned to do some tasks, students with different learning styles and personalities performed different learning interaction. The observation about students' interaction was made by tracking students' records on the website developed by the researcher as they worked on the tasks assigned throughout the course. Therefore, it was necessary for teachers to be aware of students' learning styles and personalities when organizing learning activities and giving assignments to students.

## 6. Conclusion

The quality of education in the risk areas of southernmost provinces of Thailand need to be improved in order to support these students to continue their studies in higher education. Technology of distance learning can be an important tool to support and strengthen teaching and learning. The strategies for distance learning to increase academic achievement of high school students in risk areas of the southernmost of Thailand will serve as the guidelines for enhancing the education quality of public schools, private schools, and Islamic private schools, as well as promoting students' readiness in their further higher education through the use of distance learning technology, strategies encouraging a new approach to learning, and learning network.

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# Strategies of information communication and technology integration by benchmarking for primary school in Catholic (Layman) School Administration Club Bangkok Arch Diocese for students' 21<sup>st</sup> century skill

Chavalee Sakuliampaiboon<sup>a\*</sup>, Jaitip Na Songkhla<sup>b\*</sup>, Siridej Sujiva<sup>c</sup>

<sup>a</sup>Department of Education Technology and Communications, Faculty of Education, Chulalongkorn University, Bangkok 10330, Thailand

<sup>b</sup>Department of Education Technology and Communications, Faculty of Education, Chulalongkorn University, Bangkok 10330, Thailand

<sup>c</sup>Department of Education Research and Psychology, Faculty of Education, Chulalongkorn University, Bangkok 10330, Thailand

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## Abstract

Information Communication and Technology (ICT) is widely accepted as a strategic advantage in raising school quality and standards for students in the 21st century. Indicators were systematically reviewed from major resources according to practices and ICT competencies standards. Six areas of strategic plan include management, infrastructure, teaching, learning process, environment and communities' cooperation. Benchmarking process finds a gap between best practices schools and primary schools in Catholic (Layman) Schools Administration Club Bangkok Arch Diocese (C.L.S.A.). Finally a set of strategic plans and activities were proposed to a group of primary Catholic school administrators.

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**Keywords:** ICT integration; Benchmarking Process; Strategy; 21<sup>st</sup> century skill

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## 1. Introduction

Information Communication and Technology (ICT) is a critical tool to developing 21<sup>st</sup> century skills for students. Twenty-first century skills are categorized into 3 core competencies. First, learning and innovation skills focus on communication and collaboration, creativity and innovation, and critical thinking and problem-solving skills. Second, information, media and technology skills, and third-life and career skills are the essential skills for students to learn in this era. The aim of this study is to provide educators and school stakeholders with ICT indicators and best practices in ICT integration to guide design ICT school policies and strategic plans.

Much research proves that ICT integration helps improve student learning skills. Kang, Heo & Kim, 2011 discuss the benefits of using ICT for teaching and learning as follows: First, to enhance teaching and learning; second, to provide more productivity in administration work; and third, to expand students' knowledge. Jeffrey R. Stowell, 2011 supports the use of technology in the classroom for encouraging teachers to use technologies to increase efficiency and reinforce new learning processes to students. In addition, ICT promotes the shift to a child-centered environment, and focuses on life-long learning when used appropriately. Joke Voogt and Natalie Roblin, 2010 present the conceptual framework of ICT integration in students' learning. It shows that ICT plays a role in the way students learn, as well as in practices and outcomes.

Thai Ministry of Education realizes the impact of globalization and technical advancement on Thai education. Therefore, the Thai Ministry of Education conducted new Basic Education Curriculum B.E.2551 (A.D.2008). This national core curriculum provides significant support for the use of technology in school. The goals are to enhance students' knowledge and create a learning community, along with life-long learning skills, which are a part of 21st century skills. In addition, the key elements of Thailand's 3<sup>rd</sup> ICT Master Plan for Education B.E 2554-2556 (A.D.2011-2013) are equality of access, use of ICT for lifelong learning, and ICT's contribution to wisdom and a learning-focused society. Moreover, preparing students for the globalized world is one of the schools' commitments.

There is no doubt of ICT value in education, but questions arise about how to best utilize and maximize the potential of ICT to help prepare students in 21<sup>st</sup> century. The finding will help students successfully learn the skills that they need to have today. Therefore, the purpose of this study is to develop ICT integration standards in schools level for the 21st century skills, find the best practices of ICT integration, and develop strategies of ICT integration.

Development of indicators for ICT integration in school level is the key to not only monitor and evaluate the success of ICT integration, but also be a direction of future policies.(W.J.Pelgrum,2001) Furthermore, it helps raise school standards. ICT indicators were developed by considering three sources: ICT standards, ICT competencies, and indicators for ICT integration at different levels.

Benchmarking Process is used as a tool to measure the gap between best practices school and primary school in the Catholic (Layman) School Administration Club Bangkok Arch Diocese. The findings of the study will apply to development of a strategy to effectively support and promote ICT integration into the teaching and learning process.

## 2. Method

This study is a descriptive research using survey studies to collect data. Documentary analysis and content analysis were applied to summarize and synthesize ICT indicators. Cooperative benchmarking is used to compare and exchange information with the best practice school and primary schools in Catholic (Layman) Schools Administration Club Bangkok Arch Diocese (C.L.S.A.). The results of the benchmarking process will help formulating ICT strategies. TOWS Matrix is an analysis of the strengths and weaknesses of the organization environment from the results of the SWOT Analysis.

### 2.1 Literature review

Documents were systematically reviewed from 3 major themes accordingly, practices, ICT skills and competencies standards and ICT indicators from differences levels. 12 following references were selected to gather information about ICT indicators in worldwide perspective, which were conducted by both domestic and international organizations.

1. Evaluation report of ICT model school in ICT School in Thailand project. Bureau of Education Innovation Development under controls of Office of the Basic Education Commission of Thailand
2. Information Communication and Technology (ICT) Standard in Thai basic education level. Ministry of Education
3. Executive Summary of research and development of ICT in indicators education (Information and Communication Technology Center. Office of the Permanent Secretary, Ministry of Education, B.E 2556) .
4. Guide to external assessment three (B.E 2554-2558), the basic education. Office for National Education Standards and Quality Assessment (Public Organization)
5. Obstacles to the integration of ICT in education: results from a worldwide educational assessment (W.J. Pelgrum, 2001)
6. Proposed set of indicators for ICT in education (UNESCO Bangkok,2003) UNESCO (2003). Performance indicators for ICT in education. Bangkok: UNESCO
7. Core Indicators for monitoring and evaluation studies in ICTs for education (Robert B. Kozma and Daniel A. Wagner)
8. Pedagogy and ICT use in school around the world Chapter 4: School Practices and Conditions for Pedagogy and ICT (Willem Pelgrum, 2008)
9. Study on indicators of ICT in primary and secondary Education (IIPSE) Executive Summary, 2009 the European Commission, Directorate General Education and Culture.
10. Core ICT indicators, 2010 by Partnership on Measuring ICT for Development
11. Projects for the use of information and communication technologies in education (Eugenio Severin C.,2010)



12. Propagation & level: Factors influencing in the ICT composite index at the school level, 2013 by Hiroyuki Aoki, JaMee Kim, WonGyu Lee

### Results of synthesis of the ICT indicators for primary school

There are 4 domestic and 8 international documents. Only 4 domestic documents or 25% of the total number of literature review were selected because of the relevant issues to ICT integration and implementation in school levels.

**Table 1**

Synthesis of ICT indicators

Indicators	Total finding	Selected indicators
School Management		
1.1 Policy and Development Plan	25	5
1.2 the capital budget	32	6
1.3 the monitoring and evaluation	6	6
Indicators	Total finding	Selected indicators
1.4 Legal framework	4	3
1.5 ICT competencies standard for administrators	60	22
Infrastructure		
2.1 ICT Infrastructure and equipment	38	10
2.2 Software and database systems	17	8
2.3 Network	42	9
2.4 maintenance	4	2
Instruction		
3.1 curriculum	53	24
3.2 teaching support	7	11
3.3 Teacher development	32	6
3.4 ICT competencies standard for teacher	92	26
Learning process		
4.1 ICT integration	80	43
4.2 ICT competencies standard for students	24	24
Learning Resource		
5.1 School website	15	4
5.2 learning Resource Management and	13	6
6. Communities' cooperation	19	9
TOTAL	563	224(40%)

Note: Percentage involved rounding data

The finding of 12 analysis references yielded to a total of 563 indicators which could be subsumed into 6 standards in 18 categories.

**Table 2**

ICT integration indicators

Standards	Indicators
School Management(5)	1.1 Policy and Development Plan 1.2 the capital budget 1.3 the monitoring and evaluation 1.4 Legal framework 1.5 ICT competencies standard for administrators
Infrastructure (4)	2.1 ICT Infrastructure and equipment 2.2 Software and database systems 2.3 Network 2.4 maintenance
Instruction(4)	3.1 curriculum 3.2 teaching support 3.3 Teacher development 3.4 ICT competencies standard for teacher
Learning process(2)	4.1 ICT integration 4.2 ICT competencies standard for students.
Learning Resource(2)	5.1 School website 5.2 learning Resource Management and
Communities' cooperation	

## 2.2 Benchmarking Process

Benchmarking in education is used to improve the quality and standards of education. Many educators utilize it as a shortcut way for pushing education reform by learning and comparing with the best practices successful school reform of their experiences and key successful factors. (Jackson, 2000 and Kelly, 2001) The benchmarking in this study is following these steps: First, development of ICT integration indicators to measure and evaluate progress toward school achievement. Second, conducting gap analysis to identify differences between the best practice school and primary schools in Catholic (Layman) Schools Administration Club Bangkok Arch Diocese (C.L.S.A.). The results will be a guideline for ICT strategic formulation.

## 2.3 Strategic development

TOWS Matrix is a tool to formulate strategies. TOWS Matrix simply stands for treats, opportunities weaknesses and strengths. (Wheelen and Hunger, 2004) TOWS Matrix will help to determine the scope and explanation of each strategy which includes school management, ICT infrastructure, instruction, learning process, ICT resources and communities' cooperation.

## Strategic Result

## 3. Conclusion

In the era which technology becomes a critical part of empower students learning process. It is a school's commitment to ensure to utilize and maximize the potential of ICT for develops 21<sup>st</sup> century skills to all students. ICT integration indicators and strategies plan, the result of this study will be a tool to monitor, evaluate and push the school reform in the quickly way. Furthermore, it will be a guideline for school administrators to set strategic plan in order to raise school quality and standard for students in the 21st century.

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# Student assistance in higher education in Brazil

Francieli Piva Borsato<sup>\*\*\*\*\*</sup> and Jolinda de Moraes Alves<sup>§§§§§§§§</sup>

<sup>1</sup>*Social Assistant, Mato Grosso do Sul Federal University and Student, Postgraduate Social and Political Studies, Londrina State University, Londrina, Paraná, 86.057-970, Brazil*

<sup>2</sup>*Professor, Department of Social Services, and Coordinator, Postgraduate Social and Political Studies, Londrina State University, Londrina, Paraná, 86.057-970, Brazil*

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## Abstract

This article aims at analyzing student assistance policy in Brazilian public universities. According to the National Plan of Student Assistance, conditions of staying at university must be offered to needy students. It is about the social rights issue of the higher education policy, considering the access and conditions for students to remain at the university. The National Program of Student Assistance - PNAES aims at extending the conditions of permanence of national public institutions students, allocating financial resources destined to provide a series of actions of assistance to students such as: scholarships, housing, food, transport, physical and mental health, and accessibility for disabled students.

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*Keywords:* higher education policy; student assistance; social rights; National Program of Student Assistance; public university

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## 1. Introduction

The reform of higher education in courses in Brazil is a greater process of redevelopment of State Capital under neoliberal aegis.

Neoliberalism occurs in different ways and countries all around the world. While Thatcher and Regan were implanting the neoliberal politic in England and in the USA in the 80's, in Brazil, there was a democratic movement in answer to a long dictatorship from 1964 to 1985 which culminated with the progressive Federal Constitution of 1988.

With the election of Fernando Collor de Melo and subsequently, Fernando Henrique Cardoso- FHC (1995-2002), the country joins the liberal reforms which were developed by the Lula Government (2003-2010) and the Dilma Government (2012-2014) with a few peculiar characteristics.

In the case of educational politics, the changes in the legislation still happen in the period of regulation of the social right to education guaranteed in the Federal Constitution. The first complementary law proposal was routed to the Chambers in 1988. After many discussions and participation in many social movements, the first proposal, which was more democratic, was approved, the Law of Guidelines and Basis of National Education- LDBEN, including the varied education levels: Basic Education (which includes preschool, primary school, and high school) and Higher Education.

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<sup>\*\*\*\*\*</sup> Graduated in Social Services by West Paraná State University- UNIOESTE (2005), postgraduate in Municipal Public Management by UFMS (2011). Currently attending Master's Degree studies in Social Services and Social Politics at Londrina State University- UEL (2012-2014) In charge of Student Assistance Politics Monitoring at Mato Grosso do Sul State University. Capo Grande- Mato Grosso do Sul. Brazil. E-mail: francieli.piva@ufms.br

<sup>2</sup> Graduated in Social Services by Londrina State University- UEL. Master's in Social and Political Services by Pontfícia Catholic University of São Paulo- PUC/SP. Doctorate in History and Society by Paulista State University- PSU- Assis- São Paulo. Professor and Researcher for the Social Services Department of EU, leader of the Social Politics Management Research Group- registered at the CNPq- Londrina – Paraná – Brazil. E mail: jolinda@uel.br.

\* Corresponding author. Tel.: 00-000-000-0000  
E-mail address: jolinda@uel.br.

During the Lula Government (2003-2010), as a result of the Executive Reform of the Higher Education Group (GERES) work, a law project was proposed to regulate the university reform, from a set of regulations, interim measures, and promulgated decrees during the Lula Government, setting continuum for the defense of reforms started by the previous government.

In the set of regulations that composes the Brazilian higher education, the Plan for Educational Development (PDE) <sup>\*\*\*\*\*</sup> proposition stands out among the others. It was approved by the Lula Government on April 24, 2007 with the intent of aligning education with the Economic Acceleration Project (PAC) <sup>+++++</sup>. The PDE received much criticism for not being built in a democratic way, going in the opposite direction of historic movements like the political processes of definition by the Law of Guidelines and Basis for National Education (Law n. 10.172/01) in which there was intense social participation.

The PDE presents proposals with basic and higher education. Regarding higher education, the PDE understood as its guidelines:

i) the expansion of job openings, considered unacceptable that just 11% of young people between the ages of 18 and 24 have access to this educational level; ii) quality guarantee, it is not necessary just to increase, it is necessary to increase with quality; iii) promote social inclusion by education, reducing our history of waste of talents, considering that it is proven that we have creative and talented young people who have been systematically excluded by a filter of economic nature; IV) territorial ordination, allowing that quality education be accessible in more remote regions of the country; v) social and economic development, making higher education the key element, whether formatter of highly qualified human resources or whether indispensable part in the scientific-technologic production, in the integration and formation of the Nation. (BRAZIL, 2007, p. 26).

In order to attend to the above objectives foreseen by the PED, the following programs were proposed: Program for the Restructuring and Expansion of Federal Universities (REUNI); National Program for Student Assistance (PNAES); Financing Fund for Higher Education Students (FIES), University for Everyone Program (PROUNI), and the National Evaluation of Higher Education System (SINAES), which are the main programs structured by the proposal of expansion and democratization that marked the Lula Government.

This article will concentrate on the analysis of the National Program for Student Assistance (PENAES).

### *1.1. The political access to permanency to Higher Education in Brazil*

Historically, Higher Education in Brazil was marked by access of an elite group. Brazil was a colony of Portugal between 1500 and 1822. During this period the access to Higher Education was possible only for the children of elite colonial who could cover the costs of studies at the royal court, Lisboa. Between 1772 and 1808, six hundred and eight Brazilians studied at Coimbra University, most of who ended up choosing scientific careers like philosophy or mathematics.

With the independence of Brazil from Portugal, the first Brazilian Constitution, granted by Pedro I in 1824, had an item destined to education, inspiring the idea of a national education system. According to the Constitution, the Empire must have primary schools, gymnasiums, and universities. However, these precepts were never fulfilled.

This was just an organization of capitalism during the era of monopoly from the 1930's an acceleration of the industrialization process associated to the organization of the State as the centralizer, which emphasized the organization process of higher education in the country and offered real possibilities for the emergence of Universities.

Concerning the expansion process of higher education, it began in the 1970's, due to the increasing demand of this teaching level, a phenomena associated to the demand for human resources enabled to attend to the demands coming from the economic modernization lived by the country.

From the 1990's the expansion intensifies, being mostly offered by private Higher Education Institutes. Thus, the process named "democratization" of educational opportunities in higher education was confused with the mere and trampled massification of enrollments <sup>+++++</sup>, being distorted by the supply of paid Higher Education.

The policy of expansion of Higher Education was an action that gave visibility and legitimacy to the Lula Government, which one of his objectives was to attend to the challenge placed by the PNE (2001-2010): *a) Provide, until the end of the decade, the*

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\*\*\*\*\* The presidential decrees that gave origin to the PDE were: 6.093/07 (deals with the organization of the Alphabetized Brazil Program); 6.094/07 (deals with the implementation of Committed Goals All for Education); 6.095/07 (established guidelines for the constitution of Federal Institutions of Education, Science, and Technology- Ifet); and 6.096/07 (institutes the Program for the Restructuring and Expansion of Federal Universities Reuni).

+++++ According to Ghiraldelli (2009, p. 251): "The basic idea of PAC was to become a program capable of preparing the country's infrastructure for growth that should come from the tributary and political reform, pulled by Strong governmental support in social projects. The Plan of Education Development (PED) was considered, then, the PAC of Education.

\*\*\*\*\* Sguissard (2004) identified two steps in the expansion of higher education: from 1964 to 1994 and from 1994 to 2006. At the beginning of the first step (military regime) there was a predominance of enrollments in public education, which was inverted in the beginning of the 70's. At the end of the 70's, there was 41.6% of enrollments in public education and 58.4% in the private sector. In the corresponding period of redemocratization (1994-2006) the system showed merely vegative growth. In 1980, there was 882 IES in the country and in 1995 only 12 institutions were aggregated to the system, counting the growth of 1.36% during that time. During the FHC Government, there was a significant rise in the openings in the private sector. According to data from the 2007 Higher Education Census, between 1996 and 2007, 1287 new IES were created which increased the number of enrollments to 5,880,381 students in 2007. However, this growth was due mostly to private IES, which had 74.6% of the enrollments. With the legal preview at the LDBEN in 1996 the University Centers as an academic organization, realized that greatest number of enrollments were in the smaller institutions (89% of Private Institutions).

offer for higher education to, 30% of the age group of 18 to 24 years old, and b) Establish a policy of Expansion that decreases the inequalities of the current offers among the different regions in the country. (BRAZIL, 2001, p. 43).

In a way, the Lula Government continued the expansion process initiated by the FHC Government, allowing that the private realm could continue expanding<sup>ssssssss</sup>. However, it advances to provide the expansion and internalization of the federal network of higher education.

The Program of Expansion of Public Higher Education/ EXPANDIR (2003-2006), the Program for Restructuring and Expansion of Federal Universities (REUNI), and the Integration of Professional and Technological Federal Institutions, were the main programs that marked the federal higher education.

Table 1. Expansion of the Federal Network of Higher Education 2003-2014

	2003	2010	2014
<b>Universities</b>	45	59	63
		(14 new)	(4 new)
<b>Campus</b>	148	274	321
		(126 new)	( 47 new)
<b>Cities Attended</b>	114	230	275

Source: Sesu/MEC

From 2008, the actions of the EXPANDIR Program occurred concomitantly with the action of the Program of Restructuring and Expansion of Federal Universities Program (REUNI), approved by the Decree nº6.096/2007. REUNI presented as a justification the goal for supply expansion of higher education. Its objective was to “create conditions for the extension of access and permanency in higher education at undergraduate level, for the better use of the physical infrastructure and existing human resources in the federal universities”. REUNI’s goal is to elevate the rate of average conclusion of the undergraduate courses to ninety percent and the relation of (classroom) undergraduate students per professor to eighteen until the end of the five years from the beginning of each plan.

In a way, REUNI ,characterized as a management contract, which lays down rigid targets for counterpart receiving. The logic of financing through contracts was a FHC project, in which the debates about the management contracts were directly related to the transformation of the IFES in public foundations of private rights or social organizations. (AMARAL, 2003, p.118). For this author, the proposals were “a true university anti-autonomy , to obligate the institutions, upon management contract, to reach goals determined in a negotiation in which there is clearly a more fragile side in the confrontation with the government: the institutions themselves” (AMARAL, 2013 p.132 apud CISLACHI e SILVA).

According to Ferreira (2012, p.465) a few aspects of REUNI, in relation to the increase in night job openings, the reduction of evasion, occupation of idle vacancies, the academic restructuring, were measures already adopted by the Fernando Henrique Cardoso Government and recommended by the World Bank (1995) which pass through the standpoint of rationalization of management and optimization of costs, and were maintained during the Lula Government.

The expansion promotes the rise in internalization of the number of vacancies, but not alone does it guarantee the access to historically excluded groups, being necessary the supply of other complementary actions. In this respect, it was also proposed the National High School Exam (ENEM)<sup>\*\*\*\*\*</sup>, the Unified Selection System (SISU), and the most recent vacancy reserve for students deriving from private high schools, black, or indigenous (Decree nº 7,824, October 11, 2012).

Over time, ENEM has suffered changes in its applications, also becoming a way to access higher education. At first a few institutions, mostly private ones, started using it as a way to access their selection process. However, with the institution of PROUNI, the exam became notorious as a way to access since participation in ENEM started being mandatory criteria. From

<sup>ssssssss</sup> In 2003 there were 1,859 higher education institutions in the country and in 2012 the number reached 2,416.

<sup>\*\*\*\*\*</sup> The National High School Exam (ENEM) was created in 1998. At the time the goal was to evaluate high school graduates, integrated the Evaluation of Basic Education System (SAEB). ENEM and SISU altered the selection mechanisms, unifying the process. In a way, these changes have made possible greater mobility to students and the possibility in competing for vacancies in any university in the country. However, it continues based on meritocratic aspects.

2009, ENEM started being used as a way to get into Federal Public Institutions, which gradually will become the only entry procedure. Along with ENEM, SISU emerged, as a computerized system to select candidates according to their grade on ENEM.

Other than guaranteeing access, it was necessary to think of strategies that could guarantee the permanence and conclusion of students inserted into higher education. The permanence policy of Higher Education adopted by the Lula Government and followed by the Dilma Government isn't characterized as a single policy. It is carried out by programs that attend public and private institutions with different strategies<sup>8</sup> inclining towards a focused and privatist model, characteristic of the neoliberal State model in force.

### *1.2 The National Student Assistance Program*

To make the permanence of poor students inserted in federal institutions of higher education possible, The National Student Assistance Program was proposed, initially outlined through the Regulatory Ordinance MEC n°39 from December 12, 2007, and later on, transformed into The National Student Assistance Program by the Decree n°7,234 from July 19, 2010.

Even though the action offered from PNAES are the same offered historically by the Higher Education Institutions (university restaurant, living, attention to health actions, and even scholarships) gain a new impulse with the intensification of financing promoted by PNAES.

PNAES composes a group of actions that seek "democratization" of access and permanence of poor students in higher education and it should consider the necessity to encourage equality of opportunities, contribute for an improvement of academic performance and act, preventively, in the situations of retention and drop outs arising from insufficient financial conditions.

The program has as objectives: I- democratize the permanence conditions as IFES; II- minimize the effect of social and regional inequality in the permanence and conclusion of Higher Education; III- reduce the retention and drop out fees; and, IV- contribute to the promoting of social inclusion by education.

According to the decree, the student assistance actions should be developed by the Universities and Federal Institutes, in a way that is articulated with the teaching activities, research, and extension, only to the students enrolled in classroom undergraduate courses, in the following areas: student living, food, transportation, health attention, digital inclusion, culture, sports, daycare, pedagogic support, and access, participation, of students with learning disabilities, global disorders of development, high skills, and giftedness.

The decree is clear in defining as competencies of the Universities and Federal Institutions the creation of criteria and selection mechanisms; "requirements for social assistance perception"; and, "PNAES evaluation mechanisms"; according to the particularities. However, it indicates that the services and benefits be offered "mainly to students coming from public schools of basic education or with a family income per capita of up till one and half of the minimum wage, without loss of the other requirements held by the federal institutions of higher education" and "undergraduate students", preferably on their first degree.

Cislaghi e Silva (2012, p.499) call attention to PNAES's last goal, which reinforced the student assistance as a "strategy to spread the idea of the possibility of social growth and reach social cohesion by the promises of education". It also shows that there were significant changes between the Plan and Program approved by the decree. It was identified that in the second criteria included, it was focused and extremely degraded for student assistance, lowering the autonomy of universities in relation to the definition of criteria consistent to their reality.

Menezes (2012, p.74) points out that the student assistance in the IFES didn't have as a mark just PNAES, but "the program contributed strongly to reconfigure their actions and insert them in the organizational structure of federal universities."

In relation to the financing destined to student assistance during this decade, it was not evident in the legislation in force, documents that covered and designated resources to cover the costs of student assistance programs. To the contrary, there was a movement for denying the leaders in providing resources for student assistance. This is evident by the promulgation of LDB in 1996, which is registered in article 71, subsection IV, the State's lack of responsibility with the student assistance financing.

However, the decree that created PNAES started to foresee the financial funding for the financing of student assistance actions, by means of financial funding directly with IFES. The costs of the program occur due to budget appropriation annually consigned by the Ministry of Education or the federal institutions of higher education "being of the obligation of the Executive Power to combine the quantity of beneficiaries to the existing budget appropriations".

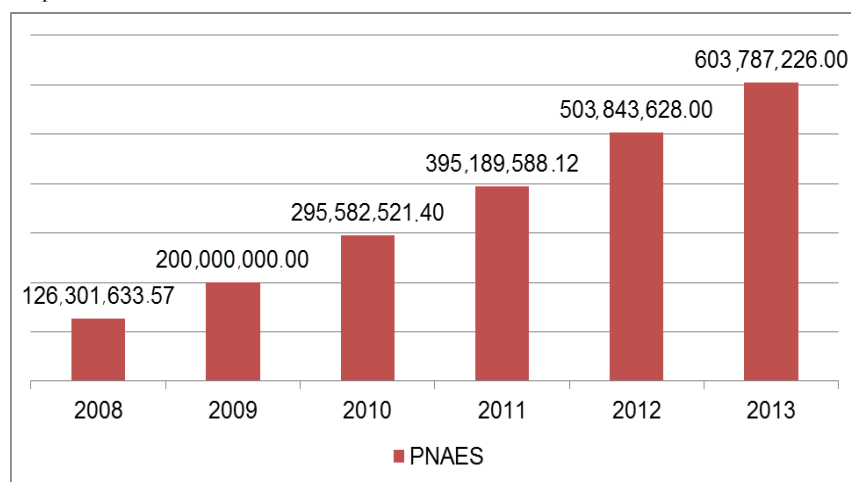
The distribution of PNAES resources among the IFES is achieved on the basis of the "PNAES Headquarters". These headquarters were defined in the 46<sup>th</sup> Fonaprace Meeting held in October 2009 in Belo Horizonte/MG. The objective was to define the budget headquarters that could guarantee the continuity of specific resources towards student assistance, "since the

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<sup>8</sup> To attend to the students inserted in the network of private higher education the following programs were proposed: University for Everyone Program (PROUNI): created by the Provisional Measure n°213/2004 and posteriorly converted to Law n° 11,096, January 13, 2005, and FIES, and the implementation of the Student Financing Fund (FIES) which suffered alterations and with the new rules made possible solidarity bail, in such a way that the students are each other's guarantors in small groups, increased the dead line for paying off debts which rose to being twice the duration of the course, with the dead line of 6 months for beginning to pay the loan. From 2005, financing for partial scholarships was granted, benefitted from a 50% PROUNI scholarship. Currently, financing is also granted for students who find themselves in the situation of complementary scholarship holders, that is, PROUNI students who have a benefit of 25% on tuition. Caixa Econômica Federal is the financing entity for FIES.

current model promoted distortions in the student profile, to establish different weights in various courses, especially in those with greater social prestige” (FONAPRACE, 2012, p.33) The headquarters use as a basis for calculating the data in reference to the indicator “students equivalent of education”\*\*\*\*\* of the Data Integration Platform of IFES (PINGIFES) 2011.

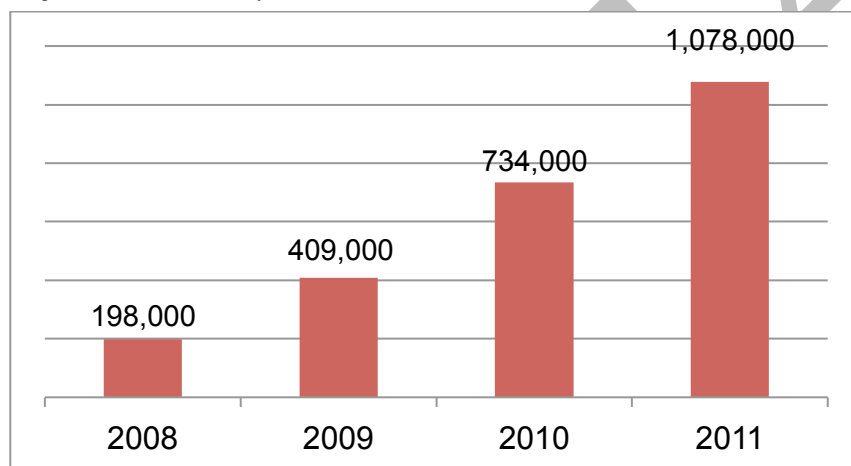
Graph 01 – Evolution of PNAES Resources from 2008 until 2013.



Source: MEC, 2012.

Silveira (2012) showed in his research the actions foreseen by the main lines of PNAES are in organization by the 63 Federal Institutions of Higher Education, mirrored by the 26 Brazilian states and the Federal District. In general, he identified that the main actions undertaken are: student living, daycare, and food, whether by means of the own university facilities (student houses or university restaurant) or by financial aid, called Permanence Scholarship by most institutions; transportation, offered by student cards or financial help, health actions, sports, and culture.

Graph 2- Benefits attended by PNAES 2008-2011



Source: Sisu/Mec

Graph II shows the exponential growth of quantitative benefits given in the order of approximately 544%. It should be emphasized that the students may be benefitted from more than one kind of assistance.

It is observed, from the implanting of PNAES the scholarship option as a strategy to attending most of PNAES’s 11 acting lines. This option characterizes PNAES as a focused program, which hinders the universalization of student assistance by means of increasing the infrastructure, the fight for the free ass, and consequently, for the universalization of these actions and extension of rights. Furthermore, the option of scholarship supply, food, and living for example, in detriment of building restaurants and student living, reinforces the idea of market and individualism: in other words, with the scholarship, the student consumes in an isolated manner.

\*\*\*\*\* “Indicator that seeks to portray the total number of students enrolled in an IFES from the calculation that seeks to match students with courses that are differentiated: cost level, standard duration time and efficiency in graduating its participants, using itself as a mathematic model which includes a range of constants and variable, therefore aiming to portray the number of comparable students among all the courses and IFES taken into consideration”. (MEC, 2014).



Individualism is also reinforced to the extent that the student user the student assistance actions starts being charged as the only one responsible for his academic yield as a condition to maintain the benefits. This action takes the responsibility away from the University of rethinking elements such as teacher training, curriculum, methodologies, structure, among others.

## Conclusion

This article analyzes the Nation Student Assistance Program, developed from the expansion policy of Higher Education adopted by Brazil, with the goal of attending to the challenge placed by the National Education Plan- PNE of enrolling in the higher education 30% of the population of the age group between 18 and 24 until 2011, and that 40% were in public higher education institutions.

Reinforcing the democratization speech of higher education, public, free, and of quality, policies and programs were implanted and implemented to make access possible to higher education, especially to young people and workers.

The study showed that the National Student Assistance Program configured itself as a governmental strategy, by means of allocating the financial resources passed directly to the Universities and Federal Institutes; aims to offer actions that make permanence and course conclusion possible for poor students. This way, it ensures that socially excluded groups from university have their right to education integrally answered because the increase in vacancies and the creation of access strategies by themselves do not guarantee that economically vulnerable students conclude their studies.

Democratization of Higher Education means that the process that makes this education level accessible to all social classes, especially the groups which were historically excluded from this access, reaches a system of universal action. The Higher Education in Brazil was historically marked by its elite access. From the 1970's an expansion process has begun, arising from the increased demand for this teaching level, a phenomena associated to the demands of human resources enabled to attend to the demands coming from economic modernization . Since 1990, this expansion intensified, being primarily offered by private Higher Education Institutions. Therefore, the process named "democratization of educational opportunities in higher education" is confused with the massification of enrollments.

The expansion of vacancies is a historic revindication of social movements, and therefore, all the programs that have this goal, are able to receive much adhesion from Brazilian society. Nonetheless, the expansion proposed is based on standards required by capitalism, materialized in the proposals agreed upon from the World Bank.

Analyzed from the standpoint of social rights, on one side the government attends old revindications of society for greater access to higher education, free teaching, and quality and student assistance for those who depend on concrete actions to continue studying. On the hand, the government also attends to the financial and investor capital in higher education.

The article shows that, other than guaranteeing access, it was necessary to think of strategies that could guarantee permanence and conclusion of students inserted in higher education. Hence, student assistance gained a new status from 2008, with the National Student Assistance Plan, and posteriorly with the transformation of the National Student Assistance Plan, by Decree nº 7,234/2010. Even though the actions offered from PNAES are practically the same historically offered by Higher Education Institutes (university restaurant, living, actions of health attention, and even scholarships) , they gain a new impulse from the intensification of financing and restructuring of teams acquiring characteristics inherent to social policies in neoliberal times.

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# Student perceptions of school climate and lived bullying behaviours

Huguette Beaudoin, Ginette Roberge\*

Associate Professor, Laurentian University, Sudbury, ON (Canada) P3E 2C6  
Associate Professor, Laurentian University, Sudbury, ON (Canada) P3E 2C6

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## Abstract

The purpose of the current study was to present preliminary results of an impact study of school climate and bullying in Ontario, Canada, following the adoption of Bill 13 – The Accepting Schools Act. Student perceptions of school climate and bullying were examined on the basis of two variables: the perception of elementary and secondary school students in regards to the school climate as well as their perceptions of their lived bullying behaviours in their schools. The goal was to present individual viewpoints (in this first phase, the students), as to their participation in the school setting as well as whether they have been affected by bullying. More specifically, this study examined how students felt in regards to school climate and bullying behaviours that could occur in their schools, in the wake of Bill 13.

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*Keywords:* Bullying behaviors; school climate; school climate survey; student perceptions.

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## Introduction

Bullying amongst peers is a problematic issue that concerns schools around the globe. The devastating impact of bullying on young lives has caused this issue to be at the forefront of educational policy development and implementation. Student examinations of the school climate and reports of lived bullying behaviours are often utilized as the basis for bullying prevention and intervention measures undertaken in school settings. Over the years, in fact, administrators, teachers, and other professionals who interact with students have increasingly attempted to promote and implement legislature to target bullying prevention and intervention endeavours in schools by studying student reports of bullying behaviours through school climate surveys. The purpose of the current study was to present the preliminary results, namely the quantitative results of a mixed-methods study pertaining to student perceptions of school climate and lived bullying behaviours.

### *Ontario Bullying Intervention and Prevention*

The nature of bullying prevention and intervention endeavours in Ontario, Canada, has evolved significantly throughout the years. In 2009, a whole-school progressive discipline approach was put into action. Progressive discipline focuses on promoting positive student behaviour while preventing unacceptable behaviour, providing early intervention as well as appropriate consequences according to the context of bullying situations. Recently, the Ontario Ministry of Education (OME) has adopted Bill 13 – The Accepting Schools Act (ASA), which has influenced the nature of measures undertaken by school boards to counter bullying. The ASA provides a legal framework for countering school bullying which is, as mentioned, consistent with the progressive discipline agenda. Consequently, every school board in Ontario and, by extension, every school, is required to have in place a bullying prevention and intervention policy. The Ontario Ministry of Education has since published PPM 144 (OME, 2012) as a model policy and framework that school boards must respect in their individual policy development. One of the requirements of this model policy is for every school in Ontario to administer school climate surveys for students, parents, teachers, administrators and other adults who interact with students in school. As school boards oversee the governance of groupings of schools that vary in terms of their geographical location, religious orientation (catholic or public) as well as language (French or English), they are given flexibility in adapting PPM 144 to their individual needs. This study examines the state of affairs of bullying in French language Ontario schools from the students' perspectives by utilizing school climate survey data obtained from some Ontario school boards.

### *1.2 Conceptual Framework*

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\* Please note that the percentage of author contribution is Huguette Beaudoin, 50% and Ginette Roberge, 50%. Corresponding author. Tel.: 1-705-675-1151 ext. 5037; fax: 1-705-675-4816

E-mail address: hbeaudoin@laurentian.ca, gx\_roberge@laurentian.ca

### *1.2.1. School Climate*

The connection between the school climate and the prevalence of bullying behaviours in schools is widely established by research (Coloroso, 2010; Debardieux et al., 2012). This viewpoint is shared by the Ontario Ministry of Education (OME, 2009a; 2012), which considers that the notion of the school climate refers to the quality of lived experiences, namely the way that the school code of conduct is applied in the school environment and the extent of student participation in the school setting. This could entail goals, values, interpersonal relationships, teaching and learning practices and the organizational structure of school life. It should be noted that the school climate survey utilized in the current study (OME, 2009b) considers the following elements: whether students feel safe and well-treated at school; their perceived cause of mistreatment where applicable; their feelings of belonging to the school community; and finally, their global perception of the school environment. In sum, the term 'school climate' is often utilized to discuss all aspects of the school environment and considers bullying prevention and intervention from a whole-school perspective.

### *1.2.2 Bullying and Bullying Behaviours*

In order to understand student perceptions of the bullying behaviours that they experience, it is important to briefly define what constitutes bullying, and how it is discerned from other aggressive behaviours. While there is no consensus from the scientific community as to a universal definition of this phenomenon, there is some agreement in terms of its general characteristics. Researchers have, for example, commonly identified bullying as occurring in interpersonal relationships, and involving an imbalance of power between the individuals involved (Coloroso, 2010; Rigby, 2008). Moreover, Olweus (1993), a pioneer bullying researcher, sustains that bullying typically involves negative actions repeated over time, though that stance has come under scrutiny with the onset of cyberbullying and the impact of isolated harmful acts, especially when they occur online and are, to date, nearly impossible to eradicate (Roberge, 2012; Shariff, 2008).

Researchers additionally identify different types of bullying behaviours, including physical bullying (hitting, damaging or stealing property), verbal bullying (threats, offensive comments), relational bullying (spreading rumours, excluding someone from a group), cyber-bullying (using technology or social media as a means to bully) or bullying for reasons or religion, ethnicity, culture, socioeconomic status, sexual orientation, and various other real or perceived differences (Olweus, 1993; Rigby, 2008; Roberge, 2012). Rigby (2008) indicates that verbal bullying is the most frequently reported form of bullying, closely followed by physical or relational bullying. He notes that cyberbullying is increasingly reported, and that a Canadian study uncovered the fact that approximately 25% of students had reported having been victims of cyberbullying.

The prevalence of bullying in schools typically varies considerably and is therefore difficult to generalize (Rigby, 2008). The Canadian Institute of Health Research (2012) reports that as many as one in three students state that they have been victims of bullying. Studies have commonly shown that bullying is at its highest point during the junior/intermediate grades (between grades 4 to 10), which is attributed to the transition between divisions that necessitates the navigation between different peer groups (Swearer, Espelage & Napolitano, 2009). Furthermore, research has shown that bullying between peers occurs most frequently at school, namely on the way to and from school or in areas such as hallways, staircases, cafeteria, in the schoolyard, or other areas where there is little or no adult supervision (Blaya, 2003; Coloroso, 2010; St-Germain, 2003).

The reporting of bullying behaviours is another notable dimension that was examined in the school climate surveys administered in the current study. Numerous studies have indicated that a significant amount of bullying that occurs in schools is unreported (Hanish & Guerra, 2000; Mishna & Alaggia, 2005; Safe@School Provincial Initiative, 2012). The reasons for not reporting an incident of bullying could include the fear of reprisal, the belief that no action will be taken, or, in the case of cyberbullying, the fear of losing access to technological privileges (Coloroso, 2010; Safe@School Provincial Initiative, 2012). In support, Dube (1997) indicates that, in terms of lived experiences at school, many students perceive that the bullying that they have experienced would be or has been underestimated by adults in the school setting. Some studies have shown that a substantial number of students witness bullying without intervening (Pepler, Craig, O'Connell, Atlas & Charach, 2004), but that when peer intervention occurs the bullying is likelier to cease (Carra, 2009). In this case, peers play a significant role in bullying incidents by having the power to reinforce the role of the victim or of the aggressor (Pepler, Craig, O'Connell, Atlas & Charach, 2004).

## *1.3 Method*

In order to collect data from participants, a School Climate Survey (OME, 2009b) developed by the Ontario Ministry of Education and regionally adapted was utilized. The survey employs a sliding scale where respondents must note their degree of appreciation of a series of levels for calibrated criteria. The survey also contains open questions. The information gathered on the surveys was regrouped into categories that were most representative of the literature findings presented in the previous section. The interpretation of data was conducted in a holistic perspective and considered that what is perceived, felt, lived by students is important and revelatory in examining the school climate and the presence of school bullying.

Two French language school boards in Ontario provided their school climate survey student data for the purposes of this study, which resulted in survey responses from 32 elementary schools and 8 secondary schools, and amounted to 3073 individual

student responses. The process of collecting data from student participants is noteworthy. Some administrators strove for 100% participation of students in their schools. As such, students who were absent on the day that the surveys were administered were surveyed upon their return. Moreover, prior to completing the school climate surveys, most students participated in an information session in order to better grasp the definition of bullying, to understand the different types of bullying that exist, and to discern bullying from other behaviours such as teasing or naturally occurring conflict between peers. The final result was 87.27% participation in one school board, and 100% student participation in the other.

#### 1.4. Results

##### 1.4.1. Student Perceptions of the School Climate

The results of the quantitative phase of this study present student perceptions of the quality of the school climate in terms of their lived experiences at school. Table 1 tabularizes, more specifically, how students feel they are treated at school, whether they feel comfortable at school, their perception of the way that rules, regulations and school codes of conduct are applied, as well as their perception of the cause of being mistreated when it occurs, as well as their global appreciation of the school climate.

Table I. Mean Percentages of Student Perceptions of School Climate Characteristics

1.1 Feeling Safe at School	Grades 4-6 (Junior)	Grades 7-12 (Intermediate/Senior)
Students who generally feel safe at school, who generally enjoy being at school and who feel that the learning environment is generally pleasant.	91	94
Students who generally feel welcome at school	88	89
Students who generally feel that they are treated fairly by adults in their school	89	88
Students who generally feel that the student code of conduct/policy is applied equitably in their school	88	88
1.2. Feeling Unsafe or Mistreated at School	Grades 4-6 (Junior)	Grades 7-12 (Intermediate/Senior)
Students who feel uneasy or mistreated at school	42	38
1.3. Perception of the Cause of Mistreatment	Grades 4-6 (Junior)	Grades 7-12 (Intermediate/Senior)
Physical appearance (ex. physical disability, etc.)	43	56
Language	10	10
Culture and race/aboriginal roots	14	18
Religious beliefs	9	10.8
1.4 Global Appreciation of the School Climate	Grades 4-6 (Junior)	Grades 7-12 (Intermediate/Senior)
Always feels well at school	45	41
Often feels well at school	41	43
Sometimes feels well at school	12	13
Never feels well at school	2	2

##### 1.4.2. Student Perceptions of Bullying Behaviors in their School

The next section of the school climate survey studied student perception of the prevalence and of the different facets of bullying incidents and of their strategies for reacting to bullying either as victims of as witnesses of bullying. Table 2 represents student perceptions of the bullying that they perceive to experience at school.

Table II. Mean Percentages of Student Perceptions of Extent of School Bullying Behaviors

2.1 Prevalence and Forms of Bullying – Victims of Bullying	Grades 4-6 (Junior)	Grades 7-12 (Intermediate/Senior)
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Physical Bullying :		
a) never		
b) once or twice	66	81
c) regularly	19	11
d) unaware of having been victimized	5	3
	7	5
Verbal Bullying :		
a) never		
b) once or twice	50	61
c) regularly	32	23
d) unaware of having been victimized	12	10
	6	5
Social Bullying :		
a) never		
b) once or twice	66	71
c) regularly	30	17
d) unaware of having been victimized	6	7
	8	6
Cyberbullying		
a) never		
b) once or twice	82	83
c) regularly	6	8
d) unaware of having been victimized	2	3
	9	6
Did not witness bullying		
	45	46.6
2.2 Reactions to Bullying		
Did not report the bullying		
	21	28
Reported to school principal/ vice-principal		
	16	15
Reported to a teacher		
	30	15
Reported to another staff member		
	29	12
Reported to his/her parents		
	34	27
Reported to a peer		
	41	41
2.3 Witnessing Bullying		
	Grades 4-6	Grades 7-12
Witnessed bullying		
	55	54
2.4 Areas where Bullying Occurs		
	Grades 4-6 (Junior)	Grades 7-12 (Intermediate/Senior)
On the school bus		
	12	8
Upon arriving/leaving school grounds		
	5	4
In the classroom		
	10	8
In hallways		
	7	8
In restrooms		
	7	5
In the gymnasium or change rooms		
	10	9
In the school yard		
	19	7
In the cafeteria		
	2	5

### 1.5. Interpretation of Results

The objective of the Ontario Ministry of Education's (2009b) School Climate Survey is to gather information from schools in terms of equity and inclusive education. The first section of the survey examined how students feel at school, whether they feel accepted and comfortable during activities and while participating in sports or clubs within their schools.

#### 1.5.1. School Climate

#### *1.5.1.1. Positive Elements of the School Climate*

The viewpoints gathered largely suggest that students have an extremely favourable appreciation of the quality of their school life and of the welcoming climate of their school. They indicate that they feel well, or mostly feel well in their school in general and in the classroom. As such, school appears to be a welcoming place where they feel safe everywhere in the school environment. Furthermore, students maintain that they feel that they are treated equitably by adults and confirm that the school code of conduct is applied fairly. This validation of the school and of the adults who intervene amongst students is present for both younger students and senior students. Conversely, the perception of a positive school climate such as in the current study has been identified as potentially serving as a safeguard barrier against bullying behaviours, and could also reduce stress and enhance academic performance (Loukas, Suzuki & Horton, 2006; Swearer, Espelage, Vaillancourt & Hymel, 2010). This would suggest that reports of bullying behaviours should be relatively low, as was the case in the current study.

#### *1.5.1.2. Limitations of the School Climate*

A certain proportion of students do not share the general favourable opinion of the school climate, but rather express sometimes feeling mistreated at school. The reason that is most frequently evoked to explain the cause of mistreatment is their physical appearance. Language, culture, race and religious beliefs are evoked in a minor proportion. Extant research confirms personality traits of victims and perpetrators of bullying, as well as the victim's reaction to the bullying, as common reasons for bullying (Coloroso, 2010; Rigby, 2008; Zapf & Einarsen, 2011). This finding must be interpreted with caution and does not suggest that students who report feeling mistreated are necessarily automatically victims of bullying. Mistreatment could include perceiving that teachers are not listening to them, feeling judged without knowing the reason, or generally feeling mistreated without attributing a definite cause to these feelings.

#### *1.5.1.3. Global Appreciation of the School Climate*

In order to globally apprehend the multiplicity of facets of the school climate as perceived by the students, the surveys also sought to determine the students' global appreciation of their school. Results suggest that a significant majority of students have a highly favourable appreciation of the school climate. Past studies of this nature have shown varied student perceptions of their school climate (Loukas, Suzuki, & Horton, 2006; Safe@School Provincial Initiative, 2012).

### *1.5.2. Student Perceptions of Lived Bullying Behaviours*

Following a detailed presentation of types and forms of bullying, the second portion of the school climate survey represents student perceptions of the prevalence of bullying in their school.

#### *1.5.2.1. Victim Experiences of Prevalence and Types of Lived Bullying*

The most frequently reported types of bullying experienced by students since the beginning of the school year are, from most to least reported, as follows: verbal bullying, physical bullying, social bullying and cyberbullying. Safe@School Provincial Initiative (2012) reports that verbal bullying is generally the most common type of bullying experienced by students. Nevertheless, notwithstanding the type of reported bullying behaviour, it is notable that students in the current study more frequently report having been victimized once or twice since the beginning of the school year, than having been regularly victimized. In the absence of repetition of the bullying behaviour, one could then question whether the incidents reported by students as having occurred only once or twice constituted bullying or isolated conflict between peers. This could also suggest that, given the quality of the school climate of the schools surveyed in the current study, the bullying was promptly addressed and ceased after the intervention. These findings are also consistent with existing research, in terms of the fact that bullying experiences often occur regularly for only a small number of students, or even in areas that are confronted with grave socioeconomic issues (Debarbieux & Blaya, 2008; Gottfredson, 2001; Shaw, 2004).

#### *1.5.2.2. Reacting to Bullying Behaviours*

Another section of the survey focussed on the existence of bullying in schools and on different ways to react once it occurs. An interesting finding was that younger students are slightly less likely to report bullying. This is contradicted by some researchers. For example, Debarbieux et al. (2012) postulate that, as children grow, develop, and evolve, their relationships with figures of authority are increasingly perceived negatively, which could account for the reluctance to report bullying to a trusted adult in the school setting as students enter their teenaged years. Conversely, in the current study, junior, intermediate and senior students more frequently report bullying to family members and friends than to teaching staff or the school administration. This likelihood to report could also be linked to the quality of the school climate as demonstrated by the survey results of the current study.

### 1.5.2.3. Areas Where Bullying Occurs

At first glance, the reported areas where bullying occurs are consistent with research findings in this regard. In fact, for students in grades 4 to 6, bullying most often occurs in the school yard and on school buses, whereas students in grades 7 to 12 report that bullying most often occurs in varied areas. This finding is supported by numerous researchers, who suggest that bullying most often occurs where there is little or no adult supervision (Coloroso, 2010; Rigby, 2008).

### 1.6. Discussion and Conclusion

By highlighting the viewpoints of the individuals on the front lines of lived experiences in the school setting, namely the students, this study frames bullying in schools for students in grades 4 to 6 and 7 to 12. The methodological challenges of utilizing surveys, especially with young participants, must not be underestimated. The normative, relative and subjective dimensions of school bullying must be taken into account when interpreting this survey data. Given the fact that the participants in this study were currently attending elementary and secondary school, the results therefore reveal the state of affairs of bullying as reported by the individuals who interact in schools. The subjective experience of students is perceived as resulting from interactions with others, with bullying being the outcome of an interactive process. According to Strauss (1990), this process of building meaning of bullying as the evolution of representations of the types of bullying and of their breadth, are nurtured by logic of actions of the different individuals involved in the situation. As such, the perception of feeling safe, as the perception of feeling victimized by others rests on the experience of interaction with others, which is linked to an interpretation of the whole of particular problems at school, and therefore linked to a particular context. Bullying then becomes meaningful for students through their lived experiences.

In conclusion, numerous searchers highlight the fact that the quality of the school climate largely influences student academic performance, well-being, and personal and social development (Coloroso, 2010; Loukas, Suzuki & Horton, 2006; Swearer, Espelage, Vaillancourt & Hymel, 2010). Feeling safe and free from bullying at school is an integral part of the school climate. The schools surveyed in the current study appear to have made significant gains in this regard. Future research which gathers insight into teacher, parent and administrators' perspectives of school bullying, through similar school climate surveys and qualitative interviews, will provide more comprehensive insight into bullying behaviors in these schools.

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# Student segments based on the factors related to sense of belonging across disadvantaged and resilient groups in PISA 2012

Ayşe Aydiner<sup>a</sup>, İlker Kalender<sup>b, \$\$\$\$\$\$</sup>

<sup>a</sup>*Social Sciences University of Ankara, Ankara, 06050, Turkey*

<sup>b</sup>*Graduate School of Education, Bilkent University, Ankara, 06800, Turkey*

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## Abstract

The present study investigated differences between disadvantaged and resilient students in terms of sense of belonging, as measured in PISA 2012. To this end, a segmentation method was employed to define student segments differing in ratios of resilient students. Results indicated that there is a relationship between academic resiliency and sense of belonging. While the relationship between resiliency and the some predictors seemed to be varying, there are some predictors with direct relationships with academic resiliency.

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*Keywords:* sense of belonging; academic resiliency; disadvantaged students; segmentation; PISA 2012

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## 1. Introduction

Among the aspects making the students ‘disadvantaged’ in their educational experiences and lives are bad family structures, school resources, low socio-economic status (SES) and etc. Of these, especially low SES has a key effect on the achievement of students (Kalender & Berberoglu, 2009; Yayan & Berberoglu, 2004; Caldas & Bankston, 1997, 2001; Rumberger & Willms as cited in Caldas and Bankston, 2001; Baker, Goesling and Letendre, 2002; Schoon, et al., 2003; Alspaugh, 1996; Jencks et al., 1972). Similarly, according to the Coleman Report on equality and educational opportunity (Coleman et al., 1966), socio-economically advantaged group of students perform better than students who are disadvantaged.

However, there is a group of students getting good achievement levels although they are in the disadvantaged group, whom we can call academically resilient. In the literature, although there is not one universal explanation, resilience is a term which is explained as a process consisting of three aspects, the first is a chaotic, and risky environment or adversity, and the second is successful coping abilities and positive adaptation systems against those adversities (Masten & Reed, 2002; Rutter, 1990, 1999; Doll & Lyon, 1998; Garmezy, Masten & Tellegen, 1984; Luthar & Cicchetti, 2000; Wolin and Wolin, 1993), and the third is a heightened likelihood of school success and other accomplishments in life thanks to the coping mechanisms (Wang, Haertel, & Walberg, 1994).

When looking at disadvantaged students that are successful within countries, resilient students’ performance is high even when compared to their more advantaged peers in spite of their adversities (OECD, 2011). What makes them outperform even the advantaged ones is the mechanisms they develop to lessen the effects of above aspects. Studies (Garmezy, 1991; Masten and Coatsworth, 1998; Rutter, 1987; Werner & Smith, 1992; Beauvais & Oetting, 1999; Greene & Conrad, 2002) grouped the protective factors or coping mechanism by three, which are personal characteristics (e.g. intelligence, temperament, internal locus of control, and autonomy), family related factors (e.g. support from family members) or qualities and external support systems or aspects of wider social context (e.g. teacher support or school environment).

Hanson and Austin (2003) reported that the students who have higher resiliency have higher achievement levels in schools. Also there are reported findings that academic resilience does not only improve students’ achievement at school (Martin, 2002; Finn & Rock, 1997; Rouse, 2001; Waxman & Huang, 1996), but also it provides several positive outcomes in their life like stronger social relations, less emotional and behavioral problems and alike. Furthermore, being resilient in their academic life is among the few factors which let them exit the low-SES cycle (Hout and Beller, 2006). Now that through this way they can protect themselves and their future generations from low SES and have the chance to be among the advantaged group by beating the odds, it is crucial that the disadvantaged students learn to deal with their problems and improve their academic skills (Alva, 1991).

Among the protective factors which can be developed at schools is sense of belonging, which, as a psychological term, could be described as a pervasive human concern to establish and maintain relatedness to others (Kohut, 1977). A similar description is

that sense of belonging is the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment, which is considered to be a part of human mental health (Hagerty et al., 1992). More specifically, sense of belonging have two defining attributes; one is the experience of being valued, needed, or important with respect to other people, groups, or environments; and the other is the experience of fitting in or being congruent with other people, groups, or environments through shared or complementary characteristics. (Hagerty et al., 1992)

According to Maslow (1962), the need of belonging is a feeling which has to be satisfied before other needs and expectations could be fulfilled. When adapted to school environment and student psychology, it could be argued that the sense of belonging is a need of students which should be satisfied before they can move on studying and being resilient.

Goodenow and Grady (1993) defined sense of belonging to school as the extent to which students feel personally accepted, respected, included, and supported in the school social environment so that their educational participation would not be limited (Finn, 1989) and would not lead to dropping out of high school (Fine, 1991) and as a result, it would lead to commitment to schooling (Kagan, 1990). Albert (1991) coined a simple formula of three Cs to express sense of belonging; consisting of 'connect' which stands for connecting with others; 'capable' which stands for letting them feel capable; and 'contribute' which stands for the students' contribution to feel belonging. Sense of belonging to school is, in a few words, about having friends in class, interacting with peers, participating in class, and obtaining good grades in the examinations (Williams & Downing, 1998). In other words, sense of belonging has a direct relationship to motivation, student effort, and academic achievement. (Goodenow, 1991)

Wang, Haertel, and Wahlberg (1994) argued that academic resilience could be developed through interventions which enhance the learning, develop students' talents and competencies, and they (1998) described the roles of educators in promoting children's educational resilience; sense of belonging was presented as an important ingredient in any educational program for children at risk of academic failure. Finn (1989) argues that students' sense of a close connection with their schools is a critical factor in school achievement. Students who identify with their schools have an internalized sense of belonging; that is, they feel they are a part of the school community and that school constitutes an important aspect of their own experience. Students who feel this way are more likely to value and pursue academic or school-relevant goals and thus are more likely to participate in the classroom. Voekl (1997) found that school identification was significantly correlated with achievement test scores. School climate is thus a critical factor in reducing academic failure.

Students who are more actively feel belonging to school earn higher grades, score higher on standardized tests of achievement, and show better personal adjustment to school (Skinner & Belmont, 1993). They are also more resilient (Finn & Rock, 1997). If schools can strengthen the sense of school belonging, it should, in turn, result in increased academic achievement.

It is important to understand the ways in which schools can foster resilience in students. Beginning in the 1970's, researchers sought to find answers to this question. Rutter (1987) identified four main protective processes or methods that foster resilience:

- Reduce negative outcomes by altering the risk or child's exposure to the risk
- Reduce negative chain reactions following risk exposure
- Establish and maintain self-esteem and self-efficacy
- Open up opportunities to acquire skills and invest in prosocial activities.

Schools can foster resilience through any combination of these four processes (Benard, 1993). For example, schools can reduce negative outcomes by providing free/reduced meal programs, providing access to school-based health clinics, providing clothing and other basic needs, and providing links to community resources. Schools can reduce negative chain reactions following risk exposure by having smaller classes, implementing programs that developing mentoring programs, and offering additional tutoring or counselling. Schools can foster self-esteem and self-efficacy in students by setting up classroom environments so that students can experience success and feel a sense of control over aspects of their environment. Finally, schools can provide opportunities for students to acquire skills and engage in prosocial activities by offering a range of extracurricular activities, mentoring programs, and tutoring options.

One of the most comprehensive data sets comes from Programme for International Student Assessment (PISA) conducted by Organization for Economic Co-operation and Development (OECD). The assessment examines how well 15-year-old students are able to use the knowledge and skills they have gained to solve standardized tasks in reading, mathematics and science as they approach the end of secondary school. It also collects contextual information about the students, their families and their schools (OECD, 2011). Approximately 6% of students across its member countries are defined as resilient by OECD. Preliminary results on PISA 2012 show that, disadvantaged students in countries where SES is lower received lower scores not only in mathematics but also in some other dimensions such as engagement, drive, and motivation. On the other hand, resilient students can get higher scores both in mathematics and other dimensions. Accordingly, OECD suggests that putting efforts to increase disadvantaged students' performance through additional instruction be a key priority for policy makers of the low SES countries (2013). Sense of belonging is of special importance in that unlike socio-economic disadvantages, it can be increased by active role of teachers and administrators.

Turkey was among the top 8 countries that had the highest resilient student ratios (OECD, 2013). Around 45% of the disadvantaged Turkish students are resilient. Therefore, it can be said that Turkey constitutes a good example to study resilient students. In a study on PISA 2009, it was shown that while resilient ones generally went up to 3<sup>rd</sup> proficiency level, most of the disadvantaged students reached only 2<sup>nd</sup> level (Findik & Kavak, 2013).

In the present study, indicators of students' sense of belonging were investigated in terms of their ability to differentiate resilient students from disadvantaged students. To this end, student subgroups differing in sense of belonging were defined using a segmentation method.

## 2.Method

### 2.1.Data set and sample

In PISA 2012, Turkish data were collected from 4848 15-year old students from 12 statistical regions and 13 school types through student questionnaires and literacy tests. To define disadvantaged and resilient students, the index of ESCS (economic, social and cultural status) index was used. This index is computed for each participant country by OECD using several variables such as parental occupation, the highest level of parental education, and an index of home possessions related to family wealth, home educational resources and possessions related to "classical" culture in the family home.

Disadvantaged students were defined as those who were at the bottom quarter based on ESCS (n=900). Among them, students who were at the highest proficiency quarter were labeled as resilient based on one of the plausible variable for reading literacy, PV1READ (n=300). Reading proficiency levels of disadvantaged and resilient students were 3 (mean score 410) and 5 (mean score 583), respectively.

### 2.2.Analyses

In PISA 2012, sense of belonging was assessed with 9 indicators: "I feel like an outsider (or left out of things) at school", "I make friends easily at school", "I feel like I belong at school", "I feel awkward and out of place in my school", "Other students seem to like me", "I feel lonely at school", "I feel happy at school", "Things are ideal in my school", and "I am satisfied with my school" (1: Strongly agree to 4: Strongly disagree).

To create subgroups of students, Chi-squared Automatic Interaction Detector (CHAID) analysis (Sonquist and Morgan, 1964), a non-parametric data reduction method, was employed. By this way, student segments varying in ratio of disadvantaged and resilient were defined. CHAID method produces a visual tree so that it is possible to assess significance of the predictors.

## 3.Results

Due to the missing data in the set, CHAID analysis was conducted using 588 (instead of 900) disadvantaged and 200 (instead of 300) resilient students and this whole group was segmented. CHAID analysis produced the tree in Figure 1. Tree was defined using out of 9 predictor variables of sense of belonging. In the tree, disadvantaged and resilient students were coded with 1 and 2, respectively. Ratios of disadvantaged and resilient students in the whole body were 74.6% and 25.4%, respectively.

The most significant predictor was selected as "Other students seem to like me". And then, "I feel lonely at school" and "Things are ideal in my school" were selected to create second-levels clusters. And last, "I feel like I belong at school", "I make friends easily at school" and "I feel happy at school" were the variables on the third-layer. As a result of the CHAID analysis, 10 terminal nodes were created and 4 of them (nodes 10, 12, 15 and 17) included larger number of resilient students than the whole body held (25.4%).

Node 10 included students who feel "Liked by Other students", don't 'Feel Lonely at School' and feel "Belong at School"; Node 12 those who agree "Liked by Other students", "Things are Ideal at School", and "Belong at School"; Node 15 those who agree "Liked by Other students", disagree "Things are Ideal at School", and "Make Friends Easily" and Students who disagree "Liked by Other students", agree and disagree "Feel Lonely at School", disagree "Feel Happy at School" constituted Node 17.

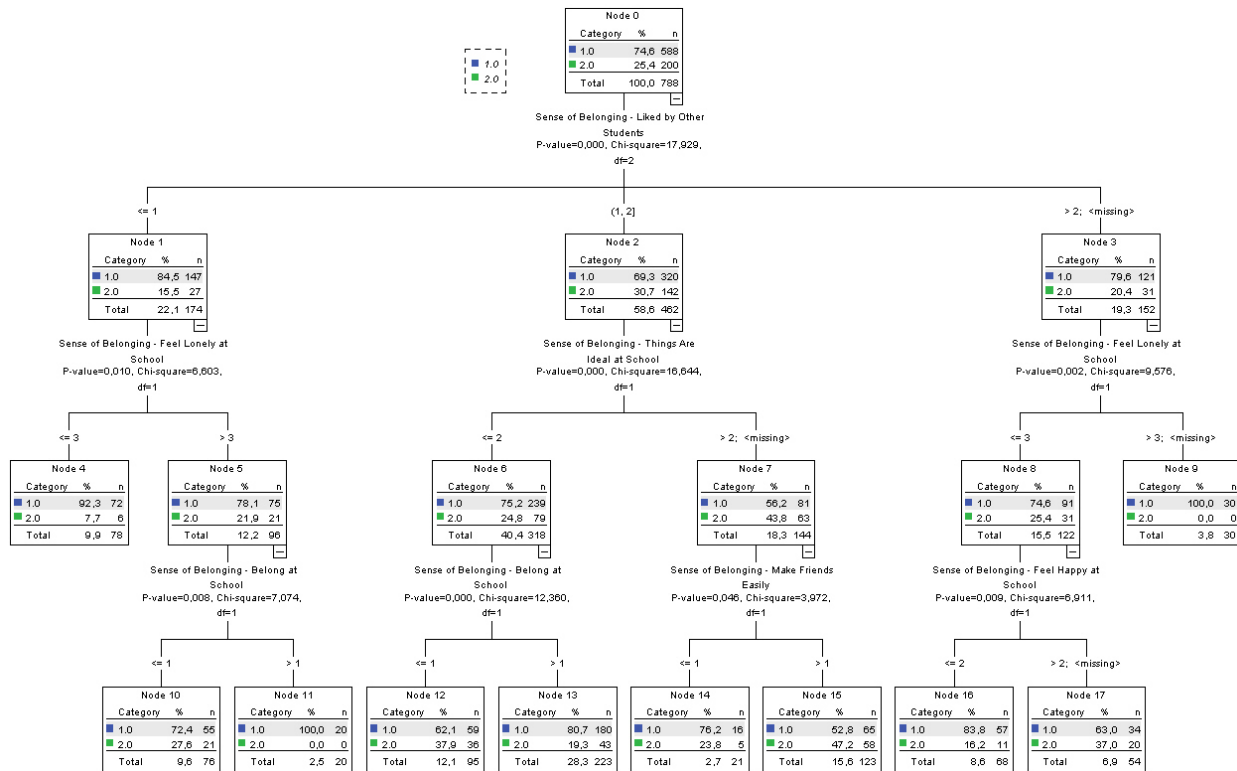


Figure 1. CHAID Tree

#### 4. Discussion and Conclusion

Results of the present study indicated that there is a relationship between sense of belonging and being resilient. Some of the predictors used in CHAID analysis were found to be strongly associated with group membership to disadvantaged/resilient.

The relationship between resiliency and the predictor, “Other students seem to like me”, seemed to be varying. Student segment with higher resiliency included both low and high agreement with this predictor. In other words, whether students are liked by others or not, they can be academically resilient. Similarly, the other predictor, “Feel lonely at school”, was observed to have varying relationship with resiliency. Both low and high agreement can create academic achievement among disadvantaged students. On the other hand, “Belonging to the school” was found to have higher degree of agreement for resilient students. Furthermore, segments with students who were cannot “Make friends easily” and “Feel unhappy at school” included mostly resilient students.

The predictors identified as a result of the CHAID analysis could be used to increase ratio of resilient students among disadvantaged students. As mentioned earlier in the paper, such an increase could be related not only to academic achievement, but also to some other positive outcomes such as stronger social relations, less emotional and behavioral problems and alike, as stated by Finn and Rock (1997), Rouse (2001), and Waxman and Huang (1996). Also increasing the ratio of resilient students via increasing their sense of belonging may provide them with a way to let them exit the low-SES cycle (Hout and Beller, 2006).

Despite the significant findings, it is hard to discriminate if disadvantaged students become academically resilient because they have no friends, fell lonely etc. or they have no friends, fell lonely, not happy because they are successful. Experimental studies are suggested to investigate cause-and-effect structure of this relationship.

Results revealed by the present study highlight the importance of school on student achievement. Teacher and administrators could be actors to increase sense of belonging, which cannot be provided by students’ low-SES families.

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# Student teachers evaluating and assessing *SCRATCH* in the Applied Linguistics classroom

Clarisa Garcia Quan\*

University of Guam, Division of English & Applied Linguistics, UOG Station, Mangilao, Guam 96923

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## Abstract

For the past four years, students and student teachers taking applied linguistics at the University of Guam were required to design class projects using *SCRATCH*, a free downloadable program from MIT. Their projects had to integrate principles of second language teaching/learning or other subfields of applied linguistics into their projects. In 2012 and 2013, students integrated their computer projects into their lesson plans for elementary, middle, or high school students. This presentation will propose criteria for evaluating students' computer projects and summarize students' assessments of and comments about, using MIT's *SCRATCH* program in foreign language and content area teaching.

**Keywords:** technology; education; programming; foreign language teaching; learning; assessment

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## 1. Background of the study

In the 21<sup>st</sup> century, technology has become such a vital part of almost everyone's lives that effective educators must make it an integral part of their lessons and lesson plans as well. Just as mobile devices like Androids, iPads and iPhones have become part and parcel of students' common everyday conveniences, every cutting-edge educator must make computers and technology part and parcel of their teaching. They must find ways to make technology contribute to better teaching and better learning. The programming tool *SCRATCH* is an example of a promising classroom tool. In the past four Fall semesters, students of Applied Linguistics (LN400/G) at the University of Guam were required to design *SCRATCH* computer projects for possible use in the classroom, for students of different ages and levels of competency. After becoming familiar with second language learning/acquisition theories, applied linguistics students were required to think of ways to integrate *SCRATCH* into possible classroom lessons in foreign language teaching and other content areas. They were told that their projects had to reflect their creativity, imagination, (multi-) cultural / ethnic sensitivity, and teaching ability.

What is *SCRATCH*? *SCRATCH* is a relatively simple programming language that enables anyone to do graphics, animation, interactive games, music – the possibilities are endless. The *SCRATCH* Program consists of a sprite (and other) characters, & a list of commands that can be added to a project to say and or do whatever is to be taught. All commands are listed along the side of the program in the form of puzzle-like pieces that can be added to the script. Developed by MIT Media Lab's Lifelong Kindergarten Group (2004, 2013), with support from organizations and businesses like the National Science Foundation, Microsoft, Google, and Intel, *SCRATCH* was designed to stimulate and encourage anyone interested, from children to adults, not only to think critically, logically and creatively, but also to work collaboratively. Posted sample programs and tutorials on the net can be invaluable to those who wish to learn using the program. Fall 2010, 2011, and 2012 applied linguistics students used *SCRATCH* Version 1.4; Fall 2013 students used the new *Scratch* 2.0 version. It was hoped that the new version would take care of the difficulties students had with the earlier version.

*SCRATCH* is an attractive option for educators because it gives student-teachers a chance to learn doing hands-on basic programming as well as apply the theories they have learned in class, to actual lessons that put those theories to the student

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\* CQuan. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .  
E-mail address: risaquan@gmail.com

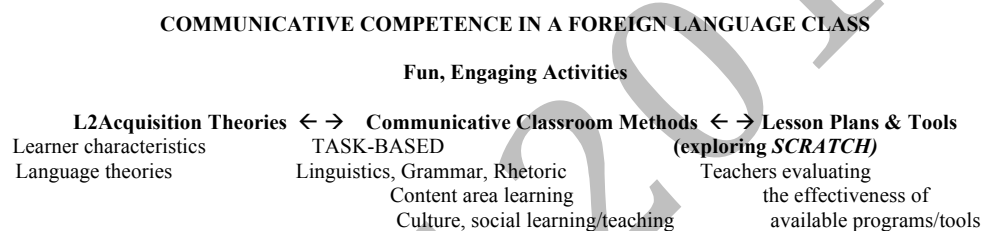


and classroom test. Most importantly, it is free: anyone can download it from the net. Even though the program was originally intended for younger learners to learn basic programming, I wanted to see what university students of applied linguistics could do with this MIT-generated program, to help their present and future students with the acquisition of a second language, or the learning of content areas (Quan 2013, q.v.).

Applied Linguistics at the University of Guam (LN400G) is a one-semester, 3-month undergraduate/graduate course that ESL, and English-language/linguistics track majors must take. It is an optional course for other education majors. Although the course surveys the main subfields of Applied Linguistics, the first half of the semester covers second language acquisition theories, e.g., Cross-linguistic Influence or CLI (Kellerman 1995, Odlin 2003) –the weak version that remains from the controversial Contrastive Analysis Hypothesis (Lado 1957); Krashen’s (1981,1982,1983, 1985, 1997) theory with its bundle of five hypotheses – Monitor, Acquisition vs. Learning, Affective Filter, Input i+1, and Natural Order Hypotheses; Cognitive Theory (McLaughlin 1987, Scovel 1999, R. Ellis 1997); Social Constructivist Theories (Long 1996, 2003); Inter/Intralanguage/Fossilization Theories (Selinker & Lamendella 1979, Long 2003), and Eckman’s (1981, 2004) Markedness Differential Hypothesis from Universal Theory (Chomsky(an), and language universals and typology (Greenberg, Ferguson, 1978).

## 2.Communicative competence

A previous paper (Quan 2013) proposed a model of the relationship between L2Acquisition theories and communicative classroom methods in the applied linguistics class projects based on Hymes’ (1974) notion of “communicative competence”:



H.D. Brown (2007) enumerated some characteristics of an ideal communicative language teaching classroom (cf. Hymes 1972 on communicative competence). They include the need for the following: a) cultural, social, as well as linguistic competence; b) authenticity and functionality in lesson design; c) the necessity of sometimes sacrificing grammatical accuracy for fluency, or “getting the point across” for successful communication, especially in the early stages; d) the need to develop students’ ability to actually be able to function in real-life situations, in the target language setting, beyond the classroom. To his list, I added another: the need for positive rapport between students and between students and the teacher, to facilitate language learning/acquisition in the foreign language classroom.

The first year of the SCRATCH 1.4 project in the Applied Linguistics classroom was exploratory and collaborative, with each group of 3 or 4 students submitting one project. In the second and third Fall semesters, every student was required to program his or her own project, although students were encouraged to work in groups to help each other out, or for “knowers” to help others. A student from the previous year was invited to speak to the class, give advice, and answer questions about the program. This knower-helping-novices approach apparently helped students a lot. In Fall 2013, students used the newest version of Scratch (2.0) in their projects and submitted individual projects.

## 3.Criteria for assessment

Criteria for evaluating students’ projects have been developed. They involve examining how the individual projects tie in with the theories of foreign language acquisition and communicative learning methods. Issues addressed are the following:

- **The theory or hypothesis behind the project**
  - Reasons for choosing a particular project or topic**
  - The L2Learning theory / hypothesis or communicative learning method that “jives” or matches with the program design or that the design addresses**
  - The “closeness of fit” between the project, the course content, and the course learning objectives as stated in the LN400G Applied Linguistics course outline and syllabus**
- **Use of the Scratch Program**
  - The simplicity/complexity of the programming project: mastery or lack thereof?**

The time spent to plan, design, write, organize the program itself  
 Online Tutorials that inspired and or helped with the project  
 The planning vs. the execution: any technical problems with the program or content?  
 Audience and Purpose: consistent from beginning to end of program?  
 Feedback from classmates: were suggestions and comments taken in to account in the final project?

• **Execution and Communicative Goals in the Classroom**

User-friendliness of the program for the intended audience  
 Ease of learning content  
 The project: Task based? Goal oriented?  
 Cultural sensitivity and awareness of social rules beyond grammar or declarative knowledge

Grade and level-appropriateness of activities (content, inputting responses) with regards to the intended audience

The purpose of the project/lesson: Accomplished?

Assessment: is it included in the project? Or separate?

Integration between the project, lesson plan, PowerPoint (& other tools), and Assessment (whichever is applicable).

• **Adjustability and Modifiability**

With the basic design of the program remaining unchanged, can the lesson content be modified for use in subjects or other content areas?  
 Should the project be modified, expanded, or improved for future use? How?  
 Can the same program be used and or modified to teach multi-level and multi-age students?  
 Any bugs? Any glaring problems that should be addressed?

#### 4. Student Feedback

Students, in turn, evaluated the value of Scratch in their final papers. Their comments are summarized in Table 1 and Table 2 below.

Table 1. UOG Applied Linguistics students' evaluations of *Scratch 1.4*, from 2010-2012

STUDENTS' POSITIVE COMMENTS	STUDENTS' NEGATIVE COMMENTS
1. Fun!	1. Very time consuming
2. Great learning experience	2. Not easy to learn in the beginning
3. A useful tool for educators who want a different teaching method in the classroom	3. Hard to coordinate sounds, movements
4. A creative alternative to Powerpoint, lectures, chalkboards, with the teacher talking all the time!	4. Takes a few days to learn and feel comfortable with program
5. Allows teachers to be very creative	5. UTube video tutorials were too basic
6. Middle and high school students can use Scratch to do presentations, create games themselves, have fun!	6. Commands are hard to learn; challenging for teachers who are not programming-savvy!
7. No limit as to what it can do	7. Takes a lot of patience and time that teachers may not have
8. A useful tool for ESL/EFL students as well as native speakers	8. What if classrooms don't have computers? What if students don't have computers at home?

Students' suggestions for improving *SCRATCH 1.4* included the following:

- **Make it more user-friendly because colorful and inviting interface belies the complexity of the scripts needed to make a functional product**
- **Simplify the tabs: there are too many tabs and dozens of options: hard to know where to start to move a sprite from points A to B- so simplify the commands!**
- **Simplify complex terms that are hard for ordinary people to translate to layman's terms**
- **Make tutorial more user-friendly!**

Fall 2013 students, after using *SCRATCH*'s new version 2.0 that came out in May 2013, gave narrative evaluations given in the table below:

Table 2. UOG Applied Linguistics students' evaluations of the new *Scratch 2.0* in Fall 2013

STUDENTS' POSITIVE COMMENTS	STUDENTS' NEGATIVE COMMENTS
1. Fun, interactive; keeps kids engaged	1. Time-consuming
2. An inspiring tool that promotes learning	2. Confusing and intimidating in the beginning, especially for those starting from "scratch"!
3. A versatile tool for teaching anything, not just Scratch	3. Must coordinate sounds, movements, conversation bubbles to

	minimize overlaps and interference
4. Availability of tutorials, as well as sprite library for resources	4. Takes a few hours to a few days to learn and feel comfortable with the program
5. Ease of recording audio material	5. Even minor editing entails watching the entire presentation from the beginning, to coordinate timing and esthetics
6. A good tool for incorporating technology into the classroom	6. Hard to coordinate sounds, sprites, backgrounds, functions
7. Scratch 2.0 has tutorials for every one of its 10 steps posted on the website	7. Program lacks a conventional playback method; “snapping” feature was annoying
8. A useful program for teachers and students of all ages	8. Problems with costumes tabs that enlarge the characters; must restart the program to fix the problem – a waste of time
9. Can integrate any outside photo, figure, or drawing into the program	9. Can speech bubbles be automatically prevented from covering other characters’ features?
10. Availability of sample programs from the website and UTube to help with programming and ideas	10. A minor editing change in the program entails replaying the entire presentation from the beginning
11. Questions, concerns, problems not addressed by the Scratch website are Google-able.	11. Program’s tutorial voice sounded bored and boring. Can it be made to sound more enthusiastic?

Fall 2013 students’ suggestions and comments included the following:

- **Design a more interactive and thorough tutorial that comes with *Scratch*: use *Scratch* to teach *Scratch* for hands-on experience with the program.**
- **Design the program to reach older learners not previously exposed to technology; program must attract older learners too, who may not be as tech-savvy.**
- **Students must have pre planned and prepared scripts, dialogues, audio files, video files, sprites, and backgrounds written down before starting the programming, in order to coordinate the “fun” of learning programming, the teaching methodology of the lesson, the theories of Second Language Acquisition that apply, and the focus/content of the project.**

## 5. Conclusion

For students, the process of designing the *SCRATCH* project is not linear. Based on four years’ observation, the steps for many student teachers appear to be: a) Downloading Scratch (1.4 from 2010 to 2012; 2.0 for 2013); b) Tinkering with the program itself to figure out its basic mechanics; c) Looking at tutorials that come with the program itself for familiarization; d) Playing with, manipulating very simple programs; e) Planning, designing their personal project: audience, purpose, method, content, characters, layout, backgrounds: sounds, colors, plot (if applicable); f) Looking for possible tutorials and other sample programs from the Scratch website, YouTube, or Google that loosely match what students aim to do; g) Writing the program; h) Looking for sample programs again to see how their program matches the sample programs and to figure out how to make necessary modifications and corrections; i) editing, correcting, modifying, simplifying, adding on; j) going back and forth between (f), (g) (h) (i) (b,c,d,e may be included as well) as many times as possible; k) changing or scrapping the planned program if necessary and starting over again; l) running the program as many times as possible to test how well it runs; m) presenting the project at the University of Guam’s Annual Regional Language Arts Conference; n) running the program in class; o) making necessary changes based on teacher and classmate feedback before turning the project and its write-up; p) fitting the project into an actual lesson plan.

Applied Linguistics students at the University of Guam will continue using *SCRATCH* in their projects and will continue presenting them at the university’s annual language arts conference. The versatility and the timely upgrading of the program to make it more user-friendly for children and adults place it in the cutting edge of basic programming and teaching. *Scratch* is one of the tools that teachers can use to enhance and reinforce language learning as well as learning in the other content areas. Its simplicity is its strength because it makes the program accessible to those without any previous background in programming. Its “cartoon” characters make it (and therefore also the process of programming) less intimidating to children and adults alike.

However, among issues to be addressed are copyrighted materials. If teachers use Disney or Star Wars characters in their projects, for example, what do copyright laws require? What are the possible negative consequences if they were to post these projects online, for example? Do they have to invent their own characters instead of borrowing characters the audience is already familiar with, like Princess Leah, Hello Kitty, or Dora the Explorer?

## Appendix A



Figure A1. M.Camacho (2012).Japanese homonyms



Figure A2. Z.Chua (2012). Japanese particles.



Figure A3. R. Flores (2013). English verbs.



Figure A4. M.H.Cruz (2013). Vowel harmony in Chamoru

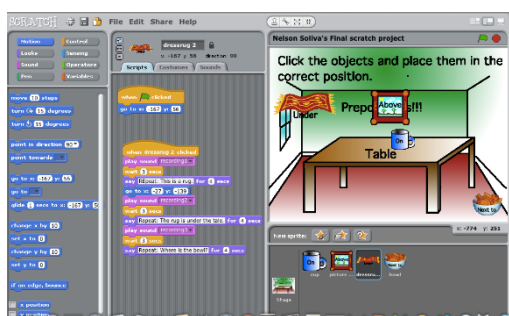


Figure A5. N.Soliva (2012). English particles.



Figure A6. M.M. Milan (2013) Poetry: similes, metaphors



Figure A7. N.Mendiola (2013). Under the sea animals-Chamoru

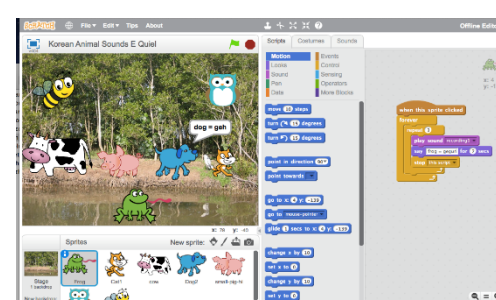


Figure A8. E.Quiel (2013). Korean animal sounds.

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# Student teachers' self-perception of their mathematical skills and their conceptions about teaching mathematics in primary schools

Jean-Claude Boyer<sup>a\*\*\*\*\*</sup>, Nicole Mailloux<sup>b</sup>

<sup>a</sup>Université du Québec en Outaouais, 283, boulevard Alexandre-Taché, Gatineau, (Québec) Canada J8X 3X7

<sup>b</sup>Université du Québec en Outaouais, 283, boulevard Alexandre-Taché, Gatineau, (Québec) Canada J8X 3X7

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## Abstract

Research has shown that more often than not beliefs rather than knowledge are major determinants in pedagogical decisions that teachers make in the classroom (Doudin, Pons, Martin & Lafortune, 2003). Self-perceptions appear to be strongly influenced by students' relationship with mathematical contents and students' perceptions about their own ability to master these contents. The importance of self-perceptions, beliefs and pre-conceptions in decision making leads to this question: does student teachers' self-perception of their mathematical competence influence their conceptions about mathematics teaching? To answer this question we compared the results obtained from two questionnaires administered to student teachers. The first questionnaire focused on conceptions about teaching mathematics while the second focused on self-perceptions in mathematics. This paper analyzes in the context of Boyer's Dialectical reconstruction of knowledge model (Boyer & Mailloux, 2012) the links between student teachers' conceptions about mathematics education and their perceptions of their own mathematical skills.

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Keywords: Conceptions; Self-perception; Learning; Mathematics

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## Introduction

The self-concept emerges from various perceptions that the individual has of himself, but also in comparison with others, in a specific situation in a given environment (Ruel, 1987). In mathematics, the concept of self influences the perception of the student's skills in this discipline and can be positive or negative, realistic or unrealistic (Palascio, Lafortune, 2000). Several studies show that scientific knowledge, though often well assimilated, often has little effect on beliefs and assumptions; that students are strongly influenced by their relationship with a-priori mathematical content, concepts and beliefs gradually built on the teaching and learning of mathematics and that the development of skills in the teaching of mathematics in primary school requires a deconstruction of beliefs, ideas and perceptions.

We thought that Boyer's Reconstruction of knowledge model (Boyer 2001; Boyer, Mailloux 2006) implemented within the framework of the courses in mathematical didactic for primary education could influence the self-perception that students have of themselves in mathematics and therefore their skills in teaching mathematics in primary education.

Although our data show little change in students' perceptions towards mathematics, the analysis of mathematical journals suggests that interventions based on the model of the reconstruction of knowledge may have the potential to positively influence the perception students have of themselves in mathematics (Boyer, Mailloux, 2012). Self-perception would not be fixed once and for all but would evolve by our encounters and experiences.

The present study describes the evolution of student-teachers' conceptions of mathematics education and their self-perception in mathematics before and after the implementation of a teaching approach based on the dialectical reconstruction of knowledge model (Boyer, 2001). This study also determines if there is a relationship between students' self-perception in mathematics and their conception of mathematics education.

## Problematic

Future teachers registered in the primary education program show major difficulties in integrating their mathematical knowledge and their didactic knowledge in teaching mathematics (Wilkins and Brand, 2004; Morin, 2003; Cavey, 2002). Students are strongly influenced by their relationship with the a priori mathematical content, concepts and beliefs gradually built on the teaching and learning of mathematics (Holt-Raynolds, 1992, Goodman, 1988). It seems that over the years, they have built a rather negative perception of themselves in mathematics. Research shows that people with poor self-esteem rarely attend

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\* Corresponding author. Tel.: +1-819-595-3900.

E-mail address: jean-claude.boyer@uqo.ca

uncertain paths and engage in ways known. This protective attitude towards self-concept limits the opportunities for learning and self-actualization. (Viau, 1995). We thought that a training device for reconstruction of knowledge should positively influence the perception of students in mathematics, make themselves more competent (Boyer, Mailloux, 2012), influence their conception about mathematic teaching and subsequently their decision, their behavior and their choice of educational activities in the classroom.

Research shows links between self-perception in mathematic and conceptions on learning and teaching mathematics. Students’ motivation and learning are influenced by the personal qualities of teachers and by the classroom climate they create (Mailloux, 1987). Teachers' attitudes, beliefs and expectations regarding mathematics, teaching and learning, structure their planning, their decisions, their overall practice and, therefore, their effects. If the teacher sees mathematics as interesting, pleasant and useful, students are likely to develop more positive attitudes towards math. A teacher who develops confidence in its capabilities becomes more open and more inclined to question his practice (Gattuso, 1993).

### The reconstruction model of knowledge

The reconstruction model of knowledge, illustrated in Figure 1, consists of three steps: updating and clarifying the experiential knowledge; appropriation of theoretical instruments (scientific knowledge) to properly symbolize experiential knowledge and restructuring the perceptual field using these instruments.

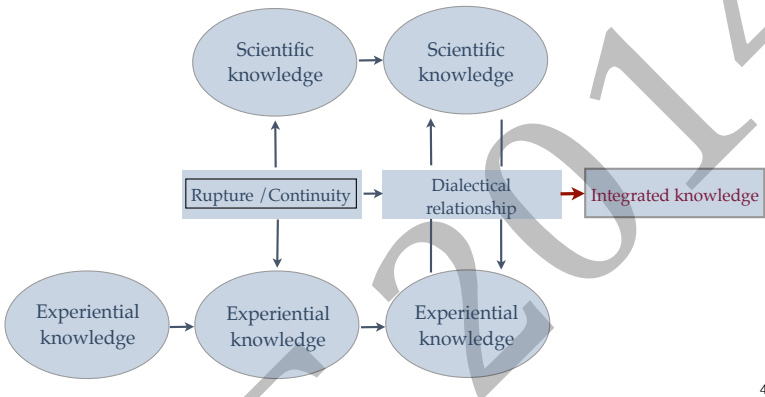


Fig. 1. The Dialectical Reconstruction of Knowledge Model (Boyer, 2001)

Figure 2 shows an alignment of the four principles used in the training to the three stages of the reconstruction model of knowledge.

These four principles are exploited in the training device: the training precedes the development and consequently, the learner starts with his own representations to learning situations of “co-constructions”. Therefore resolution of problems and group work are essential in training; mediation processes by the teacher or his peers are necessary to the extent that they are located in the proximal zone of development and that consciousness of its learning by metacognition is fundamental.

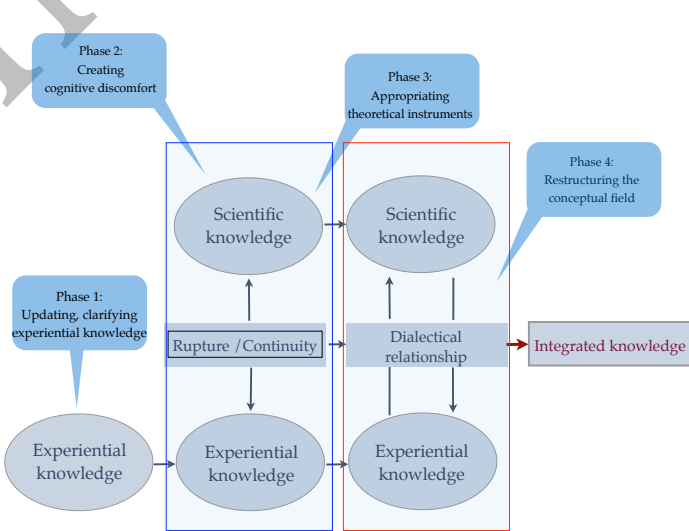


Fig. 2. Links between the four principles used in the training system and the reconstruction of knowledge model (Boyer, Mailloux 2012).

Subsequently, the students present and justify their processes and solutions. By participating in these discussions, students gain an awareness of increasingly sharp object learning. It is actually a form of assessment where they update the implications of "knowledge rebuilt" in the didactic action. The mathematical journal students must write allows them to list the most significant learnings and new knowledge and work on a reflective analysis.

## Research questions

Two research questions emerge. Does the implementation of the dialectical reconstruction of knowledge model and its teaching device influence students' self-perceptions in mathematics and their conception of mathematics education? Is there a link between students' self-perception in mathematics and their conception about mathematics education?

## Methodology

To answer this question, we administered two questionnaires to 48 first year student-teachers enrolled in primary school education; one on conceptions about mathematics teaching and learning and a questionnaire on self-perceptions in mathematics. The questionnaires were first administered at the beginning of the first trimester followed by the implementation of the teaching approach: learning and teaching activities; three weeks internship; more learning and teaching activities. The second administration of the questionnaires was done at the end of the second trimester.

To study the students' conceptions, they were asked to complete a questionnaire on their views about mathematics teaching (Gattuso, 1993). This is a questionnaire of 50 statements preceded by the statement "To teach math, the teacher must". The students were asked to choose up to ten statements that, according to them corresponded closely to their conception of mathematics teaching.

For the self-perception questionnaire, we used an Osgood type questionnaire (scale of 1 to 7) with 33 pairs of adjectives taken from texts written by students describing their attitude towards mathematics. Examples: neglecting / conscientious; lazy / worker; insouciant / applied. A score over 4 was considered as positive self-perception and a score less than 4, was considered as negative self-perception. To compile and review the results, we grouped the pairs of adjectives under five themes: methods of work, attitude, motivation, affect, and competence.

## Results

As shown in table 1 students seem to have a positive self-perception of their working methods but see themselves as rather passive while doing mathematics. Self-perception in mathematics is rather positive before and after the first methods course. This seems to confirm the pertinence of our problematic, namely that "perceptions of students towards learning and teaching are well established at the beginning of the teacher education program and that these perceptions seem particularly robust to change.

The pair of adjectives (statements) that gets the lowest score in each of the model's three steps is that concerning competitiveness. The guided social constructivist approach could explain this situation since cooperation is encouraged by the teaching approach.

Even if the students do not seem enthusiastic when it comes to mathematics they seem more motivated after the first course of mathematics education. They do not feel secure when it comes to mathematics; they perceive themselves as being overwhelmed.

Table 1. Self-perception of the students regarding their working methods



Statements	A	B
Neglecting/conscientious	5.23	6.23
Undisciplined/disciplined	5.62	6.08
Lazy/worker	5.69	6.08
Inconstant/perseverant	5.69	5.92
Passive/active	5.08	5.00
Cheater/honest	5.23	6.62
Straggler/assiduous (school work)	5.62	6.31
Disordered/ordered	5.69	5.92
Lax/perfectionist	5.69	5.77
Careless/applied	5.08	6.00
Competitive/non-competitive	5.23	4.77
Averages	5.57	5.58

After the first course in mathematics education students seem to think that they have good working methods, that they are more motivated and valued in mathematics. It seems that the reconstruction of their knowledge in mathematics undermines students' sense of competence even if they perceive themselves as having good working methods.

Table 2 shows student attitude towards mathematics. We can see that their attitude towards mathematics is rather positive but they perceive themselves as not participating much in mathematical activities and as being much less attentive after one course on teaching mathematics. These results are disturbing by the fact that active participation and attentiveness are strongly encouraged during classes. On the other hand they perceive themselves as being serious and "present" while doing mathematics.

Table 2: self-perception of the students' attitude towards mathematics

Statements	A	B
Absent/present	5.54	6.23
Distracted/attentive	5.08	5.15
Mute/participant	5.31	4.92
Non studious/studious	5.85	5.54
Light/serious	5.77	5.54
Averages	5.51	5.48

Table 3 shows that students do not seem enthusiastic when it comes to mathematics. Their interest in mathematics increases while their self-perception of being ambitious and encouraged in mathematics increases slightly. Except for the fact that they see themselves forced or compelled to do math, they maintain their motivation after one course of mathematics education.

Table 3: self-perception of the students' motivation towards mathematics

Statements	A	B
Disinterested/interested	4.77	5.46
Bored/interested	4.69	5.38
Disgusted/enthusiastic	4.23	4.85
Bound/free	5.31	4.77
Discouraged/encouraged	4.62	5.08
Unambitious/ambitious	5.62	5.69
Unmotivated/motivated	5.08	5.46
Averages	4.62	5.08

Table 4 shows that students do not feel very secured or able when it comes to mathematics. The teaching device does not seem to create an environment that increases the students' sense of "security" in mathematics. Students' perception of being valorised in mathematics increases while their perception of being revolted diminishes slightly.

Table 4: self-perception of the student's affect

Statements	A	B
Disgusted/attracted	4.62	4.69
Lost/able	5.00	4.85
Insecure/secure	4.31	4.23
Revolted/conformist	5.08	5.38
Devalorized/valorized	4.62	5.00
Defeatist/optimist	5.00	5.85
Averages	4.77	5.00

Table 5 shows that students do not perceive themselves very competent in mathematics and they see themselves less competent after one course in mathematics teaching. The results show an increase in the students' perception of competence after the first course.

Table 5: self-perception of the student's competence

Statements	A	B
« Dumb »/clever	4.38	4.69
Incapable/capable	5.46	5.54
Unsatisfied/satisfied	5.00	5.46
Saphead/bright	5.23	5.31
Averages	5.02	5.25

Table 6 shows self-perceptions averages for all items on the questionnaire before and after the implementation of the teaching device. The differences between A and B for all self-perception categories are not significant.

Table 6: self-perceptions, global results

	A	B
Averages	4.38	4.69

There is a small positive increase in the self-perception categories of motivation, competence, affect and attitude that could indicate a possible trend. There is no difference in self-perception of working habits.

As described above, the reconstruction of knowledge model involves a last step that consists in securing the experiential knowledge and scientific knowledge. It is important to avoid parallelism of the two types of knowledge. According to Boyer's model, experiential knowledge must integrate scientific knowledge to stimulate the construction of integrated knowledge and ensure a strong didactical expertise. In this paper, two types of data are briefly presented to illustrate the potential of the model to encourage this integration: statements that were chosen at least 20% more often after the first didactic course and statements that

have experienced the largest decrease in the percentage of students' choices before and after the first didactic course.

Table 7 presents the statements that were chosen by at least 20% more students before and after the first didactic course. The first three statements: "Encourage students to discuss, share mathematical ideas", "Present mathematics through real life situations" and "Let the students free to use the methods of their choice to solve a problem" have received an increase of 70.3% and 60% from respondents after the first course. The other four statements showed a significant increase in the percentage of choices. Students place more emphasis on discussions of ideas, the use of real life situations and placing students in discovery and exploration situations. They tend to be more intent on encouraging students to develop and use their own problem methods. They also seem to be more concerned by their future students understanding of mathematical objects.

Table 7: Conceptions evolution before and after the first course, positive deviations of more than 20%

Statements	Before	After
Encourage students to discuss, exchange ideas on mathematics	27.8	88.9
Present mathematics from real situations	44.4	72.2
Let the students free to use the methods of their choice to solve a problem	22.2	61.1
Provide students with the necessary resources and equipment	16.7	50.0
Place students in situations of exploration and discovery	44.4	72.2
Question students to verify their understanding.	33.3	55.6

Many statements were much likely to be ignored by students after the first didactic course. Table 8 shows the statements that have experienced the largest decrease in the percentage of students' choices before and after the first didactic course. The statement "Point out student's mistakes" is no longer selected after the first didactics course.

The results show that statements promoting a teaching style emphasizing directivity have been rejected at each stage of the research and that students pay little attention to these items throughout their training. We note that before the implementation of the dialectical reconstruction of knowledge model the selected statements are mostly those that highlight the qualities and skills of the teacher. Indeed, the experiential knowledge of student tends to emphasise dynamic presentations, the importance of giving clear explanations and the need for students to practice mathematical techniques.

Table 8: Conceptions evolution before and after the first course, negative deviations of more than 20%

Statements	Before	After
Point out student's mistakes	15.38	0
Build learning activities	33.3	16.7
Decide on the appropriate pedagogical approach to the course and student's learning profile	33.3	16.7
Use a textbook and supplementing it with enhanced activities	33.3	5.6
Provide demonstrations for students	33.3	16.7
Make student practice the techniques learned in class with appropriate exercises	38.9	11.1
Give explanations to students	38.9	11.1
Provide clear and precise teaching	38.9	11.1
Ensure that students master calculation techniques	22.2	5.6

After the course of mathematic teaching, students grant more importance to mathematics exchanges, the use of questioning to ensure understanding and the use of resources and manipulatives. This illustrates a break between experiential knowledge and scientific knowledge.

This decrease in the importance given to statements on a more traditional teaching approach seems to reflect the assimilation of scientific knowledge worked on during the first didactics course on mathematics learning and teaching. Students seem to live the passage from of a transmissive approach to teaching mathematics to a social constructivist approach.

The third and final stage of the reconstruction of knowledge model being a process of integration of experiential knowledge and scientific knowledge, students become aware of the reconstruction of knowledge that takes shape as scientific knowledge reshuffles experiential knowledge. Students then build explanations of the contents of initial intuitions, reformulate the questions

from a new angle and update the implications of this “rebuilt knowledge” through action learning. Students seem to gain a new perspective on mathematics, learning and teaching. The attitude is changed and the conceptions they have of teaching mathematics are transformed and clarified. The researchers observed this phenomenon towards the end of the first didactic course. Students’ conceptions about mathematic teaching seem to evolve during the first didactics course and the first teaching practice internship.

The preliminary analysis reveals a shift of attention from the role of the teacher to the role of the student, from a teacher centered point of view to a student centered point of view. Students seem to move from a lecture approach to a guided approach where the students actually do the math. The researchers also observed that the students tend to use problem situations in preparing lessons more often and that the problems become more articulated.

Although we have noticed a change in the conceptions of student teachers on mathematics teaching after the first didactics course, no relationships were found between self-perception in mathematics and the evolution of conceptions about mathematics teaching. It seems that self-perceptions in mathematics does not influence the development of mathematic learning and teaching conceptions during the implementation of the teaching device based on the reconstruction of learning model.

## Conclusion

The implementation of the teaching approach based on the reconstruction of knowledge model contributes in developing more complex beliefs about the teaching and learning of mathematics. It also contributes albeit modestly to positive changes in the perception that students have of themselves in mathematics.

The differences between the results before and after the implementation of the dialectical reconstruction of knowledge model for all self-perception categories are not significant. Nevertheless there is a small positive increase in the self-perception categories of motivation, competence, affect and attitude that could indicate a possible trend. There is no difference in self-perception of working habits.

The statements chosen for the conceptions on teaching are those that highlight the qualities and skills of the teacher (dynamic presentations, practice techniques, clear explanations) before the implementation of the dialectical reconstruction of knowledge model in the first didactics course. After the first course students seem to experience the passage from a transmissive approach to an increasingly socioconstructivist approach. The appropriation of theoretical instruments seems, at first glance, well established at the end of the first didactics course. The symbolization of the experiential knowledge by theoretical instruments will probably develop during the second didactic course.

No relationship was found between self-perception in mathematics and conceptions about mathematics teaching. It seems that self-perceptions in mathematics does not influence the development of mathematic learning and teaching conceptions during the implementation of the teaching device based on the reconstruction of learning model. This confirms that conceptions about mathematics teaching and self-perceptions of students towards mathematics are well established at the beginning of the training and that they seem particularly difficult to change.

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INTE 2014

# Students of social pedagogy and intergenerational solidarity

Jana Kitlinska\*

*Tomas Bata University in Zlin, Faculty of Humanities, 761 01 Zlin, Czech Republic*

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## Abstract

The purpose of the article is to present the intergenerational solidarity as fundamental for the achievement of a society for all ages, a major prerequisite for social cohesion and a foundation of formal public welfare and informal care systems. A sample of research was included students who study Social Pedagogy (as holders of the specified values). For the comparison was used tool and selected results of the Flash Eurobarometer 269, titled "Intergenerational Solidarity".

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*Keywords:* intergenerational solidarity, social pedagogy,

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## 1. Introduction to the issue of intergenerational solidarity

Intergenerational solidarity is a multidimensional phenomenon. "All societies exhibit intergenerational solidarity, as core element of intergenerational relationships, which bonds generations that share common interests, feelings of affections and affinity, reciprocity, mutual care, and protection (Cruz-Saco, Zelenev, 2011, p. 10)". The need for the reflection of this topic becomes even more crucial in a period of social changes associated with population ageing.

The rate of population ageing has greatly accelerated, and this will increase pressure on the society. There are a number of aspects which definitely belong to the field of intergenerational solidarity and to which social scientists might usefully contribute. Donati (In Malinvaud, ed., 2002, p. 57) commented that while many old issues (such as family poverty, multi-problem families, etc.) persist, a new scenario of difficulties has appeared: the ceaseless worsening of generational relation. He introduced issues such are: another form and roles of family, imbalance in the distribution of resources (to young people or to older people?), children and youth are increasingly isolated from the adults who constitute their principal socializing agents (the cultural transmission from one generation to the other is losing ground), and that social welfare systems have shown themselves as lacking a real orientation to the links between generations. While contract across generations and age groups represents the norms operating at the micro and macro levels of social structure in a given socio-historical context (Bengston, Oyama, 2007).

As a first politics response was during the 1970s led to the convening in 1982 of the first-ever World Assembly on Ageing in Vienna, Austria. European first relevant document was European Commission communication entitled Towards a society for all ages in 1999, expressively subtitled Promoting prosperity and intergenerational solidarity. This document was prepared for occasion of International Year of Older Persons, 1999: Activities and legacies (it was under the auspices of the United Nations). This document represented a step forward in the conceptual framework of a society for all, 2012 age. This vision is one that has been embraced around the world. The need to respond to the current and expected demographic changes resulted to Assembly of the United Nations in 2002 in Madrid. For example the Madrid International Plan of Action on Ageing (2002), states that solidarity between generations at all levels — in families, communities and nations — is fundamental for the achievement of a society for all ages, a major prerequisite for social cohesion and a foundation of formal public welfare and informal care systems (UN, 2013). Czech government followed the Madrid Plan and published a program of preparation for the aging population (Kitlinská, 2012). It was followed by a National Action Plan to support positive aging for the years 2013 to 2017. The latest national document in which deals with the issue of intergenerational solidarity is the Social Inclusion Strategy 2014 - 2020.

Intergenerational solidarity can therefore be seen as a social equaliser, in which each party exchanges with the other to obtain what they lack (Active aging report, 2011). All generations should be included in the debate and policy-making. Intergenerational solidarity can by solve in different policy frameworks. Various policy areas can help to provide an environment where the contribution of everyone could be valued and everyone could be empowered to play a part.

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\* Corresponding author. :00-000-000-0000

E-mail address: kitlinska@fhs.utb.cz

Current (demographic) evolution in developed countries is very challenging not only for the economic development, but also for their social system. And it raises the question of quality of life— both for senior citizens and for the younger generation who must bear the burden of an inverted age pyramid (Active aging report, 2011). The challenges are traditionally sketched out in two contrasting ways. According to European Union (2010): 1) there is a concern about the financial sustainability of public welfare systems, which are affected adversely by a rising share of older age population. 2) there is a importance of fiscal prudence in public spending, it is also considered imperative that European social welfare systems continue to provide adequate retirement incomes and sufficient basic social services, such as health and social care, in old age. (EU, 2010) Intergenerational solidarity is not a one-way relationship between the active young population and inactive older people (Active aging report, 2011).

To the above is needed a mechanism for supporting mutually beneficial exchanges, both monetary and non-monetary, between generations. These exchanges are too often seen as one way: younger workers paying taxes to support older workers' pension benefits and healthcare costs. But the exchanges, in fact, go in both directions. Forwards, towards younger generations, are investments in infrastructure, innovation and environmental protection. Backwards, to older generations, are pensions and public and family care for older people. The family and the government are the best institutions to ensure this intergenerational exchange works. (OECD, 2011)

Cruz-Saco and Zelenev (2011) says, that the relationship between intergenerational solidarity and social cohesiveness is one of a circular causality, as more solidarity results in more cohesiveness and vice versa, allowing conflicts and tensions to be minimized. So perhaps the simplest definition of intergenerational solidarity is "social cohesion between generations" (Bengston, Oyama, 2007). Intergenerational solidarity is widely understood as social cohesion between generations. Most frequently, however, it refers to relations between the younger and older generations of those living, including child-parent relationships, social participation of elderly people and children in communities, affordability of pensions and care of the elderly (UN, 2013).

It must be noted that the body of research relating to intergenerational approaches to community building and social cohesion outside the family is still limited Hatton-Yeo (In Sanchez, ed., 2007). Hatton-Yeo cited Pain, that existing work can be divided into 4 interconnected areas: a) issues of transfer and transmission between generations, b) a focus on personal relationships and the amount and nature and implications of contact between the generations, in most cases who are related, c) a smaller amount of work examining issues of personal identity, d) a burgeoning concern with the evaluation of intergenerational policy and practice.

Our research's objects are the opinions on extra-familial intergenerational relationship. Specifically, we are interested in the views of the young generation who are in preparation for the profession of social pedagogue.

## **2. Why social pedagogues?**

Young people are sometimes overlooked. However their contributions can be and are significant. Educational institutions and advocates of quality of life have an important role to play in connecting generations and providing opportunities for dialogue among generations. Especially young people who are prepared to qualified teaching staff in the field of social pedagogy in the field of education and social services.

Samples of research were included students who study Social Pedagogy (as holders of the specified values). Consequently, social pedagogues work within a range of different settings, from early years through adulthood to working with disadvantaged adult groups as well as older people. To define the subject of social pedagogy could be a very difficult task. Different countries have different cultures and social issues. Thus the view on social pedagogy differs from country to country. This discipline is based on the ideas of sociology, social work, pedagogy, philosophy and some other practical sciences. Social pedagogic theory builders draw upon social and educational perspectives, particularly, when these vistas enlighten each other (Paul, 2013, p. 3).

This paper deals with relatively new field of study of social pedagogy, which has begun to realize in the Czech Republic since mid-1990s. Social Pedagogy is an academic discipline concerned with the theory and practice of holistic education and care. Czech social pedagogues usually study at the university level (there is also possibility to study at the college where they will get a DiS. degree). The academics in Czech Republic separate Social Pedagogy from the social work and they look at them as at two separate disciplines. Social pedagogy can be studied in many places in the country. Tomas Bata University in Zlín (Czech Republic) offers social pedagogy as bachelor study programme (standard length of study is 3 years) and after finishing bachelor degree offers master programme (standard length of study is 2 years), newly doctoral programme. This field of the study is presented on web: Field of study subjects have an interdisciplinary character and are structured so that afflicted the basic problems that the social educator currently meets in society. Emphasis is placed on experiential learning, is practical activities of students in seminars and exercises. The acquired knowledge and skills students will develop and validate the practices in school and social organizations. Graduates after graduation are able to control the operation of school or social organizations to create educational and social projects, implement comprehensive educational and social activities, and to relevant educational and social research. ([www.utb.cz](http://www.utb.cz))

Paul (2013) distinguishes aim of activity in included areas: In social policy is crucial a labour market orientation for social integration. For social workers is important social disadvantage and exclusion orientation, with emphasis on support through self-help. And for social pedagogues is key developing the personal and palliating conflict boundaries by nurturing individual potential and achievement. From actor's perspective is empowerment of individuals in their setting (can be paternalistic and educationalist), preconceived notions of the good individual and the good society.

### 3. Methodology

The aim of the research was to identify and describe the opinions of students of study programme Social pedagogy in Zlín on selected aspects of intergenerational solidarity. With regard to the stated aim and the research problem, a quantitative research strategy, method and a technique of survey data collection were chosen. It was elected a quantitative approach to research. The objective of this methodology is to gather data on attitudes, opinions, impressions and beliefs of human subjects. Quantitative research is about asking people for their opinions in a structured way so that you can produce hard facts and statistics. The object of the collection of census data is to accurately describe basic information about a population at a particular point in time. The objective of this descriptive research is to map the terrain of a specific phenomenon - intergenerational solidarity. It is very difficult to measure intergenerational solidarity (OECD, 2011). It was used tool and selected results of the Flash Eurobarometer 269, titled "Intergenerational Solidarity" (European Commission, 2009). The Flash Eurobarometer 269 is useful in understanding intergenerational relationships and how different generations view each other. The Flash Eurobarometer Intergenerational solidarity (Flash No 269) was conducted in 2009 in order to examine EU citizens' opinions about: a) existing relations between the younger and older generations, b) costs of an ageing population – particularly in terms of pensions and elderly care, c) the need for pension and social security reforms, d) ways in which older people contribute to society – financially and in a broader way, e) existing possibilities for autonomous living for elderly EU citizens, f) the provision of elderly care and support by social services, g) the role of public authorities in promoting intergenerational solidarity. The results provide the current status of intergenerational solidarity across 27 EU countries; provide perceptions on this matter of about 27,000 Europeans across all EU Member States. The questionnaire prepared for this survey was translated in national language(s) for each country of survey. The form of the questionnaire for the Czech Republic (Country Specific Questionnaire Czech Republic) was used for our research. Our research presents here only the key results.

The first step in population sampling was identifying the population which the researcher wishes to learn more about. The population was defined in keeping with the objectives of the research. The target population was the entire group a researcher was interested in; the group about which the researcher wishes to draw conclusions: all students who study branch of study Social pedagogy at Tomas Bata University in Zlín, full time form of study. Method of sampling selection was intentional sampling. Intentional sampling methods are non-probabilistic procedures that select a group of individuals for a sample with the purpose of meeting specific prescribed criteria. Specific criteria for this research: branch of study (qualification and expertise in the field of social solidarity), full time form of study (age of respondent represent young generation). This research represents only students at Tomas Bata University in Zlín, because there are no data on the number of student of the branch of study social pedagogy in the Czech Republic.

The sampling consists of 219 respondents who were students of social pedagogy and one incomplete questionnaire was excluded. Age structure of the students varies from 19 to 28 years old. 214 of the students (98%) were younger or same aged 24 years old and 5 respondents (2%) were older than 24 years old. In Flash Eurobarometer 269 were included 3 871 respondents (14%) from 15 to 24 years old. If we compare gender structure of our sampling there were 195 women (89%) and 24 men (11%).

### 4. Results

#### 4.1 Relations between the different generations

More than 71% of the students of social pedagogy agree that *young people and older people do not easily agree on what is best for society* (16% strongly agree and 55,7% somewhat agree). Less than one third of the students disagree (somewhat disagree 16,9%, strongly disagree 7,8%). Compared to EU respondents of Flash Eurobarometer 269 - most strongly agree 28% and 41% somewhat agree.

Nearly 90% of the students disagreed that *older people are a burden on society* (63% strongly disagree, 26,9% somewhat disagree. No one strongly agreed and only 7,3% somewhat agreed. These are better results than in EU (85% disagree, 14% agree).

Slight majority of respondents agreed that *the media exaggerates the risk of a conflict between generations* (EU 61%). 6,8% of the students strongly agree and 46,6% somewhat agree. On the other hand more than one third disagree with this statement (5,5% strongly, 29,2% somewhat). About 12% were not able answer this question.

11% strongly agreed, and another 37,9% somewhat agreed that *because there will be higher numbers of older voters, political decision-makers will pay less attention to the needs of young people*. This is more than in Eurobarometer (14% strongly agreed, 29% somewhat agree). Majority of the students disagree (51%) but compared to EU, only 8,7% of the students strongly disagreed with this statement (EU 20%).

Important difference was found between Eurobarometer and the students in the statement *that older people work until a later age, fewer jobs will be available for younger people*. Similar proportion (26% EU, 27,4% the students) strongly agree, but 45,2% of the students somewhat agree compared to 30% of respondents of EU. 23,3% of the students of social pedagogy disagree (18,7% somewhat disagree, 4,6% strongly disagree).

Compared to EU (53%) are only 29,2% of the students persuaded *that older women are at a greater risk of falling into poverty than older men in their country* (5,5% strongly agree, 23,7% somewhat agree). About one third disagree (27,4% somewhat disagree, 5,5% strong disagree). 37,9% of our respondents had no opinion on the topic or did not know what to answer.



Only one in ten students agreed that *companies which mostly employ young people perform better than those that employ people of a different (older) age*. This is lower number compared to EU (25%). On the other hand more than 58% of the students disagreed (EU 70%). 42,5% of the students somewhat disagree and 16% strongly disagree. Significant number of the students did not respond (30%).

#### 4.2 Affordability of pensions and elderly care; the need for pension reforms

The students most frequently agreed that *in coming decades, governments will no longer be able to pay for pensions and care for older people* (31% strong agree, 45% somewhat agree). This is 76%, compared to 58% in EU. Approximately 3 in 10 respondents of EU disagreed, and only 1 in 10 students disagreed. 13,7% of the students had no opinion on the topic or did not know what to answer.

Over 71% of the students responded that *people in employment will be increasingly reluctant to pay taxes and social contributions to support older people*. Specifically 20,5% strong agree and 50,7% somewhat agree. Slight half of EU Eurobarometer's respondents agreed (52%). Significant difference is between respondents who disagreed (42% EU, 13,7% of the students). 12,3% of the students somewhat disagree and 1,7% strong disagree (16% EU). A certain percentage of the students did not respond (15,1%).

The total level of agreement for the statement that *government's expenditure on young people and on education is too little, in comparison with the amount spent on older people*, ranged from 46% in EU to 36,1% in our research (11% strong agree, 25,1% somewhat agree). Roughly the same difference is in disagreement (EU 43%, the students 32,5%). The disagreement of the students is split into 27,9% somewhat disagree and 5% strong disagree. Also significant part of the students (31,1%) did not answer.

Almost half of respondents in EU (48%) agree that *older people accept that major pension reforms are needed to the ease the burden on working-age people* but only 23,7% of student also agree (2,7% strong agree, 21% somewhat agree). Similar results are in the area of disagreement (39% EU, 43,8% the students). But once again considerable part of the students (32,4%) has no opinion on the topic or did not know what to answer.

Huge percentage of Eurobarometer's respondents (84%) said that *their country's government must make much more money available for pensions and care for the elderly*. Also 7 in 10 the students agreed with this statement (16,9% strong agreed, 52,1% somewhat agreed). Only 14% in EU and 18,3% of the students chose strong disagree (10% and 14,2% respectively) or somewhat disagree (4% and 4,1% respectively).

There is a consensus in the statement that *government should make it easier for older people to continue working beyond their normal retirement age (if they so desire)*. In the EU agree 66% and 60,7% of the students (13,7% strong agree, 47% somewhat agree). Nearly one third of the students (31,5%) disagree with this statement (19,6% somewhat disagree, 11,9% strong disagree). 7,8% of student did not respond.

#### 4.3 Autonomous living for the elderly, elderly care and support by social services

The level of agreement regarding the statement that *doctors, nurses and professional carers in the respondent's country are sufficiently well trained to care for the special needs of older people* was 64 % in EU (25% strongly agree, somewhat agree 38%) and 54,4% by the students (7,8% strongly agree, 46,6% somewhat agree). Similar figures are about disagreement (29% EU, 29, 7% the students) but the students rather somewhat disagree 25,1% than strongly disagree (4,6%).

About 25% EU Eurobarometer's respondents agree that *people who have a responsibility of care for older family members at home receive good support from social services* but only 1 in 10 of the students agree. The total level of disagreement reached 65% in the EU and 74,8% by the students. Almost 15% of the students did not respond.

The next question compared the responses about statement that *in our country there are sufficient social services to support frail older people so that they can stay in their own home*. Most than one third of EU respondents (35%) agree but only 22,3% of the students agree. Majority somewhat or strongly disagreed with the statement (59% EU, 68,5% of the students).

In sum 8 in 10 respondents expressed agreement than *many frail older people cannot live autonomously because their homes are not adapted to meet their needs*. Dates of the Eurobarometer shows 49% strongly agree and 35% somewhat agree. 24,2% of the students strongly agree and 57,5% somewhat agree. Only about 11% of all respondents disagreed with the statement (11% EU, 11,5% of the students).

The results for the statement that *older people would contribute much more to society if they could more easily move around* are significantly different. 78% of Eurobarometer's respondents somewhat (40%) or strongly (38%) agreed with this statement but less than half of the students agreed with this proposition (somewhat agree 36,5%, strongly agreed 6,4%). Over 37% of the students disagreed and 20% did not know what to answer.

#### 4.4 The role of public authorities in promoting intergenerational solidarity

There is an interesting overview if we compare agreeably answers to the question *if schools should promote better relations between young and old*. In total 89% of EU and 87,3% of the students agree but strongly agree (56% EU, 27,9% the students) and somewhat agree (33% EU, 59,4 the students). About 1 in 10 respondents disagree (EU 9%, the students 10%).

Only a tiny 3,2% of the students agree that *government does a good job in promoting a better understanding between young and old*. This is really a small number compared to 27% in EU. More than 79% of the participating students somewhat disagree (35% in EU) and 35,6% strongly disagree (29% in EU). About 17,4% of the students has no opinion on the topic or did

not know what to answer.

There is a wide agreement among the students (92%) that *local authorities should support associations and initiatives that foster stronger relations between young and older people*. Strongly agree 22,4% of the students (54% EU) and somewhat agree 60,7% (38% EU). About 12% of the students expressed disagreement (6% in EU).

## 5. Conclusion

At the beginning of this century, in many countries all over the world, families and children have come to face new dilemmas related to the lack of intergenerational solidarity and intergenerational equity (Donati In Malinvaud, ed., 2002, p. 55).

The paper deals with some aspects of intergenerational solidarity, which are most often mentioned with regard to social policy. The research part of the paper was focused on students of social pedagogy. This student represents young generation and also a potential objects and/or participants of social policy. The respondents of the sampling were students of social pedagogy at Thomas Bata University in Zlín. Although for data collection was used a questionnaire utilized in the international survey (Eurobarometer), we can not say, that there was measured the rate of intergenerational solidarity by target group. But some ideas about the statements can build elementary overview about perception of some aspects.

It can be noted that the students of social pedagogy expressed a certain level of solidarity but the solidarity was influenced by possible threat of different generation. The students felt that the state should be the most responsible player about intergeneration issue but about the actual realisation are sceptical. The student as a further social professional rather negatively assesses the preparedness of the system of social services in the field of intergenerational care. According to students schools and communities should have the greatest responsibility as a natural environment.

We should find a ways how to present the intergenerational themes to students, professionals and general public to realize that not only age distant generations could be mutually beneficial. After all intergenerational solidarity can be seen as a desirable value in itself: when generations have a positive view of one another or there is consensus between generations on the way forward (OECD, 2011).

The purpose of this paper is not to present an exhaustive inventory of the issue nor to list all interesting initiatives existing in this area, but to initiate discussions with all relevant actors. We believe that this paper should be the impulse that can wake interest about this theme.

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# Subjective perception of coping by destitute Roma communities in Slovakia and the importance of education as a strategy of pulling them out of poverty

Jurina Rusnáková<sup>a</sup>, Rastislav Rosinský<sup>b</sup>, Marianna Šramková<sup>c</sup>, Miroslava Čerešníková<sup>d</sup>, Milan Samko<sup>e</sup>, Alena Rochovská<sup>f</sup>

<sup>a</sup> Faculty of Social Sciences and Health Care

Constantine the Philosopher University in Nitra Hviezdoslavova 15, Spišská Nová Ves 052 01, Slovak republic

<sup>b</sup> Faculty of Social Sciences and Health Care

Constantine the Philosopher University in Nitra Kraskova 1, Nitra 949 01, Slovak republic

<sup>c</sup> Faculty of Social Sciences and Health Care

Constantine the Philosopher University in Nitra Hviezdoslavova 15, Spišská Nová Ves 052 01, Slovak republic

<sup>d</sup> Faculty of Social Sciences and Health Care

Constantine the Philosopher University in Nitra Kraskova 1, Nitra 949 01, Slovak republic

<sup>e</sup> Faculty of Social Sciences and Health Care

Constantine the Philosopher University in Nitra Hviezdoslavova 15, Spišská Nová Ves 052 01, Slovak republic

<sup>f</sup> Faculty of Natural Sciences, Comenius University in Bratislava, Mlynská dolina 1, pavilion CH1-B1, Bratislava 842 15, Slovak republic

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## Abstract

Our contribution offers an insight into current results of successive qualitative studies. The first study conducted in 2012 is focusing on life strategies of Roma people in Slovakia, with educational strategies included. The next study conducted in 2014 is dedicated to Roma people's perception of personal crisis and strain situations. The results of this study have not been published yet. Approximately 50 interviews will be analyses in our contribution.

The qualitative study titled "Social support and satisfaction with social network perceived in Roma communities" is a part of the research project supported by VEGA: No. 1/0206/13 (Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic).

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**Keywords:** The Roma; the Roma communities; poverty; stress situations; life strategies; education.

## 1.Introduction

Poverty is a serious social problem and it has its own individual form. It has a great influence on decision-making, deprives the person of his freedom and possibilities, it has a serious impact on his present, future, goals and overall success. Sen (1983) defines poverty as a deprivation of capability which is based on indicators for the freedom of individuals to live a life that would be of value. We can include health, nutrition and education to the basic needs (Nussbaum 2000, Alkire 1998, Desai 1995). The concept of social exclusion offers a broader understanding of social deprivation and mechanisms, which lead to it and at the same time prevent any counteraction. Many authors are trying to define this concept (e.g. Abrahamson, 1995, Atkinson, 1998, 2000, Berghman, 1995, Mareš, 2000, Džambazovič, 2004 and others). They agree on the fact that social exclusion is the result of unequal access of individuals or groups of the population to basic resources of society, it also means the denial of possibilities to participate in society and this is reflected in a number of dimensions, which can be identified and characterized in specific geographical areas.

Despite extensive quantitative research of social deprivation and living conditions, we know relatively little about its subjective perception, definition and management. We know even less about some parts of the population, which are less accessible for researchers – for example homeless people, people who come from orphanages, Roma who live in socially excluded communities. How do these people perceive their own life situation? What causes their discontent? What worries them? What makes them happy? What is important for them?

The so-called subjective concepts of poverty are based on the reflection of one's own life situation and experience. There are many methods and indicators based on subjective testimony of respondents – from a simple question to complex mathematical indicators, which determine the subjective perception of poverty (Džambazovič, 2004, p. 12). Their basis consists of subjective statements, past experiences, expectations, emotions and opinions of respondents (Mareš, 1999).

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\* Corresponding author.

E-mail address: jurina.rusnakova@email.cz

The authors of this paper were also interested in the subjective Evaluation of their situation by people, who are considered to be socially deprived according to objective indicators. They focused on a particular ethnic group of the Roma, which is (not only) in Slovakia, considered to be one of the poorest.

### 1.1. Roma in Slovakia

The Roma have been living in Europe since the middle ages and the earliest mention in the territory of Slovakia is from the year 1322.

They are among the most numerous ethnic minorities and their status is officially recognised as a national minority. Approximately 403 thousand Roma live currently in Slovakia (Atlas rómskych komunit na Slovensku, 2013) dispersed in different types of communities.

Table 1. Typology of Roma communities in Slovakia.

Typology of Roma communities	Brief characterization
Living dispersed among the majority population	46,5 % Roma from the whole Roma population. Their living conditions are diverse, but they share most similarities with the majority population.
Levels in municipal and urban areas	Urban units inhabited primarily by Roma located mainly within a municipality (e.g. streets, neighborhoods, etc.). 12.9% of the total Roma population in Slovakia live here.
On the periphery of municipal areas ( villages, towns)	Urban units located on periphery of villages and towns (with no spatial separation from areas inhabited by the majority of the population). 23.8% of the total Roma population in Slovakia.
Remote locations (segregated)	Often several miles away from the "parent" municipality, or separated by a natural or artificial barrier (e.g. river, railway). The poorest and highest-risk conditions. 17.0% of all Roma in Slovakia live in segregated communities (68 540 people).

Source: Atlas rómskych komunit na Slovensku, 2013

### 1.2. Social deprivation of Roma

Although this statement cannot be generalised, it is true, that a high percentage of Roma live in poorer conditions than the majority population. The majority of authors agree, that Roma are in a worse situation, than any other population group in Slovakia. Absolute poverty is typical for some residents of poor excluded Roma settlements and it is transferred intergenerationally and is connected to social exclusion (including spatial segregation) and living in appalling conditions. Poverty is generally considered to be a crisis situation. Life in a segregated and socially weak community means, among other things, very limited contact with the "outside" world. The findings of several studies (e.g.. Radičová 2001, Rusnáková 2009) suggests that the residents of such communities do not compare their life situation with anyone outside of the community and their definition of poverty and wealth is reflected only from the local point of view. Poverty is associated with absolute deprivation (absence of food, absence housing) and from this, their own assessment of their situation unfolds. *"I am satisfied, if only my roof didn't have a leak. Some people here have it worse."* Said one respondent, who lives in an overcrowded shack by the woods.

## 2. Subjective evaluation of one's own life situation (qualitative research)

The authors of the paper were interested whether the inhabitants of the socially deprived Roma communities consider their conditions adverse and how they define poverty. How would who is born and lives only in an environment of absolute poverty coupled with the social exclusion and segregation interpret his situation? What does he consider to be a burden and a crisis? Does the type of a community and its rate of segregation affect the subjective definition of a crisis?

We tried to get answers to the previous questions through the means of qualitative interviews within the project VEGA 1/0206/13. We approached 50 residents of all types of Roma communities (as indicated in table Roma communities) in two regional districts of the Slovak Republic. The research was carried out at the beginning of 2014, and its results have not been published anywhere yet.

## 2.1. Briefly on the results

The majority of respondents is quite satisfied with their life, regardless of the community and the conditions therein. Satisfaction was expressed even by those respondents who live in overcrowded dwellings, without basic essentials (connection to water, bathrooms, furniture, etc.). Most commonly they are unhappy with housing (quality, size, location and essentials) and the regular absence of cash (there are periods when they don't even have money for basic food). Such situations are considered to be annoying, but they are not "insurmountable problems" – they always somehow manage to survive, "somehow solve it." They realize that they are living scantily, but they can handle it, and somehow they manage to survive. Respondents who live in the vicinity of the majority of the population were more critical. Even though they live in relatively better conditions. Employed Roma expressed greater dissatisfaction with their lives – who, despite all their efforts have to fight deprivation and debts. Even so they enjoy and value their jobs and they have a desire to keep them.

An explanation could be a "learned" modesty. Most of the Roma are living in the same place for long periods of time, their life does not undergo any major changes (and they do not expect them) and so they had "time" to adapt to these conditions, which were considered unmanageable by most interviewers.

Only part of the respondents addressed the issues associated with poverty or poor living conditions when asked about their troubles. Several respondents reacted to a more specific question from the interviewer (e.g. Are you worried about the way you live?) Nevertheless, a large proportion of respondents experience the situation, in which they don't have anything to eat on a regular basis. In such a case, they use the option of debt (to relatives and acquaintances or non-banking institutions) they purchase food in local stores on "debt", the cook from what they have left in their reserves. Several respondents said that they have nothing left but to "starve". Some have mentioned the problems associated with the dwelling (heating, lack of drinking water or electricity).

Why haven't all Respondents identified their living conditions as adverse? One of the possible reasons was offered by Jaro (Roma activist living among non-Roma). "They live in poverty throughout their lives and know nothing else. These generations no more have experience with employment and those, which had, slowly die out. They actually got used to it and know nothing else."

They mentioned stressful situations such as:

- Situations associated with diseases, injuries, and associated complications (surgery, hospitalization)
- The death of family members or other loved ones
- Troubles with children (e.g., truancy, poor discipline)
- Conflicts within the family and in the neighbourhoods
- One respondent mentioned a particular situation linked to "modern slavery". Her partner was the victim of a scam and had to work for free abroad, received beatings and was denied freedom. After some time he fled (without any personal documents and without any money) and returned home.

What makes them most happy is having children (their own children, grandchildren and children of relatives). But also a family (other family members, joyous events, etc.). Own health and also health of other family members was of great importance to the respondents. Good health is considered a positive trait. Conversely, negative situations are often associated with diseases and injuries. They compare their situation with families in the neighborhood – hence their assessment is affected by the quality of life in the community. The segregated a community is, the more limited knowledge of standards beyond the community they have. Each respondent knows someone who "is doing even worse". *"We are not poor or rich."* is a typical sentence. Even Roma living among the majority are not willing to compare their conditions with non-Roma neighbours. Non-Roma have work, have it easier in life (access to the labour market, education, heritage from their ancestors, contacts and acquaintances, etc.) and thus, cannot be compared with them. *"Our parents came from the colonies, had nothing, had to start from scratch. They (non-Roma) inherited houses, money, fields, and forests. They could afford to go to school, and didn't have to worry about anyone but themselves..."*

They see their future as uncertain and unclear. *"I prefer not to think about the future."* They want to have a better life, but often, they do not know what and how they could change. It would be good to have a job and to have enough to live and have a better housing. Some would like to move out of poor areas. However they do not expect any major changes in their lives for the future. Many respondents expressed a clear helplessness. The more active Roma, who have a job – but they are disappointed that they did not have the resources to have "a better life" for example in the form of being able to move out, from the community to a better environment, the elimination of debts, improved housing.

The lack of planning for the future and adapting to changes in life, which would counter their poverty and the presence of strategies aimed at the survival "here and now" may be regarded as essential (and to some extent even rational) as a consequence of poverty. Scant opportunities to actively induce changes do not give a lot of space for future planning. Surviving „day by day" is one of the characteristics of poor and socially excluded communities.

Table 2. Quotes from interviews.

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"The hardest thing is when you don't have anything to give the children to eat, you spend everything, and you don't have nothing to put in their mouth." (Jozef, a segregated Community)

"We live modestly, just like everyone else. I would like to work somewhere, but I can't, so I do not know how to change the situation, so we could live a better life..." (Jano, community on the outskirts of the village)

"Maybe some clothes, if it were better, it would look better. We always have to wear the same old clothes, which were given to us by others, and so on". (Jano, community on the outskirts of the village)

"Some people have it even worse. We always have enough to eat. And when we don't have money, we go buy things on debt or we borrow money from someone. We are not poor because if we were, we would not have anything to eat." (Mária, living among the non-Roma)

"I am among the poorest of our village. I work, but even so, it is not enough. Often we do not have basic supplies." (Denisa, living among the non-Roma)

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### 3. Education as one of the strategies to counteract poverty

Education is generally considered as an effective resource which can be used to improve one's way of living. For example Burawoy (2000) allocates education as a skill in his system theory of assets. A well-known fact is that socio-economic background of the family has a substantial impact on success in school and at the same time on educational aspirations. The lack of opportunities in the present and weak prospects for the future affect goals related to education. Education as a strategy is mainly utilized by families, which already are educated. Poor families anticipate that education will bring them an improvement of the quality of their lives (Rochovská 2011).

The level of educational attainment among the Roma is significantly lower than that of majority population and the lack of vocational training and qualifications is referred to as one of the primary reasons for their poor implementation on the labour market (and of all the consequences of unemployment and low income).

How do poor Roma perceive education and what importance do they attribute to it? Do they see education as an opportunity for positive change? The authors of this paper are also focused on these questions in one of the presented qualitative research projects (research project VEGA 1/0596/10 Life strategies of residents in poor and socially excluded Roma communities).

#### 3.1. Briefly on the results

Part of the Roma does not have a clear stance to the significance of education. On one hand, they recognize that, it is important for the labour market (*"they won't give you a job anywhere without school now days"*). On the other hand, not even education beats the obstacles they encounter. Society has prejudices against the Roma (as well as employers), there is a high unemployment rate, the lack of contact with people, who could grant them access to jobs. However, when asked about the education of their children, their answers show similarity: education is important, it can be a means to get the job, those who are educated know how to better establish themselves in society, has a better relationship with the majority (e.g. offices, at work ...).

There is some inconsistency on the subject of what school the Roma should choose for their children. Parents often make decisions on further studies of their children on the basis of distance of the school and costs of the study (they refuse expensive scopes, where students need expensive equipment).

The following text illustrates the diversity of their views on the focus and the level of education for Roma.

- Branch of studies with highest demand on the labor market.
- School has no sense for Roma – even with it, they will not get established into the labor market and they will never be accepted by the majority.
- Spatially least remote schools (because of traveling costs).
- Financially least demanding branches of study (where they do not need to buy expensive tools).
- Any education is good. Always better than without it.
- Craft unions (best suited for Roma).
- The higher the education, the better.
- Roma need people with higher education.

### 4. Conclusion

Action against poverty and social exclusion is one of the main goals for the European Union and at the same time, is a struggle for human dignity. Research has a great significance here. It helps understanding the reasons and consequence of poverty, understanding the current situation and the effect of social programs. This research should also be the first step to which others will follow, focused on practical and systematic help to the poor. Ondrejkoš wrote: "...poverty includes the categorical

imperative and we can not be satisfied by mere description, analysis of the causes and consequences of, or an explanation the form of fate or personal fault." (Ondrejko, 2006, p. 10).

Respondents do not see a lot of possibilities for positive change in their lives. In many of the interviews "helplessness" and resignation was present. They don't have enough resources and opportunities emerging from poverty. Adaptation to environmental conditions appears to be rational, as an "emergency" strategy. On the other hand, however, this strategy is an obstacle to the establishment of a positive change. Limit external conditions impact subjective perception and bring, among other things, a lack of initiative from people with social disadvantages. Approaches, which are focused on activation of poor communities are embedded in social sciences. We also know approaches which emphasise the need for reforming the society which puts some groups in a disadvantageous situation.

The process of change has to be a result of a complex approach and a sincere interest in helping the poor. Education can be a good choice to avert poverty – if it will become a part of complex and systematic changes. The respondents themselves consider it as one of the favourable strategies but even this is limited by deficiency (primarily financial).

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# Subjectivity versus Brazilians universities' demand for objectivity; from sublimation to psychoneurosis.

Rosimê da Conceição Meguins <sup>a</sup>; Maria de Fátima Carneiro Ribeiro Pereira <sup>b</sup>.

<sup>ab</sup> Univeridade do Porto. Rua Alfredo Allen -4200-135- Porto-Potugal

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## Abstract

This theoretical paper discusses changes on teacher's subjectivity based on two Freudian's concepts: sublimation and psychoneurosis. It aims to identify how the subjectivity of teachers working at the Amazonia's universities are being modified due to the new educational policies' demands, which state new tasks to their everyday life in addition to older duties. With this new configuration teachers experience conflicts between the levels of satisfaction aimed and obtained with their labor. Instead of sublimation, psychoneurosis can take place. Possible solutions regarding this issue were discussed by Theodor Adorno when he states what should be considered as a human possibility, on the same path as Freud announced in his book "Civilization and its discontents" (1929).

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*Keywords:* Teacher's subjectivity; educational policies; objectivity and subjectivity in Amazonian universities.

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## 1.Introduction.

The human's condition as a rational being that has consciousness makes it possible to their history development. The activities human beings develop, in an attempt to assure survival, change along the time and improve not only the reality but also themselves. Besides the actions humans perform, they establish relationships among them in order to satisfy material and immaterial needs. These needs seem to have two principal origins: pleasure or necessity.

Despite of the fact that work belongs to the necessity sphere to guarantee survival it can be associated with pleasure once such energy is canalized to it. And in truth, it occurs. Freud (1929) classified this as an important psychological mechanism because it allows us to reach out the highest social and cultural aims. The mental labor such as teach may require this pattern of organization. We apply a *quantum* of happiness to whatever we consider necessity. It becomes possible as an alternative from the impossibility of living for pleasure exclusively.

Following this path, objectivity and subjectivity are both constituent and constituted by men. Their activity changes the external and inner nature, displaying in them an identity by which they recognize themselves while they are also recognized in the same way. Humans are materialized upon their actions. As social and historical beings, they are able to determine the ways to follow. The question then would be, does it occur?

This discussion will arise two contradictory points of view. The first of them has to do with, the assumption that individuals' freedom of choice exists, allowing them to drive pleasure in direction to non sexual *objects* or targets. In this case, sublimation takes place, as it is the means by how the libidinal energy is applied to or guided towards cultural activities, allowing men to contribute in the valorization of several social objects. This condition seems to be restricted to the subjectivity field.

According to Freud (1929):

"Another method of guarding against pain is by using the libido-displacements that our mental equipment allows of, by which it gains so greatly in flexibility. The task is then one of transferring the instinctual aims into such directions that **they cannot be frustrated by the outer world**. Sublimation of the instincts works as an aid in this. Its success is greatest when a man knows how to strengthen sufficiently his capacity for obtaining pleasure from mental and intellectual work. **Fate has little power against him then.**" (Freud, 1929:9 <http://www2.winchester.ac.uk/edstudies/courses/level%20two%20sem%20two/Freud-Civil-Disc.pdf>, 06.05.2014) (**Our marks**)

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\* Corresponding author. Tel.:351 226 079 700; fax: 351 226 079 725

E-mail address: rosimeguins@fpce.up.pt



The second point regards the situation in which this possibility is not present and the individual has to suppress libido displacement. The 'sexual' content is repressed or forgotten causing *trauma*. Such renunciation may product serious disturbances and suffering should takes place.

Freud pointed some difficulties to sublimation occurrence:

"The weak point of this method, however, is that it is not generally applicable; it is only available to a few. It presupposes special gifts and dispositions which are not very commonly found. **And even to these few ones who have it, it does not assure complete protection against suffering**; it gives invulnerable armour against the arrows of fate, and it usually fails when a man's own body becomes a source of suffering to him." (*idem*) (**our marks**)

The objectivity cannot be dissolved or suppressed. It exists and deals with the subjectivity. One may ask if we have this freedom of choice. In an affirmative case, does the option for cultural and social aims assure they will be reached? If not, what consequences should result from the happiness renunciation in favor to collective goods that do not take place?

This is what we intend to discuss. Our major interest consists on a comprehension of the psychological experience teachers have in consequence of the changes that take place at their work. Various studies are conducted considering many factors involved with the adoption of the new Brazilians' policies applied to higher education. Sguissardi and Silva Junior discuss some of these impacts like the reduction of educational finances (2006), the intensification of the teachers' routine of the work even causing teachers' disease (2009).

The theoretical basis was selected considering Freud and Adorno contributions to the critique of culture. The authors' effort to elaborate a comprehensive theory of the impact that took place in Europe under a deep transformation process is taken with the intention to find possible arguments to clear up some aspects of this present question.

To give evidence for the relevance of Adorno's think today, Pucci points that only dialectic thought may catch the inner phenomena contradictions which reproduce in the microcosm the social totality dynamic. Such possibility implies not only interpretation of the reality but the necessary transformation of the real. In Adorno's words: "it is superfluous to search a pragmatic conception in which praxis and theory run into each other as it occurs in dialectic"(Adorno,1931:129. <http://pt.scribd.com/doc/138023188/Adorno-The-Actuality-of-Philosophy> 26.05.2014).

## 2. Teacher's work and its dimensions

Only technical reasons are considered in order to separate these unified aspects. Subjectivity and objectivity are intrinsically mixed, as we will see. In the educational area it is imperative to take both of them into account. The concrete conditions need to be faced by those ones considered personal.

Teachers have a singular condition while compared with other professionals. They have to maintain proximity from their students, in order to know them - their capacity, difficulties-, and at the same time, they need to keep a certain distance to avoid bias toward someone.

The products of their work have two dimensions: direct and indirect results. The knowledge transfer and the learner pose these dimensions as obligations. When the learner (subject) is in contact with the knowledge (object), it is expected the occurrence of some changes. These processes can be observed and measured more objectively. However, there are changes that take time to occur. In such a case, we can consider that the learner is transformed into an object, as the teacher's actions (subject) affect them.

These two dimensions constitute the goal of teacher's work but the education is supposed to be more important than the information that feeds this formation process. Indeed, no one should be left apart, it could be thought as a continuum. The quality present in the first dimension has an impact on the second. In fact, the practice of teaching is based on this assumption.

More recently, we are experiencing changes in the educational area in many countries, including Brazil. In order to adapt to the new demands of democratization in this field, the number of universities admissions increased enormously. This fact is very positive and needs the adoption of important actions in order to promote education with quality.

## 2.1. Objectivity's aspects.

Unfortunately, we can observe some difficulties in this process of expanding the educational system. One of them refers to the lack of teachers required to attend the increasing number of the students that reach the universities. There is an insufficient quantity of teachers to face the great demand of students. For this reason, classrooms are overloaded. The consequences are negatives for both teaching and learning.

The illustration of this situation can be shown clearer by numbers. The Federal University of Rio de Janeiro, one of Brazil's greatest universities had in 2012, 51,500 students ([www.ufrj.br/docs/lai/ufrjemnumeros.2012.pdf](http://www.ufrj.br/docs/lai/ufrjemnumeros.2012.pdf), 08.05.2014), while there were 4,600 teachers only (<http://odia.ig.com.br/noticia/educacao/2013-05-07/ufrj-perdeu-456-docentes-em-quatro-anos.html>, 08.05.2014).

On the other hand, at the Amazonian Region, The Federal University of Pará registered 46,207 students as we can see in the Tables 1 and 2, but only 2.310 teachers, as Table 3 shows. ([www.ufpaemnumeros.ufpa.br](http://www.ufpaemnumeros.ufpa.br), 08.05.2014).

Table 1 – Number of undergraduate students by place in 2012.

Students	Region		TOTAL
	CAPITAL	Countryside	
Freshmen students	4.651	5.190	9.841
Registered	20.272	18.964	39.236
Graduates	2.260	1.110	3.370

Source: SIE/UFPA

Table 2 – Number of graduate students in 2012.

Graduation/ Level	Students	
	Registered	Graduates
Phd	1.162	170
Master's degree*	2.559	812
Medical residency	124	67
Specializations	3.116	881

Source: PROPESP

\* 56 cursos de mestrado sendo 47 acadêmicos e 9 profissionais

Table 3 – Number of associate professors in Higher Education by degree in 2012

Degree	QUANT.
Graduate	67
Specialist	144
Master's	879
PhD /Postdoctor	1.220
<b>Total</b>	<b>2.310</b>

Source: DINFI/PROPLAN – Fita Espelho SIAPE – dezembro 2012

The example we decided to select involves two institutions placed in different regions. Our purpose is to show that these represent extreme situations, separated not only by physical distances, but also by several peculiar conditions, although they are required to achieve the same results. Beyond the numbers, there are conditions that must be considered as significant differences.

With the adoption of universal criteria teachers are submitted to standard evaluations which results determine various contingences: stay or leave a post graduation program, promote higher steps in career or retain the actual education. For the last case, it is necessary to mention that the higher the level, the higher the salary earned.

Beyond ranking, this process increases the volume of tasks teachers have to assume. Regular classes, guidance of students and research were the trivial procedures. To write books was a practice, not an obligation. Now, everyone is asked to write papers and publish them in an indexed scientific periodic journal or magazine. These products are better evaluated than books in a procedure for which the quantity is considered instead of quality once again.

The attendance of graduation and post graduation levels also creates the necessity to lead all students to conclude their courses. The entrance of new students depends on the number of those that reach the end and earn a degree. Financial resources given to the institution from the government are basically conditioned by the same results. Teachers feel the responsibility on their shoulders.

To accomplish all of these duties much more time has been necessary. Actually, it seems that work has taken the entire life. The technological advances help to dissipate the limits of space and time therefore, they do not exist anymore. As a consequence, teachers have a real feeling that private life was taken abate for the public one.

Work was intensified in a real and virtual space, intensifying the time spent within it. And the major consequence that the intensification of work brings is the feeling that it is endless. At the same time intensification of work takes place, it increases the feeling that nothing has been done. There is always something else to be done.

Facing such situation, it is not difficult for us to anticipate some effects.

## *2.2. Subjectivity's aspects.*

It is already said that to be responsible for an individual education should be considered the most important task teachers have. Education implies changes and the knowledge enables transformations in both teachers and students. As teachers transform students, they are transformed too, once they transfer part of themselves to their learners.

However, this kind of procedure cannot be directly measured or observed in a short time. As teachers mediate the process that can be considered endless, they need to develop immediate activities to assure they can contribute for a future and better condition.

The quality required to develop their work is the principal condition to promote better education. If the number of students is doubled in each classroom while more activities are added to the previous ones, the quality of teachers' work tends to decline.

When the secondary tasks acquire status of being "fundamental" the problem increases. Previously, classes and dealing with students took the major attention of teachers. They were required to prepare their 'pupils' to produce a final paper at the end of their courses (an action called orientation in Brazil), usually a monographic work to conclude graduation or either a dissertation and thesis to obtain a master's or PhD's degree, respectively. All these tasks were measured by the same scale of value. Now, only classes are effectively considered to fill the schedule of demands. It does not matter how many students are being under orientation, teachers have to attend a minimum number of classes to get their activities approved in the evaluation instances. Here again, we observe that teaching is considered more important than supervising final assignments.

The evaluation's instances are externals to the universities. In Brazil there are two institutions which carry out the evaluation procedures: the Coordination of Research in Higher Education (CAPES), and the National Council on Research (CNPq). They are responsible for the establishment of criteria and rules to be adopted in all of the Brazilian institutions of higher education. The universities' autonomy disappears and heteronomy takes place.

In a country with continental dimensions and contrasts, the pattern measures seem to be unfair. As a consequence, a great number of teachers do not obtain success in accomplishing what is expected for them. Pressure, anxiety, delusion and frustration are feelings related to this condition.

Sublimation is no longer possible. The individual submitted to a very stressing life fails to displace pleasure towards the action that only produces suffering.

"The complicated structure of our mental apparatus admits, however, of a whole series of other kinds of influence. The gratification of instincts is happiness, but when the outer world lets us starve, refuses us satisfaction of our needs, they become the cause of very great suffering. So the hope is born that by influencing these impulses one may escape some measure of suffering. This type of defense against pain no longer relates to the sensory apparatus; it seeks to control the internal sources of our needs themselves." (FREUD, 1929: 9.

<http://www2.winchester.ac.uk/edstudies/courses/level%20two%20sem%20two/Freud-Civil-disc.pdf> ,)

Even the submission to such demands in order to attend the expectation of evaluation agencies does not guarantee a satisfactory condition. The reason is that each time a higher level of demands occurs, it stimulates competition, individualism and isolation. In extreme case, it may produce narcissism if the ego is submitted to high levels of demands that can produce a greatest repression carried by psychoneurosis, specially the narcissistic type.

According to Freud: "A strong egoism is a protection against falling ill, but in that last resort we must begin to love in order not to fall ill, and we are bound to fall ill if, in consequence of frustration, we are not able to love". (1914: 85.) Since the external work becomes a threat to the individual happiness, the exit is to find pleasure in internal activities.

Teachers acknowledge that behavior patterns changed. The students' failure means the teachers' failure. For this reason, the educational democratization to approve students is stimulated. It does not indicate that teachers are pleased with themselves. The capacity present on them to evaluate their actions and the results makes teachers feel dissatisfied with their work. The insufficient rewards obtained from the students' education lead teachers to concentrate their efforts in direction of tasks that can provide better consequences.

It involves over-evaluation of activities that were considered means to reach their aim. To publish papers, guide a great number of students, coordinate or integrate groups of research are the substitute's goals. Probably this short time goals earned value over the personal ones while only they can guarantee immediate reward for their efforts.

Each of those activities is correspondent to a number in a quantitative scale of evaluation. The highest the mark obtained, it makes teacher stand out in the intellectual scene. The numbers are the external reinforcements that assure distinction and proud as intrinsic values.

Cooperation has no place in this work environment because hierarchy does not accept it definitely. Then narcissism has the favorable conditions to be established. It works as a barrier to external causes of suffering. Freud contributes to understand the limits of this procedure:

"...and this seems most important of all, it is impossible to ignore the extent to which civilization is built up on renunciation of instinctual gratifications, the degree to which the existence of civilization presupposes the non-gratification (suppression, repression, or something else?) of powerful instinctual urgencies. This cultural privation dominates the whole field of social relations between human beings; we know already that it is the cause of the antagonism against which all civilization has to fight. It sets hard tasks for our scientific work, too; we have a great deal to explain here. It is not easy to understand how it can become possible to withhold satisfaction from an instinct. Nor is it by any means without risk to do so; if the deprivation is not made good economically, one may be certain of producing serious disorders". (FREUD, 1929, p.18. <http://www2.winchester.ac.uk/edstudies/courses/level%20two%20sem%20two/Freud-Civil-Disc.pdf>, 10.05.2014)

We can imagine a battle between the individual and the culture, in spite of this latter one being considered a human production itself. The power of culture submits the individuals and it is hard for them to get freedom from it. The possibility of this condition is taken from the proper individual. The sexual energy, libido, is the drive that feeds on communal life with the intention to maintain its members jointed on a libidinal relationship, using all the ways available.

Obviously, a similar mechanism is required to repress aggressive instinct. In this way, the superego assumes the interdiction function, and through the ego-ideal supervises the ego aspirations. Ego-ideal is an "...agency of the personality resulting from the together narcissism (idealization of the ego) and identification with the parents, with their substitutes, or the collective ideals. As a distinctive agency, the ego-ideal constitutes a model to which the subject attempts to conform". (Laplanche & Pontallis, 1973:144. The Language of Psycho-analysis, Karmac books, 1973, <http://books.google.es/books?hl=ptPT&id=DCpokE8C2WgC&q=Ego+ideal#v=snippet&q=Ego%20ideal&f=false>, 13.05.2014)

Freudian Psycho-analysis is an important apparatus to evidence how, from its origin to now, the civilization process is set in a domination model which limit, if not repress, the search of any alternative to oppose it. Even though Freud's principal interest was a scientific one, to develop a mental disturbs' theory, it is possible to see behind this a-history position an hesitation, but it also reveals the history, social and political bases in which individuals are conformed in the society.

Adorno returns to Freud's concepts to develop his Culture Industry Theory. The author calls attention to the propaganda of freedom hidden in "the industrial procedure in which the selfsame is reproduced through time – the very allegory of high capitalism which demonstrate its dominating character even when it appropriates its necessity as the freedom of play". (Adorno, 1991:61, 1 <http://www.public.iastate.edu/~carlos/607/readings/adorno.pdf>, 11.05.2014).

As rational beings we need to exercise self-reflection to raise our awareness of this condition.

"For intellectuals, unswerving isolation is the only form in which they can vouchsafe a measure of solidarity. All of the playing along, all of the humanity of interaction and participation is the mere mask of the tacit acceptance of inhumanity. One should be united with the suffering of human beings: the smallest step to their joys is one towards the hardening of suffering." (ADORNO, 1944. Part 1. Aphorism 5, <http://www.marxists.org/reference/archive/adorno/1951/mm/ch01.htm>, 13.05.2014)

### 3. Brief considerations.

A demand of adaptation to such difficult conditions is an attempt to deny the conflicts existing between the work aim and the work results. Considered as a general evil, the current process is only out for the immediate identification of the individuals with the social institution models that had appropriated their forms of behavior along the way.

Sublimation is substituted to obtain some pleasure which the majority, identified with its weakness, attaches to a particular, as a sample of the majority, an impression of belonging to such collective. At the same time, this effect allows the transfers of collective power and greatness to the individuals. Such identification proceeded from exterior and for this reason processed out of the individual dynamic, abolishing the awareness of the genuine emotion, the proper impulse that must be presented.

As the culture industry denies for individuals the possibilities of pleasure and satisfaction, it increases the abandoned and helpless experience and forces false identification with the social totality that only in this way could take place.

Even though teachers, while members of a social institution are, at the same time, subjects and objects, a favorable situation to reproduce domination, the same conditions should allow them to resist against it. While teachers are under the influence of the production logics, they keep on going despite being affected with their action. That may presuppose contradiction what may contribute for occurrence of the critical analyses of the reality.

A critic that breaks with the model that attacks subjectivity by objectivity elaborations, that intends to give to the individual the well succeed impression, has to be arisen. Because, in reality, those who get involved in it became individuals abandoned from their own expression. They are involved with a culture that does not exist anymore, that changed themselves into a pulsional object of perversions made by culture industry with its broken promise to promote satisfaction.

The relevance of this attitude is to put in evidence the paper of public policies to be oriented toward an education as an education of human beings and values. An education that could be able to change the reality towards of the proper humanity's benefits.

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## Subtypes of Readers and Spellers in Second Grade Children

Susanne Seifert+++++, Lisa Paleczek, Susanne Schwab, Norbert  
Tanzer, and Barbara Gasteiger-Klicpera

University of Graz, Merangasse 70/2, 8010 Graz

## Abstract

In primary school classrooms, teachers face a tremendous diversity concerning reading and spelling abilities. In the present study, decoding, reading comprehension and spelling abilities at the beginning of second grade (377 children) served as a basis for a clustering process. 5 different subtypes of readers and spellers were revealed (outliers were excluded). Further analyses showed that the 5 clusters also differed in other abilities (active and passive vocabulary, grammar, cognitive abilities) and demographic variables (age, children's first language). Furthermore, the distribution of the clusters was examined and 18 out of the 21 studied classrooms showed all clusters. The results are discussed in the light of the challenges that such heterogeneity means for teachers.

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**Keywords:** reading; spelling; primary school; heterogeneity; subtyping children; cluster analysis

## 1. Introduction

In our society, reading and spelling are competencies needed to master most challenges in everyday life. Reading competence refers to the ability to analyze and comprehend written words and texts (Klicpera, Schabmann, & Gasteiger-Klicpera, 2010). For an efficient reading process, different subordinated skills have to be synchronized. According to the simple view of reading (e.g., Hoover & Gough, 1990), two different abilities are necessary for effective reading comprehension: *decoding* and *linguistic comprehension*. For grasping the meaning of texts, both abilities are needed. The simple view of reading claims that in the first years of school, decoding and linguistic comprehension are only weakly related, whereas later on, linguistic comprehension has a greater impact on reading comprehension than decoding. During the first school years, decoding is the first skill to develop. This is the ability to transform printed letters (graphemes) and letter strings into a phonetic code (phonemes) (Perfetti, 1985). This decoding process, which becomes increasingly automatized, is referred to as the non-lexical route. As a parallel cognitive process, the direct lexical route develops: At the beginning of reading acquisition, only some small words and parts of words are stored in an orthographic mental lexicon and therefore can be looked up fast. Later on, the number of words in the lexicon increases and more complex and longer words can be decoded at a glance. These two routes (lexical and non-lexical) are necessary for a successful reading process (Coltheart, 1981). The growing use of the lexical route gradually increases reading speed and fluency (Klicpera, Schabmann, & Gasteiger-Klicpera, 2010). The fast lexical word reading is a prerequisite for reading comprehension. This ability provides readers with the opportunity to understand written words and texts and to gain information from texts.

Models of reading and writing development assume a close interdependence between the development of reading and spelling skills (e.g., Frith, 1985). Spelling is the ability to convert spoken language (phonemes) into graphemes. It is assumed that especially in the first grades, spelling and reading skills are closely related (Cunningham & Stanovich, 1993). This close interdependence is obvious when looking at the definition of dyslexia. Developmental dyslexia is often described as an overall impairment of reading and spelling abilities independent of and unrelated to other cognitive abilities (International Dyslexia Association, USA: Lyon, Shaywitz, & Shaywitz, 2003; Rose Review, Great Britain: Rose, 2009). Nevertheless, research (e.g., Moll & Landerl, 2009; Schabmann & Schmidt, 2010) shows that reading and spelling abilities can be impaired independently of each other. The same is true for the different skills necessary for reading competence: Impairments can be restricted to reading comprehension alone (poor comprehenders) or decoding deficits alone (poor decoders) (e.g., Nation, 2005; Stothard & Hulme, 1992; Yuill & Oakhill, 1991). As such, each child might show distinct ability levels for all three different skills (decoding, reading comprehension, and spelling).

From the beginning of the first grade, children start their reading acquisition with very different preconditions. While some children show nearly comparable ability levels in reading and spelling during the development of reading and spelling skills, many children are better in one ability but lag behind in the other abilities. When failing to meet the basic requirements in one of the reading and spelling abilities, children can easily fall behind. Once children are at risk concerning these reading and spelling

\* Corresponding author. Tel.: 0043-316-380-2539.

*E-mail address:* Susanne.seifert@uni-graz.at.

abilities, general failure in all academic subjects may result since these two abilities are fundamental for nearly all subjects. Such insufficient reading skills represent a significant problem in Austria: About 16% of fourth graders are identified to be at risk (e.g., Schabmann, Landerl, Bruneorth, & Schmidt, 2012). Besides this at-risk group, it can be assumed that there is also a big diversity in reading and spelling abilities in unimpaired children.

Diversity in ability levels of reading and spelling skills is often quite challenging in the classroom. On the one hand, teachers should identify the above mentioned at-risk students as early as possible and provide individual learning support to ensure that they are able to catch up with the other students in class (e.g., Helf & Cooke, 2011; Rose, 2006; Swanson, 1999; Torgesen, 2005). On the other hand, teachers also need to create the best learning conditions for children with average and above average abilities. In addition to the different levels in reading and spelling abilities, teachers encounter two more challenges: For the last few years, based on the UN Convention on the Rights of Persons with Disabilities, inclusion of children with special educational needs within regular school settings has become a declared objective (United Nations, 2006). Therefore, the heterogeneity in classrooms is rising (Statistik Austria, 2014). Further factors that increase classroom diversity are differences in cultural and linguistic background (Herzog-Punzenberger & Schnell, 2012; Schwab et al., 2013). Nowadays, nearly one in 4 children in Austrian primary schools does not speak German as first language (school year 2012/13; Statistik Austria, 2014). If the classroom consists of many children whose first language is different from the language of instruction, teachers often have to deal with deficits in vocabulary, too. The aim to promote all children in the classroom and respond to all children's needs becomes more difficult to reach when, besides the challenges already mentioned, language deficits have to be addressed as well. In addition, children with a different first language are not the only ones who show a lack in language abilities concerning the language of instruction (Schabmann et al., 2010).

The purpose of the present study is to examine this heterogeneity through revealing different subtypes of readers and spellers in second grade classrooms.

## 2. Method

### 2.1 Participants

The data used in the present study was collected at the beginning of the second grade as part of a larger intervention study (LARS - Language And Reading Skills, see also Schwab & Gasteiger-Klicpera, 2013; Schwab, Seifert, & Gasteiger-Klicpera, 2013; Schwab, Seifert, & Gasteiger-Klicpera, submitted; Seifert, Schwab, & Gasteiger-Klicpera, 2014). Only classes with a higher percentage (30% or more) of students with German as a second language (GL2) were included. The resulting sample consisted of 377 children (180 boys and 197 girls) from 21 classes in 8 primary schools in Styria, a federal state of Austria. The children were between 7 and 9 years old ( $M = 7.78$ ;  $SD = 0.44$ ). About half of the children (51.2%) were native German speakers (i.e., German as a first language – GL1). The remaining children (48.8%) spoke German as a second language (GL2). These GL2 students spoke about 21 different L1 languages (most frequent languages: Albanian, Chechen, Bosnian, Croatian, and Turkish).

### 2.2 Instruments

To examine the reading (decoding, reading comprehension) and spelling abilities, three standardized tests were used. The assessment of the language abilities was conducted via a vocabulary and a grammar test. In addition, overall cognitive abilities were tested with the German version of the Cultural Fair Intelligence Test (CFT-1; Cattell, Weiß, & Osterland, 1997). Demographical data included information about the children's age, gender, first language, and status of special educational needs (SEN) and was collected through teacher questionnaires.

The *Salzburg Reading and Spelling Test* (SLRT II; Moll & Landerl, 2010) consists of a Reading Decoding Test and a Spelling Test. For the purpose of the present study, only the Decoding Test of the SLRT was used. It is an individual reading test that assesses decoding with the subscales Word Decoding (read words aloud) and Non-word Decoding (read non-words aloud). According to the manual, the retest reliability for the Decoding Test ranges from .90 to .98.

Reading comprehension was tested with the *Reading Comprehension Test for First to Sixth Graders* (ELFE 1-6; Lenhard & Schneider, 2006). This test assesses reading comprehension with three subscales: Word, Sentence and Text Comprehension. The internal consistency of the subscales ranges from .92 to .97. In the present study, only the subscales Word Comprehension (underlining one of four words that matches a picture) and Sentence Comprehension (underlining one of five words that fits in the sentence) were used.

Spelling skills were tested with the *Hamburg Spelling Test* (HSP 1-9; May, 2002). This test assesses the spelling of words and small sentences after verbal presentation and provides the interpretation on word level (number of correctly spelled words) as well as grapheme level (number of correctly spelled graphemes). For the present study, the number of correct graphemes was used for further analyses because they offer more precise information.

Vocabulary knowledge was measured with the short form of the *Vocabulary and Word Finding Test for 6 to 10 Year Olds* (WWT 6-10; Glück, 2007;  $\alpha = .84$ ) with two subscales: Active and Passive Vocabulary. For the Active Vocabulary subscale, single pictures have to be named. Due to the assumption that a word that is actively known is also known passively, only those

words which were not known when testing with the Active Vocabulary subscale were tested afterwards with the Passive Vocabulary subscale (pointing to one of four pictures that fits the word announced by the tester).

Grammar skills (active, not passive knowledge) were measured with a modified version of the Grammar Subtest of the *Potsdam-Illinois Test for Psycholinguistic Abilities* (P-ITPA: Esser, Wyszkon, Ballaschk, & Hansch, 2010). The reliability was .89. Within this Grammar Test, children had to answer questions regarding pictures that ought to evoke different grammar structures.

### 2.3 Statistical Analyses

Subtypes of readers and spellers in second grade were identified through a hierarchical cluster analysis using Ward's method with squared Euclidean distance measure. Decoding, reading comprehension and spelling were included in the cluster analysis. To make the metric of all variables comparable, raw scores were converted to T-scores ( $M = 50$ ,  $SD = 10$ ). Due to the high correlation (see Table 1 in bold) between the two subscales for reading comprehension as well as the two subscales for decoding, only one subscale per ability was included. Because of their lower correlation to the other tests (see Table 1), the subscales Non-word Decoding and Word Comprehension were chosen. ANOVAs were conducted to reveal differences between the clusters in the variables that were not included in the cluster analysis (i.e., language and cognitive abilities). For identifying differences in demographic variables, Chi-square tests were conducted. All statistical analyses were conducted with SPSS 20.0 for Windows (IBM Corp., Armonk, NY).

Table 1. Inter-correlations of decoding, reading comprehension, and spelling abilities.

	Decoding Word Decoding	Non-word Decoding	Reading Comprehension Word Comprehension	Sentence Comprehension	Spelling
Decoding					
Word Decoding		<b>.89**</b>	.73**	.77**	.51**
Non-word Decoding			<b>.65**</b>	<b>.67**</b>	<b>.49**</b>
Reading Comprehension					
Word Comprehension				<b>.79**</b>	.44**
Sentence Comprehension					<b>.46**</b>
Spelling					

\*\* $p < .01$

**Bold:** correlations between the subscales within a test

### 3. Results

The dendrogram of the hierarchical cluster analysis revealed six distinguishable clusters. Five big clusters consisted of 55 to 97 children, whereas one small cluster contained only eight children (2.1% of the sample). By taking a closer look, it became obvious that this small cluster consisted of a group of outliers. The children in this cluster had special educational needs (SEN), showed insufficient language skills, or their cognitive abilities were below average ( $IQ < 70$ ). As the tests were not constructed and evaluated for students with such impairments, it is unclear if their test results are valid. All of the children in this cluster showed very weak abilities in decoding ( $T = 26.7$ ), reading comprehension ( $T = 34.55$ ) and in spelling abilities ( $T = 5.07$ ) compared to the rest of the sample (with average T-values). Therefore, this cluster was not included in any further analyses.

Table 2 shows the distribution of the remaining five clusters within each class. In each class, at least four of the five clusters exist. Only three classes (Classes 6, 16 and 17) have just four clusters, all the other 18 classes consist of the five clusters. However, in three classes (Classes 1, 3 and 16), one Cluster is overrepresented (see Table 2 in bold).

Figure 1 shows the profiles of the other five clusters for the three abilities used in the cluster analysis (decoding, reading comprehension and spelling). Mean T-values (calculated within the present sample) are shown for each cluster separately. Cluster 2 shows the group with the highest reading abilities (both in decoding and reading comprehension) and their spelling abilities are in the upper average. Clusters 5 and 1 partly resemble each other: Children in those two clusters all achieved average scores in all tests. However, by looking closer, differences in the specific abilities can be found. The main difference between these two clusters is found with regard to spelling, where Cluster 5 children reached upper-average scores and outperform Cluster 1 children. In decoding and reading comprehension, another difference is found. While Cluster 5 shows better decoding abilities, Cluster 1 shows better reading comprehension skills. Moreover, the upper-average scores in reading comprehension skills in Cluster 1 represent the best ability in this group. Cluster 4 reveals a group of children with lower-average abilities in decoding and even worse performance in reading comprehension. In addition, Cluster 4 is the group with the lowest spelling abilities. In comparison to Cluster 4, Cluster 3 shows better spelling abilities (average range) but represents the group with the lowest scores for decoding and reading comprehension (see also Table 3).



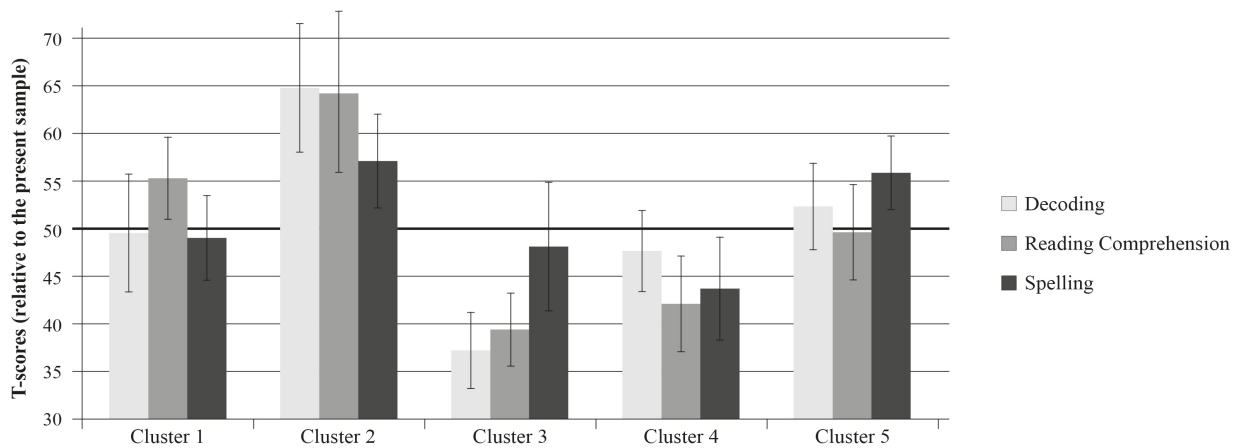


Figure 1. Mean

T-scores and standard deviations of decoding (subscale Non-word Decoding), reading comprehension (subscale Word Comprehension) and spelling for the five clusters. T-scores:  $M=50$ ,  $SD=10$  (Standardized within the present sample). Average abilities are defined as within one standard deviation above or below the mean ( $40 < T < 60$ ).

Table 2. Distribution of children in classes by cluster.

Class	Cluster 1 (percentage)	Cluster 2 (percentage)	Cluster 3 (percentage)	Cluster 4 (percentage)	Cluster 5 (percentage)	Class Size (n)
1	6.3%	6.3%	18.8 %	6.3%	<b>62.5%</b>	16
2	26.7%	13.3%	6.7%	13.3%	40%	15
3	<b>50%</b>	16.7%	16.7%	11.1%	5.6%	18
4	10.5%	10.5%	26.3%	36.8%	15.8%	19
5	36.8%	10.5%	10.5%	26.3%	15.8%	19
6	38.5%	15.4%	15.4%	30.8%	-	13
7	14.3%	21.4%	14.3%	7.1%	42.9%	14
8	22.7%	9.1%	13.6%	18.2%	36.4%	22
9	13%	4.3%	17.4%	26.1%	39.1%	23
10	33.3%	14.3%	23.8%	19%	9.5%	21
11	17.6%	17.6%	17.6%	41.2%	5.9%	17
12	37.5%	12.5%	18.8%	12.5%	18.8%	16
13	22.2%	22.2%	11.1%	11.1%	33.3%	18
14	15.4%	15.4%	23.1%	23.1%	23.1%	13
15	27.3%	16.7%	5.6%	16.7%	33.3%	18
16	18.8%	<b>50%</b>	-	6.3%	25%	16
17	30.8%	15.4%	15.4%	-	38.5%	13
18	12.5%	12.5%	31.3%	6.3%	37.5%	16
19	23.8%	9.5%	9.5%	33.3%	23.8%	21
20	10%	30%	5%	25%	30%	20
21	33.3%	14.3%	14.3%	19%	19%	21
<b>Cluster Sizes (n / percentage)</b>						<b>N</b>
88 / 23.8%						369
58 / 15.7%						
55 / 14.9%						
71 / 19.2%						
97 / 26.3%						

**Bold:** more than 50% of the children in class in one cluster

After clustering, variance analyses were conducted to test if the five clusters also differ in variables not used in the cluster analysis, namely, language skills (active and passive vocabulary, grammar), cognitive abilities, and age. The clusters differ significantly in their language abilities ( $F_{4,368}=13.699$ ,  $p<.001$ ,  $\eta^2=.131$ ). As can be seen in Table 3, Cluster 4 always showed the poorest language skills (both in active/ passive vocabulary and in grammar). Cluster 2 always showed the best language skills. Clusters 1, 3 and 5 are nearly comparable in their language abilities. Similar results were found for cognitive abilities ( $F_{4,368}=8.546$ ,  $p<.001$ ,  $\eta^2=.088$ ) Cluster 2 shows significantly higher cognitive abilities than all other clusters whereas the others do not differ from each other. Figure 2 visualizes the differences between the clusters in language and cognitive abilities. Age differences ( $F_{4,368}=4.109$ ,  $p<.01$ ,  $\eta^2=.043$ ) were significant only between Cluster 5 and Cluster 1. Cluster 5 children are significantly younger than their Cluster 1 peers.

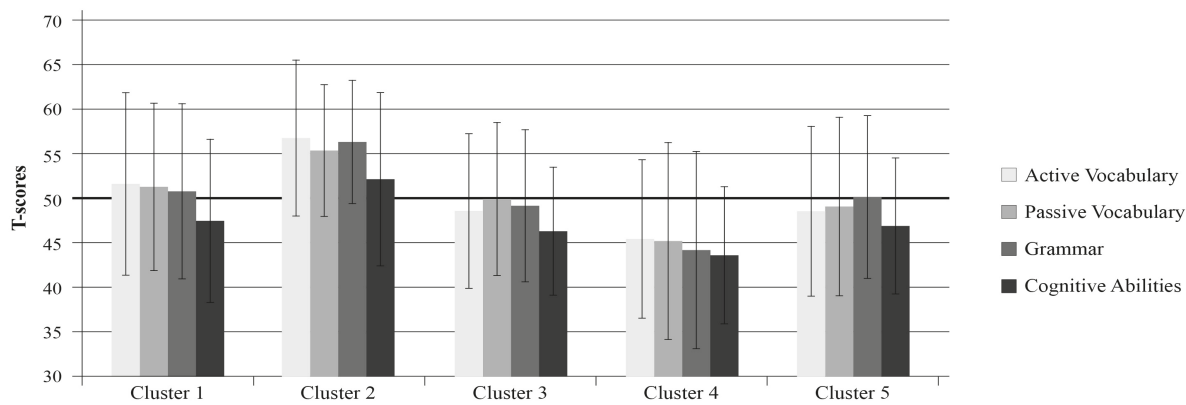


Figure 2. Mean

T-scores and standard deviations of language abilities (subscales Active and Passive Vocabulary, Grammar) and cognitive abilities for the five clusters. Cognitive abilities are age-normed; all other abilities are standardized within the present sample.

Table 3. Means, standard deviations and Scheffé tests between the five clusters for decoding, reading comprehension, spelling, active and passive vocabulary, grammar and cognitive abilities.

Scale	Subscale	Cluster 1 M (SD)	Cluster 2 M (SD)	Cluster 3 M (SD)	Cluster 4 M (SD)	Cluster 5 M (SD)	Scheffé significant differences ( $p < .05$ )
Decoding (T-scores)	Non-word Decoding <sup>a</sup>	49.58 (6.23)	64.82 (6.79)	37.25 (4.03)	47.69 (4.30)	52.37 (4.58)	<sup>c</sup>
	Word Decoding <sup>b</sup>	48.96 (5.69)	66.4 (8.74)	38.9 (4.36)	44.59 (5.06)	51.39 (4.66)	<sup>c</sup>
Reading Comprehension (T-scores)	Word Comprehension <sup>a</sup>	55.33 (4.36)	64.24 (8.5)	39.44 (3.87)	42.14 (5.07)	49.66 (5.05)	<sup>c</sup>
	Sentence Comprehension <sup>b</sup>	50.71 (7.24)	65.46 (8.44)	40.57 (4.1)	43.43 (4.87)	50.27 (6.25)	<sup>c</sup>
Spelling <sup>a</sup> (T-scores)		49.07 (4.49)	57.14 (4.97)	48.16 (6.8)	43.74 (5.45)	55.9 (3.91)	<sup>c</sup>
Vocabulary (T-scores)	Active Vocabulary	51.64 (10.29)	56.79 (8.8)	48.6 (8.72)	45.46 (8.94)	48.57 (9.57)	4<1<2 (5=3)<2
	Passive Vocabulary	51.31 (9.44)	55.39 (7.44)	49.95 (8.63)	45.23 (11.1)	49.1 (10.06)	4<(1=2) (5=3)<2
Grammar (T-scores)		50.81 (9.88)	56.35 (6.96)	49.19 (8.58)	44.21 (11.12)	50.17 (9.18)	4<(3=5=1)<2
Cognitive Abilities (IQ age norm)		95.49 (14.4)	102.81 (15.59)	92.95 (11.24)	89.37 (12.6)	93.44 (12.27)	(4=3=5=1)<2

<sup>a</sup>Variables used for cluster analysis.

<sup>b</sup>Due to their high inter-correlations, only one subscale of each test was included in the clustering process.

<sup>c</sup>Due to the inclusion in the clustering process or the high correlation to variables included, no variance analyses and no Scheffé tests were conducted.

The five clusters also differed in demographic variables (see Table 4). Overall Chi-square tests were used to analyze the differences between the clusters concerning the number of girls/boys and GL1/GL2 children. If there was an overall difference, additional Chi-square tests with Bonferroni correction were conducted to find out which clusters differ from each other. With respect to gender, an overall difference ( $\chi^2_{4, 369}=11.582$ ;  $p < .05$ ) was found, but no significant differences between cluster pairs could be established after Bonferroni correction. With respect to GL1/GL2, a significant difference was found ( $\chi^2_{4, 369}=12.86$ ,  $p < .05$ ). Even after Bonferroni correction, significant differences were found between Cluster 2 and Cluster 4 ( $\chi^2_{1, 129}=11.617$ ,  $p < .01$ ) as well as between Cluster 2 and Cluster 5 ( $\chi^2_{1, 155}=6.82$ ,  $p < .01$ ). More specifically, there were more GL2 children in Cluster 4 and Cluster 5 than there were in Cluster 2.

Table 4. Means and standard deviations in the five clusters for age; distribution of gender and language (GL1/GL2) by cluster.

Variable	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	post-hoc significant differences
Age M (SD)	7.89 (0.44)	7.7 (0.39)	7.78 (0.42)	7.85 (0.51)	7.66 (0.37)	5<1 <sup>a</sup> (5 younger)
Gender (Percentage of Girls)	42%	43.1%	63.6%	62%	55.7%	
Language (Percentage of GL2)	44.3%	31%	52.7%	60.6%	52.6%	2<4 <sup>b</sup> 2<5 <sup>b</sup>

children)					
Cluster Size ( <i>n</i> )	88	58	55	71	97

<sup>a</sup> Significant results for Scheffé test ( $p < .05$ ).

<sup>b</sup> Significant results for Chi-square tests with Bonferroni correction ( $p < .01$ ).

#### 4. Discussion

The present study aimed to identify subtypes in a sample of 377 second graders, tested at the beginning of the school year. A cluster analysis of reading and spelling abilities was conducted and six different clusters were identified. As shown in the cluster analysis, developmental levels of decoding, reading comprehension and spelling differ between the children. After excluding an outlier cluster with eight children, five clusters remained. The remaining five clusters did show different profiles in the children's reading and spelling abilities. The three larger Clusters, 5, 1 and 4, showed average scores in all three abilities. Cluster 5 was the one with the most children ( $n=97$ ). Those children's spelling abilities were better than their reading abilities (decoding and reading comprehension). However, their decoding was still better than their reading comprehension. In Cluster 1 ( $n=88$ ), decoding and spelling were nearly comparable. However, their reading comprehension was better developed and represents the best ability. Cluster 4 ( $n=71$ ) consisted of children whose decoding was better than their reading comprehension and spelling, respectively.

Above-average abilities and therefore remarkably good reading abilities were only shown by Cluster 2 ( $n=58$ ). The means of decoding and reading comprehension scores were above average. Additionally, their spelling was also in the upper average range. Therefore, Cluster 2 was the best group in all three abilities. In contrast, Cluster 3, the smallest group ( $n=55$ ), showed below-average reading comprehension and decoding skills. Surprisingly, Cluster 3 children's spelling was average and even higher than in Cluster 4 children. With Cluster 3, a group with particularly weak reading abilities (decoding and reading comprehension) was identified. Since spelling is not affected in this group, the impairment shown in these children is restricted to reading abilities. These findings support previous research results concerning the possibility of isolated impairments in either reading abilities or spelling abilities (e.g., Moll & Landerl, 2009; Schabmann & Schmidt, 2010).

Comparing the group of best readers (Cluster 2) to the group of poorest readers (Cluster 3), their mean in the decoding subscale Non-word Decoding was more than 2.5 standard deviations above the mean of Cluster 3. In the reading comprehension subscale Word Comprehension, the difference was nearly 2.5 standard deviations. However, in terms of spelling, no notable differences between all clusters could be found. Spelling was within the average in all clusters. Even comparing the best spellers (Cluster 2) to the poorest spellers (Cluster 4), the distance of their mean scores was less than 1.5 standard deviations. Therefore, the differences in reading abilities (both decoding and reading comprehension) are a lot higher than they are in spelling. As a conclusion, the children in our sample vary more distinctly in reading than in spelling abilities. Thus, teachers of the present sample probably encounter a bigger challenge when teaching reading than when teaching spelling. On the one hand, teachers have to deal with children that outperform others in reading, and on the other hand, there is a group of children who still struggle with basic reading acquisition.

None of the examined school classes showed fewer than four clusters. Therefore, all classes can be described as being heterogeneous. In every class, there were children of Cluster 1 and Cluster 2. Only three classes (Classes 6, 16 and 17) contained only four clusters while one cluster was missing (Clusters 5, 3 and 4, respectively). In three classes (Classes 1, 3 and 16), one of the clusters was overrepresented (Clusters 5, 1 and 2, respectively). In Class 16, the overrepresentation of Cluster 2 children combined with the non-existence of Cluster 3 resulted in a rather homogeneous class with a lot of skilled readers and spellers. In all the other classes, no such homogeneous picture was present. There, the variety of clusters results in great heterogeneity. This heterogeneity can not only be described as having good and poor readers or spellers in a classroom. It needs to be looked at in a more differentiated way. Some children are quite good at spelling but weak in reading at the same time. This pattern can also be found the other way round. In order to offer high quality support for each child, teachers have to individually define the child's challenges and then assist him or her in a tailored way.

The language (vocabulary and grammar) and cognitive abilities do not vary much between the five examined clusters. However, some interesting differences should be addressed: Cluster 2, the group with above-average reading abilities, outperformed all the other groups in language abilities. In addition, Cluster 2 was the only group that showed significantly higher cognitive abilities compared to all the other clusters. Cluster 4, one of the two worst-performing groups, also showed the lowest language abilities. Clusters 1, 3 and 5 do not differ from each other in their language abilities.

A lot of studies have shown that language skills are highly inter-connected with reading skills (e.g., Catts, Fey, Zhang & Tomblin, 1999; Muter, Hulme, Snowling, & Stevenson, 2004). Especially reading comprehension seems to be highly correlated with oral language skills, in particular when reading starts to develop (Storch & Whitehurst, 2002). Research has shown that both aspects of language skills, vocabulary (Oullette, 2006; Perfetti, 2010) and grammatical knowledge (Nation, Clarke, Marshall, & Durand, 2004), are related to reading. Therefore, it is not surprising that Cluster 2 children showed the best language abilities. Besides, the good test results in decoding and reading comprehension in Cluster 2 can also be explained by the higher cognitive abilities, as it is known that cognitive abilities in the first grades are highly correlated to reading and spelling (Bowey, 1995).

Concerning demographic variables, a difference was revealed in terms of the percentage of children with GL2 in the various clusters. Clusters 4 and 5 consisted of significantly more children with GL2 than there were in Cluster 2. Both clusters (4 and 5) showed better decoding compared to reading comprehension. This finding goes along with the results of a recently conducted

meta-analysis (Melby-Lervag & Lervag, 2013). This study revealed that L2-learners in general show deficits in reading comprehension, but are nearly as good as L1-learners in decoding. Besides, Cluster 4 has the greatest number of children with GL2. This group also showed the lowest language abilities. These weak language abilities can probably be explained by the high proportion of children with GL2. Second language learners often struggle with the language of instruction (David, 2010). Furthermore, the group with the best reading and language abilities (Cluster 2) had few GL2 children. These findings highlight once more that children with a different first language than the language of instruction have a higher risk of struggling with reading problems than children who are taught in their mother tongue (EU High Level Group of Experts on Literacy, 2012).

In the present study, some limitations have to be addressed. First, our sample does not represent regular classroom composition as only classes with more than 30% of GL2 students were examined. This restriction also influences the representativeness of the socioeconomic background. Therefore, the results cannot be generalized to all classroom settings. Second, the students were nested in different classes that were nested in different schools. Hence, a multilevel approach would be advantageous for analyzing effects that are caused by class-related factors (e.g., teacher behavior, classroom composition) or school-related factors (e.g., urban vs. rural areas) rather than looking merely at different characteristics on the student level. Nevertheless, the present study demonstrates that teachers encounter a large variability in reading and spelling abilities in their classrooms.

## 5. Conclusion

This study has revealed that for reading, well-analyzed differentiation within the classroom is indispensable. In addition, not only good and weak readers should be addressed. On the contrary, in order to foster each child's development adequately, teachers really need to bear in mind the broad range of individual abilities that exist in the classroom. Thus, teachers need to be trained to adequately meet these challenges and consequently to react to and support students individually. A special focus should be put on second language learners, as these children in particular are at high risk of developing reading and spelling difficulties. Further investigations will have to be conducted to examine the linguistic situations of these children at home to better understand their development.

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# Successful and proactive e-learning environment fostered by teachers' motivation in technology use

Ivana Ogrizek Biškupić<sup>\*\*\*\*\*</sup>, Stjepan Lacković, Krešimir Jurina

*College of Business and Management Baltazar Adam Krčelić, Vladimira Novaka 23, Zaprešić 10290, Croatia*

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## Abstract

This paper emphasizes the problems in e-learning environments with special focus on professors' role in providing quality of learning outcomes. Furthermore, we focus on professor level of information literacy and its role and importance in providing learnability of system and proactivity of students. In student centred learning environments we need to provide the same level of conditions needed in achieving learning outcomes. Therefore we analyse predictors that mediators in e-learning process (teachers) need to provide in order to create, evaluate, disseminate and distribute learning materials and instructions. In this paper we analyse an e-learning system with 3636 users and 238 courses on a higher education level (professional graduate and undergraduate study). Over the past nine years we have reached high level of e-learning technology use but still facing with students' dissatisfaction and lack of motivation stemmed by quantity and quality of course contents. In previous papers we have written about the conducted research on student information literacy tested on the Moodle platform in two higher educational institutions in Croatia. In these papers and other relevant research we have noticed student dissatisfaction with e-learning moderators (teachers). Moreover, in annual quality assurance questionnaires students recognized the same problem; namely, most of the teachers do not provide the expected level of information competences related to the course content needs. The students pointed out that their motivation is in correlation with teacher motivation and their contribution to the e-learning class and using technology in general. Our analyses show that more than 2/3 of teachers do not update their class with new information about the field they teach and ignore student interests in an e-learning process. In this paper we analyse predictors to problems with mediators and their perception of lifelong learning importance and their teaching approach to digital natives in the web 2.0 environments.

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**Keywords:** Proactivity in e-learning environment; Teachers-mediators; Information literacy problems; Lifelong learning

## 1. Introduction

Croatian College of Business and Management „Baltazar Adam Krčelić“ was founded in 2001 and today, with more than 3.000 students graduated and 2.700 enrolled, is one of the biggest business schools in Croatia. The College employs more than 100 lecturers, majority of them are professionals coming from the business and public sector, and a large number of eminent external experts from the academia. In 2005 we have implemented e-learning system based on LMS platform Moodle (baltazar.vspu.hr). In past 9 years of its implementation and development we organize blended learning on 238 courses of 6 study programmes. Development of e-learning system over the past years has been mainly focused on developing organization, process of motivating teachers to use LMS, development and distribution of teaching materials (especially for part time students) and teaching support in general. At the moment more than 90% of teachers use e-learning system compared with beginning of the implementation process in 2005 when it was less than 10%. Today we are facing with obvious decline of interest and motivation for teaching in e-learning environment.

Our College annually provides teachers trainings on how to use LMS Moodle, educate and provide young assistants as teachers' support for technology usage with intent to succeed expected level of e-learning environment. In this paper, we describe problems we are facing with, present data and conclusions for further research.

We have conducted an online survey and asked teachers (N:42) what do they think about the e-learning system, its capabilities, but also about their motivation factor and most importantly do they encourage students enough for active participation for learning in electronic environment. Also, we asked the students (N:405) by parallel survey what do they think about the content, quality and features in provided courses and their motivation factor for learning in e-learning environments. In order to check the veracity of statements obtained by the teachers, we conducted an analysis of e-learning system Baltazar contents on 238 e-courses. Results of this analysis show a large discrepancy and the low level of motivation and inaction on both sides. In order to reach some answers we used relevant literature and researches in order to problematize issues and possible causes for these results.

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<sup>\*\*\*\*\*</sup> Corresponding author. Tel.: +385 99 2633128; fax: +38513355480.

E-mail address: [ivana.ogrizek.biskupic@bak.hr](mailto:ivana.ogrizek.biskupic@bak.hr)

## **2. Context: education in digital age**

According to Prensky, the most fundamental cause of the decline of education is that “today’s students are no longer people our educational system was designed to teach” (Prensky, 2001, p. 1). The reason for this lies in the fact that today’s students grow up in a digital age, i.e. they spent their lives using computers, video games, digital music players, video cams, smart phones, etc. Due to this digital environment, they “think and process information fundamentally differently from their predecessors” (Prensky, 2001, p. 1). This new generation of students, so called Digital Natives (as “native speakers” of the digital language), receive information really fast, prefer parallel process, multitask, random access, instant gratification, frequent rewards and they function best when networked. On the other hand, their teachers or Digital Immigrants (those who were not born in the digital world) have very often little appreciation or understanding for the way Digital Natives function and for new skills they acquired.

Therefore, the rapid diffusion of the Internet and growing importance of new information and communication technologies in educational context have essentially affected the ways people (should) teach and learn. As a result, today’s students find it very hard to follow instructions of their teachers which were designed for student from some ‘other time’. Since it is very unlikely that Digital Natives will go backward, Prensky concludes that today’s teachers have to reconsider both their methodology and their teaching content. Basically, they have to confront new teaching and learning methods and to reconsider their traditional learning style where a teacher was the center of learning. Additionally, all indicators show that it is highly possible that e-learning will become the mainstream of learning in the future. As some studies show (Lin, Chen, & Nien, 2014), e-learning strategy is superior to the traditional learning methods with respect to students’ motivation. Furthermore, technology mediated-learning environment has also advantages like study flexibility, broader accessibility, no time and space limitation, individual approach, use of multimedia, more active teaching style, etc. (Lin, Chen, & Nien, 2014). However, these potential advantages will not be actualized if teachers will not invest into their professional development regarding the usage of these new technologies.

In practice, e-learning mainly relies on few teachers who have necessary computer skills to create and perform their e-learning courses, while the rest are still hesitating and using technology capabilities in very limited scope. Hence, the main question is what are the problems that hinder teachers in performing their e-learning courses and what would be the incentives or motivating factors that will encourage HE teachers to involve in e-learning? Some recent studies show that in order to predict teachers’ acceptance and usage of e-learning, it is necessary to explore teachers’ beliefs, attitudes and motivation toward e-learning environment (Chien, Kao, Yeh, & Lin, 2012) (Luo, Chen, & Hsieh, 2011) (Sorebo, Halvari, Gulli, & Kristiansen, 2009).

## **3. Focus on instructional design**

In the e-learning environment the focus should not be on the implementation of the delivery system, but on instructional design which would include development of instructional materials and activities, and their evaluation. Merrill lists five principles of instruction which relate to problem centered and effective instruction. According to these principles, learning is promoted when learners are engaged in solving real-world problems, when existing knowledge is activated as a foundation for new knowledge, when new knowledge is demonstrated to the learner and applied by the learner, and when new knowledge is integrated into the learner’s world (Merrill, 2002). On the other hand, the aim of instructional design should also be to improve students’ motivation. Hence, the most important task of the teachers is to create conceptual framework that would include both, motivational concepts and successful instructional design strategy (Barger & Byrd, 2011).

Since today’s education focuses on student centered learning, teachers need to think about how to foster proactivity and motivation of students in an e-learning environment. Although motivation is personal, complex phenomena, teachers should find the ways to intervene into this sphere. With regard to students’ motivation, factors that affect student’s decision to pursue a goal or perform a task can be intrinsic or personal and extrinsic or non-personal. According to Keller’s ARCS model, motivational design refers to the process of arranging resources and procedures to bring about changes in motivation” (Keller, 2006), and it can be applied in broad variety of cases. By Keller an instructional design should not be only efficient (refers to economy in the use of instructional time, materials, and other resources), but should also be effective. The effective means that it should include strategies, principles, and processes for making instructions appealing, i.e. more intrinsically interesting (Keller, 2006). Hence, the ultimate goal of motivational design should be to foster intrinsic motivation of students. The logical question is how to make instructions more appealing by keeping the desired level of teaching outcomes? If we accept Prensky’s argument that the 21<sup>st</sup> century students must be engaged in the 21<sup>st</sup> century way (Prensky, 2006), the effective solution could be the use of LMS since options it provides are more appealing to students than traditional methods of teaching.

## **4. Motivation as key factor of successful usage of LMS**

There is a great number of studies that have concentrated on students’ attitudes and motivation toward e-learning, but there were comparatively fewer studies that have focused on factors which are related to motivation and attitudes of teachers. Regarding the problems of motivation in performing e-learning courses, integrated expectancy model considers both personal and institutional factors as playing an important role (Luo, Chen, & Hsieh, 2011). Personal would be internal motivation of

teachers, while institutional is related to policies brought by the institution (school) that would support higher involvement in e-learning activities.

In their study, Chien, et al (2012) examines teachers' attitudes and motivation toward web-based professional development by using Technology Acceptance Model (TAM). According to TAM, belief of individuals determine their attitude towards using of technology, attitude foster their intention to use it, while intention influences the decision of actual technology use (Chien, Kao, Yeh, & Lin, 2012). The main conclusion of this study is that teachers with higher motivation have more positive attitudes toward web-based professional development, i.e. motivation plays a pivotal role in creating positive attitudes of teachers towards web-based professional development (Chien, Kao, Yeh, & Lin, 2012). However, there is still a question how to increase motivation of teachers? One of the crucial factors could be personal professional development and self-fulfillment. According to Maslow, the highest level in the hierarchy of needs belongs to self-fulfillment or self-actualization (Maslow, 1943). Applied to the sphere of work, this need will cover following aspects: challenging job, creative task demand, advancement opportunity and achievement in work. If we find plausible hypothesis which says that proficiency in using new technologies in education will become condition sine qua non of education, then this same proficiency becomes condition sine qua non of professional realization of teachers in the future. Therefore, in order to realize self-fulfillment in teachers' profession in a digital age, teachers should invest into their knowledge and skills which would enable them to actively participate in future education, which could be one of the strongest internal motivational drive.

However, motivation toward teachers' active engagement into e-learning should come from institutional level as well. One example could be some sort of training or assistance that will help teachers to become more confident and independent in using e-learning systems. As Luo et al stress out, "e-learning curricula can be successfully completed only with strong policy" (Luo, Chen, & Hsieh, 2011, p. 84), meaning that HE institutions should have a plan for e-learning seminars which will enable to their teachers to learn how to produce e-learning courses. Therefore, a successful e-learning environment demands as its precondition an e-learning friendly institutional environment. Therefore, it is necessary to build e-learning facilities and to provide training courses for both, creation and design of e-learning materials and for performance and management of e-learning classes. Faculty policy should also encourage teachers to use e-learning and to assist them in the search of best methods which will motivate students. However, taking both these factors, personal and institutional, into consideration will provide us with a broader perspective when examining motivational factors that could foster proactivity in e-learning environment.

Finally, there are teachers who belong to digital immigrants and who are not experienced and proficient in e-learning or in new technologies in general and who quite often express doubts about the effectiveness of e-learning. As some studies show, level of perceived e-learning competence is crucial for development of usefulness beliefs and of intrinsic e-learning motivation (Sorebo, Halvari, Gulli, & Kristiansen, 2009). On the other hand, there are also teachers who are motivated to use e-learning systems and who find it as a very practical tool in reaching their teaching outcomes, but who are using it in a limited scope. Basically, somebody may think that he or she is using e-learning system, but the problem is to which degree and with which effect. Namely, there is a question of work performance, students' satisfaction with it, efficiency in terms of expected and desired teaching outcomes, etc. Hence, it is necessary to stress out that there is a difference between creation and design of efficient e-learning material and the limited use of e-learning system.

As an important complementary investment to e-learning technology, several authors indicate the activation of e-learning training and support as necessary in developing e-learning competences and skills (Sorebo, Halvari, Gulli, & Kristiansen, 2009) (Lin, Chen, & Nien, 2014). Moreover, e-learning is not only efficient tool for students' learning, but also an opportunity where teachers could realize their own professional skills and work on their professional development, i.e. to use e-learning as a motivation for their self-fulfillment.

Provided results of conducted survey show seemingly satisfaction with usage, possibilities and outcomes of e-learning from both sides. On the other hand, standard deviation indicates inconsistency of respondents answers (Table 1 and 2). Our assumption is that this kind of questionnaire cannot get credible results since opinion of teachers about the efficiency and success of e-learning courses was based on their knowledge and experience in technology use. Its more about their perception that they are successful in moderating e-learning than it could be seen in analyses of course content. Content analysis of their e-courses, for which they claim that they foster creativity and proactivity of students, shows the low level of the amount of teaching material and content (see Table 3).

Table 1. Aside questions from conducted online survey on teachers

Professors responds (N:42)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	SD
I am motivated to use an e-learning system Baltazar.	2 (5%)	4 (11%)	5 (13%)	3 (8%)	24 (63%)	1,298
E-learning class should be organized and designed to foster creativity.	5 (13%)	2 (5%)	2 (5%)	4 (10%)	26 (67%)	1,454
In evaluation of student activities I evaluate and foster creativity	5 (12%)	3 (7%)	4 (9%)	7 (17%)	23 (55%)	1,430
The methods I use in my e-learning class encourage creation of new ideas, concepts, problem solving and facilitate new connections between existing and future knowledge.	7 (19%)	2 (5%)	2 (5%)	10 (26%)	17 (45%)	1,536



Creativity and proactivity of students can be encouraged through e-learning system Baltazar.	4 (11%)	9 (24%)	5 (14 %)	7 (19%)	12 (32%)	1,440
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Table 2 Aside questions from conducted online survey on students

Students' responds (N:405)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	SD
Teachers motivate us to use e-learning system Baltazar.	34 (8%)	43 (11%)	18 (5%)	187 (46%)	123 (30%)	1,220
I consider e-learning system Baltazar as useful support for teaching and learning process.	3 (1%)	15 (3%)	11 (3%)	105 (26%)	271 (67%)	0,784
Online courses are organized on creative and structured way and they are in accordance with learning outcomes and course syllabus.	24 (6%)	50 (12%)	32 (8%)	191 (48%)	105 (26%)	1,148
E-learning system Baltazar has acceptable number of interactive instructions.	40 (10%)	66 (16%)	47 (12%)	172 (42%)	80 (20%)	1,251
I am motivated to use e-learning system Baltazar.	15 (4%)	36 (9%)	26 (6%)	167 (41%)	159 (40%)	1,073
Existing teaching materials provided by e-learning system Baltazar contain many examples and cases that foster acquiring of new knowledge and encourage creation of new ideas.	47 (12%)	82 (20%)	60 (15%)	166 (41%)	48 (12%)	1,231

Table 3 Analysis of LMS Baltazar contents on 238 e-courses

Types of content in e-learning course	% of e-learning courses without ANY of these elements
Links to external journals and databases	94,52 %
E-books	95,89 %
Exams results	50,00 %
Links to other sources	82,88 %
Learning text elements developed by LMS	76,03 %
Guidelines for writing seminars	79,45 %
Seminars upload for open access	95,89 %
Course assignments	87,67 %
Teaching materials (uploaded files)	59,59 %
Presentations of lecturers	69,18 %
Interactive instructions	96,58 %
Information on weekly base	58,90 %
Case studies for teamwork problem solving	98,63 %
Wikis	98,63 %
E-mail contact and office hours	63,70 %

## 5. Importance of information literacy

Today's students live in a world where the access to information is easier and faster than ever. On the other hand, they also live in a world with an overabundance of information, which demands plenty of skills that would enable them to orientate in this informational jungle. According to Secker, "to assume that because information is available on the web, people will have the skills and knowledge to find, access and use it effectively is naïve" (Secker, 2008). Basically, the easy access to information does not imply knowledge. The main problem is that "information comes to individuals in unfiltered formats, raising questions about its authenticity, validity, and reliability" (The Association of College and Research Libraries, 2014). According to Breivik (2005), despite their familiarity with new information gathering tools or search engines like Google, today's students are far less prepared to do research, to assess reliability and relevance of information and to think critically when faced with information at their disposal. This problem is characterized as the "Access Paradox" referring to a disproportion of amount of information and users' skill to find what they need (Secker, 2008). Hence, Breivik concludes that "to be prepared for the 21st century, today's student need to be information literate" (Breivik, 2005, p. 22-23).

The Association of College and Research Libraries defines an information literate individual as a person who is able to determine the extent of information needed, to access the needed information effectively and efficiently, to evaluate information and its sources critically, to incorporate selected information into one's knowledge base, to use information effectively to accomplish a specific purpose, and to understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally (The Association of College and Research Libraries, 2014). However, all of these skills students must be taught, meaning that the most of responsibility for developing these skills belongs to higher education. According to Breivik, in order to develop students' information literacy skills, efforts should be made at the institutional, program, and classroom levels. At the institutional level, information literacy skill should be regarded as a core competency for all graduates, and as such should be incorporated into the general education curriculum. Following curriculum, each program should determine specific skills which are required in discipline. Finally, teachers in classroom should design their classes in a way that will facilitate students' mastering of the required skills (Breivik, 2005).

However, the most of studies on information literacy is related to education of students, while much less attention is paid to professional development of teachers. According to Probert, "the principles and goals of information literacy are not widely understood, supported or practiced by the teaching profession" (Probert, 2009, p. 26). On the one hand, there is a question of teachers' understanding or awareness of the need of development of information literacy skills among their students. On the other hand, in order to effectively teach students to become information literate, teachers should also possess skills required for teaching information literacy. As Secker stresses, "crucial area must be the information literacy levels of staff who are responsible for the development and implementation of e-learning" (Secker, 2008). Hence, where needed, initiative to raise awareness about the importance of information literacy skills development should come from the institutional level. Furthermore, additional effort should be made regarding teachers' professional development in information literacy in a sense that they should have a possibility to be trained properly, which requires some sort of strategic planning from the side of schools. According to Secker, "engaging with academic staff to develop their own skills also makes them more likely to see the value of building these skills into their courses for students" (Secker, 2008).

## 6. Conclusion

Seeking for the factors of teachers and students motivation and conditions for achieving successful e-learning, we have analyzed different parameters. Two of them were online questionnaires, one for teachers and one for students. Questions were aimed to get the answers whether they find their e-courses successful, interesting and do they encourage creativity. In general, responses of both confirmed positive.

On the other hand, the standard deviation of their responses indicated inconsistency in the answers, and we started with a detailed analysis of the content of all courses in the LMS Baltazar.

The data indicate that the performance of e-courses is considered as publication of anything that has to do with the educational process, such as test results etc. moreover e-learning system has turned into nothing more than a common repository.

We conclude that LMS capabilities are not used sufficiently; qualitatively and quantitatively and neither teachers nor students are aware of that.

Authors also conclude that the impetus for higher performance of e-learning firstly should come from institutions (Institutional policy), precise requirements, mandatory training and permanent content measuring of e-courses and its performance.

Secondly, we should work to encourage internal motivation of teachers to be more active in LMS use and also develop the consciousness of their professional habilitation through teaching in electronic environments.

Professional habilitation of HE teachers should obligate investment in eight key competences for lifelong learning according to 2006 EU legislation and in particular we consider important permanently foster of information literacy skills development and awareness of its importance.

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# Supervision and appraisal of foreign language teachers' performance

Paula Vinhais<sup>a</sup>, Marta Abelha<sup>b</sup>

<sup>a</sup>*Agrupamento de Escolas do Castelo da Maia, Vila do Castelo da Maia, Maia, Portugal.*

<sup>b</sup>*CEIS20 (Centro de Estudos Interdisciplinares do século XX da Universidade de Coimbra); Universidade Portucalense Infante D. Henrique, Porto, Portugal.*

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## Abstract

Teaching is not only a systemic and learning-oriented action but also the core of teachers' professional assessment. Thus, the problem statement of our study was to analyse the relations Foreign Language Teachers established between teaching, supervision and appraisal of professional performance through classroom observation.

Through qualitative research, the prevailing supervisory perspective of teaching Foreign Languages, based on continuing professional development, reflective practices and peer relationship, proved the importance of both innovative teaching practices and a continuing assessment of performance over the two legally-imposed formal moments of classroom observation per evaluation cycle, at the time this research was conducted.

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*Keywords:* Teaching; supervision; performance; appraisal; foreign languages.

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## 1. Introduction

As a systemic exercise with distinctive features (PME, 2010a), the action of teaching comes close to the perspective of the teacher looked upon as someone “who teaches not only because he/she knows, but because he/she knows how to teach” (Roldão, 2007a, p.101, translation by the authors), whilst making use of complex processes such as the transformation of curricular knowledge and syllabus adaptation. The internalization of knowledge by the students occurs when the teacher masters subject areas, both theoretical and scientific knowledge as well as technical, pedagogical and didactic areas, filled with continued questioning of the teaching action (Roldão, 2007a).

From a broader perspective, the internalization of knowledge by students should also take into account a thorough and permanent training aimed at suitably qualified individuals, who will be ideally fully prepared to act and react not only in the most diverse contexts of a multilingual and multicultural Europe but also worldwide. As a result, the knowledge passed on to students by their teachers should be of a continuous, multidimensional, modular and lifelong nature (CEFR, 2001).

## 2. Teaching specifics

In terms of theoretical framework, we analysed diverse perspectives of the teaching concept in the scope of the teaching performance and this fact led us to its dual transitivity. Given that the transitivity of the action of teaching lies in “the intentional construction of the passage or the promotion of internalization of something by the other” (Roldão, 2004, p. 97, translation by the authors), two different perspectives are assigned to the action of teaching: on one hand, the teacher teaches the learner contents, which the latter, depending on his/her capabilities and effort, will have to absorb. In this situation, the teacher is a “professional of knowledge more than of a function” (Roldão, 2004, p. 98, translation by the authors), whose action “is widely intransitive regarding the student” (Roldão, 2004, p. 98, translation by the authors), however, it is transitive as far as knowledge is concerned. On the other hand, the teacher is also a mediator between knowledge and the learner. Consequently, his/her role is characterized by a “double transitivity – the teacher is the one who teaches not only something, but something to someone” (Roldão, 2004, p. 98, translation by the authors).

In order to meet the demands of the teaching role and taking into account the centrality of the action of teaching within the development of the teaching and learning areas, teaching is necessarily associated with both specific knowledge and a growing assertion of the teacher as a “professional of education with the specific task of teaching, by making use of professional knowledge, supported by research and shared reflection upon educational practice” (PME, 2001, p.5570, translation by the authors). Therefore, we conclude that the action of teaching is at the centre of teacher's performance and defines the core of the

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\* Corresponding authors. Tel: +351 968136129  
E-mail address: paula.c.b.vinhais@gmail.com

teaching profession. From this approach emerges the need for evaluation and systematic observation with the purpose of assessing performance.

In the scope of the teaching and learning areas, the appraisal of the teaching performance by peers should enhance scientific and pedagogical components significantly, whilst focusing on the pedagogical work in the classroom. As a consequence, this turns the reconciliation of the formative and summative dimensions in a single professional of education, who is both a supervisor and a peer evaluator (Vieira, Moreira, Barbosa, Paiva & Fernandes, 2010), and the evaluation between peers into the most difficult tasks for a teacher to perform (Alarcão & Tavares, 2003).

According to Oliveira-Formosinho (2002a), 2002b) and Alarcão & Tavares (2003) quoted by Formosinho, Machado & Oliveira-Formosinho (2010), the scenario of supervision which emphasizes “the supporting roles, listening, active collaboration on agreed goals through contracts, involvement in daily educational activities and reflected experimentation through action that seeks to respond to the identified problem” (p.107, translation by the authors), should be the one in which the appraisal of teachers’ performance, regulated by self-and one-on-one peer supervision, overcomes individual interests and aims at collective change, based on the monitoring of teaching practices and teacher support (Vieira *et al.*, 2010).

### 3. Methodological framework

A research was conducted in a public secondary school in the northern region of Portugal. The participants were fifteen *Foreign Language Teachers* whose teaching subjects were namely French, English and Spanish and were subjected to classroom observations by their peers in the 2010-2011 school year. Through the survey technique, we aimed at:

- Identifying foreign language teachers’ conceptions about the action of teaching;
- Knowing the curricular teaching practices in terms of planning, implementation and evaluation of teaching activities that Foreign Language teachers claim to develop;

- Understanding foreign language teachers' perspectives on *appraisal of teachers' performance*;
- Identifying possible indicators (enablers/ constraints) that these teachers associate with supervision in the context of classroom observation.

The adopted research methodology was the *case study*, whose nature is essentially qualitative and necessarily subjective. In this case, individuals experience reality in different ways. Thus, if the teacher's way of teaching is a reflex of the subjective reality, beliefs, thoughts and professional perspectives, the action of teaching will be based precisely on such subjective thoughts, beliefs and perspectives. In this sense, the knowledge of both educational and educative contexts of the participating teachers of this study is consistent with a qualitative approach, insofar it aims at the understanding of "individuals, personal constructs, negotiated meaning" (Opie & Sikes, 2004, p. 08), since what is considered important in both an interpretive and qualitative paradigm is self-interpretation and representation of the individuals' experiences (Opie & Sikes, 2004).

Following our methodological options, the survey was the technique chosen for data collection. This both internal and external instrument was validated previously and passed to fifteen Foreign Language Teachers that had been teaching at a public secondary and third cycle school in the school year 2010/2011. These teachers underwent classroom observation and / or played the role of supervisors / peer evaluators in the scope of the appraisal of teachers' performance. The data obtained from the questionnaire were statistically analysed using SPSS - 17.0 version.

The questionnaire, in which the participants were asked to express their degree of agreement and disagreement, the frequency of the stated actions and answer a multiple-choice exercise, required us to "build a set of alternative answers to this question specifically" (Hill, 2009, p.121, translation by the authors). Furthermore, the Likert scale was chosen to help teachers express their levels of agreement or disagreement in each statement. Finally, we also used the technique of observation and document analysis to complement and enhance our research.

## 4. Findings

The survey was divided into three main parts, in an attempt to ease the reading and interpretation of the different results. These parts were: personal and professional characterization of the participant teachers; Teaching action and Supervision in the context of teachers' appraisal of performance.

### 4.1. Participants' personal and professional characterization

Regarding the personal and professional characteristics of the participating teachers, whose average ages were 44 years, the data from the questionnaire enabled us to conclude that the female sex was predominant (93%), all teachers were bachelors, three of them had post-graduated studies and six teachers were holders of an academic Master's degree. The majority of teachers (87%) are the so-called *career teachers* and 73% of teachers have been teaching for at least nineteen years, which reveals some professional stability.

As far as the variable *Role in the appraisal of teacher performance* is concerned, four teachers were peer evaluators (27%), whilst all the other participants were only evaluated teachers (73%). The teachers, who were observed in classroom for the appraisal of their performance, were: a teacher of Spanish; seven teachers of French and seven teachers of English.

### 4.2. The teaching action

Concerning the teaching action and the teachers' professional experience, the participant teachers were asked to express their degree of agreement or disagreement with each statement. The results are shown in Table 1:

Table 1. Teachers' perceptions towards the teaching action.

Teaching...	Strongly disagree	Partially disagree	Undecided	Partially agree	Strongly agree
...is to profess knowledge.	1	0	1	6	7
...assumes the intention to produce learning by the student.	0	0	1	7	7
...is to pass on knowledge.	0	1	1	6	7
...aims at facilitating the construction and appropriation of knowledge by the student.	0	0	0	5	10
...implies mastery of subject area knowledge.	0	0	0	5	10
...involves the reconstruction of the curriculum taking into account the students' contexts.	0	1	1	6	7
...implies necessarily the effectiveness of learning by the student.	0	0	0	4	11

The given answers express mostly the partial and strong agreement with the provided statements, which confirms the complexity of the teaching action. This complexity is present in the passing on of “knowledge that one possesses” (Roldão *et al.*, 2009, p.142, translation by the authors) and that the teacher openly declares. It is also directly linked to an intention of “promoting learning and appropriation of knowledge by others” (Roldão *et al.*, 2009, p.142, translation by the authors). However, corroborating Vieira *et al.* (2010), teaching is not only about knowledge, but also “to think, to encourage students to identify and solve problems, helping them create habits of thought and action” (p.59, translation by the authors).

From the participants’ point of view, the teaching action still aims at facilitating the construction and appropriation of knowledge by the students and, according to Roldão (2007b), this happens whenever the teacher “organizes and structures a set of actions that lead others to learn. This is (...) what defines teaching” (p.36, translation by the authors). However, *Teaching* also requires the mastery of subject knowledge based on both theoretical and scientific basis, which is inherent to the teaching function (Roldão *et al.*, 2009), i.e. the possession of specific knowledge that derives from the breath of professional skills considered necessary to good teaching performance (Roldão, 2007b; Roldão *et al.*, 2009).

The majority of the participant teachers agreed strongly that *Teaching* necessarily implies the internalization of knowledge by the students. However, and once more in corroboration with Roldão’s theoretical perspective (2004), the teacher intentionally teaches topics to the learner, which the latter, according to his/her abilities and effort, will have to learn. As a result, the intention to teach does not necessarily imply an effective outcome as the teacher’s action “towards the student is largely intransitive” (Roldão, 2004, p.98, translation by the authors), despite being transitive towards the subject knowledge. In addition, we aimed at characterizing the everyday curriculum practices that participants have claimed to implement in their classrooms. Therefore, teachers were asked to estimate the frequency with which, in the planning, realisation and regulation of school activities, they put into practice each of the listed activities, bearing in mind that “[t]he individual or collaborative setting (...) includes metacognitive tasks such as planning, monitoring and evaluation, central to the development of self-determination and social responsibility” (Vieira *et al.*, 2010, p.24, translation by the authors).

As a result of this research and as far as the flexible and open activities at the planning stage are concerned, we concluded that teachers generally take into consideration the purposes of the contents they teach and their performance. They also do regular collaborative work with their peers; adapt the planning of indoor activities to the students’ contexts and characteristics as well as the monitoring and redirection of educational activities as a way of contributing to the improvement of educational results, as required by legal regulations.

Regarding the analysis of the realisation of the school activities, it can be inferred that the participant teachers contextualize learning very frequently in an environment of mutual respect and interaction through “effective management of communication processes and interactions in the classroom” (PME, 2010a, p.52301, translation by the authors).

The participant teachers also affirmed to foster learner autonomy and pair work using the Information and Communication Technologies, which are technically adapted to students, and value the processes of teaching and learning. However, it is also worth mentioning that, when carrying out school activities, the teachers seldom articulate curricular subjects, perhaps due to unfamiliarity with the curriculum of other subjects, which can owe itself to the lack of a collaborative culture. Finally, this non-promotion of inter - relationships among the different areas of knowledge affects, in Goodson’s perspective (1997), not only the processes of teaching and student learning but also contributes to a fragmented view of knowledge .

As far as the evaluation of the teaching activities is concerned, the participant teachers stated that they regulate student learning through self-assessment practices, which implies according to legislation, “the analysis of educational activities and its reorientation towards improvement on teaching and its outcomes” (PME, 2010a, p.52301, translation by the authors) , i.e. the monitoring of teaching and learning (Vieira, 1993;Vieira *et al.*, 2010) .The lower frequency in the use of diagnostic evaluation each time a new unit is started, means that teachers perform diagnostic activities less frequently when compared to other practices of assessing learning.

Figari (1996) agrees that the diagnostic activities should precede action and be predictive, as long as they identify the needs to be met and diagnose problems. According to Stufflebeam (1980), those activities constitute an assessment of contextual nature.

### 4.3. Supervision in the context of the Appraisal of Teachers’ Performance

In the following stage, we intended to understand the perspectives of the participant Foreign Language Teachers about the Appraisal of Teachers’ Performance, with reference to supervision as shown in Table no 2.

Table 2. Perspectives about the Appraisal of Teachers’ Performance.

In my opinion, the appraisal of teachers’ performance...	Strongly disagree	Partially disagree	Undecided	Partially agree	Strongly agree
...is the only way to progress in my career.	4	2	3	3	3
...provides teacher growth beyond the current level of performance.	2	3	2	8	0
...is a formality without consequences in the improvement of teacher practice.	1	5	1	7	1
...is an instrument of control of teaching at school.	1	2	1	9	2

...causes the relationship between the evaluated teacher and the peer evaluator to be hierarchical.	1	5	1	6	2
...rewards merit and dignifies the teaching profession.	5	3	3	4	0
...fosters the reflection upon practices as a way of improving teacher performance.	0	3	0	8	4
...makes value judgments about the overall quality of teacher competences.	1	1	2	8	3
...contributes to teachers' professional development.	1	3	2	8	1
...is an opportunity to take risks and experiment with new methods of teaching.	1	4	3	5	2
...increases the competitiveness among peers.	0	1	2	6	6
...makes use of data collection based on individual criteria.	2	3	3	6	1
...is merely a bureaucratic ritual.	1	2	3	3	6
...promotes collaborative work.	3	1	1	8	2
...contributes to the identification and resolution of problems.	1	1	4	7	2
...aims at school development.	1	4	4	6	0
...enables identification of professional needs.	1	2	3	8	1
...recognizes the complex and multidimensional nature of the teaching action.	0	5	4	4	2
...makes use of data collection based on standardized criteria.	0	1	4	10	0
...causes the relationship between the evaluated teacher and the peer evaluator to be non-hierarchical and reciprocal.	0	1	4	9	1

Thus, the participants' perspectives about the appraisal of their performance were somehow divided: on one hand, the appraisal of teachers' performance was perceived as the only way of career progression, i.e., six participants agreed partial and strongly with this view, whilst, on the other hand, six participants disagreed proportionally. This reveals that for six participants, professional development aimed at progression doesn't owe itself solely to the appraisal of teachers' performance. On the other hand, eight teachers partially agreed with the fact that the appraisal of teachers' performance fosters professional development, while seven teachers agreed partially with the fact that the appraisal of teachers' performance does not improve pedagogical practices. This means that as far as innovation and change in practices are concerned, the majority of participants does not recognize any impact of the appraisal of teachers' performance on their teaching practices.

It is also worth mentioning that the majority of participants partially agreed with the idea that the appraisal of teachers' performance seems to act as an instrument of control of teaching at school, leading the teachers to "an administrative role of control where efficiency and productivity are the watchword" (Formosinho, Machado & Oliveira - Formosinho 2010, p.140, translation by the authors), as far as accountability and professional as well as bureaucratic control of the appraisal of teachers' performance are concerned (Formosinho, Machado & Oliveira - Formosinho, 2010).

Furthermore, eight teachers partially and strongly agreed with the fact that the relationship between the evaluated teacher and the peer evaluator is hierarchical from an evaluative perspective. On the other hand, ten teachers agreed that this relationship was nonhierarchical from a supervisory point of view. This discrepancy between two opposite positions might have to do with the experiences teachers went through during their formal appraisal. However and according to Vieira (1993), this kind of non-hierarchical relationship may lead to professional development with the objective of improving teaching practices.

Eleven teachers out of fifteen considered that the appraisal of teachers' performance allows the making of value judgments over *Teacher Performance* and, according to nine teachers, the appraisal of teachers' performance contributes to their professional development. Additionally, seven teachers saw it as an opportunity to try out new practices. In a consistent manner, twelve teachers considered that the appraisal of teachers' performance increases the competitiveness among peers, which is reinforced by the idea that, despite the effective collaboration among peers to provide equality in the situation in which supervisor and evaluator are the same person, "one cannot help pointing out the difficulty to put fully into practice this ethical imperative between peers" (Vieira *et al.*, 2010, p.130, translation by the authors).

Another reason for this might be the fact that the percentages to access the highest marks in the Portuguese grading system allow career progression to only 20 % and 5 % of the evaluated teachers respectively (PME, 2010a; 2010b). On the other hand, most teachers agreed with the fact that the appraisal of teachers' performance is merely a bureaucratic ritual. This fact seems to be in accordance with a summative perspective of the appraisal that Formosinho, Machado & Oliveira-Formosinho (2010) consider to "involve a tension between development and professional accountability, professional supervision and bureaucratic control" (p.110, translation by the authors).



From the obtained results, it was possible to infer that the participants' perspectives are supervisory in some aspects, but tend to an evaluative perspective of supervision in others. For instance, the supervisory perspective of appraisal of teachers' performance seems to prevail upon the evaluative one, as far as the teacher's professional development and experimentation of new practices are concerned.

Consequently, the moments of reflection upon pedagogical practices between the evaluated teacher and the peer evaluator are predominantly on a one-on-one basis in the appraisal of teachers' performance process and aim at promoting the teachers' professional development. Besides, they also foster the making of value judgments on the teaching performance, despite the use of mostly standardized data collection criteria. These criteria were set up by the Portuguese Ministry of Education and Science and based on four dimensions of the teaching performance, being the dimension of *development of teaching and learning* the one we based this study on. The data collection criteria may also affect the appraisal of teacher's performance in the classroom, from the moment the teaching action is subjected to value judgments by the peer evaluator. Finally, the competitiveness factor between peers from an outcome perspective and in opposition to collaborative work in a supervisory perspective, may owe itself to the individual experiences teachers had undergone during their formal assessment. To sum up, the appraisal of teachers' performance does not seem to dignify these participants' teaching work.

At last, it was our purpose to identify possible indicators, both positive and negative, that teachers of Foreign Languages and Cultures associated with supervision in the context of classroom observation. The positive and negative aspects reported by the participant teachers were as follows:

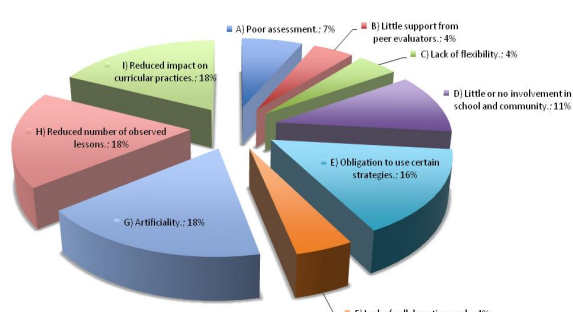
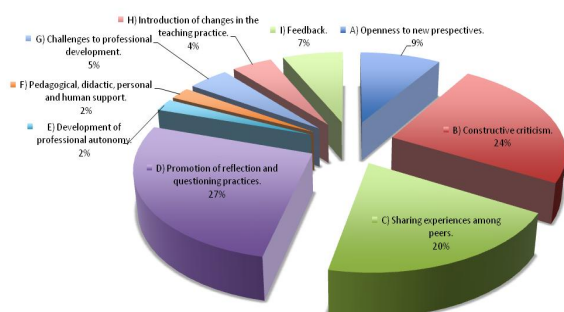


Fig.1. Positive aspects of supervision.  
Fig. 2. Negative aspects of supervision.

The three positive qualities of supervision most referred to by the participant teachers were: *Promotion of reflection and questioning practices* (27 %), which can be justified by the teachers' perceptions of supervision of the teaching practices, seen as a monitoring process of the practice "through reflection and experimentation procedures" (Vieira, 1993, p.11, translation by the authors); supervision based on *constructive criticism* (24%), which can be characterized as dialogic, democratic, bi-directional, of shared responsibility and metacognitive in order to enhance learning. Besides, it can also improve the appraisal of teachers' performance as, from Stenhouse's point of view (2003), "only the critical function serves the transformation of practice" (p.20, translation by the authors) and finally, the participants pointed out the *sharing of practices and experiences* (20%) which leads to "shared reflection upon educational practice" (PME, 2001, p.5570, translation by the authors) within the group that teaches the same subject. As a result, the majority of our sample revealed a high level of agreement on these three options, completing 71 % of the given answers.

As far as the negative aspects of supervision are concerned, pie chart no 2. presents the following results: *reduced impact* [of supervision] *on curricular practices*; *reduced number of observed lessons* and *artificiality* were pointed out by 18% of the participant teachers each. Teachers recognized that supervision had little visible impact on their practices during the formal appraisal of their performance. Furthermore, they also admitted that the number of lessons observed by their peers had been clearly insufficient and endowed with artificiality, since only a higher number of continuous classroom observations of the teaching practices would be able to provide a self-, more rigorous and thorough analysis of the teaching performances, as well as of the appropriateness of continuing or replacing the observed aspect in the classroom (Reis, 2011). As a result, the artificiality of the appraisal process seems to derive from the fact that the participant teachers were legally forced to go through it. In the end, our sample reveals the same degree of agreement on the three most mentioned options, completing 54% of the given answers.

## 5. Conclusions

In accordance with our findings, we believe in the importance of fostering innovation and change in curricular practices by knowing those practices systematically and in depth as well as their facts and constraints, so that the appraisal of teachers' performance can take place naturally, continuously and less bureaucratically. We also suggest that teachers promote students' active participation and involvement in curricular activities, so that the teaching action can fulfill its function and achieve its ultimate goal— Learning.

Finally, teachers' career progression should take place beyond the two formal moments of appraisal of performance, so that the teachers wouldn't see it as a bureaucratic and standardized ritual. From the moment it is neither perceived as sufficient for innovation and improvement of teaching practices nor blended with moments of reflection, the appraisal of teachers'

performance has to involve necessarily more formal and informal moments of observation of teaching practices, as a means to help enhance the participant teachers' perceptions about their own appraisal, generally perceived as an artificial process of regulation.

Finally and despite not being compulsory for all teachers, the two formal and legally-imposed moments of classroom observation that occur every two school years, have proved to be clearly insufficient to reverse the idea that the appraisal of teachers' performance does not dignify the teaching profession.

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# Surfing the global network! how to incorporate ict and social media in teaching and learning foreign languages

Adriana PRIZEL-KANIA\*\*\*\*\*

*The Center for Polish Language and Culture in the World, ul. Grodzka 64, 31-044 Krakow, Poland*

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## Abstract

The paper explores the use of Internet and social media in practical language teaching and learning. Nowadays there are many ICT applications and tools that can be used for language educational purposes but teachers should be able to select which one really make the learning process more effective.

The paper is divided into four sections. The introduction is followed by presentation of new interactive tools for practicing oral production and interaction in foreign language that were created within the framework of the SpeakApps project. The project was funded by the European Commission within the Lifelong Learning Programme with its main purpose being to provide holistic ICT-based services and pedagogies to practice oral competencies online.

Next section addresses the practical use of the Internet resources for developing writing and reading skills. As the conclusion the scenario of foreign language lesson with the use of ICT is provided as a sample. The scenario was designed for students who are learning Polish as a foreign language but can be easily adopted to teaching any other language.

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*Keywords:* ICT, social media, language education, speaking, reading, writing.

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## 1. Introduction

We live in the era of progressive digitalization. The newest technologies can be found in almost all the areas of human activities: private, social and educational ones. A new generation of students starts academic education; they do not know the world devoid of the access to the global network. Therefore, it is more and more noticeable that we need to include new technologies in the process of foreign language teaching. Many researchers studying language teaching agree with the motto offered by Turula (2010: 59): *If you can't beat them – join them*, stating that “if our students – digital natives – already exist and function successfully in virtual reality we should educate them in their natural environment instead of trying to invite them to lessons in our world”.

Skillfully applied multimedia can play a huge role in the process of teaching and learning. They enable the learners to discover selected fragments of reality available online; they help develop cognitive skills and, at the same time, are sources of new information and skills. That is why they have important functions from the didactic perspective: cognitive, educational and didactic (Wenta 2004:377). Wenta pays also attention to motivating roles of applying multimedia in the learning and teaching process:

*Activities converting the reality, including iconic and symbolic reality, are a particular function of information media as they enable comprehensive activation of learners in the process of information support, which can contribute to the increase in educational efficiency. It is connected with the fact that the learners have to perform both intellectual and manual activities in order to acquire the skills because modern educational media are usually interactive and require active participation in the form of searching for information and intellectual processing (Wenta 2004: 378).*

Owing to Internet we can also access an enormous number of various written and oral texts at differentiated communication levels: from interpersonal, group and institutional to mass communication. It is particularly important because, as U. Żydek-Bednarczuk (2005:13) writes “Each communication level has its own theories and also creates specific texts. [...] At each communication level there are differentiated utterances”.

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\* Corresponding author. Tel.: +48 12 421 36 92; fax: +48 12 422 77 01.

E-mail address: [adriana.prizel-kania@uj.edu.pl](mailto:adriana.prizel-kania@uj.edu.pl)

This article is aimed at presenting the possibilities of developing language skills with the use of multimedia, and particularly Internet, which *being a communication channel integrates all other communication channels – both mass and interpersonal communication – and constitutes the restoration of communication channels that exist and are used in natural and social environment as well as offers new, undiscovered so far communication channels that are characterized by new features resulting from the environmental properties they exist in* (Drzewińska 2008). The description of practical Internet application in language education shall be presented on the example of Polish as a foreign language teaching; however, the proposed methodological and technical solutions shall be certainly used also in didactics of other foreign languages.

When we think about foreign language teaching we mean mastering language skills with sustainable development of grammar and lexical competencies. According to surveys carried among 150 foreigners learning Polish language the most important skills are as follows: speaking (84% respondents assert the skill as “very important”) and listening comprehension (75% respondents said it was “very important”). The following skills are marked as follows: reading and writing (66% and 45% respondents valued them as “very important”, respectively). The research was planned and carried within the SpeakApps project implemented since January 2011 in the Center of Polish Language and Culture in the World by the Jagiellonian University in cooperation with the following universities: Barcelona (Universitat Oberta de Catalunya), Ireland (Dublin City University), Finland (University of Jyväskylä) and Holland (Rijksuniversiteit Groningen). The SpeakApps project has been created for foreign language learners who want to master their communication skills with respect to speaking and listening comprehension as well as for teachers who like to apply the newest solutions in their work offered by Information and Communication Technologies.

## **2. Langblog, Videochat and Tandem – new opportunities for developing speaking and listening comprehension skills**

Speaking is one of the most important skills when we learn foreign language. Speaking is also one of the hardest skill to put into practice because of complexity of speaking process. This section explores the use of those interactive tools for practicing oral production and interaction in foreign language that were created within the framework of the SpeakApps project. The project was funded by the European Commission within the Lifelong Learning Programme with its main purpose being to provide holistic ICT-based services and pedagogies to practice oral competencies online (more information about project can be found on the website: [www.speakapps.eu](http://www.speakapps.eu)).

Within the SpeakApps project there are tools for interactive teaching: LangBlog, Videochat and Tandem. The tools let teachers introduce differentiated activities that help improve production skills and oral interaction. They can be used for individual work (LangBlog), for pair work (Tandem) and for group activities (Videochat). LangBlog is a tool enabling the learners to directly record their statements in video or audio format, share them on the platform as well as listen to and comment on the materials shared by their friends from the group. As other tools it can be used both during online and traditional courses as a medium supporting the development of oral communication skills. In order to encourage students to use LangBlog teachers should prepare such tasks that require from the students recording oral statements and listening to files shared by the other learners. The tasks can be long-term, e.g. systematic sharing of impressions related to their daily life in Poland – students can in this way, for example, recommend good restaurants; talk about cultural events they participated in; make plans for going together to the cinema or theatre; share their recommendations for interesting places or where to do cheap shopping... The list of possibilities is probably unlimited. Students eagerly share their recommendations and listen to and comment on suggestions of other learners because the proposed range of issues is consistent with their interests and needs. LangBlog is also an excellent support for students who prepare to take the speaking part of certificate exams at the selected advancement level. Students can record their speeches on topics included in materials elaborated by teachers as examples of exam topics. Therefore, the teacher can offer adequate support while the student can listen to the recording for many times, find mistakes, correct them, evaluate and, thus, improve the language skills individually.

A tool devoted to the development of interaction and mediation skills is Tandem designed for pair work. The applied technology enables designing activities with information gap, activities consisting in the choice of the best variants or “find the difference” also online. The characteristic feature of such activities is the need to prepare two versions of complementary materials. Students working in Tandem obtain two specially prepared sets of materials, e.g. pictures with several differences or sets of graphic materials that need to be arranged in a determined sequence pursuant to determined criteria (the materials can include for example photos presenting various ecological disasters and the learners have to arrange them from the most to the least dangerous in their opinion).

The third tool is Videochat, i.e. videoconference that enables synchronic communication of up to 6 people. With the use of Videochat it is possible to introduce various discussions, organize role playing, prepare projects or discuss the contents of articles, audio recordings or video materials. It should be also added that the use of the tools enables the access to the enormous database which is Internet. Therefore, it is possible to share links to interesting articles, radio programmes, podcasts, films, commercials or photos that stimulate communication. Links can be shared by teachers as well as students. Offering the learners an opportunity of sharing their own materials is a step in the direction of learner-oriented teaching. In the case of mastering speaking skills it is especially important because the main motivation for speaking is, first of all, communication need connected with functioning in a given language environment, and secondly, internal self-expression need.

The primary advantage of LangBlog, Videochat and Tandem tools is the possibility of integrating the tools with local educational platforms. At present they are integrated with a Moodle platform and that is how lexical and grammar activities and tasks aimed at mastering communication skills are fully integrated. Prepared tools are the answer to the needs of students and teachers who are involved in language education online. So far foreign language learners online did not have so many opportunities of developing speaking skills as learners in the target language country. Now the gap is filled by SpeakApps tools.

The created tools are also exceptionally valuable supplementary tools or even supplementary tools for traditional classes, first of all, because it is possible to plan activities developing oral communication skills as homework. Technological solutions enable the consolidation of speaking skills which are easily forgotten. The recording and repeated listening to own speeches lead to self-evaluation of the learners' progress while teachers can provide students with adequate support.

### **3. Hypertexts, webquests and blogs – the development of reading and writing skills online**

Another skill that can be efficiently developed online in this way is reading. As Komorowska writes (1999:186):

*Reading is the only skill that can be successfully trained alone by the learner. Therefore, reading is the most efficient support for mastering all the other skills as in the process of reading the newly acquired words, expressions and structures are repeated and memorized.*

Internet creates additional opportunities for developing the skill because it is a source of countless texts from all the areas and fields, of differentiated styles, functions and addressees. By using online resources learners deal with hypertexts, i.e. texts divided into fragments interconnected by various references. References are in other words hyperlinks that distinguish hypertext from traditional texts. Nonlinear text structure means that there is not a predetermined sequence of reading and the readers themselves determine which fragments of the text they want to read and when. As P. Szerszeń notices (2011:28) the structure of texts online reinforces autonomous decisions of learners as they are forced to undertake decisions while reading. "In this way learners are required not only to manage the navigation of the hypertext structure but also, first of all, the ability to find the required information, process it, organize data, create terms and, frequently, use symbols."

WebQuest activities, becoming more and more popular in foreign language teaching, consist in collecting necessary information and solving problems. Learners get involved in a team task and the main, and practically the only source of information are online resources. P. Szerszeń (2010:56) underlines the role of mastering the skills of fast and efficient search for information in foreign language and processing and using it for various purposes. An example of such a task can be planning a few day trip to another city. The learners are given guidelines as for what kind of information they need to collect – the topics include transportation, accommodation, meals, tourist attractions taking into account individual interests and interests of their friends. Thus, the search scope assumes reading various texts and the application of various reading types. Learners may therefore use both selective reading (consisting in the search for specific information and, in consequence, the selection of crucial and less important information), global reading (with the purpose of general understanding of the text) and detailed reading (detailed understanding of the entire text), and at the same time use various strategies (Lipińska & Seretny 2005: 194). Apart from local (detailed), global and metacognitive strategies characteristic also for printed texts, navigation strategies are also important here (Konishi 2003). The strategies include as follows:

- navigating to other pages,
- opening several articles in various bookmarks and shifting from one to another,
- using internal search engines on websites,

- using shortcut keys.

It is worth mentioning that skilful navigation of Internet websites can have an impact on the task completion time and efficiency (Bucko 2010: 36). Finding necessary information to a large extent depends on properly formulated search terms in the search engine and the selection of adequate keywords. It is connected with another skill which can be successfully developed with the use of multimedia. Before we present examples of activities related to the construction of written texts it is worth thinking for a while about the stage just before writing, i.e. grammar and vocabulary exercises. Also in this area the newest technologies can be useful, especially online learning platforms which allow learners to access various types of online exercises. Chudak (2003:58) points out six primary advantages of the application of interactive exercises during language classes:

- learners receive feedback with respect to each answer, which is not always possible during traditional classes,
- learners cannot check the solution before completing the activity so there is no risk they cheat while doing the task,
- wrong answers are accompanied by comments and additional directions which facilitate the correction,
- learners can use any type of information or support that can be helpful while solving the tasks,
- usually after the completion of the work it is possible to get acquainted with the statistics of errors and further analysis, learners can work in accordance with their needs and capabilities.

The first thought about the form of using Internet for developing writing skills is e-mail – correspondence between students or between students and a teacher is an excellent opportunity to create written texts of various length. Examples of the application of the tool can be stories written together (in this case Google Docs application can be even more useful) where individual learners write the subsequent fragments of one story. The resulting text can be analyzed together in the classroom, introducing necessary corrections with respect to grammar, style, vocabulary and composition.

Also writing a blog can be used for educational purposes. Learners at more advanced levels can in this way share their impressions from the stay in Poland. Their posts and observations are also an interesting starting point for the discussion on cultural and traditional differences, which boosts intercultural sensitiveness.

Another valuable method of improving and consolidating skills in foreign language is creating websites. These are long-term projects that require lots of work; however, they are of great value. The subject of the project can be connected with cultural or historical differences in the country of the language the learners are studying. Thanks to many templates of websites where placing information resembles using word processing learners can focus on language content and the form of the created website. Examples of such activities include, among others, “Subjective map of Krakow” created as a summary of a project implemented at all the advancement levels during a 6-week course of the Summer School of the Jagiellonian University in 2010 (<http://poprzednia.uj.edu.pl/SL/mapa/>). The presentation of work results in an attractive form that is additionally documented is exceptionally valuable also as a positive motivation for further education.

#### **4. Example of a scenario for using ICT and social media**

Topic: How to find a good job in Poland?

1. Students read a hypertext selected by the teacher and devoted to the situation on the employment market in Poland.
2. Learners complete various vocabulary exercises on the Moodle platform.
3. Students complete the “Vocational preferences” test (<http://testy-zawodowe.pl/testy/preferencje-zawodowe>).
4. Each student records a short speech (about 2 minutes) entitled “*For me the most important thing in work is...*” and comments on three selected speeches shared by other students from the group (Langblog).
5. Learners edit their profiles on a Polish business portal, e.g. Goldenline <http://www.goldenline.pl/>.
6. Students search for information on “How to write a good cover letter” and using Videochat together prepare a cover letter template.
7. Students complete exercises that develop competencies of creating and editing texts on the Moodle platform.
8. Learners search for a recording/film explaining how to get prepared for the job interview and on that basis they elaborate a “Guide” (a circulating document of Google Docs type).
9. Students search for an offer to match their needs on a selected Polish employment portal, e.g. <http://www.pracuj.pl/>

<http://infopraca.com.pl/>

10. Learners write a cover letter in response to the selected job opening and send it via e-mail.

11. In pairs students role-play a job interview (Tandem).

In the scenario presented above there are several activities developing language skills based on technological solutions discussed in this paper. However, the basis for language development are multimedia texts and files available on the Internet which is the treasury of plentiful information as well as global information garbage. The ability to search and select necessary data becomes one of necessary skills, which is also underlined by authors of *Common European Framework of References for Languages* (2001), distinguishing from the learning skills within the framework of general competencies important heuristic skills, such as searching, understanding and providing information with the use of materials in foreign language as well as the ability to use new technologies.

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# Survey and drawing representation of architecture and environment: different teaching approach for architects and engineers.

Giulia Pellegri

*Department of Architectural Sciences, Polytechnic School, University of Genoa, Stradone Sant'Agostino 37, Genoa 16123, Italy*

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## Abstract

The project of knowledge is articulated through various techniques of digital representation through direct and indirect surveys, site and architecture direct observation, reading and manipulation of images, comparison between historical and actual maps, with the aim to critically consider the project as an action in progress in place and time through evaluations of possible future scenarios, especially through digital three-dimensional representations. This paper puts into evidence the need to approach in different forms of teaching different forms of teaching Survey and Representation of architecture and the Environment at the Polytechnic School of Genoa diversified for the courses of Architecture and Civil and Environmental Engineering. The interdisciplinary approach is essential and at the same time determining the educational aims : planning, intended as a deep change in relations between the visual and historical memory of the place and the image that the territory acquires by the "new", requires a capacity for critical reading of the natural and anthropic landscapes in order to provide knowledge, through a stratified description of places.

The courses develop a central theme articulated for topics studied from groups of students, all centered on the matter of the architectonic, urban and territorial representation, comparing the different techniques of the traditional sketch and the contemporary figurative languages (*the project drawing and its performance is addressed through the analysis of a path that highlights the potential conformation and representation of new digital tools. Topics:* • *Representation and modeling of architecture in the era of digital media.* • *New means of communication and creativity in the representation of contemporary architecture. We analyze the theoretical principles of topological surfaces, of hypersurfaces, and architecture of transarchitettura liquid up to design experiments and experiences of these concepts* ) according to different levels of knowledge

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## 1. Architecture Survey

The figure of the Professor of drawing Representation, at the University of Architecture and Engineering involves a capacity of synthesis of intrinsic and extrinsic characteristics of the discipline of Draw and Survey targeted to different purposes of professional education and training. The Faculty of Architecture in Genoa, Italy, from 2013 sees its transformation into the Polytechnic School (Architecture-Engineering) with the intent to train a professional who has an intellectual and cultural humanistic, and scientific-technical background, in order to be able to develop a plan at the different scales (building, restoration of historic heritage, landscape, etc..) from an in-depth knowledge of complex, cultural, environmental, technical and procedural issues. In relation to the objectives set out in Directive 36/2005/CEE (ex Directives 85/384/EEC and 86/17/EEC 85/14/CEE) the students of the Polytechnic School – Architecture acquire competences about: Design activities related to architectural design refers to different scales from a single building, to the relationship between the spaces, the city, the region and the environment structure, as well as on the existing intervention project, historical and/or modern; the possession of the principal terms of the theoretical lines of the architectural debate in contemporary culture; an adequate mastery of the history of architecture as a fundamental element of the interpretation of the past and of the cultural and methodological basis from the point of view of the signs and meanings; the preparation in the area of techniques of representation and communication as a tool for understanding and modeling in order to understand the project of the physical space. I personally teach at the laboratory of Drawing Representation and at the course of infographic representation in the first year, in order to immediately provide the student with the necessary tools for the proper conduct of expression of the disciplines of the project. For this professional figure the role of the discipline of survey is not only a mere geometric and metric data measuring, but it is a form of knowledge aimed to the architectural project, conservation and restoration approach. During the course of drawing representation special importance is given to the freehand Drawing from life as a first approach to the study of direct and indirect Architectural Survey Project.

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\* Corresponding author. Tel.: +39-010-209-5955; +393284439282

E-mail address: pellegri@arch.unige.it



The phase of survey campaign is necessary after a series of lectures on ARCHITECTURAL Draw. The fundamental aspect of the architectural draw is the "reduction" to two-dimensional form of the three-dimensional space of architecture, through appropriate reduction scales. The "Concept of architectural draw" already includes, from antiquity, drawing of all aspects of the process of understanding, planning and communicating architecture planning and of all those addressed to the representation of the existing (survey drawings) to the different purposes of conservation / restauration and study of architecture (treaties, manuals, collections of drawings).

When we talk about architectural draw, we are referring to the drawing as a tool for the architecture, to represent it, and to do it, describing it towards all other possible draws, which tend to other purposes. It is therefore not only the subject to characterize this type of architectural drawing representation, and differentiate it from the architecture design (subject to architectural) and from the scenographic one. It is quite the architectural intention, manifested before the choice of the subject of what we wanted to represent or highlight; then the method of representation, the technique of execution, sometimes by certain conventions, and above all, at the end, to give to the survey and draw the architectural character.

The graphs of architectural draw can be classified into two main types: extrinsic and intrinsic classification.

The extrinsic classification consists of several categories:

1. Depending on the purpose: studies on sites and surveys, through proportioned measurement, or with accuracy, by instruments; sketches and drawings of the project, ranging from the study of the architectural sketches, graphs of plants, sections, elevations, axonometric, perspective, architectural, structural, technological and decorative details (the same survey procedure); perspective views; fantasies; architectural visions;
2. Depending on the method of representation: central projection or perspective drawings, isometric drawings, orthographic projection drawings (plants, facades, sections);
3. Depending on the scale of reduction of the drawing, in the three reading scales: design detail or particular (from scale 1:1 to true, to a scale of 1:25); overall design of individual buildings (scale 1:50, 1:100); design of urban areas and urban structures (scales 1:200, 1:500, 1:1000) and urban, and environmental cartography (scale 1:2000, 1:5000, 1:10,000).
4. Depending on the instrumentation: design with precision tools (squares, rulers, calipers ...); freehand drawings; CAD drawing (the computer aided design);
5. Depending on the technique: just outline drawings, in light and dark, in colour.

The classification intrinsic divided into two categories the architectural drawings, depending on the intention of the architect or engineer rather than an artist: Expressive drawings or Technical Drawings

With these premise the Survey Drawing is the set of operations to determine the shape and size of a building, through a series of drawings (plans, sections, elevations, details), which allow to bring as many features of a building, then a knowledge as widely as possible, including historical-critical documents Archives, and the state of preservation, the fundamental basis for decisions to be taken regarding the building itself. Therefore, a more real "operation knowledge," criticism, which is not a mere drawing representation.

The class' lectures and seminars, will all aim to the comprehension and mastery of the volumetric, spatial, and contextual meaning of the studied objects – both existing and in progress ones. Different kinds of processing are in use: -traditional freehand drawings (sketches, outlines, perspective drawings, axonometric) -bi-dimensional-graphic drawings prepared with traditional methods (orthogonal and axonometric projections) -computer-aid drawings (CAD systems) -tri-dimensional graphical processing (3D) -the rendering process, for both surveys and planning drawings. A complete contextualization of the studied object is addressed by analyzing not only the metric, geometric, and figurative aspects, but also its historic and critic ones, because students will always have to evaluate his/her proposals within the context of the already existing environment, thus compare his/her graphic works with it.

On this basis, the teaching for the architect sees the representation of Surveying Architectural direct and indirect (laser-scanner photogrammetry - photorectifier) aimed to the survey of detail, starting with the free-hand drawing and continuing with the more sophisticated digital representations.

The approach to the actual topic of the relation between the idea and the graphic representation of an idea to the planning level has radically changed compared to the past, really it just apparently denies the memory of the primary slight knowledge of the design meant like draw of the real; it is going away from the consolidated graphical languages that it is believed to have removed the traditional languages, but is just the relation with the history of the graphical –planning representation that allow us to perceive this great change in the perception of the spaces, quite denying the real spaces and trespassing in the cyberspace, enjoying our age, of the ability to create a space "beyond". Fundamental for the understanding of new "means" it turns out to be the analysis of an iter that leaves from the theoretical principles of architecture of the superficial topologic, of the hypersurfaces, the transarchitecture and the liquid architecture until the experiences and to the project experimentations of such concepts. The direct survey, the drawing from life, the investigation by the panoramic to detail are the early steps of analysis aimed to the study of the Survey and after of the Colour Project of painted facades. The composite architectural facade was created as an expression of the lexical composition of the aggregation highlighting the architectural building elements and their interconnections.

From drawing to wire, the yield of shapes, surfaces, contours and tones and textures through graphics, up to a constant enrichment of their baggage of signs and techniques, everything becomes essential to understand an architectural detail, the relationship between architecture and urban configuration or landscape. Drawing from life, visualization criticism, communication, but this obvious assertion is precisely the most difficult to achieve, because, after a long time, you buy the

powers of observation and execution and the readiness of reading actually that allow you to translate the observed reality in an image rich in meaning and can convey to those who view the drawing, the relationship established between reality and draftsman. Just as a subjective model of reality always different and changing, drawing from life is the result of a complex set of shape analysis, for immediate application of geometric concepts, evaluation tonal character selection, knowledge of graphic techniques and, of course, of critical consciousness. In practice drawing from life allows us to observe how things change depending on the brightness, the distance from the point of view and proximity to other elements; allows us to understand that the signs are never an end in themselves, and that doing the technique must not prevail on observation and transcription of meanings. The images acquired during the photographic survey are altered by computer graphics systems with photo-rectifier first and then with shields contrast, the study of tone, of colorimetric curves in order to identify the different color tones.

## 2.Engineering Survey

My cultural background is strongly linked to the world of architecture and When I was asked to teach a course on Infographics Representation of the Environment as part of the Master of Science Degree in Civil and Environmental Engineering, the first question that I asked myself was that relating to the aims and objectives proposed by the degree course. The objective of CL3 is to prepare students to construction and maintenance of civil works design, infrastructure and equipment; design, planning and management of works and control systems, and monitoring the environment and territory; the assessment of the environmental impacts of plans and works, and then to assess their compatibility with the surrounding environment; management and control of the services of companies operating in the fields of civil and environmental engineering.

In particular, the CL3 in Civil and Environmental Engineering has the goal of providing adequate knowledge of methodological and operational aspects of the engineering sciences, both in general and specifically in relation to those of civil engineering, environmental and land; ability to identify, formulate and solve civil engineering problems and environmental (structural and geotechnical problems of civil construction, industrial and infrastructure by addressing the issues of their impact on the environment, problems related to the planning and design of works to defend the territory; problems related to the design, construction and operation of control systems and environmental monitoring) using up to date methods, techniques and tools; knowledge and understanding of their professional and ethical responsibilities.

On the basis of these proposals, I organized the training course in theoretical and practical lessons that could combine the perspectives of the general to the specific course of representation. Representing the Environment and Territory starts from a vast knowledge base, the student confronts issues dealing with a complex system of factors that interact with each other, several factors that contribute to the final formation of the object of study: Planning and Environment.

Starting from the general, then the representation methods of cartography, from its origins to today, from the definitions of territory, environment, landscape, tracing and analyzing critically the main issues of national and international debate, we were able to deal with issues relating to the representation. Drawing means communicating through drawing, signs, symbols, images, and the rational composition of the final drawing graphics; the deconstruction of information and detail is the foundation of critical knowledge of a portion of territory, the same that will make the student able to unite and coordinate all information collected according to a logic immediate communication.

The aim of the course is was to provide a specific preparation, which prepare the student to correctly describe with photographic images and their digital computer processing the architecture, urban and regional environments.

The course acts as a tool for investigation of issues related to reading, understanding and representation of urban space and territory in order to design, conservation, restoration and recovery. The introduction to the technical tools at our disposal (CAD-GIS-Surveying complex hypertext systems) is directed towards a stratified description of the places that takes care of all the complicating and uncertainty factors that can find a dense form of expression and communication. The operation of detection and the choice of levels of analysis and survey, of the scale representation, the forms of the landscape drawing is, in itself, the first step of a critical operation that led to a multiplication of points of view for the realization of communication drawings related to the peculiarities of the places. Complex and articulated systems able to incorporate, justifiably, types, shapes and multiple codes adapting to the evolution of territory and aiming to identify generative rules and processing which contributes to carry out a task as descriptive fundamental premise of structured project assessment and territory planning. The course develops a central articulated theme performed individually for sub-groups that are formed within the course, all centered on the question of representation of urban and regional planning in modern and contemporary art, with a focus on contemporary figurative languages that are structured according to different levels of knowledge: historical notes on the fundamentals of technical and expressive technical Drawing; Introduction to photogrammetry and photographic techniques to taken on the basis of the approach routes of the sites under study (general principles, photogrammetric survey, the photogrammetric, photointerpretation, orthophotomaps, satellite photos); Inspections related to the topic of investigation of the course through routes by land and sea;

- Practical exercises with individual computer workstations for the deepening of the trials of different imaging techniques (Autocad 2011 - Adobe Photoshop Sketch-Up - Perspective Rectifier);

- Photographic Processing (graphic simulation with digital instrumentation).

As the basis there are the theoretical and application knowledge of the drawing representation of space as the context of the environment and the ability to use the design as a tool of investigation and interpretation of the laws governing the formal structure of the elements of the territorial and environmental factors. Through lectures I teach the aims of the urban survey

related to the historical tradition of Italian by the explanation of : methods and tools for the survey and analysis of the environmental context ( the relationship between the natural and built environment, the reference cartography, the importance of environmental data and the definition of its qualitative values); methods and instruments for urban survey trough urban cartography of reference, the importance of qualitative and quantitative data of urban areas, the coding systems, critical reading of the urban fabric of the city center (training and later stages of growth), the reading of vegetation, the cataloging of data and compilation of technical-descriptive summary; The relationship between environment reading and project.

Essential to the proper approach for this type of research is was the seminar of the theoretical approach to critical reflection on: urban responsibility of the project also through the study of the territory (the geomorphological characteristics, development elevation, hydrography, climate, exposure, natural and anthropogenic, roads and infrastructure ; Analysis of visibility: a study of mapping with the observation points from the coast and from internal routes with the identification of the prominent elements, incongruous and congruous.

The active conservation and redevelopment of places require interventions to integrate the objectives of preserving the historical and socio-economic landscape with the revitalization and improvement of the existing conditions in compliance with the specific regulations and guidelines at European and national levels: The European Landscape Convention, 2000; The European Charter for Sustainable Tourism (sustainable), 2000; The National Strategic Plan for Rural Development - Rural Development Program 2007/2013; Global Conference on the Urban Future, Berlin in 2000; Municipal Code of 2004 (DL 22. 1., 2004, n. 42) Municipal Plan for Cultural Heritage and Landscape subject to protection and the study for the definition of the discipline of landscape. Analysis and detection of environmental landscape values of the non-urban territory of Genoa, 1997.

Fundamental for the understanding of the relations between architecture and environment is the 3d studies of the territory and of the settlement (AutoCAD and Sketch Up)

During the lessons in the computer lab tutorial videos are viewed online in the original language with application examples of specific items of use of the program.

Survey and analysis of the landscape , is conducted following a method characterized by three types of approach CHRONOLOGY-STRUCTURAL-PERCEPTUAL:

1.chronological analysis History and layering of events and speeches; survey of the evolutionary tracks; identifying overlapping and permanence. This first phase of the investigation provides the study and analysis of the effect of permanence of resources in the area: both agricultural areas, rural and coastal areas that urbanization, large equipment and infrastructure, with the identification of land and areas subject to pressure.

2. structural Analysis : Mass point of survey instruments designed to identify and compare the status quo with respect to natural and human systems. Natural System: Geomorphology, Hydrology, Vegetation, position, geological indicators, main ridges, river network. Anthropic System: settlement (rationalize data relating to Urban, peri-urban, industrial, rural, cultural, infrastructure; system of green (Open spaces, green areas, historic parks and gardens) and the agricultural system (systems of agricultural landscape, land use , water systems management)

3.Visual-perceptual analysis : perceptual , social and cultural Characters,: preeminent value characters, Emergencies visual points of imbalance. Visual planes, scenic spots: areas and scenic routes, visual variety paintings, openings visual, obstructions visual Visual pictures: beauty scenic, natural areas, main routes, historical and cultural identity; isolated elements, beauty of the whole, accessibility.

Il corso si articola in lezioni teoriche (30 ore) e in esercitazioni pratiche (30 ore) di tipo sia tradizionale che informatico. Le esercitazioni pratiche sviluppano in elaborati grafici, visite esterne ed elaborazioni al calcolatore alcuni temi degli argomenti di lezione, secondo un processo di apprendimento continuo e coordinato tra teoria e applicazioni.

The course consists of lectures (30 hours) and practical exercises (30 hours) at the pc stations. The practical exercises develop into drawings, external visits and elaborations to the computer some of the themes of the topics of the lesson, according to a process of continuous learning and coordinated between theory and applications.

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## SVILUPPARE UN NUOVO MODELLO DI UOMO: URGE UN CAMBIAMENTO.

L'importanza di educare i bambini al rispetto, alla protezione e alla cura di chi è più debole, Animali, bambini e donne (e non solo) sono le vittime quotidiane della diffusione del mito della virilità insensibile: si può fare qualcosa di buono?

TO GROW UP A NEW KIND OF MAN: WE NEED A CHANGE.

The relevance to educate children to respect, protect and care who is weak. Animals, children and women (and not only they) are the everyday victims of the myth of insensible virility: do we want to do something good?

**Alessia Parrino**

parrino.alessia@hotmail.it

*Ph.D student in Pedagogical, Educational and Training Sciences*

*Department of Philosophy, Sociology, Pedagogy and Applied Psychology FISPPA*

*University of Padua*

*Via Beato Pellegrino 28, 35137 Padova (Italy)*

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### Abstract

Working on my graduate thesis I started to study the important link between animal cruelty and interpersonal violence with the real hope to develop in my country, Italy, a new kind of education which will be able to develop in children the awareness of the importance to protect every form of life, both human and non human.

Animals as victims are in the same position of women and children because they are in the group called "weak subjects".

Perpetrators of violence, in the major number of cases think that they are strong in abusing the weaker.

In the last years in Italy the "Femminicidio" crimes increased so much that Italian society can't continue to ignore the influence of gender informal education on children and teens.

Macho men are not the future, they must become the past. We need a new model of man, and to develop it, we need education of new generation of boys and girls.

Many clues gave me an intuition: if we want to break the circle of violence we must introduce a new model.

The historical idea of virility in men prevents them to show empathy toward other living creatures and this improves the skill of violent attitude.

A violent person is violent against every subject weaker than him, because violence is not strength, violence is an habitus and as habitus we have as educators the resources to change it and to improve the social appeal of some values: protection vs prevarication, care vs damage, real man vs violent man.

My research confirmed my intuition about the need of construction of a social shared idea of a real and strong man as a man who is compassionate toward the weaker and who feels the moral imperative to protect the weaker, but also a man who is ready to fight for the good of a weaker life as animal life is.

If our children grow up thinking that killing or abuse of an animal is a funny or not relevant thing, also the violence against other humans will haven't the seriousness that it must have.

For this and many other motivations I am researching about the link between social shared Virility idea and cruelty on animals, children and women.

My first data confirm this supposed link and its evidence: the need to educate boys to become "kind men" and girls to want "kind man" as partners.

To realize this ideal man we must start from the childhood, this is the only way to develop the social acceptance of this new kind of masculinity.

**Keywords:** verility, gender education, emphaty, violence, animals, women, femminicidio.

## **Introduzione**

L'argomento della mia ricerca di dottorato si inserisce nell'ampio settore di studio conosciuto in ambito anglosassone e statunitense come: THE LINK (Sorcinelli, 2012).

Il legame, la connessione tra violenza agita nei confronti degli animali non umani e violenza consequenziale agita nei confronti degli animali umani dallo stesso individuo/soggetto/persona.

(tre differenti termini che sono altamente controversi e spesso sono collegati in modo avventato a correnti di pensiero o filosofiche tra le quali non vorrei in questo momento della ricerca decidere).

Ho così deciso di svolgere uno studio pilota, i risultati del mio studio vanno ad inserirsi in quello che risulta essere uno "buco nero" nello stato dell'arte e della ricerca di quel settore disciplinare definibile come: Human Animal interaction. Studiando questo tipo di argomenti una domanda cominciò a farsi strada nella mia mente: e se ci fosse un legame tra desensibilizzazione verso la violenza su animali e socializzazione di genere? Ci sono legami tra il mito della virilità insensibile e la desensibilizzazione alla violenza contro gli animali?

## **Ipotesi e domanda di ricerca:**

Le ricerche in ambito psicologico e criminologico svolte dagli anni settanta in poi in territorio statunitense e anglosassone hanno fatto emergere l'esistenza di un particolare legame, definito "The link" (Sorcinelli, Manganaro, Tettamanti 2012 e Ascione 1999, 2000, 2007), tra la propensione a compiere atti violenti ed abusi su animali nell'età infantile e adolescenziale e la propensione a compiere atti antisociali violenti nel corso dell'età adulta.

Essendoci in letteratura una ampia analisi sulle proprietà di trasferibilità dell'empatia (Ascione 2007, Bellingreri 2005) e avendo trovato cenni in diverse discipline fin dalle più antiche riflessioni degli intellettuali che sono i fondatori della cultura umana, si è iniziato a notare la capacità dell'empatia di essere non solo intraspecifica ma anche interspecifica. È nel collegare questi due riferimenti, la relazione tra violenza su animali compiuta e successiva violenza su esseri umani (Merz-Perez e Heide 2004), e la trasferibilità tra soggetti diversi non solo per sesso, razza, cultura ma anche per specie della capacità empatica, che affiora la mia domanda di ricerca.

Se come le ricerche svolte sembrano farci notare, il legame tra violenza su animali e violenza su esseri umani si basa su una sorta di propedeuticità della prima alla seconda allora la violenza sugli animali merita molta attenzione scientifica potendo assumere un ruolo di "campanello di allarme" (Blazina, Boyra, Shen-Miller, 2011) in uno sviluppo dell'individuo che risulta essere malsano e potenzialmente pericoloso.

1\_ sarebbero interessati educatori, forze dell'ordine e genitori ad avere un incontro informativo su questi temi? Se sì a posteriori mi piacerebbe raccogliere qualche impressione da questi tre diversi gruppi.

2\_ il legame tra insensibilità appresa e violenza a scopo di affermazione sociale è emerso nell'indagine esplorativa svolta qualche mese fa, molto interessante sarebbe l'indagare la possibile relazione tra affermazione di virilità ed appartenenza al genere maschile e violenza su animali, donne e bambini. Guerriero VS Cacciatore

## **Framework teorico e stato dell'arte**

Di seguito presento un panorama generale e molto ridotto visto le necessità di concisione che caratterizzano questa

relazione.

Nel corso degli ultimi cinque anni ho studiato, letto, visionato una ampissima gamma di materiali sui temi affini al mio argomento di ricerca, oserei affermare di aver esplorato la quasi totalità degli studi sulla materia di riferimento. Mi accingo ora a presentare alcuni tra i più significativi ed esplicativi passi di quegli autori che hanno e stanno guidando il mio percorso di indagine.

Studiando i lavori di Ascione (1999, 2000, 2005, 2007), Arluke (1996, 2004, 2006) e Lookwood (1998) ed anche altri studiosi ho iniziato ad interessarmi della relazione che intercorre tra una condotta di vita antisociale violenta e l'aver assistito e perpetrato violenza sugli animali nell'infanzia e nell'adolescenza. La mancata sensibilità verso un essere vivente è un fattore predittivo di un mancato o difettoso processo di crescita emozionale e relazionale. La ricerca psicologica (Muratori, Miller) ci offre alcune evidenze inconfutabili prima fra tutte quella secondo la quale nessun bambino nasce cattivo: tutti nasciamo in un contesto e l'ambiente relazionale che ci accoglie alla nascita e che ci accompagna nella crescita possiede delle incredibili potenzialità di indirizzare e di coltivare le nostre attitudini innate. Un ambiente familiare malsano, o violento porta un bambino a crescere in modo incompleto e a predisporlo ad una condotta di vita a rischio.

La letteratura scientifica e i risultati emersi dagli studi iniziati dagli anni '70 (Kellert e Felthous, 1987, Manning e Serpell 1994) e che tutt'oggi continuano, sottolineano e ben descrivono l'interconnessione esistente tra violenza domestica, violenza su minori e violenza su animali (Linzey 2009). Questo nesso lega le categorie deboli all'interno della famiglia (e della società) in modo indissolubile. Donne, bambini e animali sono i tre soggetti deboli per eccellenza presenti in famiglia. È sufficiente che anche solo uno di questi tre soggetti sia vittima di violenze, maltrattamenti o abusi, per rintracciarne anche negli altri i segni.

Per quanto importante non è sufficiente scoprire i contesti di violenza ed intervenire per farli cessare, infatti all'interno di un contesto familiare violento dove donne, bambini ed animali (Walker 1984) soffrono accade che questa esperienza di vita venga interiorizzata dal bambino e riproposta nel corso della crescita come modello appreso. Si parla a questo riguardo di due tipologie di reazioni alla violenza vissuta in famiglia dai bambini: l'impotenza appresa (ci si immedesima nel ruolo di vittima) e la violenza appresa (ci si immedesima nel ruolo del carnefice).

Il particolare che mi ha intriga al punto da decidere di svolgerci una ricerca di dottorato è stato quel legame ancora per larga misura celato e non esplicitato da alcuno studio che lega genere e risposta alla violenza. La particolare relazione tra l'impotenza appresa e il genere femminile e di converso tra la violenza e il genere maschile, sembra portare in sé il germe di una connotazione sociale ed educativa informale che lega il genere alla reazione seguente la violenza subita in famiglia.

Da tutti gli studi condotti con lo scopo di indagare quanto l'aver incrudelito su animali nel corso dell'infanzia e dell'adolescenza possa essere considerato una "red flag", (Frick 1993) un sintomo di pericolosità sociale futura (Linzey 2009, Wright e Hensley 2003), risulta chiara una spaccatura a livello del genere. I bambini/adolescenti maschi incrudeliscono in frequenza nettamente maggiore su animali rispetto a quanto fanno le bambine/adolescenti femmine (Pagani 2002).

### **Lo "studio pilota"**

A questo punto della ricerca ho deciso di svolgere uno studio pilota per andare a verificare la presenza di tale relazione in contesto italiano considerato che dati e ricerche sono stati svolti tutti in contesti di natura anglofona.

Non trovando esperienze già presenti metodologicamente in letteratura ho dovuto costruire autonomamente lo strumento di raccolta dati. Nel mese di maggio 2013 ho così composto un questionario breve, esplicito e di semplicità quasi estrema. L'intento era quello di vedere se esplicitamente la percezione della violenza su animale fosse considerata più o meno importante, grave e/o riprovevole a seconda dell'appartenenza di genere.

Per questa indagine preliminare ho scelto un campione di convenienza, campione di poco meno di mille ragazzi frequentanti le scuole secondarie di primo grado che hanno accettato di partecipare (alcune non hanno accettato a causa di tempi limitati e impegni del programma già troppo affollati) nella provincia di Belluno, la mia provincia di residenza. L'area scelta è stata questa solo ed unicamente per una comodità geografica ero in cura.

### **Lo strumento di raccolta dati e l'analisi**

Il questionario da me costruito è stato volontariamente composto di poche e semplici domande, senza considerare l'elemento rischioso della desiderabilità sociale proprio perché mi interessava ottenere una visione anche sottostimata del fenomeno, volevo raccogliere solo i dati più palesi, una scrematura molto grossolana.

Dieci domande molto semplici, a risposta chiusa senza la possibilità di aggiungere alcun commento o precisazione.

Non è stato necessario calcolare la significabilità dei dati perché senza volerlo hanno risposto al questionario esattamente 50% maschi e 50% femmine e essendo le mie analisi tutte basate sulla differenza di genere i risultati sarebbero stati sempre e comunque significativi.

L'analisi dei dati è stata affidata ad una elaborazione esterna tramite un software online che mi ha permesso di raccogliere i risultati in tempi brevi e senza errori.

### **Il campione**

Il campione di riferimento è stato un campione di convenienza per la collocazione geografica.

834 rispondenti appartenenti a 7 diverse scuole secondarie di primo grado della provincia, le scuole sono state così divise, 3 di queste site in aree più centrali della provincia e 4 nelle aree più montane. Il range d'età va dagli 11 ai 13 anni, 417 sono femmine e 417 sono maschi.

### **Discussione risultati studio pilota**

Procedendo con ordine si dovrebbe quindi aver chiarito dalla letteratura presentata la relazione che intercorre tra: violenze sui soggetti deboli della famiglia, interiorizzazione del ruolo di vittima o carnefice e riproposizione dello stesso nel corso della vita adulta. La domanda che mi viene sempre fatta a questo punto del ragionamento è:

La ricerca fin qui porta una evidenza interessante perché ha reso chiaro come interiorizzare nel corso dell'infanzia l'abilità socio-emotiva di provare empatia verso l'animale (Marchesini 1994) sia una sorta di fondamento sul quale costruire e far crescere la capacità di provare empatia anche verso gli umani, e in special modo verso quegli esseri viventi più deboli.

Riflettendo sul caso italiano ho individuato quello che a mio parere potrebbe essere il problema di centrale importanza: il problema della cura dei più deboli è delegato prevalentemente alle figure di sesso femminile e secondo questo principio la compassione è una peculiarità prettamente femminile.



Nelle diverse ricerche di cui si può leggere nei lavori di Ascione (2000, 2007) emerge in modo rilevante come le violenze su animali vengano compiute prevalentemente da bambini/adolescenti di sesso maschile, e inoltre come spesso la violenza perpetrata su un animale da un “maschio” venga considerata parte della violenza normale che caratterizza il processo di crescita da bambino a uomo.

La concezione culturale dominante ritiene i maschi predisposti ad essere più violenti delle femmine, e quest'ultime ad essere compassionevoli e dedite alla cura di chi è in difficoltà.

Nei risultati emersi dai dati di questo studio da me condotto possiamo ipotizzare con certezza una sottostima palese del fenomeno a causa della forma dello strumento che inibisce le risposte sincere condizionando il rispondente a dire ciò che ritiene socialmente desiderabile e non ciò che in realtà fa, pensa o dice.

Lo studio condotto ha portato ad un risultato parziale e poco rappresentativo ma estremamente indicativo per la relazione che svela. Infatti con il doppio delle frequenze rispetto alle femmine, i maschi si dimostrano meno sensibili verso le sofferenze ingiustificate inflitte dagli esseri umani sugli animali. Oltre a questo è emersa una interessante relazione tra l'immagine socialmente condivisa di femminile e di maschile, e l'interiorizzazione di una regola non scritta ma funzionante e diffusa dei limiti di espressione di una sensibilità nei confronti dell'animale a seconda dell'appartenenza di genere.

Questa spaccatura culturale giustifica molti degli atti antisociali che i bambini maschi possono compiere nel corso della crescita. Sembrerebbe quasi che ci sia una credenza inconscia secondo la quale non possono crescere “maschi veri” senza che facciano esperienza della violenza compiuta in prima persona. Come se imparare a staccare la capacità di provare emozioni per commettere un atto di violenza possa essere una garanzia di forza e prestantza.

Il concetto di cerchio della violenza ci fa capire come ogni atto di violenza debba essere preso in seria considerazione a prescindere dalla vittima (Myers 2007).

Da queste riflessioni e dalla letteratura studiata ho iniziato a inquadrare il problema legato al mito della virilità violenta, alla socializzazione dell'identità maschile come identità forte, dura e priva di emozioni. In questa prospettiva emerge con chiarezza come possa risultare prosociale la diffusione di un nuovo modello di mascolinità non legata alla violenza ma alla protezione del più debole, alla cura dell'altro. In prospettiva più generale è emerso come l'impianto educativo della Humane Education (Weil 2003, 2004, 2009) che negli Stati Uniti è nato proprio come una sorta di risposta ai dati emersi in questo ambito di ricerca scientifica, sia una risorsa di elevata importanza e ampie promesse per l'educazione delle nuove generazioni ad uno stile di vita prosociale al di là delle differenze di specie, razza e sesso.

Dobbiamo smontare il modello culturale secondo il quale un bambino non può soffrire per un animale mentre una bambina lo può fare, secondo il quale provare il desiderio di occuparsi di chi è in difficoltà sia prerogativa femminile tanto da de-virilizzare il maschio che vi si dedichi, potrebbe stimolare una modificazione dell'immaginario maschile e femminile su questi ruoli e dare vita ad un nuovo modo di socializzazione del genere maschile, un nuovo uomo, l'uomo buono o come Zimbardo (2008) accenna dare il via alla diffusione della “banalità dell'eroismo” come modello socialmente atteso, desiderabile e io aggiungerei virile nella migliore concezione del termine (forte, protettivo e difensivo).

### **Prospettive future**

Migliorare lo strumento di raccolta dati e definire un campione rappresentativo della popolazione nazionale includendo

Nord, Centro, Sud e Isole.

Confrontare i dati italiani con uno studio transnazionale in modo da verificare l'ipotesi di una influenza legata allo stereotipo di genere caratteristico di una cultura ancora rurale e limitatamente aperta al nuovo, quale il nostro paese è tuttora.

Nel prossimo anno abbiamo pianificato di sviscerare la letteratura scientifica studiata e raccolta, migliorare lo strumento di raccolta dati metodologicamente e infine somministrarlo per poterne analizzare i dati raccolti e confermare o meno l'ipotesi.

Nel caso l'ipotesi venisse confermata si pensa di pianificare un intervento educativo al quale sto già lavorando,.

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# Symbolic approach to education in ethics

Ekaterina Dvoretckaja, Marina Melekhina, Olga Sotnikova

*Institute of Pedagogical and Adult Education, Chernyakhovskogo str. 2, 191119 Saint-Petersburg, Russia  
Ukhta State Technical University, Ukhta, Komi Republic, Russia*

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## Abstract

Symbolic approach to education in ethics reinforces our needs for sense, imagination, feeling, spontaneity, language, intuition, and judgments. Symbolic reality expresses the core of humanity by means of the embodiment of *infinitum in finite*. Symbols are zipped files and our goal is to acquire the right program to unzip them properly. Hermeneutic articulation of symbols in Art, suggested by Gadamer, Cassirer and Ricoeur, were the basis of our research. Symbolic approach promotes a sensitive differentiation between Good and Bad, leads to the development of moral sensitiveness, self-identification and integrity/

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*Keywords:* symbolic approach; education in ethics; symbolic reality; hermeneutic articulation; symbols in Art;

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## Introduction

Globalization and multiculturalism call for the communication. The basis of communication is sympathy, or at least empathy. But in building of a knowledge-based society we orient to leap forward cognitive capacities. The intellectual development is of an utmost importance, so feelings' development is mostly left behind. Existing contradiction between social demands and educational offers can only be solved by means of symbolical approach to the education. Revealing of a symbolic reality pegs at the development of students' sensitiveness, self-identification and integrity, which is very important for Education in Ethics, because main ethical notion and terms are the expression of senses: sense of tolerance, righteousness, love etc.

We've elaborated the study course to develop students' moral feelings by hermeneutic articulation of symbols in Art. This course helps students 1) to address pre-understanding and forestructures; 2) by asking own questions and answering on Other's questions to check and evaluate interpretation; 3) by entering into hermeneutic circle reflect own pre-understanding and forestructures.

## 1.Looking for the Human identity

In contemporary multicultural world the one of the main problem is the problem of self-identity. Sliding images of mass-media, strange understanding and explanations by different cultures make hard for students to acknowledge his/her attachment to one culture or another which was common sense for traditional societies. The contemporary era of mobility is a constantly evolving process since people's values and the availability of resources are constantly changing. As the technologies of human interchange advance, we become increasingly engaged in a world with others – “a socially saturated world” (Gergen, 1991). As a result, exterior plurality of meanings intermixes with interior plurality. The postmodern fragmentation of the world correlates with “multiple identity”. The decentering of the subject alternates with the movement towards the narration of the flow of consciousness. It interlaces with the deconstruction of the self (Derrida), the disappearance of the author (Foucault), and the individual as a terminal in a network of circulating images (Baudrillard). The implication of decentering of the self that has been proclaimed by psychoanalysts and philosopher for at least one hundred years concerns the problems of personal identity.

For example, Lacan and Arend share a conviction that the decentering of the self seeks a concept of identity that avoids two possible but equally unacceptable perspectives: a biological or developmental account that ignores the hermeneutical dimension of identity on the one hand, and on the other, a “phenomenological” account of the Husserlian or Sartrean variety that elevates to a foundational status of freedom and autonomy of intentional subject. In particular, both Lacan's concept of a subject of the

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\* Corresponding author. Tel.: +7-905-209-44-35; fax: +0-000-000-0000 .  
E-mail address: ekaterina.dvoretckaya@iporao.ru

unconsciousness that emerges through “the discourse of the other”, and Arend’s concept of the “disclosure of the agent in speech and action” theorize the inherent variability and incalculability of identities formed through concrete discursive interaction.

Nowadays it is difficult to identify him/herself not only by means of “Blood brother”, but also by the self-denotation to a reference group. But on the other hand, it is very important to acknowledge him/herself as a human being. So the understanding of what does it mean to be a human becomes the most significant for everybody. The grasp of this meaning is possible by familiarizing with classical exemplars of human culture. We could recognize it by the ever-increasing interest and quantity of people going to museums, theaters and philharmonics. Not only Hermitage and Mariinsky theater’s statistics witness it, but also Louvre’s and Metropolitan Museum’s as well.

The underground of this traction to the Art we could find in Lacan’s theory. In his famous “Mirror Stages” Lacan proved that slink (or aborted) human child learns how to control his/her body, hands and legs and how to possess wholeness by looking on his/her parents and other adults, copying their acts. In an analogical sense, we assume that understanding of what does it mean to be a human could be grasped by examples classicized in Art. It could be Fine Art images, literature as well as theatrical images. The best or classical embodiment of humanity in Art’s images gives us ideal embodiment of infinite in finite. Statement of this is possible in symbols. Symbols are zipped files and our goal is to acquire the right program to unzip them properly. Hermeneutic articulation of symbols in Art, suggested by Gadamer, Cassirer and Ricoeur were the basis of our research.

Aesthetic experience as an endless infusion of humanity advances diacritical values that tend to open oneself to the world in other ways. All art is symbolic. Symbolic approach to education in Ethics reinforces our needs for sense, imagination, feeling, spontaneity, language, intuition, and judgments. Externalizing and expressing awareness and values as an integral part of what makes us human leads to increasing a moral sensitiveness. “Art makes visible the cognitive life of the senses, and the imagination” (Abbs, 2003). The visibility of the senses with emotional and strong-willed concentration is represented by symbols. But we should unarchive archived files of symbolic reality in our unconsciousness by hermeneutic approach.

Ricoeur’s hermeneutics as “the art of deciphering indirect meaning” originates and culminates in the thesis that human existence is itself a mode of interpretation. Ricoeur’s hermeneutic arc summarizes the major movements that comprise the act of interpretation: an initial act of understanding, the moment of explanation, and the moment of appropriation. It is the hermeneutic arc that prevents an appropriation from becoming a subjective interpretation. The hermeneutic gesture of genuine openness can play a vital role in promoting the culture of friendship in a globalized and yet profoundly divided and critically differentiated human society. In the spirit of the recognition of the outsider, of the singularly irreplaceable other, hermeneutics can effectively advocate for conflicting interpretations, which do not need to lead to conflicts but rather to responsible action of the capable human beings (l’homme capable) being in-between, that is of that space and time where human desire “takes hold”.

## **2.Paradigm Shift in Education**

The search for new approaches in Education is dictated by modern changes in thinking paradigm and in education itself. Today’s students belong to the “Shift generation” and personify the change of the paradigm of thought themselves. We convince that main features of the paradigm shift reflect contradiction between rationality and visuality. We can’t appeal to rationality, logicity, memory, which were the main characteristics of the knowledge-based paradigm of Education. Shift generation appeals to visualization, associative and allegoric thinking. It helps them to match unmatchable, and not only logically deduce one thing from another. The knowledge-based paradigm of Education is being replaced with communicative paradigm. Social challenges urge forward students not only obtain some knowledge, but to learn how to work in a team, to have their communicative abilities developed. Development of communicative abilities is necessary to survive in indefinite state, which is common for our fast-changing world. For that, it is necessary to be able to develop the ability to grasp the wholeness of the Other and to interpret it. Our study course aims exactly at the development of these abilities.

The ethical education of a new generation should respond to the challenges of the collapse of rationality, to the challenges of a deconstructed and decentralized subject in a fragmentary contemporary world, and to the plurality of Goods. Challenges and calls for elaborating new contents and methods of Education in Ethics make root of the young generation which is called a Shift generation. Allegorical thinking is more character for them than rational, critical reflection. Regular shift from one point to another is a core of contemporary students’ world view and demands interactive ways of teaching and hermeneutic approach to understanding of contents. Symbolic approach to Education in Ethics was elaborated on the basis and with accordance of Paradigm shift. Its distinguishing features reside in

Universalism vs. Pluralism;

Rational vs. Visual;

Analogical thinking vs. Allegorical thinking;

Reflection vs. Hermeneutical articulation.

New content of ethical education is better to look at symbolic reality because the “symbol invites us to think, calls for an interpretation, precisely because it says more than it says and because it never ceases to speak to us” (Ricoeur, 2005).

Gallagher (1992) notes that hermeneutics has not been widely discussed or adopted in the field of education. We agree

that a hermeneutic approach (a) seeks understanding rather than explanation; (b) acknowledges the situated location of interpretation; (c) recognizes the role of language and historicity in interpretation; (d) views inquiry as conversation; and (e) is comfortable with ambiguity. According to Gadamer an understanding is reached within a fusion of horizons. For Gadamer (1996) "Part of real understanding is that we regain the concepts of a historical past in such a way that they also include our own comprehension of them" (Gadamer, 1996)

### 3.The hidden power of the symbolic reality

Symbolic reality is fused into what Geertz calls the "really real," which is created by "...the imbuing of a certain complex of symbols—of the metaphysics they formulate and the style of life which they recommend—with a persuasive authority which, from an analytic point of view is the essence of religious perspective"(Geertz, 1973). These symbol systems make the ethos intellectually reasonable by being shown for representing a way of life adapted to the worldview, and to make the worldview emotionally convincing by being presented as an image well-suited to accommodate such a way of life. Such value of symbolic reality is very important for multicultural education. George F. McLean underlines that "we create and live in terms of symbols that are more inclusive than concepts and more physical than ideas, yet more exalted than sensation" (McLean, 2005). Symbols are the intermediary between the world internal and the world external, between inner and external reality of human being as a person. As Florensky wrote, symbols are the organs of our contact with reality. Symbols are openings that have pierced through in our subjectivity. Symbol is an integral and indivisible quality and the person can bear within him/herself this quality. Symbol is a trace of sacred being in ordinary life. As Umberto Eco mentioned in "Symbol", "Any symbol is an enigma". Florensky defined a symbol as

"Being, when it's more than itself, – this is the basic definition of a symbol. The symbol is something that reveals, through itself, that which is not itself, that which is more than itself, – and yet something that essentially announces itself through this symbol. Let's unfold this formal definition: a symbol is that essence which fuses or mingles its energy with the energy of a more valuable essence. The symbol thereby carries within itself this more valuable essence (translated by Penny Burt), (Florensky, 1990).

This more valuable essence which symbols introduce involves externalizing and expressing one's awareness and values as an integral part of what makes us human. So the intimate contact with symbolic reality promotes the integrity (wholeness) of a person because the only integrated person could act morally.

Moral act bases not only on reason, but also on feeling. In this case it's necessary to teach ethics by interconnection of Good and Beauty. It will lead to development and maturity of feelings. The cultural sphere of representing sensations and feelings is Art. Sensations and feelings as concrete acts of human being are archived in Symbols. Art symbols help us to unzip zip files of symbolic reality in our unconsciousness.

According to Jung, unconsciousness influences all our experiences and behaviors, most especially the emotional ones, but we only know about it indirectly, by looking at those influences. Jung suggested that we possess collective unconsciousness. It is the reservoir of our experiences as a species, a kind of knowledge we are all born with. Contents of the collective unconscious are called archetypes. Jung also called them dominants, imagos, mythological or primordial images, and a few other names, but archetypes seem to have won out over these. An archetype is an unlearned tendency to experience things in a certain way. It acts as an "organizing principle" on the things we see or do. Umberto Eco describes Jung's collective unconsciousness as symbolic reality:

"The contents of the collective unconsciousness are the archetypes, archaic types, universal images, representations collectives: lunar, solar, vegetal, meteorological representation, more comprehensible in myths, more evident in dreams and visions. Jung is explicit in saying that these symbols are neither mere signs (he uses the Greek technical word *semeia*) nor allegories. They are genuine symbols precisely because they are ambiguous, full of half-glimpsed meanings and in the last resorts inexhaustible. They are paradoxical because they are contradictory... If the archetypes are indescribable and infinitely interpretable, their experience cannot be but amorphous, undetermined, and unarticulated. Symbols are empty and full of meaning at the same time." (Eco, 1996).

Symbols are able to reproduce plurality through singularity. From the one side, symbols create differentiation of the world of actions and form cognitive space of the world. Cognitive space correlates with the space of actions. Rich cognitive space is full of differentiation and symbols. Plurality of symbols as a designation of the differentiated actions set richness and variety of processes and activities in the world and universe. The appeal to symbolic reality allows us to overcome personal boundaries. In Bakhtin's words, person as "organic unity" is capable of "transcending itself that is, exceeding its own boundaries" (Bakhtin, 1986). A "transcending of self" is the activity of "creation". This personal activity translates belief into reality. And this closely resembles what we have called "the sacrifice of self".

The process of ethical behavior one can see as a creating act on the lower planes models and schemes, and on the higher planes these are symbols. Symbols contain convoluted time of the concrete activity. Symbols are powerful because of potentiality of certain activity. Human activity is impossible without emotions and feelings. In accordance with this symbols fill

with the potentiality of activity expressed in emotional, strong-willed concentration. The goal of this expression is not the energies themselves – physical, occult, etc. – as registered from the outside, but rather the meaning which they introduce into the world. By these means the identification is attained, so as the self-sufficiency of the activity which necessary for the identification of the given detached process. This process could help a student to identify her/himself and to obtain integrity through a moral act.

Follow Florenski, we can suppose that eluding of symbols based on the difference between openness and safeness. It is very important, because this is a tact or a tune. Tact of “basing” and of “based” keeps this distinction in harmony. Essence and existence are intact. Here we can distinguish the inner Logos that is dividing the totality of existence from the revealed Logos. This process preforms all the hues and directions of spiritual movements which might arise, and each appearance of the spirit, the newest, most unexpected, and the most uniquely-individual. One can touch a single representation that has passed and interrelate with another representation, which is coming and which is kindred to the first in the unity of symbolical content. Symbolism allows people to communicate beyond the limits of language.

We constructed a new study course to develop a basis for doing ethics in a diverse cultural context. This course emanates out of interpretive phenomenology. This is interactive course because of common experiences that belong together and co-occur and provide a new language for students and teachers. Symbolic reality discovers for us the rear opportunity to articulate the basic concepts of ethics such as Good and Evil. Hermeneutic articulation of symbols in Art builds up students’ ability to form fine differentiation between good and evil. Visual sensation is best suitable for it. According to Aristotle, auditory sensations are memory condition, but visual sensations are giving most differences.

#### **4.Hermeneutic articulation of Moral symbols in Art**

Symbolic approach to Education in Ethics is based on phenomenological hermeneutic analysis about the symbolic interaction of artworks and an aesthetic and values philosophy toward a holistic approach to curriculum development. The purpose of this study is to conduct a deep interpretation of Symbols in Art for making universal inferences about aesthetic and values education and symbolic interaction in teaching multiculturalism. This study course presents a method for teaching sensitivity and ethics to students as citizens in the diverse global society. This phenomenological hermeneutic study includes not only interpretation of Symbols in Art but also a representation of a method of reasoning process that is both aesthetic and ethical.

Effective moral reasoning is not an exclusively cognitive matter, and depends crucially upon the proper development of affective capacities and sensibilities. This is equivalent to Aristotle who insisted that moral engagement with others is not primarily a matter of treating the Others equally in accordance with some impartial rule, but of developing sensitive appreciation of their circumstances and such appreciation involves the cultivation of appropriately ordered feeling. Aristotle who better shows us what this really requires in terms of the development of capacities to feel what the Others feel. Still, the key point of present concern is that Aristotelian moral virtue seems implicated in the cultivation of something like aesthetic sensibilities—specifically attachments to something beyond ourselves—as well as capacities for evaluative reason and judgment. Such cultivation appears to point towards the sort of change in ourselves.

The deep interconnection between Aesthetics and Ethics was ordained by Kant in his famous § 59 of *The Critique of Judgment*. In *Of Beauty as the symbol of Morality* Kant argues that a true ideal of the beauty of the human forms in the “expression of the moral.” “if we combine that with the later doctrine of aesthetic ideas and of beauty as the symbol of morality, then we can see that the doctrine of the ideal of beauty also prepares a place for the essence of art.” (Kant, 1952). If we understand a work of art as the consummation of the symbolic representation of life expression of aesthetic and moral sensations archived within Symbols in Art we could conclude follow Kant that “The beautiful is the symbol of the morally good” and the transition from sensory attractiveness to habitual moral interest could happened “without too violent a leap.” (Kant, 1952). Symbolic approach to Education in Ethics is elaborated to teach values and ethics for students from different ethnic nationalities and groups and to accustom students to live together in the global community.

Gadamer’s hermeneutics offers a flexibility that can help students to develop by artworks’ interpretation and analysis a guide to transform contemporary education. Hermeneutic articulation of Symbols in Art focuses on developing of students’ abilities to become more aware of and refine their prejudices, experience pulled up short moments, and be more open to a dialogue between one’s own understandings and those of others, it would better prepare them for negotiating the diverse realities in their future communities. Gadamer’s hermeneutics can enhance our openness toward Others and can lead students to get beyond the defensive stance they are exhibiting. According to Gadamer, we “remain open to the meaning of the other person or text.” It could help students “overcome” their prejudices. Hermeneutic circle entails a dialogue between parts and whole. This unique peculiarity of Gadamer’s hermeneutics allows reaching integrity of a multiple identity person while practicing dialogical interconnection between parts and whole trough hermeneutic articulation of symbols in an artwork.

Art is especially well suited to provide this kind of knowledge by acquaintance precisely because it so effective at arousing the emotional responses characteristic of an ethical perspective. Emotionally laden acquaintance with symbols in Art is central to core concern for symbolic approach to education. The aesthetic relevance of imaginative and affective engagement

with artworks determines the first question of hermeneutic analysis of an artwork: What do you feel?

The articulation of the feeling or sensation allows students to grasp the inherent meaning of the artwork. Students are able to answer for the question and articulate what act or a state of a soul (for example, in still life) is described in this artwork. Usually, it is a moral act or a moral sensation, or a state of a soul. Artworks possess aesthetical meritorious in so far as it possess an aesthetically relevant ethical merit. Its representing includes indicating what is represented. And we can say, as with Hegel, that this is the "appearing" of the idea. It appears, meaningfully and visibly. Hence what is symbolized is undoubtedly in need of representation.

Students not only judge from their point of view, but they should discover the position of the author. They should get her/his message. Their prejudice is based on sensitive differentiation between good and bad. Practical reiteration in a recognition of this differentiation leads to development of the moral sensitivity. To verify own prejudice students ought to answer the question: By using which symbols the artist is explaining his/her position? The answer on this question requires careful consideration of symbols and its interconnection in the artwork. We discover through a work of art to what extent we know and recognize something outside and inside of us. Students are taught to avoid partiality and aspire to fullness and completeness in pictures' hermeneutic interpretation. An individual limitation of understanding from a point of a view what is close to one's own sphere of ideas in the interpreting of a main idea and its valuation is not enough. The variations possible in hermeneutic analysis are not free and arbitrary. In fact they are all subject to the supreme criterion of "right" representation.

Gadamer underlines that Greek understanding of this process truly represents an aesthetical comprehension. "Theoria is a true participation, not something active but something passive (pathos), namely being totally involved in and carried away by what one sees." (Gadamer, 2004).

The distance is necessary for scrutinizing the picture. It makes possible a genuine and comprehensive participation in what is presented before us. We recognize ourselves in this presentation. According to Gadamer, it is possible, because "a spectator's ecstatic self-forgetfulness corresponds to his continuity with himself." (Gadamer, 2004). Precisely that in which one loses oneself as a spectator demands that one grasp the continuity of meaning. As an artwork is nevertheless self-identical in every moment so also "a spectator stands is both one of self-forgetfulness and of mediation with himself. What rends him from himself at the same time gives him back the whole of his being." (Gadamer, 2004).

Hence, symbolic approach to Education in Ethics promotes a sensitive differentiation between Good and Bad by students; the development of their moral sensitiveness, the self-identification and integrity. Only after answering to some questions the justified prejudice becomes productive. Usually we select some 10 min small artworks to be discussed during the lesson. Students divide into small groups for asking questions (usually 3) about the meaning and answering to question of another group. Gadamer considered the use of questions as a key to enabling a valid interpretation. According to him the understanding is not possible without the activity of questioning. Gadamer popularized questions as a means to open possibilities and to keep them open. The aim of such research using phenomenology is to construct an animating, evocative description (text) of human actions, behaviours, intentions, and experiences as we meet them in the usual life world. This productivity of knowing is based on an aesthetical involvement in scrutinizing the artwork.

For example, students are asked for hermeneutic analysis of Rembrandt's Prodigal Son. The feelings could be a compassion or suffering. This picture is devoted to articulation of Charity (Forgiveness). Rembrandt shows us the ambiguity of Charity. Charity is blind. It demonstrates by father's blindness. Charity does not depend on redemption. We cannot see the face of Prodigal Son. But we could see that charity is not absolutely good. The second main figure is the figure of oldest son. We can see the perplexity on his face. He could say as in Bible:

"Behold, these many years I have served you, and I never disobeyed a commandment of yours, but you never gave me a goat that I might celebrate with my friends. But when this, your son, came, who has devoured your living with prostitutes; you killed the fattened calf for him". (Luke 15:29-30, World English Bible)

We can see his hands clenched which symbolize tension, withholding and suppression. Hands folded symbolize contemplation, passivity and contentment. Hands are very important in this picture. The hand has long been thought as a conduit of power – transforming unseen energy into the world of form. The thrilled and delicate hands of father convince us that charity is good. Rembrandt chose red color of the father's cloak and the cloak of oldest son because red color symbolizes love and blood. The naked feet represent naked soul which is ready for a transformation. The feet symbolize and represent the soul, as it serves to support the entire body and keep it upright.

Education in Ethics through Symbols in Art is a new design of ethics education content. The improving of ethical education is possible on the basis of the understanding and practical application of moral experiences through co-existing involvement in the symbolic reality on the verbal or figurative level. This course allows students to recognize the influence of unconscious on attitudes, actions, and speech. "As our response to the good is made only in concrete circumstances, our cultural tradition and our ethics as a philosophic science must be neither purely philosophical knowledge nor a simple historical accounting from the past, but we must enable our cultural tradition via our moral consciousness to help in concrete circumstances" (McLean, 2003).

The most fruitful results of ethical education appear in the understanding of the essence of ethics and in the formation of an "open moral consciousness" which is going beyond the moral standards of the existing community. As Wittgenstein mentioned, ethics is the anticipation of the universal and we should open new ethical horizons. These new ethical horizons could be open on



behalf of future communities with sensitive and moral responsibility for future events in multicultural and ethnical diverse societies. The ethical person focuses on the future in an anticipation of the Good. It provides him/her an opportunity for self-determination and self-orientation with saving precise inter-subjective meaning. Such an ethical orientation of students contributes to the preservation of society by setting the orientation of the society to the right direction (the focus on the implementation of the Good).

Moral Symbols in Art could be an eligible study course for future politics, teachers, doctors, etc. to develop their moral sensitiveness for correct ethical-making decisions.

## Conclusion

The hermeneutic circle and dialogue of questioning and answering were two key strategies drawn from the hermeneutic literature that were incorporated in this research. Hermeneutic phenomenology and the interpretive narration to the description of symbols in Art find the genuine objective nature of the things. Hermeneutic phenomenology is focused on subjective experience of individuals and groups. Moreover the epistemology applied in this research is interpretive constructivism and draws from hermeneutics. In addition, within the interpretivist epistemology, a hermeneutic approach was considered the most appropriate choice for this research supporting as it does the construction of understanding from the analysis and interpretation. The moral foundations could be understood from the individual words and their combinations. Moreover, the full comprehension of the details presupposes the understanding of the whole.

So, it is suggested that nomothetic explanation (a generalized understanding of a given case) will coincide with idiographic explanation (a "full", detailed, in-depth understanding of a case).

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# System analysis of virtual team in cloud computing to enhance teamwork skills of undergraduate students

Varit Kankaew<sup>a</sup>\*, Panita Wannapiroon<sup>b</sup>

<sup>a</sup>Lecturer, Information Technology Division, Faculty of Science and Technology at Rajamangala University of Technology Suvarnabhumi, Nakhon Si Ayutthaya, 13000, Thailand.

Phra

<sup>b</sup>Assistant Professor, Information and Communication Technology for Education Division, Faculty of Technical Education, King Mongkutt's University of Technology North Bangkok, Bangkok, 10800, Thailand.

## Abstract

This research has a purpose to 1) analyze the composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students and 2) to assess the suitability of the composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students. The research methodology is divided into 2 phases as follows: the analysis of the composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students and the assessment of the suitability of the composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students. The sample group in this study consisted of five experts using purposive sampling. Data were analyzed by arithmetic mean and standard deviation. The research findings were as follows: The composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students consists of the 3 groups of service providing as follows: 1) The cooperation service consists of the following modules- Discussion Boards Module, Work Planning Module, Work Tracking Module, 2) The communication service consists of the following modules- Instant Messaging Module, Voice and Video Chat Module, 3) The information service consists of the following modules- File Sharing Module, Electronic Document Module. The assessment of the suitability of composition The System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students through the experts result in that the level of the suitability is at high level.

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**Keywords:** Virtual Team; Cloud Computing; Teamwork Skills

## 1.Introduction

According to Thailand's Higher Education Development Plan No. 11 (B.E 2555-2559) (Office of the Higher Education Commission, 2012) stated that the university needs to create graduates who have the skills to work and adapt to life in the midst of difference in ethnic, religious and culture and language effectively work with others and potential was recognized at an international level. Teamwork is considered a form of education that encourages learners to work skills can collaborate with others happily with efficiently performance.

The team is a group of individuals who work together to coordinate roles and responsibilities towards the same goal of completion. Teamwork requires interaction between the communication, coordination, helping each other to achieve performance (Sumet, 2007), which consisting of five steps (Nattaphan, 2003) : 1) Problem Awareness- a step that team members must be aware of the problem and determine to jointly solve problems And exchange ideas to improve the team, 2) Data Gathering and Analysis- team members will jointly establish guidelines for collecting and analyzing data in order to get the facts to be analyzed and processed to determine the choice, to solve problems and selection practices, 3) Action Planning- team members brainstorm with the data derived from the regression analysis to determine the purpose of the solution and plan a concrete, 4) Action Implementation- team members work together to implement a plan to comply with the concrete to take care of the implementation plan proceeded smoothly to its desired goal, 5) Evaluation of Results- team members together monitor, evaluate and propose solutions or development operations to achieve the skills needed to work as a team in 7 skills (Bellinghamschools, 2014) as follows: 1) Listening- to listen to the ideas of each other, support each other's comments, 2) Questioning- to set up a question within the team, to conduct an interaction of discussion, 3) Persuading- to convince or persuade for exchanging of ideas and review, 4) Respecting- with respect the opinions of others, the encouragement to support the ideas and efforts of others, 5) Helping- to assist each other, 6) Sharing- to share the ideas and reported their findings, 7) Participating- to be a part in the work of the team.

The University graduates need to be prepared to work in globally distributed organizations which will involve teaching that is to make learners to work effectively together to solve problems with teamwork. Therefore, students must be able to work with individuals who are in distant places which there may be interactions face-to-face interaction or perhaps none at all (Last, 2014). A current teaching shows that instructors are taught through a group working to develop the skills of work as a tea to escalate the

\* Corresponding author. Tel.: +66-80-104-6274; fax: +66-35-25-2393  
E-mail address: varit.k@rmutsb.ac.th, varit.k@gmail.com

students' potential. However, teamwork solely is not enough to spend time inside the classroom or during students' free-time. In order to reduce restrictions on time and place where the students will work together as a team, Information and communication technologies have a role to work as a team using the principle of Virtual Teams.

Virtual Teams is a new approach that is different from the teamwork of traditional management and organizer that will be able to work together regardless the different locations and organizations by using technology to facilitate communication and collaboration, rather than confrontation or traveling (Duarte, D. & Snyder, 2001; Gatlin-Watts, et. al, 2007). Virtual Teams will become an increasingly important and growing gradually (Olariu & Aldea, 2014), Virtual Team consisting of two people or more to work together interactively interact to achieve a common goal while at least one member of the team is working in different locations, organizations or time. A communication and coordination are mostly electronic communication such as email, fax, phone, video conferencing, etc. (Hertel, Geister & Konradt, 2005), which suggests that virtual teams can reduce restrictions on team work, as mentioned above. Since work with virtual teams more effective and responsive to use, leading cloud computing then is being used.

Cloud Computing is a form of computer processing with the ability to adjust the size and flexibility. A service using internet technologies applications available everywhere to facilitate the needs of the user for sharing resources through network, server storage units, and various applications (Gartner, 2014; Mell & Grance, 2011). The available of cloud types is various, depending on the needs of users that will use any type from four types (Ames, 2012) as follows: 1) Public Cloud- to serve the public by the service provider owns the infrastructure to serve the user. Services will benefit from the cost savings on infrastructure and expenses incurred by the idea to use, 2) Private Cloud Infrastructure- which is defined specific to agencies they serve to make owned enterprise applications and to reduce concern about data security and control, 3) Community Cloud - a service that is shared in many organizations with a purpose of management and security of all participating organizations that is will take part in the management service 4) Hybrid Cloud computing- a combination of two or more cloud together which can take advantage of each provider type increase the flexibility of processing model for processing cloud is divided into three types (Huth & Cebula, 2011) : 1) Software as a Service: SaaS- will provide that user will be able to access the resources and applications without having to install software on a user's machine. This makes it easy to have software similar on all devices with users, 2) Platform as a Service: PaaS- will provide a higher level of SaaS services by the service providers. to allow the user to access the service elements to software development is performed through Internet, 3) Infrastructure as a Service: IaaS- to provide services related to the infrastructure of computing and storage resources, such as hardware, software, users need to process cloud will work with virtual machines whereas users is no longer need investment in computers capable of levels that require a lot of investment and efficiency in the use of information technology equipment. With virtualization technologies applied in cloud computing, it is enable service providers to share the use of technological devices through a server. Various storage devices to have higher utilization rates. The user will be flexible in the use of information technology equipment (Srisomruk, 2010), from the foregoing, cloud computing has the right features to use in the virtual team,

According to the reason mentioned above, the researchers are interested in the analyzing of the compositions of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students

## **2.Objectives of the study**

2.1 To analyze the composition of System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students.

2.2 To assess the suitability of the compositions of System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students.

## **3.Scope of the study**

### **3.1. Population and Sampling Group**

- Population of study is experts in the field of virtual team, instructional design and information technology
- The sample groups are five experts in the field of virtual team, instructional design and information technology by purposive sampling.

### **3.2 Research Variables**

- Independent variable is Systems of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students.
- Dependent variable is the compositions' suitability of Systems of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students

#### 4. Methodology

The research was divided into 2 phases as follows.

*Phase 1) Analysis of The Systems of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students performing the following steps.*

1. Study, analyze and synthesis of documentation and related research to set up a framework of composition analysis.
2. Analyze the component of the system of education and research documents.
3. A presentation of the system components from the analysis and improvement advisors to consider the suggestion.

*Phase 2) The assessing the compositions' suitability of The Systems of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students with the following steps:*

1. Create a tool for assessing the suitability of the system components.
2. Present elements of the system was analyzed to 5 experts to determine and evaluate the suitability.
3. Improve the system components according to the experts' suggestion.
4. Present an analyzed compositions of the system in a format of conventional illustration essay.
5. Analyze the result of composition of the system's suitability by an average point ( $\bar{x}$ ) and standard deviation (SD), which is a criterion to determine the weight of evaluation is a 5 level (Likert Scale).

#### 5. Result

*5.1. A composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students.*

According to the analysis, the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students will work under the form of Cloud Computing services in the form of Software as a Service in a way of Private Cloud that is consisted of following:

1. Collaboration Services: a system shall be provided in collaboration of team members is comprised of three modules.
  - 1.1 Discussion Board Module; A module that is to provide a forum to exchange ideas, information of team members.
  - 1.2 Work Planning Module; A module that is available in the work of the team, including planning, scheduling calendar works, assigned duties and responsible tasks.
  - 1.3 Work Tracking Module; A service module that is to track the performance of the team that planned and assigned work in them.
2. Communication Services: a system of communication and interaction of the team members is composed of two modules as follows:
  - 2.1 Instant Messaging Module- Module that is available in instant message conversations between team members.
  - 2.2 Voice and Video Chat Module- Module is available in the conversations between team members with sound and video.
3. Information Services: a system that shall be provided in the use and exchange of information between team members is composed of two modules.
  - 3.1 File Sharing Module- A module that is available in the data files shared between the team members.
  - 3.2 Electronic Document Module- A module that is available in electronic document management for the transmission between team members in which the elements of the diagram in Fig. 1.

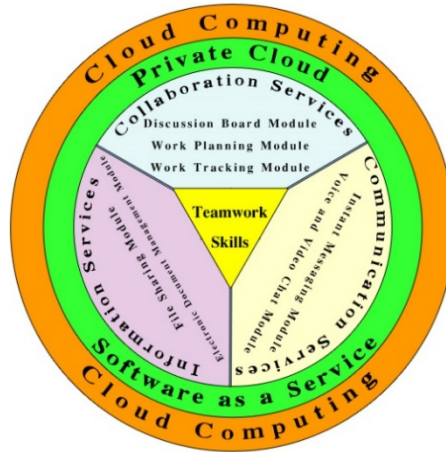


Fig. 1. The elements of a System of Virtual Team in Cloud Computing.

Modules derived from the analysis is applied to the process of using teamwork through the 5 steps as follows:

Phase 1 (Problem Awareness- the module to be used as follows: Discussion Board Module, Instant Messaging Module and Voice and Video Chat Module.

Phase 2 (Data Gathering and Analysis- the module to be used as follows: File Sharing Module, Electronic Document Module, Discussion Board Module, Instant Messaging Module and Voice and Video Chat Module.

Phase 3 (Action Planning- the module to be used as follows: Work Planning Module, Discussion Board Module, Instant Messaging Module and Voice and Video Chat Module.

Phase 4 (Action Implementation- the module to be used are as follows: Work Tracking Module, File Sharing Module, Electronic Document Module, Discussion Board Module, Instant Messaging Module and Voice and Video Chat Module.

Phase 5 (Evaluation of Results-the modules to be used are as follows: Discussion Board Module, Instant Messaging Module and Voice and Video Chat Module.

## 5.2. The result of the assessment of the composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students.

The assessment is done by introducing the analyzed composition of the system to be assessed in term of the suitability to the 5 experts focusing on the principles and concepts of System. The modules derived from system analysis consequently to be used in the process of teamwork. Skills to work as a team when the systems are used .and the possibility of applying the system in real situation. The results are shown in Table 1-4.

Table 1. The assessment of system's principle, concept and objective.

Evaluation Lists	$\bar{x}$	S.D.	Level of suitability
1. System's principle and concept	4.20	0.45	High
2. System's objective	4.40	0.89	High
Summary	4.30	0.67	High

From Table 1, the assessment principles and concepts of the system from the experts is at high level ( $\bar{x}=4.30$ , S.D. = 0.67).

Table 2. Analyzed module assessment.

Evaluation Lists	$\bar{x}$	S.D.	Level of suitability
1. Collaboration Services	4.87	0.18	Highest
1.1 Discussion Board Module	4.60	0.55	Highest
1.2 Work Planning Module	5.00	0.00	Highest
1.3 Work Tracking Module	5.00	0.00	Highest
2. Communication Services	4.60	0.50	Highest
2.1 Instant Messaging Module	4.80	0.45	Highest
2.2 Voice and Video Chat Module	4.40	0.55	High
3. Information Services	4.80	0.45	Highest
3.1 File Sharing Module	4.80	0.45	Highest
3.2 Electronic Document Module	4.80	0.45	Highest
Summary	4.76	0.38	Highest

From Table 2, the assessment principles and concepts of the system from the experts is at highest level ( $\bar{x}=4.76$ , S.D. = 0.38).

Table 3. The analysis module to evaluate the process of teamwork.

Evaluation Lists	$\bar{x}$	S.D.	Level of suitability
1. Problem Awareness	4.80	0.45	Highest
2. Data Gathering and Analysis	4.60	0.55	Highest
3. Action Planning	4.80	0.45	Highest
4. Action Implementation	4.80	0.45	Highest
5. Evaluation of Results	4.60	0.55	Highest
Summary	4.72	0.49	Highest

From Table 3, the assessment of teamwork process of the system from the experts is at highest level ( $\bar{x}$ = 4.72, S.D. = 0.49).

Table 4. The assessment of teamwork skills, and the possibility of applying in real situation.

Evaluation Lists	$\bar{x}$	S.D.	Level of suitability
1. Teamwork skills that will occur when the systems are used	4.14	0.91	High
1.1 Listening	4.20	1.30	High
1.2 Questioning	4.20	0.45	High
1.3 Persuading	3.60	1.52	High
1.4 Respecting	3.80	0.45	High
1.5 Helping	4.20	0.84	Highest
1.6 Sharing	4.60	0.89	High
1.7 Participating	4.40	0.89	High
2. the possibility of applying in real situation	4.40	0.89	High
Summary	4.27	0.90	High

From Table 4, The assessment teamwork skills and the possibility of applying in real situation from the experts is at high level ( $\bar{x}$ = 4.27, S.D. = 0.90).

## 6. Discussion of results

The composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students derived from the analysis of 3 groups of service providing can be described as follows: 1) The cooperation service consists of the following modules-Discussion Boards Module, Work Planning Module, Work Tracking Module, 2) The communication service consists of the following modules-Instant Messaging Module, Voice and Video Chat Module, 3) The information service consists of the following modules-File Sharing Module, Electronic Document Module. The assessment of the suitability of composition The System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students through the experts result in that the level of the suitability is at high level. The assessment result of the suitability of the composition of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students from 5 experts reveals that the suitability average level is at high level ( $\bar{x}$ = 4.49, S.D. = 0.60). This shown that the composition of the system derived from the analysis can be improved as the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students for a real usage.

## 7. Suggestions

The institution to apply elements of the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students to develop a system should prepare the following terms

- Computer equipment; the institution must have a server computer for the system to provide its services to users of such systems and is available at all times.
- Networking; the institution must have internal network and high-speed Internet connection to support services such system from within and outside the school all the time.
- Personnel; the institution must have the personnel administrator with a better understanding about the functioning of the system.

## 8.Further Research

To apply the components of the System of Virtual Team in Cloud Computing to develop into a system and to study the effect of using the System of Virtual Team in Cloud Computing to Enhance Teamwork Skills of Undergraduate Students.

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## ŞİİRSEL DİLİN MANTIK ÖĞRETİMİNDE KULLANIMI

Hülya Altunya

Düşüncenin ölçülü/vezinli ve ahenkli/kafiyeli bir tarzda sergilendiği şiirsel dil, her çağın ve her medeniyetin insanının kendisine yakın bulduğu edebi bir üslup olarak hep varolagelmıştır. Açıkçası her dönemin kendine özgü bir atmosferi ve bu atmosferden doğan şiirsel bir dili bulunmaktadır. Bu durumun bariz örneği Antik Yunan’da, tiyatroda, trajedide, dramda, komedide ve diğer sanat türlerinde şiirsel dile başvurulmasıdır. Özellikle Antik Yunan toplumunda tanrılarla ilgili tarihsel bilgileri hikaye eden mitler, şiirin diliyle sözlü olarak yaşatılmaya çalışılmıştır. Ancak daha sonraki medeniyetlerin, sanatın çeşitli dallarının yanı sıra tıpta, felsefede, mantıkta, destanlarda, lügatta, mesnevide bu nazım dilini eğitim-öğretimin aracı haline getirdikleri bilinmektedir. Şiirsel dilin pek çok alanda kullanılmasının nedeni; insan tabiatıyla uyumlu olduğunun düşünülmesi kadar, düşüncelerin ifade edilmesi ve bilginin nesilden nesile aktarılmasında pedagojik bir araç olarak iş gördüğünün anlaşılması olabilir. İnsanlığın tarihsel deneyiminden biliyoruz ki, ninnilerden başlayarak bir çok alanda, nazım formu insan zihnine estetik bir haz vermekte ve metnin muhafazasını kolaylaştırmaktadır.

Şiirsel dilin kullanıldığı ilimlerden biri olarak mantığın kolayca öğrenilmesine ve öğrencinin konuları rahatlıkla ezberleyerek o ilme nüfuz edebilmesine imkan sağlamak amacıyla bu dille eserler telif edilmiştir. İslam ilim geleneğinde Aristoteles’in (ö. M.Ö.322) mantığa dair eserlerinin Arapçaya çevrilip bu konuyla ilgili metinler telif edilmeye başlandıktan sonra şiirsel dille de mantık kitapları yazılmıştır. Erken dönemlerden itibaren mantık ilminin öğretiminde şiirsel dilin tercih edilmesinin mantığa olan ilgiyi artırdığı söylenebilir. Ne var ki modern dönemlerle birlikte bilme ve anlama teorilerinin değişmesiyle, ilimlerin öğretiminde şiirsel dilin kullanımından vazgeçilmiştir. İşte bu tebliğde mantık ilminde şiirsel dilin geçmişte çok yaygın olarak kullanılmasına rağmen bugün terk edilmiş olmasının olumlu ve olumsuz yanları belirlenmeye çalışılacaktır. Acaba öğrencinin mantık ilminin esaslarını şiirsel dil vasıtasıyla kolayca ezberleyerek hafızada depolaması ve bu şekliyle kullanıma hazır bulundurması öğrenmeye nasıl bir katkı sağlamaktadır? Yoksa öğrencinin konuları anlaması ve ihtiyaç olduğu anda analitik bir zihinle o bilgileri açıklamaya çalışması mı öğrenmede daha iyi bir metottur? Yahut ezberde bulunan şiirsel metnin, gerektiği durumlarda analitik düşünme biçimiyle bilgiye dönüştürülmesi mümkün müdür? Bu araştırmada mantık ilminde geçmişte kullanılan şiirsel metin dilinin günümüz için uygun olup olmadığı incelenecektir.



Antik dönemlerde tanrıların öykülerinin, kahramanlık ya da aşk destanlarının anlatımında kullanılan şiirsel dil, bilgi birikimlerinin birer bilime dönüşmesi ve her bilimin esaslarını anlatan yazılı eserlerin oluşmasıyla birlikte temel kitapların hafızada kalıcı olması için yeniden itibarlı bir edebi üslup haline gelmiştir. Özellikle İslam düşünce tarihinde mantık, dil ve din ilimlerinden tıbbı kadar pek çok bilim dalında manzum eserlerin yazılmasını, geçmişteki bu sözlü geleneğin bilimin hizmetine sunulması olarak anlamlandırmak mümkündür. Sözelimi Osmanlı medrese eğitiminde gerek dini gerekse de dini olmayan ilimlerde şiirsel dilin temel eğitimde vazgeçilemeyen bir üslup olduğunu söyleyebiliriz. İnsan zihninin büyük ölçüde, çocukluk döneminde şekillendiği hatırlanacak olursa, bu dönemde yapılan eğitim/öğretimde, nazım formunun kullanılarak bilgilerin ezberletilmesi, dil estetiği, daha kalıcı öğrenme ve dilin doğru kullanımı için zihinsel formasyon kazandırmaktadır. Dolayısıyla şiirsel dil, hem dilin hem de düşüncenin disiplinize edilerek geliştirilmesi bakımından iş gördüğü için mantık ilminde temel eğitimin vazgeçilmez bir üslubu olmuştur.

İslam Mantık tarihinde ilk defa iki manzum mantık risalesi yazan İbn Sina (ö. 1037)'nin aynı zamanda tıpla ilgili de üç manzum eseri bulunmaktadır.\*\*\*\*\* İbn Sina *el-Urcuze fi'l-Mantık* adını verdiği manzumesinde risalenin yazılış amacını şöyle ifade etmektedir:

“Hafızada kalıcı olması için mantık (ilmin)ı şiir kalıbına (nazma's-şiir) koymamı (istedi)/Özellikle yanımda bir kardeşim var ki; göçüp giden baba(mın) vasiyetidir./Onunla ilgili görevlerini yerine getirmemi ve yolların doğrusunu ona göstermemi vasiyet etti/Ya Ali! Bunu ezberinde tut (ic'alhu-zahara'l-kalb), ta ki akletme çağına gelinceye kadar./Aklının yettiği ölçüde onu düşünürsen bir çok hayırlara ehil olursun/Ancak o çok hayır hikmettir ve bütün nimetlerin en üstünüdür.”\*\*\*\*\*

İbn Sina hem mantığın hafızada devamlı surette bulunmasını sağlamak hem de bu ilmin kalıcılığını arzulayan arkadaşının isteğini yerine getirmek için risalesini yazmıştır. Burada amaç, mantığı şiirleştirmek değil, mantığa dair bilginin aktarılmasının aracı olarak nazım formuna başvurmadır. Mantıksal bilginin kodlandığı hafıza (bellek), deneyim ve bilgileri zihinde saklama ve anımsama yetisi/melekesi olarak öğrenmenin, düşünmenin ve akıl yürütmenin, anımsamanın üzerine oturduğu şeydir. Anımsama, anıyı belleğe çağırma işlemi olduğuna göre o olmaksızın bahsedilen fonksiyonların gerçekleşmesi imkansızdır.

Mantık kitaplarından nazma çekilen bir başkası ise Esirüddin el-Ebheri (ö. 1265)'nin İşagoci'sidir. 16. yüzyılda yaşayan Ahdari (ö. 1575/1576) İşagoci'yi *Süllemü'l-*

\*\*\*\*\* İbn Sina'nın tıpla ilgili manzum eserleri şunlardır: *Manzûme (fi't-Tıbb) veya Elfiyye, Tedbirü's-Sıhha fi Fusulî'l-Erbâa, el-Kanun fi't-Tıbb*'in özeti *Urcûze*. İbrahim Özkılıç, “İbn Sînâ'nın “el-Urcûze fi'l-Mantık” Risalesi (Sunum ve Metin), M.Ü. İlahiyat Fakültesi Dergisi, 32 (2007/1), (127-156), 128.

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gösterme imkanını verebilmektedir. Bu yüzden şiirsel dil özellikle Osmanlı medrese eğitiminde yaygın olarak kullanılmaktaydı.

Bu durumda şiirin diliyle canlı tutularak toplumun hafızasında yer etmesi sağlanan duyguların ifade edildiği kahramanlık yahut aşk öykülerinden başlamak üzere, eğitim/öğretime kadar pek çok alanda başvurulmuş şiirsel dilin modern dönemlerde neden terkedildiğini sorabiliriz. Bu soruya verilen en basit cevap; kitap basımının artması ve bilgisayar teknolojilerinin gelişmesiyle ders kitaplarının hafızada korunması probleminin çözüldüğünün düşünülmesidir. Zira Homeros'un anlattığı mitler artık hafızada değil, kitaplarda muhafaza edilmektedir. Özellikle matbaa ve elektronik kütüphaneler çıktıktan sonra hafızada kitapların saklanması tümüyle terkedildi. Şu halde hafızanın yerini kolay ulaşılan kitapların alması, metnin ezberde tutulması ihtiyacını ortadan kaldırdığını söyleyebiliriz. Böylece modern dünyada, bilişim teknolojileri; teknolojinin hakimiyeti altına alıcı, ve alanını genişletici tavrı dolayısıyla kendini hafızanın yerine ikame etmektedir. Modern dünyada, hafıza hakkında tahfif edici bir değer alanı oluşturulmuştur. Günümüzde, hafızaya ve ezbere karşı olan bu tahfif edici tutum, geçmişe dair negatif bakış ve modern teknolojinin kendine alan açma çabalarının sonucu olmalıdır.

Burada şiirsel dilin terkedilmesiyle ilgili olarak öne sürülebilecek bir başka neden ise şudur: Eğitim/öğretimde ezberlemenin terkedilerek yerine analitik düşünme, anlama ve yorumlama gibi anlama tekniklerinin ikame edilerek bunlara rağbet edilmesi şiirsel dille yazılmış metinlerden uzaklaştırmıştır. Ezberlenen metnin hafızada bulunmasını bilme olarak kabul etmeyen son dönem iddiaların haklı olup olmadığını sorabiliriz. Daha açık bir ifadeyle şiirsel dille ezberlenen mantık metninin, sadece bilginin ezberlenmesi anlamına gelip gelmediği araştırılmaktadır. Yani “mantık metninin ezberlenmesi” denilirken, dilin ya da cümlelerin ezberlenmesi mi yoksa bunlarla birlikte bilginin ezberlenmesi mi kastedilmektedir? “Mantık metninin ezberlenmesi” ifadesi; dilin hafızasının ezberlenmesi, dilde ortaya çıkan hafızanın ezberlenmesi, bilginin depolanması ve depolanan bilginin hafızadan alınması gibi anlamlara gelebilir. Bu meseleyle ilgili olarak iki noktaya dikkat çekilebilir: İlki; insanın belli bir dili ezberlemesi, ikincisi ise dilin tarih içerisinde üretilmiş bilgileri kendisinde tutarak bugüne kadar getirdiği yani bir tür “gelenek” denilen şeyin ezberlenmesidir. Bu açıdan bakıldığında cümlelerin ezberlenmesinin ya da mantığın ezbere dayanmasının amacı, dilin kendi içinde barındırdığı toplumsal ve tarihsel hafızanın açığa çıkarılmasıdır, bilginin direkt kalıp olarak formel açıdan ezberlenmesi değildir. Örneğin mantıksal önermelerle ilgili bilgiyi 4 yaşındaki çocuk da, 25 yaşındaki genç de ezberleyebilir. Ama ilki, dilin hafızasına vakıf olamayacağı, dilin kendi içinde ne tür tarihsel hafızayı ya da bilgiyi barındırdığını bilemeyeceği için, sadece cümleyi papağan gibi tekrarlamaktadır. İkincisi ise dilin hafızasına vakıf olarak mantıksal bilgiye sahip olmaktadır. Buna göre denilebilir ki ezber konusunda en büyük sorun; dilin kendi iç hafızasına vakıf olabilmek yani “anlama” denilen olaydır.

Elbette ki mantığın öğretiminde bir takım şekilsel unsurların bilinmesi gerekmektedir. Sözelimi önermenin dört formu bilgi olarak öğrencinin hafızasında bulunmalıdır. Bu bilgilerin bilinmesi, hafızada bir şeyin yer tutması anlamında önemlidir. Ama asıl önemli olan burada mantığın ne tür bir tarihsel hafızayı barındırdığıdır. Öğrenciye verilmesi gereken şey; mantıksal önermelerin kendi içerisinde bizzat tarihsel birikimi nasıl taşıyageldiği ve bunun nasıl açığa çıkartıldığıdır. Bu anlamda mesele basitçe bir ezber konusu olarak anlaşılmaya izin vermemektedir. Burada daha çok öğrencinin kavramları, kelimeleri, önermeleri anlarken ön plana çıkarılmış, diğerlerini baskılamış veya baskın gelmiş bir takım boyutları ya da anlamları kavraması söz konusu edilmektedir. Zira dilin hafızası çok boyutludur yani dildeki kelimeler kendi içerisinde birkaç tane ya da onlarca anlamı barındırabilir, diğer kelimelerle işbirliği içerisinde olduğunda ise çok daha fazla anlam çıkmaktadır. Şimdi bu açıdan bakıldığında ezberlemeyle anlama arasında önemli bir fark belirginleşmektedir. Ezber daima bir önermenin bir birim olarak bütüncül bir yapı ve bir blok halinde kavranmasını zorunlu kılmaktadır.

Şiirsel üslupla mantık kitabının yazılmasının öğrenmeyle ve anlamayla olan ilgisini burada tekrar sorgulamalıyız. Şiirde, üslubun kolaylaştırılması, kısaltılması yani cümlelerin mümkün olduğu kadar kısaltılması ve nispeten daha estetik denilebilecek bir cümle yapısına sahip olunması nedeniyle ister istemez estetiğin gücünün o ezberleme noktasındaki rolünü ve katkısını gündeme getirmektedir. Ama böylesi bir noktada anlamayla ilgili husus ortaya çıkacaktır ki, şiir, bir cümlelerin daha estetik bütüncül yapıya dönüşmesine yol açabilir. Yani şiirde, daha bütünlüklü, kolay kavranabilir, hatırlanabilir bir yapının var olması ezberi kolaylaştırabilir. İşte tam da bu nedenle anlamın ortaya çıkması anında, şiirsel dil, diğer taraftan da daha güçleştirici bir rol oynayabilir. Bunun sebebi; öncelikle estetik yapının bilincin doğrudan ilgi konusu haline gelmesidir. Zihnin, mantıksal önermelerde ortaya çıkan tarihsel birikimin ve varlıkla ilişkimizin kavranmasından ziyade, bir sanat eserine doğrudan odaklanmakta söz konusu olduğu üzere, şiirsel ifadenin doğrudan estetik boyutunu esas almasıdır; yani bizi muhtevaya ve bu yolla dış dünyaya yönlendirmekte zorlanmasıdır. Mesela şiirlerin en büyük özelliği bizleri sırf kendisine yönlendirmesidir. Dış dünyadaki gerçek varlıklarla bağımızı bir yönüyle askıya almasıdır. Bu bağlamda bakıldığında mantık eserlerinin şiirsel tarzda yazılması bir taraftan hafızanın güçlenmesine, hafıza içerisinde kelimelerin daha fazla sayıda yer tutmasına yol açabilir, diğer taraftan ise şiirsel dil bizi kendisine (estetik boyuta) yönelteceği için metnin anlamından uzaklaşmaya neden olabilir.

Sonuç olarak denilebilir ki, İslam mantık tarihinde İbn Sina ile başlayan Ahdari ile devam eden ve Osmanlı medrese eğitiminde önemli sayılabilecek oranda tercih edilen şiirsel dille eğitimin öncelikle bu tür metinlerin kendi dönemlerindeki kıymeti ve o toplum açısından önemi bakımından değerlendirilmesi gerekir. Döneminin kültürel dili içerisinde bir takım şiirlerin ezberlenmesi ve bir takım kelimelerin oradan öğretilmesi eğitim/öğretimde olumlu sonuçlar vermiş olabilir. Ancak geçmişte oldukça faydalı sonuçlar veren bu yöntemin günümüz için tekrar denenmesini önermeden önce bugünün hafızasının hareket noktası olarak alınması gerektiğinin farkındayız. Günümüzün hafızasına bakılacak olursa, sinema,

roman, belgesel gibi çeşitli metin tarzlarıyla karşılaşmaktadır. Ayrıca hafıza ve ezber kavramlarının neye tekabül ettiği sorusuna cevap olarak geçmişteki karşılıklarının alınamayacağı açıktır. Çocukların ve gençlerin hafızasında, resimsel bilgiler, medyanın bilgileri vb. yer etmektedir. Aslında mantık eğitiminde hafızanın gerekliliğinden bahsedildiğinde, bu hafızanın bugün ne anlama tekabül ettiği oldukça önemli bir sorundur. Geçmişteki hafıza ile bugünün hafızasının aynı kabul edilmesi, “şiiirsel dilin” olduğu gibi devam ettirilebileceği anlamına gelmez. Osmanlı medrese eğitiminde başvuru olan “şiiirsel dil” yani bir blok halinde cümlelerin ezberlenmesi, estetik bir tat katarak cümle içerisine bilincin, bu anlamda cümleye kolay yönelebilmesi ve hatırlamayı kolaylaştırması önemli olabilir. Bu, döneminin kültürel hafızasına çok uygun bir teşebbüstür. Ancak günümüzde mantık eğitimi denildiğinde, hafızanın, kültürel belleğin ne tür bir rol oynadığını tam olarak tespit edebilmeliyiz. Hafızanın ne tür şeyleri öne çıkartırken ne tür şeyleri de arka plana attığını açıklayabilmeliyiz. Bunun tahlili yapılmaksızın, mantık eğitiminin doğrudan salt geçmişin hafızasıyla anakronistik tarzda yani sanki zaman farkı yokmuş gibi yapılması, şiiirsel tarzda mantık eserlerinin yazılması ve ezberletilmesi olumlu sonuçlar veremeyebilir. Dolayısıyla öncelikle kültürel hafızanın analiziyle günümüze döndürülmesi gerekmektedir. Şiiirin ve musikinin önemli olduğu toplumlarda mantığın şiiirle anlatılması anlamlıdır. Kısacası şiiirin o toplumun hafızasının şekillenmesinde oynadığı rol, mantığın da oradan gündeme gelmesine yol açabilir. Fakat yine de mantık ilmine dair konuların belli düzeyde hafızada tutulması gerektiği de reddedilemez bir gerçektir.

# Tablet as a new interactive tool for education paleography

Pavla Štorková<sup>a</sup>, Jiří Kysela<sup>b</sup>

<sup>a</sup>University of Pardubice, Faculty of Arts and Philosophy, Pardubice 532 10, Czech Republic

<sup>b</sup>University of Pardubice, Faculty of Electrical Engineering and Informatics, Pardubice 532 10, Czech Republic

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## Abstract

This article is focused on the possibilities and usability of mobile devices for the study of paleography, the auxiliary science of history. The main aim of the text is to introduce new advanced way of practising ancient inscriptions and modes of writing with the help of tablet mobile device. The use of this new media is changing the face of education and is creating new opportunities for improving the quality of education and learning. This article tries to uncover students' new approaches to modern, innovative and interactive learning of old handwritings using various mobile applications. The authors of this article want to outline new ways of reading and writing old inscriptions.

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**Keywords:** paleography, education, tablet, mobile devices, mobile applications, learning, old handwritings

## 1. Introduction

The use of new media is a key milestone in enhancing digital literacy in education. New media brings advanced information and communication technologies (ICT) with opportunities to improve the quality of teaching and learning through interactive devices, applications and the Internet. The importance of new media and its applications in education have recently gained attention of many education institutions and reported in the EU's Digital Agenda EU 2020 strategy (Martín, G. A., 2011) also. The sustainable growth of ICT literacy through EU funding in the Czech Republic enables government to initiate a project through Ministry of Education, Youth and Sport in Czech Republic, called "Výzva51" with the funding of 600 million CZK to upgrade ICT-based education, especially modern mobile devices such as Tablet.

In this article the possibilities and the use of mobile devices such as a tablet in the study of paleography are explored. The text aims to explore possibilities offered by tablets for practical exercises in old handwritings and to improve teaching paleography with the help of interactive new media. The article aims to show how students can use the modern, innovative and interactive teaching methods for historical writing using mobile applications. The authors also want to outline new ways to learn these old handwritings skills of reading and writing. Mobile devices (smartphone, tablet) around the world use different teaching applications and have become potentially very important form of education.

## 2. Technologic base for interactive education of paleography

This initiative is supported by the fact that 7.7 % of youths (approximately 51,000 youths) between 16 years to 24 years in Czech Republic (CZSO, 2014) use mobile Internet through tablet (5.0 % of them use tablet regularly). Due to this reason, mobile devices such as tablet possess the potential to significantly influence teaching and learning. Recently a new mobile device called convertible notebook (or ultrabook) have become popular, which is a more advance device having classical notebook features. It can be used in different ways ad per the need i.e. with tipping, rotating, detachable or plug-in display as a tablet with touch screen input. Students can therefore use a single device that can function both as a tablet and a notebook. A significant increase in the popularity of tablets is evident from the evolution of the market of tablets sold in recent years as shown in the figure below (Fig. 1).

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\* Corresponding author. Tel.: +420 466 037 095.

E-mail address: Jiri.Kysela@upce.cz

Worldwide shipments of tablets from 2010 to 2017 (in million units)

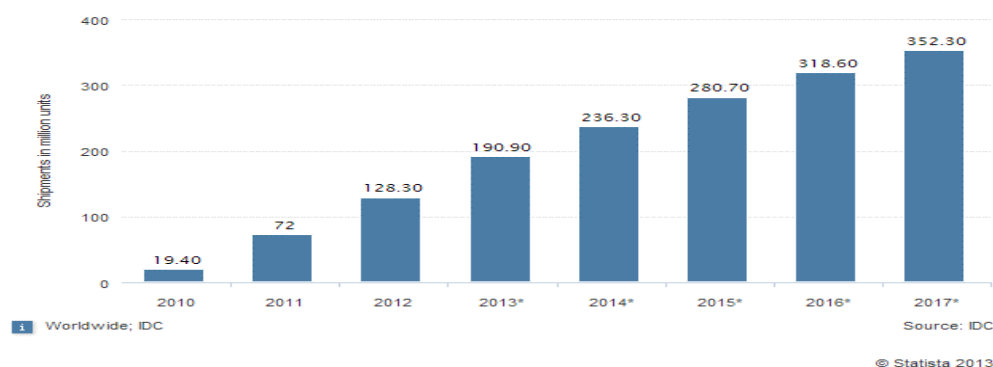


Fig. 1. (Forecast for global shipments of tablets from 2010 to 2017. Source: Dodd, N. et al., 2013).

### 2.1. Multipurpose mobile device with touch screen user interface

The touch screen is used as a user interface for most of the mobile devices (smartphone, tablet, notebook). Even the notebooks which use keyboards as input devices traditionally are getting equipped with touchpads (Display Search, 2013) and 10% of notebooks sold in 2013 were equipped with touch screen (over four years, but it is estimated that touch screen interfaces will dominate). On the other hand, tablets are already equipped with touch screen. The vast majority of smartphones and the overall sales of devices with touch screen interface over the next three years will get doubled (Yi D., 2014). The above statistics clearly show that the touch screen is a promising way to control portable computers, which will become very easily affordable to general population due to higher expansion and lower prices. Another advantage is that these devices will replace positioning device such as a mouse or a touchpad in near future. The other advantage is an intuitive gestures recognition which simply expresses the intended requirement.

For teaching paleography using touch screen to draw fonts of old inscriptions figures can be controlled in a more accurate manner using a pen tool (so-called stylus) provided with the tablets as a touch screen pointer. The price of the stylus is approximately 3 Euros (in the case of resistive and capacitive), in the case of very high precision of fine-tipped capacitive stylus is approximately 20 EUR (which is more suitable for teaching paleography by replacing classical pen or pencil). There exists special digitized stylus, which actively communicates with the screen via an extra layer of technology usually via Bluetooth. Because of this, tablet can recognize line thickness or line intensity according to sensitivity of hand pressure to touch screen with the stylus. Except classical styluses (available through companies like Adonit, Wacom, Dagi, etc.) designed for drawing pattern like classical pen, there exist special category styluses designed for drawing pattern like paintbrush (available through Nomad Brush company) which could simulate real drawing old handwritings with different line width of end points of fonts.

Touch screens obviously use two different technologies:

- Resistive – touch screen control by fingers or any stylus can be realized. Stylus is a simple pen-shaped instrument used as a pointing device. Surface of touch screens is made of flexible membrane, which carry signals over the electrically conductive layers to process when user touch the screen.
- Capacitive – display covered by electrically conductive layer, works on basic principal of human body conductivity. When screen is touched by a finger, electrical circuit associated with it gets closed and on the basis of it device determines the position of the finger. This type of display is currently being used in mobile devices. The disadvantage of these type of touch screens is the need to control it by electrically conductive object. Any stylus designed for the resistive touch screens cannot be used for the capacitive touch screens. A special capacitive stylus is designed to fulfil requirement of various application for this kind of displays.

### 2.2. Mobile native applications for education of paleography

A mobile application is software designed for mobile operating systems (i.e. Android or Windows-Phone/RT) available on mobile devices such as a tablet or smartphone. The mobile applications provide advanced functionality specifically high rate of mobility and ease of use i.e. operated by the user via touch screen. Mobile applications exist in two different forms – first one limits users to use it on certain operating systems only (so-called native applications) and second one on the contrary, allows users the freedom to use applications on any operating system (so-called multi-platform applications). Since there are only a few applications for the education of paleography and are available only for the most popular operating systems – Android (46.9 % worldwide penetration on all mobile devices among population in May 2014) and iOS (32.4 % penetration) (Statcounter, 2014) only exhibiting a very big disadvantage. These mobile applications are unavailable for all users having mobile devices with different operating systems (Windows Phone: 1.9 %, Symbian: 2.4 %, BlackBerry: 1.6 %, etc.). It should be noted that among the tablets alone three dominant mobile operating systems are expected to occupy a significant market share by 2017 – Android

(58.5 %), iOS (30.6 %) and Windows (10.2 %) (Jones, 2013). Review of actual available applications for education of paleography is described in section 3.1.

### 2.2.1. Multiplatform solution of education

The solution to the problem of very fragmented supply for different platforms (Android, iOS, Windows etc.) of paleography applications is to develop a multi-platform application. Typical examples are web applications supported on all modern mobile devices, so that users of minority operating systems have the ability to fully use mobile applications just like everyone else. However most of the web applications do not execute without a mobile Internet connection and web technologies HTML version 5. This must also be supported by the web browser. The unavailability of newest versions of the softwares and plugins can cause problem to the technologies/libraries required by the touch screen drivers are available through the newer versions of browsers only (Canuse, 2014).

The problem of insufficient platform independent and therefore widely available applications for education of paleography, especially to learn old inscriptions motivated authors to develop a multiplatform application in HTML version 5 on new mobile devices such as tablets. Its detailed description is provided in section 3.2.

## 3. Education and understanding paleography

Learning of reading and writing begin in childhood using various methods. Children learn to recognize letters which then can read and write. (Mikulenková; Malý, 2004). Writing and reading is an important part of teaching. It is not restricted only to remember letters and numbers but also to understand how to recreate them. This whole process develops intellect and ideas in children. Reading old historical inscriptions is a similar process. Although we get to learn this script in university, we have similar problems in reading this text as compared to the problems, students of first class encounter while getting trained to learn a contemporary script. Students must completely ignore current font shapes and relearn similar or completely different forms of historical inscriptions. A script, that we use for general communication, is called Latin. Its development took place in several millennia. The evolution of font shapes depends on many factors such materials and instruments which were used for writing, and high demands of fast writing (Uncial, National hands, Gothic minuscule, Humanistic scripts. etc.) (Hlaváček, I., Kašpar, J. & Nový, R. 1994). Therefore, it is imperative to relearn the alphabets of these scripts and of course practicing font shapes.

Palaeography introduces students with old inscriptions or handwritings. The practice of deciphering, reading and the cultural context of writing is included in the discipline. A paleographer must have the ability to recognize numerous styles of handwriting prevalent in different ages and places, because there are many scripts with enormous variation. Scribes often used many abbreviations, which palaeographer must know how to interpret them. Knowledge of individual letter-forms, ligatures, punctuation, and abbreviations enables the palaeographer to read and understand the text (Encyclopædia Britannica, 2014).

### 3.1. Interactive reading-book and mobile applications for paleography

Nowadays, multimedia tools are involved in the teaching of paleography and auxiliary historical disciplines. Especially, the Internet offers many archived materials, practical exercises and various interactive paleographic reference books (Interaktivní paleografická čítanka, 2014; Projekt OPPA, 2014). Websites (Medieval writing, 2014; The National Archives, 2014 & Harvard University, 2014) encourage public to participate in the paleography study and exhibit that the reading old manuscripts can be fun. In many archived materials paleographers may obtain information about alphabets and different transcription rules and specimen letter forms. Another transcript should be formulated to understand the old manuscript fully.

Users may acquire knowledge and then verify it by attempting to solve specific examples and tests. Unlike traditional books, the advantage of the websites is to add manuscripts and across all improved.

A great potential also offer mobile applications that are focused on education. The potential of mobile applications in the education is considerable and the future promise big boom. Already, most students have own smartphone and tablet. It is a reason, why research institutes issue with them. University of Leeds developed a mobile applications aimed at mediaval handwriting and english renaissance handwriting (University of Leeds, 2014). The aim of the applications are to provide practice in the transription of wide range of medieval and renaissance hands. These applications made for Android operating system (and now for iOS too) and offer medieval manuscripts, where every word can be zoomed in. Applications contain the introduction to manuscripts, transcription rules, specimen letter forms, attempt transcription and full transcript. These beneficial applications, however, allude to the fact that do not work on other platform – tablet with Windows operating system and that for users of this platform becomes unusable. For iOS operating system created University of Exeter mobile application called Exeter Manuscripts Project, which explores medieval manuscripts and culture. *The project aims to create an iPad app to introduce young people to the amazing world of medieval manuscripts. Through the app users will go on a journey into the past to discover the history of the places the manuscripts come from and the people and communities that made and owned these incredible and beautiful objects* (University of Exeter, 2014).

Many mobile applications available through App Store (iOS), Google Play (Android), Windows Store deal with teaching of



alphabet writing for kids and teaching or practicing calligraphy or Arabic script. Paleography in this regard, however, still lags, except for a few of the applications as many developers do not deal with this field.

### 3.2. Tablet as a new interactive tool for education paleography

The authors therefore wish to contribute to the development of paleography and to motivate students by using web application developed for all mobile device with touch screen (smartphone, tablet, convertible notebook, notebook with a touch screen). This application called PaleoGraphTouch (Paleographtouch, 2014) is available for all operating systems and mobile devices and is based on HTML version 5 supported by all operating systems. HTML pages can work with or without connecting to the Internet and work as online/offline mobile applications. This application also differs from other application in a way which allows students to learn writing (especially the alphabet) and getting visual training as well. Imitating font shapes and tracing by stylus on the tablet reminds pen (brush, pencil) helps and facilitates students to acquire a basic ability to understand the historical text. It reminds Strobel's method, which is about writing by using a dry pen on printed artwork or writing by using an ink pen on a draft written by pencil. (Penc, 1968). Students, by tracing shapes, do not create anything new but it is sufficient for the training of historical writing. In this web application, users may choose from a variety of application writing mode - pencil, pen or brush and may choose a line thickness. An important part of the application is also adjusting the transparentness (from the visible to invisible), so the users can adjust it according to their own needs.

Once students create their own study pattern (saved in JPEG file format), this application allows to show this manuscript or to choose from a predefined old handwritings patterns that have a transcript so that students can see distinguish each letter or word separately. The application also offers a feature to store layer with the written text into a graphic file (in JPEG format widely supported). This file can be accessed by any graphical browser or editor and allows to continue work with the generated text. This application obviously can not replace teaching with expert guidance and interpretation, but offers teachers a more interactive tools in learning palaeography and the auxiliary science of history.

## 4. Conclusion

The main aim of the text is to introduce novel ways of practising ancient handwritings and modes of writing with the help of tablet mobile device. The use of this new media is changing the face of education and is creating new opportunities for improving the quality of education and learning. The article tries to uncover the students' new approaches to modern, innovative and interactive learning of old handwriting scripts by solving examples using applications on mobile devices. The authors of this article created a novel web application, which helps students to understand historical handwritings in a better way and makes history learning easier.

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# Taxonomy of the cognitive domain:

## An example of architectural education program

Süheyla Birlik

Karabük University, Faculty of Safranbolu Fethi Toker Fine Arts and Design, Department of Architecture, Karabük 78050, Turkey

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### Abstract

Cognitive domain includes the behaviors regarding mental skills. These behaviors are at the level of knowledge, comprehension, application, analysis, synthesis and evaluation according to American education psychologist Benjamin Samuel Bloom et al.

Architectural education aims to acquire a profession within the efforts of designing and building along with creative solutions by harmonizing the requirements with technical opportunities. It is built on the architectural project studies and contains theoretical and practical courses.

In this paper; elective course named as 'New Buildings in Historical Environments-Studio' included in the educational program of Department of Architecture of Karabük University will be analyzed according to Bloom Taxonomy.

▪ *Keywords:* cognitive domain-Bloom Taxonomy, architectural education program, new buildings in historical environments

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### 1.Cognitive Domain-Bloom Taxonomy

The behaviors in cognitive domain are the mental skills acquired with the knowledge at the end of education.

These behaviors were classified in 6 levels as to require a different thinking type for each and to be prerequisites for each other from simple to complex, from concrete to abstract as

- knowledge
- comprehension
- application
- analysis
- synthesis
- evaluation
- by Benjamin Samuel Bloom et al. in 1956 (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956).

*knowledge*

At this step; it is expected to recognize or remember the information the way it is. It is not expected to contribute or to

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· Corresponding author. Tel.: +90-554-638-1761; fax: +90-370-712-8706.  
e-mail address: suheylabirlik@karabuk.edu.tr

use the information. Therefore, behaviors at knowledge level derive from memorization.

- knowledge of specifics
  - terminology
  - memorize, identify, name, define
  - specific facts
  - know, recall, select, label, locate, state
- knowledge of ways and means of dealing with specifics
  - conventions
  - point out
  - trends and sequences
  - list, sequence
  - classifications and categories
  - classify, group
  - criteria
  - set the framework of
  - methodology
  - recite
- knowledge of the universals and abstractions in a field
- principles and generalizations
  - generalize
- theories and structures
  - tell, attribute

#### *comprehension*

At this step; it is expected to understand the information, to express in different words without losing its content and to re-organize the information.

- translation
  - translate, distinguish, comprehend, express, paraphrase, give examples, explain, illustrate, rewrite, extend, summarize, transform, visualize, diagrammatize, match
- interpretation
  - determine, interrelate, interpret, explain the meaning, restate, infer
- extrapolation
  - guess, arrive at a decision, adapt, fill the gap

#### *application*

At this step; it is expected to use the information in explaining or reaching solutions the new situations.

- choose, transfer, guide, use, sketch, experiment, survey, calculate, solve, operationalise, activate, dramatize, show, paint, draw, model, configure, build, apply, present

#### *analysis*

At this step; it is expected to subdivide the information by using various criteria, to determine the relations (one or multiple ways) between the segments and to set forth the principles of gathering the segments. Therefore, behaviors at analysis level are related to both content and style; it requires in-depth thinking.

- analysis of elements
  - collect data, differentiate, parse, subdivide, prioritize
- analysis of relationships
  - associate, outline, analyze
- analysis of organizational principles
  - set out principles, map out, disintegrate, qualify, attribute

#### *synthesis*

At this step; it is expected to create a new and original product to serve a certain aim and to reflect the creativity. Therefore, selected information should be gathered together in a meaningful manner.

- production of a unique communication
  - compile, discover, design, plan, originate, compose, produce, construct, reveal, exhibit
- production of a plan, or proposed set of operations
  - offer an alternative, make a plan, organize, formulate, tabulate
- derivation of a set of abstract relations
  - combine, restructure, synthesize, hypothesize, develop a system

#### *evaluation*

· At this step; it is expected to compare the quantitative and qualitative properties of the information and to take the measure of their accuracy and benefits.

- judgments in terms of internal evidence
  - appraise, overview, control, compare, consider, find mistake, confirm, support
- judgments in terms of external criteria
  - examine thoroughly, decide, judge, critique, give points, admire, defend, recommend, predict, talk over

## 2. Architectural Education Program

Architecture is a multi-directional discipline based on designing and producing spatial inputs.

Compulsory and elective courses on;

- architecture and design culture
- construction technology and management
- tectonics -historical development and effects on design-
- architectural heritage and conservation

are included in 4-year architectural education program in Turkey; the program also includes construction site and office internship studies.

#### *program learning outcomes (uluslararasi.karabuk.edu.tr, 2014)*

- be able to express intellectual thoughts verbally and in written
- to have information about environment, art, history of architecture, be able to follow the current developments
- be able to use different tools in the concrete expressions of the abstract thoughts
- to protect historical environments and be able to apply the architectural restoration techniques
- be able to show the physical environment control data in their works
- be able to create original designs taking advantage of traditional and new concepts in relation to architecture
- be able to transfer to their designs the information acquired from single structure scale to urban environment
- be able to reflect innovations in the field of construction technology and material on their designs
- be able to think critically about the design, be able to produce alternatives for changing conditions
- to have a grasp of scientific research process, to report and be able to present in required places the information and findings obtained
- be able to make disciplinary and interdisciplinary studies on a specific subject
- to have social sensibility and occupational ethics

## 3. New Buildings in Historical Environments

MIM448 New Buildings in Historical Environments-Studio is carried out as one of the elective courses of the eighth semester at the Department of Architecture of the Faculty of Safranbolu Fethi Toker Fine Arts and Design in the Karabük University (Table 1).

· Table 1. MIM448 New Buildings in Historical Environments-Studio

· <b>objective</b>	· to introduce the design approaches in historical environments, to discuss the topic on the examples
· <b>content</b>	· explanation of the historical environment concept, introduction of the design approaches to be applied on the infill buildings in historical environments together with their examples, examination and assessment of the topic on a featured environment
· <b>weekly schedule</b>	· concept of historical environment · reasons for conservation of historical environments · the factors that cause deterioration of historical environments · the stages to be applied in conservation-improvement aimed urban renewal works · the design approaches in historical environments

- 
- domestic and foreign examples
  - mid-term exam
  - field study: identification-documentation
  - field study: identification-documentation
  - field study: partial rehabilitation
  - design: field rehabilitation-redevelopment
  - design: field rehabilitation-redevelopment
  - design: field rehabilitation-redevelopment
  - subjective evaluation
  - presentation
  - final exam
- 

Matching with Bloom Taxonomy of the evaluation system (2013-2014 academic year) of the course is as follows:

*mid-term exam*

- Write to which countries the following historical cores belong. (**knowledge**)



Kairouan



Sana'a



Bukhara



Bern



Carcassonne



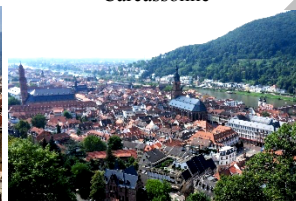
Český Krumlov



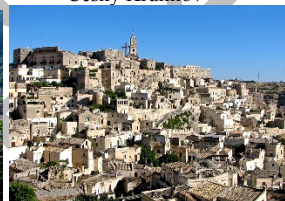
Dubrovnik



Florence



Heidelberg



Matera



Mostar



Salzburg



San Gimignano



Toledo



Valletta

- Write the reasons for conservation of historical environments itemized. (**knowledge**)
- Depending on the abovementioned articles, write the reasons for conservation of the following examples. (**comprehension**)



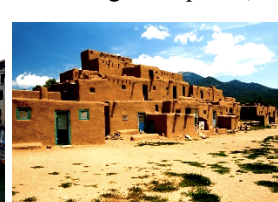
Koza Han



Pyramids of Giza



Venice



Taos Pueblo

- ----- means absoletion of the structures against the law. (**knowledge**)
- Under the influence of which facts were the following settlement examples remained and changed? (**comprehension**)





Pompei



Warsaw



Galata

- Specify the stages to be applied in conservation-improvement aimed urban renewal works. **(knowledge)**
- Write the design approaches to be applied on the infill buildings in historical environments itemized. **(knowledge)**
- Depending on the abovementioned articles, write the design approaches of the following examples. **(comprehension)**



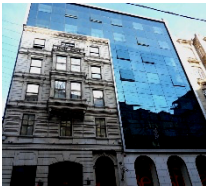
30 St Mary Exe



Inn and Spa at Loretto



Peri Tower Hotel



Richmond İstanbul Hotel



Hilton Budapest Hotel



Clapham Manor Primary School

#### *term paper*

- Settlement-shape analysis and facade surveys of Safranbolu Hacılarobası Village **(application)**

#### *final exam*

- Explain the effects of copying the history properties 'imitation approach' on designer and texture. **(comprehension)**
- Explain the effects of reflecting the own era properties 'opposite approach' on designer and texture. **(comprehension)**
- Tell the architectural properties of the village in which you have carried out identification-documentation studies. **(analysis)**
- Develop/suggest a model for conservation-improvement aimed rural renewal work for this village. **(synthesis)**
- Support the design approach you will prefer in the model to be suggested. **(evaluation)**
- Discuss the contributions of your renewal study to the village and city life. **(evaluation)**

## 4. Conclusion

According to Bloom Taxonomy... a student completing successfully the course of New Buildings in Historical Environments-Studio;

- defines the historical environment,
- know-can give examples the reasons for conservation of historical environments,
- classifies the factors that cause deterioration of historical environments-can illustrate,
- sequences the stages to be applied in conservation-improvement aimed urban renewal works,
- explains the design approaches in historical environments giving examples-interprets,
- gains sensitivity to the environment,
- can analyze the historical environments,
- can develop conservation models for the historical environments,
- can design new buildings in historical environments,
- can evaluate the admiration preferences of the designs,
- can make evaluation on the historical environments and their conservation.

As a result, each education program aims to gain cognitive domain behaviors. However, it shouldn't be expected to find solutions for the educational problems only with the taxonomy.

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*Pictures without reference belong to the author.*



# Teacher - pedagogical creativity and developer promoter

M. Zivitere<sup>a\*\*\*\*\*</sup>, V.Riashchenko<sup>b</sup>, I. Markina<sup>c</sup>

Dr.oec.,prof., ISMA University of Applied Sciences, Department of Management and Economics, LV- 1019, Riga, Latvia

\* Dr.oec., asoc.prof., ISMA University of Applied Sciences, Department of Management and Economics, LV- 1019, Riga, Latvia

\* Dr.oec.,prof., Poltava National Technical Yuriy Kondratyuk, Department of Management and Administration, Poltava, Ukraine

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## Abstract

Creative trends in the formation of professional and pedagogical culture of the teacher, including the creation, development and use of pedagogical innovations are means of updating educational policy with regard to the training of highly qualified personnel. Therefore the development of pedagogical creativity is an important condition for successful education. Pedagogical creativity directly affects the development of the student. Furthermore, professional motivation is an important factor for the competitiveness of the institution. Higher vocational training is a fundamental component of an integrated system of continued professional education in today's highly competitive job market. The process of developing professional motivation in modern conditions is not possible without the use of pedagogical creativity.

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*Keywords:* creativity, education, innovation, creative approach to training, motivation of students.

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## Introduction

Creative trends in the formation of professional and pedagogical culture of the teacher suggest his or her inclusion in the activities of creation, development and use of pedagogical innovations in the practice of training and education and the creation of a specific innovative environment. The need for innovation-oriented pedagogical activity of the teacher in modern conditions of development of culture and education is caused by social and economic changes, emergence of new types of educational institutions, including non-governmental, which not only creates competition among universities, but also among teachers, increasing humanization of higher education, continuous changes in the volume and composition of academic disciplines, entry of new professions and specializations that require updating of organizational forms, learning technologies, changes in the relationship of teachers towards development and application of creativity in teaching.

Creative trends in the formation of professional and pedagogical culture of the teacher, including the creation, development and use of pedagogical innovations are means for updating educational policy in the sphere of training a highly qualified personnel. The development of pedagogical creativity is therefore an important area for creating conditions for a successful educational work.

According to the leading educational concept<sup>§§§§§§§§§§</sup>, creativity affects the formation of intellectually and morally complete person, allows a person to understand his or her personality and talent and use it for the benefit of the people.

Various sciences, including philosophy, psychology and pedagogy, have been engaged in the study of the essence of creativity, conditions for its development and other aspects. Plato, for example, refers to the creativity of all things man-made: "Anything that causes a transition from nothingness into being is creativity."<sup>\*\*\*\*\*</sup>

If in ancient philosophy and pedagogy creativity is understood as discovering the new with novelty present in all human creations, then "novelty" in the interpretation of Kant is something rare and impressive. "The novelty is a source of and a means for revitalizing attention. All creativity becomes subjective and universally transforms itself into a particular ability of the person."<sup>††††††††††</sup>

Spinoza connects creativity directly to human activity and is convinced that this is an essential characteristic of 'being'.<sup>††††††††††</sup>

The problem. Nowadays the problem of creativity has become so topical that many scientists believe it to be a "problem of the century", while its solution lies in a number of areas, including the education, i.e. in the modern school. In this situation the personality of the teacher comes to the fore - the leading professional characteristic of this personality is the ability to be creative. That very pedagogical creativity of the teacher is capable of solving the problem of functioning of any educational institution, to ensure society's need for highly qualified professionals capable of effectively solving variable tasks, and to unconventionally respond to changes in the modern technological society.<sup>§§§§§§§§§§</sup>

Scientific studies of creativity have many aspects: activity - creating something qualitatively new, distinctive, original and socially and historically unique; and procedure - such as personality development, and self-actualization through the process of creating material and spiritual values (V. Tsapok).<sup>\*\*\*\*\*</sup>

British researchers S. Das, Y. Dewhurst, D. Gray look at creativity on two levels: the first level is inherent in human thinking and human practice, and the second is related to inventions, scientific work, etc...<sup>††††††††††</sup>

According to Vygotsky creativity is human activity, aimed at coming up with something new; these are the things of the external world, or of the inferences and feelings, inherent to the human being.<sup>††††††††††</sup>

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§§§§§§§§§§ CLASP (2002) Creative learning and student perspectives. A European Commission, Economic and Science Research Council and Open University research project. (Milton Keynes, The Open University)

\*\*\*\*\* Platon. Сочинения в 4 т. – М., 1969. – Т. 2. – С. 135

†††††††††† Kant I. Сочинения в 6 т. – М., 1964. Т. 3. – С. 397.

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§§§§§§§§§§ Korotenko V. **Мастерство и творчество учителя.** - <http://argo1.com.ua/30.htm>

\*\*\*\*\* Сапок В. Творчество: Философский аспект проблемы. - Кишинев: Штиинца, 2009. 148 с.

†††††††††† Das, S., Dewhurst, Y., Gray, D. (2011). A teacher's repertoire: Developing creative pedagogies. International Journal of Education & the Arts, 12(15). Retrieved [date] from <http://www.ijea.org/v12n15/>.

creativity is the most important criterion for quality personality formation of modern man, primarily in the social need to work creatively

on an innovative component in accordance with the following criteria (Skibickij, Tolstovskij):

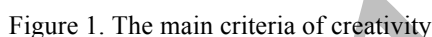
- which allows to determine the level of novelty (absolute, locally absolute and relatively absolute);
- which contributes to high results at a lower cost of physical, mental effort and time invested;
- which means efficiency, which mean specific positive results in the work of a teacher;
- which means a creative use of experience in the learning process.

Psy.D. Rita Bebre argues that creativity consists of three aspects: as an individual attribute, as a process and as a product. As an individual attribute creativity is characterized by originality, innovativeness, non-conformity, courage, etc. As a process it is characterized by creative intuition, imagination, divergent thinking, inspiration, mental plasticity, and conscious and unconscious activity. As a creative product in different areas (art, science, technology, etc.) it is characterized by innovation and benefit to the society.

Teacher is working on an innovative component in accordance with the following criteria (Skibickij, Tolstova, Shefel, 2008):

- innovation, which allows to determine the level of novelty (absolute, locally absolute and relatively subjective level of innovation);
- optimality, which contributes to high results at a lower cost of physical, mental effort and time invested;
- effectiveness and efficiency, which mean specific positive results in the work of a teacher;
- the possibility of a creative use of experience in the learning process.

\*\*\*\*\* Kichuk N. От творчества учителя к творчеству ученика. - Измаил, 2002. - 96 с.



Analysis of research results shows that on the average 44.27% of first-year students have a broad interest towards specialising in a certain field, yet this interest is not connected to the practical activity. Moreover, the highest percentage by this indicator was recorded in the course "Business Administration" (47.5%). We explain this by the fact that most of the students enrolled in this particular programme are high-school graduates, who wish to establish their own businesses. Contrary to that we have found a drop in professional interest among fourth year students: from 40.27% in the first year to 8.6% in the final year. Such results are likely related to first-year students' idealistic ideas about the profession contrasted by the fourth-year students' realistic attitude towards entrepreneurship, together with risks and necessity for self-financing your enterprise. Such results naturally request a more stimulative approach towards learning through the use of pedagogical creativity.

ISMTA (%)									
№	INDICATORS	Study programs, courses							
		Business Administration		Tourism Business		Manager Information systems		Average value	
		I	IV	I	IV	I	IV	I	IV
<b>Appendix A. Professional orientation</b>									
1.	Attitudes towards specialisation	47,5	9,4	43,2	9,8	42,15	11,4	44,27	10,20

§§§§§§§§§§§§§§§§§§§§ Gale, K. (2001) Teacher education within post-compulsory education and training: A call for a creative approach,  
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2.	Interest in other areas	13,2	24,2	14,6	21,09	14,9	20,1	14,25	21,8
3.	The interest in entrepreneurial activity	20,1	26,8	17,1	22,9	16,42	26,32	17,87	25,34
4.	Lack of sustained interest	13,1	35,1	15,3	32,8	17,68	36,8	15,36	34,9
5.	The degree of awareness of the future profession	25,1	76,2	27,3	73,9	27,1	77,3	26,5	75,8

In order to raise the level of creativity and competencies it is necessary not only to increase the amount of obtained information and the quantity of forms and methods of work, but also to establish environment, which is going to systematically incite self-analysis and self-development of the students.

For instance only 17.87% on average of first-year students and 25.34% of fourth-year students have an interest in working in the sphere of entrepreneurship, hospitality / tourism and information systems. 14.23% (1<sup>st</sup> year) and 21.8% (4<sup>th</sup> year) expressed interest in other industries and sectors, while 15.36% of the first-year students and 34.9% of future graduates (seniors) show a lack of interest in any profession. Level of awareness about the future profession in the first year reaches 26.5% and 75.8% in the final year. Such data confirm a real necessity for developing lecturer's engagement. Indeed, the highest creative activity and intensive expert and professional interest are found among students in the field of active independent research, which is enabled by the corresponding teaching methods of the lecturer.

Research problem focuses on finding the way for overcoming contradictions between emerging societal demand for creatively active pedagogues and the teaching stereotypes at institutions of higher education.

Substantive and constructive changes that occur in the education system, particularly in secondary schools as its basic cell, necessitate preparation of a new generation of teachers who can perform professional activities on democratic and humanistic principles, implement educational policy as a priority function of the state, and instil in the younger generation a certain readiness for life and work in a modern society.

Analysis of the philosophical and psycho-pedagogical literature allows us to suggest the following approach to the definition of a creative personality. Creative personality is a creative person (a person that has internal prerequisites for creative activity), which has due to the influence of external factors acquired additional motives necessary to actualize human creativity and personality structures and abilities the enable the research of creative results in one or several types of creative activity.

Thus, if the teacher aims at developing the potential creative possibilities of the student, he or she must master the forms, methods and means of teaching activities that ensure the development of creative personality traits, as well as those additional motives, personal qualities and abilities that contribute to a successful creative activity. To do this, the teacher himself (herself) must possess creativity, because as good brings good, creativity develops through creativity.

## Summary

Creative trends in the formation of professional and pedagogical culture of the teacher, including the creation, development and use of pedagogical innovations are means of updating educational policy with regard to the training of highly qualified personnel. Therefore the development of pedagogical creativity is an important condition for successful education. Pedagogical creativity directly affects the development of the student. Furthermore, professional motivation is an important factor for the competitiveness of the institution. Higher vocational training is a fundamental component of an integrated system of continued professional education in today's highly competitive job market. The process of developing professional motivation in modern conditions is not possible without the use of pedagogical creativity.

Satisfaction with learning leads students to concentrate more on their studies, while at the same time increasing social activity which also improves motivation. In the context of underdeveloped student abilities, creative teaching can achieve great success improving student's performance in an education system which formerly did not apply this approach. Therefore, the development of students using pedagogical creativity is one of the priorities of higher education.

Thus, if the teacher aims to develop the potential for creative possibilities of learning, he/she must master the forms, methods and means of teaching activities that ensure the development of creative personality traits, as well as those additional motives, personal qualities and abilities that contribute to a successful creative process.

The research challenge is to find the way for overcoming contradictions between emerging societal demand for creatively active pedagogues and the teaching stereotypes at institutions of higher education.

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# Teacher competency development: Teaching with tablet technology through Classroom Innovative Action Research (CIAR) coaching process

Jaitip Nasongkhla <sup>a\*\*\*\*\*</sup>, Siridej Sujiva <sup>b</sup>

<sup>a</sup>Associate Professor <sup>b</sup>Associate Professor

<sup>a</sup>Department of Educational Technology and Communications, Faculty of Education, Chulalongkorn University, Bangkok and 10330, Thailand <sup>b</sup>Department of Educational Research & Psychology, Faculty of Education, Chulalongkorn University, Bangkok and 10330, Thailand

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## Abstract

Thai government implemented a technology policy entitled "One Tablet Per Child" (OTPC) aimed at preparing Thai students to become a competitive world citizen. To accelerate teacher competencies, CIAR (Classroom Innovative Action Research) coaching process was developed to reach the optimum goal of teachers' competencies and students' learning outcomes including; (1) Teachers' profile assessment (2) Academic integrity (3) Classroom technological challenge (4) Peer coaching (5) Reflection and (6) Publishing. Mix method research design was applied throughout the study, detailed the cumulative findings of teachers' profiles and competencies as well as students' learning outcomes. The findings of this study ensure the CIAR coaching process to be an effective nation wide teacher professional development program.

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**Keywords:** Tablet Technology, Teacher competency, One Tablet Per Child, Classroom Innovative Action Research, Students competency;

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## Introduction

In 2012, Thai government implemented a technology policy entitled "One Tablet Per Child" (OTPC), aimed at preparing 21<sup>st</sup> century skills for Thai students to be competitive world citizens, including learners' competencies in four areas known as 4C: critical thinking & problem solving, creativity & innovation, communication, and collaboration, as well as digital literacy and life skills (Kay, K. & Greenhill, 2011; Ministry of Education, 2012). According to this policy, more than 500 thousands of the first grade students were offered personal tablet devices at no cost and to use as a learning tool in their daily classroom activities. In the later year of 2013, Thai government launched a pilot project of Tablet for 7<sup>th</sup> grade students in five schools, no matter the result of the first year tablet policy reported to be a negative result to the first grade students (Satit, 2012). Targeted at students' competencies, several efforts in uplifting teachers' knowledge and skill were focused on integrating tablet technology into a classroom to reach optimal goal of students learning outcomes. In order to accelerate teacher competencies development, this research was purposed to design a teacher training process that could succeed four teachers' competencies areas of (1) self-development by mean of academic information updating; (2) students' learning management skills; (3) classroom management; and (4) analytical and research ability. In parallel with teachers' competencies, students learning outcomes in terms of learning achievement and students' competencies in critical, creative, collaboration and communication competencies (4C) were assumed to successfully achieve through CIAR coaching process. The process derived from a concept of Classroom Action Research (CAR) that serves as a powerful method for teachers to discover what work best in their classroom. In addition to the CAR, Design-based research (DBR), which is one type of research methodology that commonly used by researchers in the learning sciences, was applied to be a process work for teachers to follow an iterative cycle of a classroom technology integration of analysis, design, implementation, and redesign (Lofthouse, R. Leat, D., and Towler, C., 2012; Williamson, R., 2012; Wang and Hannafin, 2005).

## 2. Objectives of the study

2.1 To develop a "Classroom Innovative Action Research (CIAR) coaching model" that enhancing Thai teachers competencies, and

2.2 To examine the effects of CIAR process on teachers' competencies and students learning outcomes.

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\* Corresponding author: Jaitip Nasongkhla. Tel.: +6-686-909-3416  
E-mail address: jaitip.n@chula.ac.th

### 3. Target population and sampling procedures

Expert group was selected from Thai Instructional Technologists by a purposive sampling technique. The samplings were selected from Instructional Technologists who had research and publications in Tablet technology and had more than ten years of teacher training programs. Considering a list of Thai Instructional Technologist from Audio-Visual and Educational Technology Association members, researcher found 23 qualified Instructional Technologists and 13 members agreed to participate in the research.

Three sampling groups were selected from the target population accordingly:

3.1 Ten Teachers from two schools, which were chosen from five schools in a tablet project of the Year 2013, and were selected with a voluntary sampling technique.

3.2 Hundred and thirty- three students at the secondary level of teachers sampling group were selected with voluntary sampling technique.

3.3 Hundred and thirty- three parents were from students sampling group.

### 4. Scope of the study

This study is a Research and Development, applied a mix method approach, and was designed into 2 folds:

*4.1 The first phase* In the first phase of the study, a qualitative procedure was applied in developing a coaching process of CIAR. The procedure is explained into 3 steps consequently:

4.1.1 An analytical document review using a table in a matrix format to compare and contrast DBR, CAR, and a participation development process for a CIAR coaching process. Using the CIAR coaching process, the coaching modules were developed, including set of activities plans, instructional media, coaching manual, and teacher competency assessment tool.

4.1.2 Later, a set of questionnaire based upon the result of the analytical review of CIAR coaching process and together with CIAR coaching modules were proposed to an expert sampling group, using a focus group technique.

4.1.3 Content analysis by two experts in Educational Researchers was in this stage of data interpretation to verify the coaching process. Then, a proposed coaching process was completely developed at this stage.

*4.2 The second phrases.* The second phrase contains 3 mains procedures accordingly;

4.2.1 The designed coaching modules based on "CIAR coaching process" were implemented to two schools from five pilot schools of Tablet Technology project of the Year 2013, within a school semester time frame.

4.2.2 A qualitative procedure was applied to study the before and after result of teachers' competencies as well as students' learning outcomes. Along with this procedure, qualitative method of data collecting of classroom observation and teachers' reflection were collected to explain the atmosphere of teachers and classroom during their classroom research.

4.2.3 Finally, based on the result, the CIAR coaching process was modified by researchers and verified by 3 experts and policy makers to be six stages of the CIAR coaching process.

### 5. Instrument and measurement

This research study applied a mix method of qualitative and quantitative was applied using a measurement test, questionnaire, and a list of observation guidelines accordingly:

*5.1 Teachers' competencies assessment*

An instrument for assessing teacher competencies was modified from national teacher competency standard measurement, covered four areas of teachers competencies using a Likert scale, and validated by IOC (Item- Objective Congruence) from three Educational measurement experts. Instrument was administered to supervisor to assess performance of their subordinate teachers before and after participating the CIAR process.

*5.2 Students' competencies assessment*

An instrument for students' competencies assessment was a standard measurement developed by Thailand Basic Education, assessed by a classroom teacher and one Instructional Technologist.

*5.3 Students' learning outcomes assessment*

Five instruments of students learning outcome were developed by classroom teachers, and later assessed by classroom teacher and one Instructional Technologist.

*5.4 Questionnaire for students 'self report*



A questionnaire was developed and administered to gather students' opinions and self report of their behaviors change after the usage of Tablet toward their learning outcomes and competencies.

#### *5.5 Questionnaire for parents*

A questionnaire for parents was also developed to gather opinions and cross-check of the students self report of their behaviors in using of Tablet technology.

#### *5.6 Guidelines for classroom observation*

A set of guideline for classroom observation for researchers was to analyze the learning environment in three classrooms throughout the school semester.

### **6. Results**

The results were presented into two parts: (1) CIAR coaching process (2) teachers' competencies and students' competencies and learning outcomes.

#### *6.1 CIAR coaching process: Descriptions of the CIAR coaching process*

A CIAR coaching process was developed and meant to be a tool for an in-service coaching on technology integration. The CIAR consists of 6 stages of coaching 1) Teachers profile assessment 2) Academic integrity 3) Classroom technological challenge 4) Peer coaching 5) Reflection 6) Publishing.

6.1.1 Teachers profile assessment: gap analysis is a comparison of actual performance with potential performance by four assessment activities:

6.1.1.1 lesson plans analysis,

6.1.1.2 classroom observations,

6.1.1.3 teachers' gap interview: after gathering evidence and creating a complete picture of practice, teachers were interviewed for some specific questions, and

6.1.1.4 peer/supervisor survey: anonymity breeds honesty; survey teachers, staff, administrators, and especially students.

6.1.2 Academic integrity: academic integrity is a knowledge and value that is set to be a fundamental success of technology integration, adherence to moral and ethical principles by activities accordingly:

6.1.2.1 accessing teachers' opinions,

6.1.2.2 ethical use of information and Creative Common (CC) licensing,

6.1.2.3 case study and discussion, and

6.1.2.4 a proposed community digital ethical guideline.

6.1.3 Classroom Technology challenge: four modes of coaching were provided:

Entry levels of comfortable basic technological skills: get to know each other at the entry level and overview best practices and lesson learned of technology intervention and pedagogical approaches,

Analysis of practical problem: pre-coaching teachers' sessions on tablet technology, teaching best practices, and explore and analyze of current learning problems,

Development of solutions: hypothesize some alternate choices of solutions: peer, one-on-one peer coaching, and individual case consultation with expert in Research & Educational Technology to analyze an existing learning problem using collaborative discussion technique to elaborate the use of cognitive and collaborative technological tools for a learning intervention integrated to classroom, and

Sharing: teaching and evaluating solution: Small group sharing and pair up teachers on lesson plan and technology integration; this session is to establish a peer assisting.

6.1.4 Coaching: teachers implemented their lesson plan with a technological support and a coaching on students' learning assessment, to help teachers in data collecting in the classroom.

6.1.5 Reflection: Teachers reflected from the data interpretation from classroom, and brings up a new solution to improve classroom with technology.

6.1.6 Publishing: Result of the classroom researches were published for lesson learned and for teachers' profile.

#### *6.2 Teachers' competencies and students' competencies and learning outcomes.*

##### *6.2.1 Teachers' competencies*

Teachers' competencies assessed by supervisors. The result showed that teachers had a higher score of competencies than the beginning of the mobile usage in the areas of self-development through academic information updating, students' learning management skills, classroom management; however no significant improvement in the area of analyze and research skills.

Table 1. Instructional types/learning activities, Common Characteristics of technology

Subject	Instructional types/ Learning Activities	Common tools
English	<ul style="list-style-type: none"> <li>Use a variety of media to bring students familiar with native speaker</li> <li>Role play</li> </ul>	<ul style="list-style-type: none"> <li>multi-media Recording</li> <li>real time poll to receive ongoing feedback of student's understanding</li> <li>LMS delivery system for learning at home</li> </ul>
History	<ul style="list-style-type: none"> <li>Information searching</li> <li>Scientific method</li> </ul>	<ul style="list-style-type: none"> <li>searching tools</li> <li>cognitive tools—note taking, mind map</li> <li>students presentation tools</li> </ul>
Math	<ul style="list-style-type: none"> <li>Drill and practices</li> <li>Simulation</li> </ul>	<ul style="list-style-type: none"> <li>self-paced learning program</li> <li>Math graphic modeling</li> </ul>
Science	<ul style="list-style-type: none"> <li>Scientific method</li> </ul>	<ul style="list-style-type: none"> <li>real time quiz for formative evaluation</li> <li>social network system for learning materials storage and virtual classroom</li> </ul>
Thai	<ul style="list-style-type: none"> <li>Information searching</li> <li>Storytelling</li> </ul>	<ul style="list-style-type: none"> <li>multimedia functions, searching</li> <li>Information searching</li> <li>Multimedia functions</li> </ul>

Table 2. Teacher Competencies

Item/Competency (n=10)	Before		After		t-test	
	Mean	SD	Mean	SD	t-test	Sig. (2-tailed)
1. Self-development through academic information updating	15.80	4.04	20.30	2.40	8.91	.001 *
2. Students' learning management skill	18.00	4.10	23.40	2.98	7.74	.001 *
• Ability in managing students center	10.3	2.62	13.30	1.56	14.69	.000
• Ability to use and develop innovative	7.70	1.63	10.10	1.44	4.00	.016
3. Classroom management	19.55	4.85	24.55	2.78	5.04	.015 *
• Ability to create learning climate	11.33	3.31	14.11	1.69	5.00	.015
• Ability to manage information and course documents	8.00	1.82	10.30	1.41	4.00	.016
4. Analyze and research skills	8.20	2.20	9.40	1.71	2.44	.070

\* Sig < .05

## 6.2.2 Students' learning outcomes, competencies, and self-report on behaviors in tablet usage.

### 6.2.2.1 Students' learning outcomes

Students' learning outcomes were examined in 5 levels: below 9 very low; 10-14 low, 15-19 average, 20-24 high, and 25-30 very high. Students' learning outcomes were assessed in three areas; content learning achievement, creativity, and presentation. Content achievement item was in high level in all subjects (23.33, 23.33, 23.33, 21.36, 22.25), and higher than items of creativity and presentation.

Table 3. Student's Learning Outcome

Learning Outcome	Thai		History		Math		English		Science	
Items of assessment	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Content achievement	23.33	0.00	23.33	0.00	23.33	0.00	21.36	0.99	22.25	1.45
Creativity	19.70	1.77	18.51	1.64	20.69	1.83	19.99	1.11	12.04	0.71
Presentation	17.31	1.46	n/a	n/a	20.94	1.38	11.54	1.10	11.72	0.84

(Below 9 very low; 10-14 low, 15-19 average, 20-24 high, and 25-30 very high).

#### 6.2.2.2 Student's Competencies

Student's competencies were examined based on their communication, critical thinking, problem solving, life skills, and technology skills found to be in a low level (Table 4).

Table 4. Student's Competency

Areas of assessment	N	Mean	SD
Communication& collaboration	133	1.89	.74
Critical Thinking	133	2.00	.81
Problem Solving	133	1.82	.72

#### 6.2.2.3 Self-report on behaviours in tablet usage

Pearson correlation coefficient was computed to assess the relationship among the critical thinking, collaboration, creative thinking, ethics and Entertainment variables (Table 5). There was a strong positive correlation between critical thinking and creative thinking ( $r = .598$ ,  $n = 131$ ,  $p = .000$ ) and collaboration ( $r = .426$ ,  $n = 132$ ,  $p = .000$ ). There was a negative correlation between ethic and the other variables including critical thinking ( $r = -.385$ ,  $n = 131$ ,  $p = .000$ ), collaboration ( $r = -.200$ ,  $n = 132$ ,  $p = .022$ ), creative thinking ( $r = -.210$ ,  $n = 130$ ,  $p = .016$ ), and entertain ( $r = -.220$ ,  $n = 132$ ,  $p = .011$ ).

Table 5. Pearson Correlation of critical thinking, collaboration, creative thinking, ethics and Entertainment variables

		Critical	Collaboration	Creative	Ethic	Entertain
Critical	Pearson Correlation	1	.426(**)	.598(**)	-.385(**)	.289(**)
	Sig. (2-tailed)		.000	.000	.000	.001
Collaboration	Pearson Correlation	.426(**)	1	.405(**)	-.200(*)	.257(**)
	Sig. (2-tailed)	.000		.000	.022	.003
Creative	Pearson Correlation	.598(**)	.405(**)	1	-.210(*)	.299(**)
	Sig. (2-tailed)				.016	.011

	<b>Sig. (2-tailed)</b>	.000	.000	.016	.001
<b>Ethic</b>	<b>Pearson Correlation</b>	-.385(**)	-.200(*)	-.210(*)	1
	<b>Sig. (2-tailed)</b>	.000	.022	.016	.011
<b>Entertainment</b>	<b>Pearson Correlation</b>	.289(**)	.257(**)	.299(**)	-.220(*)
	<b>Sig. (2-tailed)</b>	.001	.003	.001	.011

\*\*, Correlation is significant at the 0.01 level (2-tailed).

\*, Correlation is significant at the 0.05 level (2-tailed).

#### 6.2.2.4 Parents opinions on students' learning outcome

Table 6. Parents opinions on students' learning outcome

<b>Opinions</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>
Critical thinking	133	5.56	1.16
Creativity	133	4.93	1.42
The alienation from society	133	4.90	1.25
Aggressive behavior	133	4.16	1.25

## 7. Discussions and Recommendations

A professional development process for teaching with tablet technology through a CIAR coaching process mainly empowered teachers to master their technology classroom integration through a recursive classroom action research. When teachers were at a comfortable level of teaching by technology, they designed their instructional methods to be students' oriented.

However, the ethics variable was noticeable to be a negative correlation with other variables. Some opinions of teachers agreed and praised choices of information usage by students who could cleverly manipulate the information available on the Internet. Teachers perceived that ethics of technology usage should be an individual right and responsibility. Teachers could monitor only during students are in schools. It could be said that there was an emerging need of literate ethical issue throughout student's learning process, and teacher professional development as well. Therefore, increasing an awareness of the ethical and academic integrity was proposed to be one of the CIAR coaching processes.

Interestingly, the CIAR coaching process is evidentially proved a significant improvement of teachers competencies in three areas but not analytical and research skill at the first round of classroom action research, and that found in the low and average level of students' learning outcomes and competencies, especially negative correlation of students' ethics to other cognitive aspects. It is noticeable that teachers overloaded with regular teaching works and projects at school demanded by district and national projects could lessen teachers dedicated time to the nature of recursive CAR, which was found at the stage of publishing. Findings from published research report, teachers should be able to define a new conceptual intervention and implementing test the validity of their intervention in order to generate new framework that become more iterative process. Failed to do so, the success of CIAR could be limited.

Executives and supervisors in schools were suggested to consider emphasizing classroom improvement by using a previous learning result to re-design an effective classroom teaching, which could be a method to ensure quality of teaching with technology in a Basic Education program.

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# Teacher opinions about the conceptual challenges experienced in teaching physics curriculum topics

Işıl Aykutlu<sup>a</sup>, Sevim Bezen<sup>a</sup>, Celal Bayrak<sup>a</sup>

<sup>a</sup> Hacettepe University, SSSM Education Department, Physics Education, 06800 Beytepe, Ankara, Turkey

## Abstract

This study aimed to determine the teacher opinions about the conceptual challenges experienced in teaching the topics of the physics curriculum. Qualitative research methods were used in the study, which was conducted with 38 physics teachers teaching at 28 different Anatolian High Schools in Ankara during 2012 – 2013 spring and 2013 – 2014 fall semesters. The semi-structured teacher interview form developed by the researchers was used as the data collection tool. The form consisted of seven open-ended questions. The data obtained during the interviews were analyzed through the descriptive statistic method. As a result, teachers mentioned that students had difficulties in the conceptual understanding of motion, torque and simple harmonic motion in the “Force and Motion” unit, the particle nature of light and the wave nature of particles in the “Modern Physics” unit as well as variable current, capacitors, coils, transformers and electronic circuit elements in the “Electricity and Electronic” unit. It was concluded that the challenges that were experienced in general stemmed from various factors such as students’ lack of knowledge in terms of concepts, existence of misconceptions, difficulties in comprehending abstract concepts, deficiencies in mathematical operations and insufficiency of time allocated to the course leading to incomplete teaching tasks.

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**Keywords:** Physics curriculum, conceptual challenge, teacher opinions, physics education.

## 1. Introduction

Physics is the field of science that is encountered at various locations in the universe as well as being related to the events that we use and observe in the universe and enabling individuals to find solutions for daily life events or analyze them from various perspectives. Since physics has such an essential role in the universe, the importance of physics courses, which are taught and applied effectively at schools, has increased significantly (Aycan, Aycan, Genç, & Özkaya, 2000). Physics education enables students to attain the required skills for scientific thinking, producing knowledge, keeping track of developing technological changes, understanding and interpreting the events occurring in the nature (Arslan & Eraslan, 2003). Students attend physics classes under the impression of their previous knowledge, attitudes, beliefs and values. This leads them to have opinions and prejudices that involve incomplete or scientifically inaccurate thoughts. These false or incomplete assumptions may continue in students throughout their educational lives. On the other hand, students may also generate scientifically inaccurate opinions within the teaching process. These factors make conceptual learning and teaching of physics even more challenging (Jonassen, 1994; Treagust, Duit, & Fraser, 1996). Studies on physics education have shown that such reasons as low level of interest and motivation about physics classes, inability to attribute meanings to abstract concepts, misuse or inaccurate usage of concepts related to scientific thoughts and beliefs, false usage of concepts related to the models and theories as well as the previous thoughts and beliefs are the main reasons that make concepts difficult to learn (Hoffmann, 1990; Duit, 1992; Sencar & Eryılmaz, 2002; Eryılmaz & Tatlı, 2000). Within this scope, this research has been designed to study the factors that hinder learning of concepts included in the physics curriculum.

Education system has an essential role in effective physics teaching. Today, various countries have implemented changes and innovations in their education systems to increase the level of development (Ünal, Coştu, & Karataş, 2004). One of these changes is the revision, modification or organization of the curriculum (Ayas, Çepni, & Akdeniz, 1993). Since 2004, there have been attempts to revise, modify or organize the curriculum in Turkey based on the constructivist learning theory (Göçen & Kabaran, 2013). The curricula aim to ensure that students attain knowledge and skills that address the aims of the education program in an organized way (Varış, 1996). The aim of the physics curriculum, which has been revised in Turkey recently, is to improve scientific literacy in students as well as increasing the level of their interest in physics, motivating students towards inquiry, using scientific knowledge and methods to explain an event and creating awareness about the nature of science (Ministry of National Education [MONE], 2013). In the light of this aim, secondary school physics curriculum was developed in 2007 when the high school education period was extended to four years and implemented gradually starting from the 2008 – 2009 academic year. Later on the curriculum was updated in 2011. The Physics Curriculum (PC), which was developed in 2007 and updated in 2011,

\* Corresponding author. Tel.: +90-312-297 86 01; fax: +90-312-297 86 00.

E-mail address: aykutlu@hacettepe.edu.tr

was implemented to Grades 9, 10, 11 and 12 in two hours per week as a main course. However, for students that choose Physics as an elective course in Grades 10, 11 and 12, the allocation of hours per week is 3 for students whose Grade 10, 4 for Grade 11 and 3 for Grade 12. The number of attainments changes for students who choose Physics as an elective course and for those who do not. The topics and concepts/terms that are included in the curriculum for both options mentioned before are displayed in Table 1 and Table 1.1.

Table 1. The topics of Physics Curriculum that was developed in 2007 and revised in 2011

Grade 9	Grade 10	Grade 11	Grade 12
<u>UNIT 1: NATURE OF SCIENCE</u> Fields of Physics, Nature of Physics, Importance of Modeling and mathematics in Physics, Physics in Our Daily Life and Technology	<u>UNIT 1: MATTER AND ITS PROPERTIES</u> Solids, liquids, gases and plasma	<u>UNIT 1: MATTER AND ITS PROPERTIES</u> Pressure in Solids, Liquids and Gases, Heat Exchange in Solids, Liquids and Gases	<u>UNIT 1: MATTER AND ITS PROPERTIES</u> Thermodynamic, Change of state
<u>UNIT 2: MATTER AND ITS PROPERTIES</u> Classification and Properties of Matter, States of Matter	<u>UNIT 2: FORCE AND MOTION</u> The reason for motion, the motion of the object where net force is zero, the motion of an object under the influence of a certain force, a reaction created by an action	<u>UNIT 2: FORCE AND MOTION</u> Short-term interactions of the objects, Rotational motion and its causes, The motion of an object rotating under the influence of a net force, The motion of an object rotating where net torque is zero, The motion of a movement where net force and net torque are zero, The force that holds the solar system together, Work and Energy	<u>UNIT 2: FORCE AND MOTION</u> Simple harmonic motion
<u>UNIT 3: FORCE AND MOTION</u> Motion at a Single Dimension, Basic Forces in the Nature, Newton's Laws of Motion, Friction Force	<u>UNIT 3: ELECTRICITY</u> Electric charges, electrical force and field, current in electrical circuits, voltage and electrical power	<u>UNIT 3: MAGNETISM</u> Magnetic field and sources of magnetic field, Electromagnetic induction	<u>UNIT 3: ELECTRICITY AND ELECTRONIC</u> Variable current and direct current, Capacitors, Bobbins, Transformers and Elements of Electronic Circuit
<u>UNIT 4: ENERGY</u> Work, power and energy, energy conversion and the conservation of energy, energy resources, heat and temperature	<u>UNIT 4: MODERN PHYSICS</u> Modern Physics, Special relativity	<u>UNIT 4: MODERN PHYSICS</u> Particle theory of light, Matter waves, Structure of an atom	<u>UNIT 4: WAVES</u> Reflection of light, Refraction of light, Thin and thick lenses, Colours, Electromagnetic waves, Wave nature of light
<u>UNIT 5: ELECTRICITY AND MAGNETISM</u> Electric current, magnetic effect of electric current	<u>UNIT 5: WAVES</u> Waves on a coil spring, water waves	<u>UNIT 5: WAVES</u> Sound waves, illumination	<u>UNIT 5: MODERN PHYSICS</u> X-rays, Structure of matter, Structure of nucleus, Radioactivity, Nuclear energy
<u>UNIT 6: WAVES</u> Fundamental concepts about waves		<u>UNIT 6: ASTROPHYSICS</u> Stars, Classification of stars, Stellar processes and stellar evolution, Galaxies and the expanding universe, Cosmology	<u>UNIT 6: ELEMENTARY PARTICLES</u> Particles, antiparticles and photons, Classification of particles, Quarks; the building block of the baryons and mesons
			<u>UNIT 7: REALM OF PHYSICS</u> Realm of physics

Table 1.1. The concepts/terms of Physics Curriculum that was developed in 2007 and revised in 2011

Grade 9	Grade 10	Grade 11	Grade 12
<u>UNIT 1: NATURE OF</u>	<u>UNIT 1: MATTER AND</u>	<u>UNIT 1: MATTER AND ITS</u>	<u>UNIT 1: MATTER AND ITS</u>

SCIENCE	ITS PROPERTIES	PROPERTIES	PROPERTIES
<i>Concepts/Terms:</i> Observation, Scalar and Vector Quantities, Measurement and Uncertainty	<i>Concepts/terms:</i> Enlargement or minimization at a certain rate, adhesion and cohesion, Surface tension, Capillarity, Plasma	<i>Concepts/terms:</i> Pressure in Solids, hydrostatic pressure and buoyancy force, the relationship between fluid velocity and pressure in hydraulics, expansion and contraction in solids, liquids and gases	<i>Concepts/terms:</i> Thermal balance, heat dissipation, heat exchange, the effect of pressure on state changes
<u>UNIT 2: MATTER AND ITS PROPERTIES</u>	<u>UNIT 2: FORCE AND MOTION</u>	<u>UNIT 2: FORCE AND MOTION</u>	<u>UNIT 2: FORCE AND MOTION</u>
<i>Concepts/terms:</i> Mass, Volume, Density, Common and Distinguishing Properties of Matters, Chemical and Physical Changes, Natural Radioactive Elements	<i>Concepts/terms:</i> Net force, Average speed, Instantaneous speed, Relative motion, Range	<i>Concepts/Terms:</i> Linear Velocity, Angular Velocity, centripetal acceleration, torque, impulse, linear momentum, stable equilibrium, unstable equilibrium, center of gravity, center of mass, gravitational field, flexibility, potential energy, gravitational force	<i>Concepts/terms:</i> Simple harmonic motion, restoring force
<u>UNIT 3: FORCE AND MOTION</u>	<u>UNIT 3: ELECTRICITY</u>	<u>UNIT 3: MAGNETISM</u>	<u>UNIT 3: ELECTRICITY AND ELECTRONIC</u>
<i>Concepts/terms:</i> Position, Displacement, Speed, Velocity Inertia, Action – Reaction Forces, Friction Forces	<i>Concepts/Terms:</i> Electric charge, Electrical force, Electrical field, Electric potential, Electrical potential energy, Electric current, Electromotor force, Power in Electrical Circuits	<i>Concepts/terms:</i> Magnetic field, magnetic power, magnetic pole, magnetic permeability, magnetic flux, induction	<i>Concepts/terms:</i> Variable current, direct current, capability, Electrical permittivity, dielectric, performance of transformer
<u>UNIT 4: ENERGY</u>	<u>UNIT 4: MODERN PHYSICS</u>	<u>UNIT 4: MODERN PHYSICS</u>	<u>UNIT 4: WAVES</u>
<i>Concepts/terms:</i> Work, Power, Energy, Mechanical Energy (potential and kinetic energy), Energy Conversions and Conservation of Energy, Productivity, Energy Resources, Renewable and Non-Renewable Resources	<i>Concepts/terms:</i> Modern Physics, Inertial Reference System, Invariance of speed of Light according to the speed of the observer and resource in Inertial Reference System, Invariance of Laws of Physics, Special relativity and results of the relativity	<i>Concepts/terms:</i> Blackbody radiation, Planck Constant, Photoelectric effect, Compton effect, Particle theory of light, Matter waves (de Broglie hypothesis), properties of electron, Rutherford process and Bohr atomic model, Structure of an atom, Laser light	<i>Concepts/terms:</i> Diffuse and regular reflection, Plane mirror, laws of reflection, Visible region, Concave and convex mirrors, Radius of curvature, Refraction of light, Index of refraction, Snell law, Apparent depth, Dispersion of light, Total reflection, Critical angle, Thin lenses, Myopia, hypermetropia, astigmatism, Diopter of lens, Angular magnification, Aberration of lenses, Color, Transparent materials, Opaque objects, Colored filters, Primary and secondary colors, Additive colorization, Electromagnetic spectrum, Electromagnetic waves, Doppler effect, Polarization, Diffraction of light, Huygens principle, Resolving power, Bright and dark fringes, Interference of light
<u>UNIT 5: ELECTRICITY AND MAGNETISM</u>	<u>UNIT 5: WAVES</u>	<u>UNIT 5: WAVES</u>	<u>UNIT 5: MODERN PHYSICS</u>
<i>Concepts/terms:</i> Electric current, potential difference, resistance, magnetic effect of an electric current	<i>Concepts/terms:</i> Discharge, Extension, Reflection, Discharge of Composition, Wave Crest, Wave Trough, Interference, Standing Wave, Nodal Point, Abdominal Point, Fundamental Frequency, Harmonics, Refraction, Diffraction	<i>Concepts/terms:</i> Ultrasonic, infrasonic, Doppler effect, supersonic, shock wave, sonic boom, diffraction of sound waves, natural frequency, resonance, interference of sound waves, beat, beat frequency, light beam, light ray, transparent substance, semitransparent substance, opaque substance, shadow, sharpness, light intensity, light flux, luminance intensity, light pressure	<i>Concepts/terms:</i> X-rays, Structure of matter, Structure of nucleus, Radioactivity, Nuclear energy
<u>UNIT 6: WAVES</u>		<u>UNIT 6: ASTROPHYSICS</u>	<u>UNIT 6: ELEMENTARY PARTICLES</u>
<i>Concepts/terms:</i> Vibration, Wave, Wavelength, Frequency, Period, Wave motion speed, amplitude, cross wave, longitudinal wave, mechanic wave, electromagnetic wave		<i>Concepts/Terms:</i> Stars, Star clusters, Brightness, Radiation power, supernova, black and white dwarfs, neutron stars, black holes, galaxies, quasars, cosmic background radiation, big bang	<i>Concepts/terms:</i> Particles and antiparticles, Hadrons, Leptons, Baryons, Mesons, Quarks and opposite quarks
			<u>UNIT 7: REALM OF PHYSICS</u>
			<i>Concepts/terms:</i> Hypothesis, law, theory

In 2013, Physics curriculum was revised and decided to be implemented gradually starting from Grade 9 in the 2013-2014 academic year. The New Physics Curriculum (NPC), which was decided to be implemented gradually starting from the 2013-2014 academic year, was planned to be taught to Grades 9 and 10 two hours per week and the 4 hours per week was decided to be allocated for Grades 11 and 12 (Table 2, Table 2.1). One of the major differences between the PC and NPC is that the PC is based on the spiral structure; however the NPC is not (MONE, 2007).

Table 2. The topics of the secondary school physics curriculum that was revised in 2013

Grade 9	Grade 10	Grade 11	Grade 12
<u>UNIT 1: INTRODUCTION TO PHYSICAL SCIENCE</u>	<u>1. UNIT: PRESSURE AND BUOYANCY FORCE</u>	<u>UNIT 1: FORCE AND MOTION</u>	<u>1. UNIT: REGULAR CIRCULAR MOVEMENT</u>
		Vectors, Relative Motion,	Regular Circular Movement,



Introduction to physical science	Pressure and Buoyancy Power	Newton's Laws of Motion, Motion That is Constant in One Dimension, Motion in Two Dimensions, Energy and Motion, Impulse and Linear Momentum, Torque, Balance	Circular Shift Movement, Angular Momentum, Gravitation and Kepler's Laws
<u>2. UNIT: MATTER AND ITS FEATURES</u>	<u>2. UNIT: ELECTRICITY AND MAGNETISM</u>	<u>2. UNIT: ELECTRICITY AND MAGNETISM</u>	<u>UNIT 2: SIMPLE HARMONIC MOTION</u>
Matter and Density, Solids, Fluids, Plasmas	Electric Charges, Current, Potential Difference, Resistance, Electrical Circuits, The Relationship Between Current and Magnetic	Electrical Force and Electric Field, Electrical Potential, Regular Electrical Field and Capacity, Magnetism and Electromagnetic Inductance, Alternating Current, Transformers	Simple harmonic motion
<u>3. UNIT: KUVVET VE HAREKET</u>	<u>3. UNIT: WAVES</u>		<u>3. UNIT: WAVE MECHANICS</u>
Motion in One Dimension, Force, Newton's Laws of Motion	Key Variables of Wave and Wave Motion, Water Waves, Sound Waves, Earthquake Waves and Features of Waves		Diffraction in Waves, Interference and Doppler Effect, Electromagnetic Wave
<u>4. UNIT: ENERGY</u>	<u>4. UNIT: OPTICAL</u>		<u>4. UNIT: INTRODUCTION TO ATOMIC PHYSICS AND RADIOACTIVITY</u>
Work, Power and Energy, Mechanical Energy, Conservation of Energy and Energy Conversion, Efficiency, Energy Resources	Enlightenment, Shadow, Reflection, Plane Mirrors, Global Mirrors, Refraction, Color, Prisms, Lenses, Eye and Optical Instruments		Historical Development of the Concept of Atom, Big Bang and Formation of the Universe, Radioactivity
<u>5. UNIT: HEAT AND TEMPERATURE</u>			<u>UNIT 5: MODERN PHYSICS</u>
Heat, Temperature and Internal Energy, Changes of States, Thermal Balance, Energy Transmission Ways and Energy Transmission Speed, Expansion			Special relativity, Introduction to quantum physics, Photoelectric effect, Compton and De Broglie
			<u>6. UNIT: APPLICATIONS OF MODERN PHYSICS IN PHYSICS</u>
			Imaging Technologies, Semiconductor Technology, Superconductors, Nanotechnology, X-Ray, Laser Beams, Scientific Research Centers

Table 2.1. The concepts/terms of the secondary school physics curriculum that was revised in 2013

Grade 9	Grade 10	Grade 11	Grade 12
<u>UNIT 1: INTRODUCTION TO PHYSICAL SCIENCE</u>	<u>1. UNIT: PRESSURE AND BUOYANCY FORCE</u>	<u>UNIT 1: FORCE AND MOTION</u>	<u>1. UNIT: REGULAR CIRCULAR MOVEMENT</u>
<i>Concepts/terms:</i> Science, Observation, Experiment, Measurement, Modeling, Unit systems, Scalar and vector quantity	<i>Concepts/Terms:</i> Bernoulli's Principle, Pressure in Solids, Pressure in Fluids, Buoyancy Power, Archimedes' principle	<i>Concepts/Terms:</i> Vector, energy, relative motion, acceleration, free fall, limiting speed, impulse, momentum, conservation of momentum, torque, balance, center of mass, center of gravity	<i>Concepts/Terms:</i> Linear Velocity, Angular Velocity, Centripetal Acceleration, Angular momentum
<u>2. UNIT: MATTER AND ITS FEATURES</u>	<u>2. UNIT: ELECTRICITY AND MAGNETISM</u>	<u>2. UNIT: ELECTRICITY AND MAGNETISM</u>	<u>UNIT 2: SIMPLE HARMONIC MOTION</u>
<i>Concepts/Terms:</i> Mass, Volume, Density, Durability, Adhesion, Cohesion, Surface Tension, Capillarity	<i>Concepts/Terms:</i> Charge, Conductor, Electrical Field, Current, Electrical Potential Difference, Resistance, Ohm's Law, Joule Law, Magnetic field	<i>Concepts/Terms:</i> Electrical Force, electrical field, capacity, capacitors, alternating current, inductance, impedance, capacitance, resonance, magnetic field, magnetic flux, induction current, the efficiency of transformer	<i>Concepts/terms:</i> Displacement, amplitude, restoring force, equilibrium point
<u>3. UNIT: KUVVET VE HAREKET</u>	<u>3. UNIT: WAVES</u>		<u>3. UNIT: WAVE MECHANICS</u>
<i>Concepts/Terms:</i> Location, The way taken, displacement, speed, instantaneous speed, average	<i>Concepts/Terms:</i> Wave, Vibration, Amplitude, Wavelength, Speed, Frequency,		<i>Concepts/Terms:</i> Interference, diffraction, Doppler effect, electromagnetic waves
			<u>4. UNIT: INTRODUCTION TO ATOMIC PHYSICS AND</u>

speed, acceleration, force, frictional force, inertia, action-reaction forces	Period, Resonance	<u>RADIOACTIVITY</u>
<u>4. UNIT: ENERGY</u>	<u>4. UNIT: OPTICAL</u>	<i>Concepts/Terms:</i> Atom, Bohr's Atomic Theory, Energy Levels, Stimulation, Big Bang, Sub-particle, anti-matter, radioactivity, fission, fusion
<i>Concepts/Terms:</i> Work, power, energy, kinetic energy, potential energy, mechanical energy, conservation of energy, energy conversion, energy transfer, efficiency, renewable energy, nonrenewable energy	<i>Concepts/Terms:</i> Enlightenment, Light Intensity, Luminous Flux, Shadow, Reflection, Refractive index, Snell's law, Full Reflection, Limiting Angle, Visible Depth	<u>UNIT 5: MODERN PHYSICS</u>
<u>5. UNIT: HEAT AND TEMPERATURE</u>		<i>Concepts/terms:</i> Special relativity, Blackbody radiation, Photoelectric effect, Compton effect, De Broglie hypothesis
<i>Concepts/Terms:</i> Heat, temperature, internal energy, specific heat, heat capacity, change of state, thermal stability, energy transmission speed, expansion		<u>6. UNIT: APPLICATIONS OF MODERN PHYSICS IN PHYSICS</u>
		<i>Concepts/Terms:</i> Semiconductor, solar cell, LED's, diodes, transistors, superconductors, Nano-materials, x-ray, laser, stimulation, stimulated emission

Teachers, who are the inseparable elements of education as the implementers of the curriculum, are one of the most important factors ensuring qualified teaching and training of individuals who would contribute and guide the society (Karakuyu, 2008). With respect to the opportunities they are provided, teachers aim to ensure that students attain the targeted attainments in line with the aims of the curriculum (Budak, 1997). The education programs, which have been designed in this perspective, have become the major resources for the teachers as important actors of teaching (Yiğit, 2013). The problems or deficiencies of a program may be identified during its implementation; therefore, the opinions, criticism, recommendations and suggestions of teachers should be taken into account within the process (Sadi & Yıldız, 2012). Additionally, it has been reported that teachers, being in verbal or nonverbal communication with the students throughout the learning process, have an essential role qualified to make judgments about learning and learning process through observing and understanding the thoughts and emotions of students within the classroom (Şişman, 2000). In the light of all these reasons, it is believed this study on the teacher opinions about the conceptual challenges experienced regarding the topics of the physics curriculum, which was developed in 2007, revised in 2007 and 2011, would contribute to the literature due to the lack of sufficient research on the new physics curriculum in particular.

## 2. Method

This study, where the teacher opinions were taken about the conceptual challenges experienced in teaching the topics in the physics curriculum, the qualitative research methods were used.

### 2.1. Sampling

This study was participated by 38 physics teachers teaching Grades 9, 10, 11 and 12 at 28 Anatolian High Schools in Ankara during the 2012 – 2013 spring and 2013 – 2014 fall semesters. There were teachers among the participants that taught more than one grade level. For each grade level, 20 teachers were asked for their opinions. The participants were determined according to the criterion sampling method, which is one of the purposive sampling methods. Criterion sampling methods was preferred due to the fact that the study required the opinions of individuals that have certain levels of knowledge and experience in a subject area (Ersoy, 2013). Within this scope, teachers were expected to express their opinions about the classes they were teaching during the course of the study.

### 2.2. Data collection tools

In order to be used as the data collection tool, a semi-structured teacher interview form with seven open-ended questions was developed by the researchers. The questions were created upon the analysis on the PC and NPC. During the development of the interview form, three physics education experts were asked for their opinions and the questions were formulated accordingly. Before the interview form was finalized, a pilot study was conducted with four physics teachers and the questions in the form were revised in such a way to address the research problem. As a result of these evaluations, the final version of the interview form, which would reveal the conceptual challenges experienced in teaching the topics in physics curriculum.

### 2.3. Application of data collection tools

The semi-structured interviews with physics teachers were made in the environments appropriate to the teachers. Each interview lasted about 25 – 30 minutes. The interviews were audio recorded and transcribed in the electronic environment for further analysis. Each opinion expressed by the teachers for the questions were recorded in separate files in the electronic environment.

### 2.4. Analysis of data

For the analysis of the data obtained as a result of the semi-structured interviews, descriptive statistic method was used. It has been reported that in semi-structured interviews, the categories should not be determined before the data are obtained (Yin, 1984). As Yin suggested (1984), categories were created based on the similarities or oppositions of the responses given to the questions by the physics teachers. At the initial stage of the data analysis, the files that the data were saved in were reviewed and categories were determined to fit for each response. Next, the categorized data were classified within themselves. And at the final stage, the findings of the study were obtained upon categorization of the data that were found to be similar after classification. Furthermore, the responses provided by the physics teachers for the questions were cited in order to support the findings of the study.

## 3. Findings

The findings obtained at the end of the analysis indicated that there were topics, in which the students experienced conceptual challenges at each grade level and that these challenges stemmed from the lack of conceptual knowledge, existence of misconceptions, difficulty that students had in understanding abstract concepts, lack of mathematical operational skills and insufficiency of the time allocated to the course. With respect to the NPC teachers were observed to mention that the content of the curriculum was more simplified than the previous one, there were less restrictions imposed on teachers for teaching the curriculum content, the program was not in conformity with the university placement test and the existing textbooks did not comply with the curriculum. Similarly, it was found that teachers expected potential conceptual challenges due to the factors such as the sequence of the topics presented and the insufficiency of the time allocated to the course hours. The seven questions that the physics teachers were expected to answer with the aim of determining the conceptual challenges experienced in teaching physics curriculum topics are presented hereby below along with the findings obtained as a result of the analysis.

*“Among the topics of the physics curriculum, what are the most challenging topics for students in terms of conceptual learning?”* was the first question asked to the physics teachers. The findings obtained from the semi-structured interviews made with participating teachers indicated that motion as a part of the “Force and Motion” unit in Grade 9, current, voltage and electrical power in electrical circuits at the “Electricity” unit in Grade 10, torque an the “Modern Physics” unit in Grade 11 as well as the simple harmonic motion in the “Force and Motion” unit and variable current, capacitors, coils, transformers and electronic circuit elements at the “Electricity and Electronic” unit in Grade 12 were most challenging topics and concepts for students in terms of conceptual learning (see Table 3).

During the semi-structured interviews, teachers expressed the reasons for the conceptual learning challenges that the students experienced using the following statements (T: Teacher; #: Number of teacher):

**T5:** “Students lack the sufficient knowledge about derivatives and integral in mathematics; therefore, they cannot comprehend the formula or do the operations. The problems occurring due to the lack of knowledge in mathematical operations are generally experienced in the ‘Force and Motion’ unit.”

**T23:** “RLC circuits and transformers at the ‘Electricity and Electronics’ Unit and the simple harmonic motion at the ‘Force and Motion’ in Grade 12 do not comply with the content of the university placement test. The first phase of the university placement test that is administered in March does not contain relevant questions; however the topics are presented in the fall semester according to the curriculum. Students, who focus on the university placement test do not study the topics of Grade 12 that are not in the scope of the university placement test and therefore they have difficulties in learning these topics.”

**T30:** “‘Waves’ unit is quite comprehensive and challenging; however, it is taught in Grade 12 and due to the stress experienced by students with respect to the upcoming university placement test, students have difficulties in attributing meanings to the topic”.

**T31:** “Students have difficulty in understanding topics that contain abstract concepts such as the ‘Modern Physics’ unit.”

According to the semi-structured interviews made with the teachers, the lack of students’ ability to do the mathematical operations, intensity of the abstract topics and the noncompliance with the university placement test content were the main reasons for the conceptual challenges that students experienced.

Table 3. The most challenging units and topics for students to learn

UNITS	SUBJECTS	GRADE 9	GRADE 10	GRADE 11	GRADE 12
		Number of Teachers (%)	Number of Teachers (%)	Number of Teachers (%)	Number of Teachers (%)
Force and Motion					
	Motion	10 (50%)	6 (30%)	-	-
	Torque	-	-	9 (45%)	-
	Simple Harmonic Motion	-	-	-	8 (40%)
Electricity and Magnetism					
	Resistance	5(25%)	-	-	-
	Current in Electric Circuits, Voltage and Electrical Power	-	7 (35%)	-	-
	Magnetic Field and Sources of Magnetic Field	-	-	8 (40%)	-
	Electromagnetic induction				
Waves					
	Mechanic Waves, Electromagnetic Waves	2 (10%)	-	-	-
	Waves on a Coil Spring, Water Waves	-	4 (20%)	-	-
	Sound Waves	-	-	3 (15%)	-
	Reflection of Light, Refraction of Light, Thin and Thick Lenses, Colors, Electromagnetic Waves, Wave Nature of Light	-	-	-	7 (35%)
Matter and Its Properties					
	Mass, Volume, Density	1 (5%)	-	-	-
	Gases and Plasma	-	3 (15%)	-	-
	Pressure in Solids, Liquids and Gases	-	-	6 (30%)	-
Energy					
	Conversion of Energy	1 (5%)	-	-	-
The Nature of Physics					
	Scalar and Vector Quantity	1 (5%)	-	-	-
Modern Physics					
	Special Relativity	-	8 (40%)	-	-
	Particle Theory of Light, Matter Waves	-	-	9 (45%)	-
	Structure of Nucleus, Radioactivity	-	-	-	6 (30%)
Electricity and Electronic					
	Variable Current, Capacitors, Bobbins, Transformers and Elements of Electronic Circuit	-	-	-	9 (45%)

“According to you, why do students experience conceptual challenges in learning topics generally?” was the second question that was asked to the participating teachers. Teachers reported that the major reasons were the realization of mechanical learning without attributing meanings to the topic, lack of ability to do the mathematical operations, insufficient amount of hours allocated to teaching, existence of incomplete knowledge and misconceptions from past learning experiences, low level of student motivation and the development of negative attitudes towards physics due to the anxiety stemming from the upcoming university placement test, particularly observed in Grade 12 students (Table 4).

Table 4. The reasons for the conceptual challenges experienced in learning

	GRADE 9 Number of Teachers (%)	GRADE 10 Number of Teachers (%)	GRADE 11 Number of Teachers (%)	GRADE 12 Number of Teachers (%)
Insufficient allocation of hours	15 (75%)	14 (70%)	15 (75%)	-
Lack of the ability to do mathematical operations	15 (75%)	8 (40%)	12 (60%)	8 (40%)
Realization of mechanical learning without attributing meanings to the topic	10 (50%)	11 (55%)	-	7 (35%)
Existence of incomplete knowledge and misconceptions from past learning experiences	8 (40%)	8 (40%)	1 (5%)	5 (25%)
Development of negative attitudes towards physics due to the anxiety stemming from the upcoming university placement test	11 (55%)	6 (30%)	9 (45%)	10 (50%)
Failure in provision of level-appropriate teaching for students	8 (40%)	5 (25%)	3(15%)	-
Inclusion of rather extensive knowledge in the curriculum	5(25%)	4 (20%)	9 (45%)	-
Teachers' lack of field knowledge	4 (20%)	3(15%)	3 (15%)	-
Failure to ensure student motivation	2 (10%)	1(5%)	14 (70%)	3 (15%)
Inclusion of abstract concepts in the topics	-	12 (60%)	5 (25%)	-
Lack of experimental applications within the topics	-	-	4 (20%)	-
Anxiety due to the upcoming university placement test	-	-	8 (40%)	18 (90%)

Table 4 shows that the major problem in Grades 9, 10 and 11 is found to be the insufficient time allocated to the teaching of the topics, which further leads to a quick pace of learning activities and hinders the performing of practical applications. Findings obtained from teachers interviews did not contain a reference by Grade 12 students to the problem of insufficient time allocated to the teaching (Table 4). This may be a result of the failure to execute level-appropriate teaching according to such statements of teachers as “Students have become distant to school. They do not want to come to school. When students are in Grade 12, they focus on the private supplementary courses and the university placement test. Even though students attend school, the lessons are quite unproductive or they practice test questions to prepare for the university placement test within the scope of its content.”

The third question that was asked to the physics teachers was “*What are the teaching methods, techniques and strategies you use in teaching the topics that are challenging to learn conceptually for students?*”. Teachers mentioned that they preferred to use the instruction method, question and answer technique and problem solving method in teaching of the said topics (Table 5).

Table 5. Teaching methods, techniques and strategies used in teaching topics that are challenging to learn conceptually

	GRADE 9 Number of Teachers (%)	GRADE 10 Number of Teachers (%)	GRADE 11 Number of Teachers (%)	GRADE 12 Number of Teachers (%)
Instruction method	20 (%100)	15 (%75)	20 (%100)	15 (%75)
Question and answer technique	9 (%45)	5 (%25)	1 (%55)	6 (%30)
Demonstration and Practice Method	7 (%35)	4 (%20)	6 (%30)	5(%25)
Demonstration Technique	6(%30)	4 (%20)	6 (%30)	6 (%30)
Problem Solving	7 (%35)	8 (%40)	11(%55)	11(%55)

Technique				
Individual Studying Technique	8 (%40)	5 (%25)	7 (%35)	-
Discussion Technique	5 (%25)	8 (%40)	-	3 (%15)
Analogy Technique	4 (%20)	3(%15)	6 (%30)	-

Interviews with the teachers revealed that the methods, techniques and strategies they used in teaching conceptually challenging topics were not any different from those they used in their usual teaching. The supporting opinions expressed by the teachers were as follows: (R: Researcher; T: Teacher; #: Number of Teacher):

**R:** What are the teaching methods, techniques and strategies you use in teaching conceptually challenging topics?

**T2:** I usually prefer the instruction method. I sometimes make use of the question and answer technique and problem solving method.

**A:** Why do you prefer to use these methods, techniques and strategies?

**T2:** Because; I believe that I am able to provide students with more effective learning by using these methods, techniques and strategies, which I am used to implement for many years,

**R:** So, what are the teaching methods, techniques and strategies you use in general in teaching other than the teaching of the conceptually challenging topics?

**T2:** I use the same methods, techniques and in teaching of other topics.

**R:** Why is there no difference between the methods, techniques and strategies you use in teaching all topics?

**T2:** I have time limits with respect to the teaching of the topics and I don't have much time for activities that require alternative methods, techniques and strategies.

**R:** According to you, do alternative methods, techniques and strategies have to be used in teaching of the conceptually challenging topics?

**T2:** Of course, that would ensure that students learn more meaningfully. However, in order us to use alternative methods, techniques and strategies, we should have more hours allocated to teaching.

According to the interviews made, teachers believe that in order to use appropriate methods, techniques and strategies, the number of hours allocated to classes has to be increased.

"Considering the conceptual challenges, do you believe that you are able to address all the attainments indicated in the curriculum?" was the fourth question that was asked to the participating physics teachers. All teachers teaching Grades 9 and 11, 18 (90%) of the teachers teaching Grade 10 and 17 (85%) of the teachers teaching Grade 12 mentioned that they were not able to address all the attainments indicated in the curriculum due to the comprehensiveness of the topics and the insufficient allocation of time. Only, 2 (10%) of the teachers teaching Grade 10 and three (15%) of the teachers teaching grade 12 mentioned that they were able to address all the attainments indicated in the curriculum. One of the teachers, who mentioned that s/he was able to address all the attainments indicated in the curriculum, expressed this as follows:

**R:** Considering the conceptual challenges, do you believe that you are able to address all the attainments indicated in the curriculum?

**T15:** Yes, I am.

**R:** What do you think about the sufficiency of the time allocated to teaching the topics of the curriculum?

**T15:** The allocation of hours is not sufficient, topics are quite comprehensive; however, I teach very fast in order to address all the attainments indicated in the curriculum on time.

**R:** Does that have a negative effect on the students?

**T15:** Yes, it does. Students have difficulty in attributing meanings to the concepts when I teach fast.

It was determined that the teachers, who were able to address all the attainments in the curriculum, taught very fast. However, as mentioned before, a fast teaching pace is believed to cause students to experience conceptual challenges in learning the topics.

"Are the topics that are conceptually challenging to learn related to the other disciplines? Please explain." was the fifth question that was asked to the physics teachers who participated in the study. Teachers mentioned that the topics that were challenging to learn in terms of concepts were related to mathematics, geometry and chemistry. Teachers reported that students' learning in mathematics, geometry and chemistry affected their performance in physics (Table 6).

Table 6. The relationship of the topics that are conceptually challenging to learn with other disciplines

	GRADE 9	GRADE 10	GRADE 11	GRADE 12
	Number of Teachers (%)	Number of Teachers (%)	Number of Teachers (%)	Number of Teachers (%)
Chemistry	8 (40%)	10 (50%)	10 (50%)	18 (90%)
Mathematics	14 (70%)	15 (75%)	14 (70%)	17 (85%)
Geometry	14 (70%)	15 (75%)	12 (60%)	16 (80%)

Opinions of teachers supporting the existence of a relationship between the topics that were conceptually challenging to learn and the other disciplines were as follows:

**T9:** “Many topics such as radioactivity and nuclear structure coincide with the subjects of chemistry. We can treat these topics in a more comprehensible way with these students who learned and understood them in chemistry.”

**T18:** “That the students are successful in mathematics and geometry positively affects the physics. The students can learn easily through the formulas and derivations.”

According to the opinions of the teachers, learning in chemistry, mathematics and geometry were effective in learning of physics meaningfully. As some topics of chemistry were related to the Grade 12 physics topics, it was identified that the teachers experienced less conceptual challenges than the other topics while teaching the relevant ones.

“What do you do to teach the topics that are challenging to learn conceptually?” was the sixth question that was asked to the participating physics teachers. It was found that the participating teachers preferred to exchange opinions with their colleagues and lecturers in the universities as well as benefiting from the international resources, and they believed that these choices had positive influences on teaching challenging topics. Another result of the research was that the teachers did not prefer to participate in in-service training activities (Table 7).

Table 7. The activities made by the teachers for teaching the topics that were challenging to learn conceptually

	GRADE 9	GRADE 10	GRADE 11	GRADE 12
	Number of Teachers (%)	Number of Teachers (%)	Number of Teachers (%)	Number of Teachers (%)
Exchange opinions with colleagues	20 (%100)	20 (%100)	20 (%100)	16 (%80)
Exchange opinions with the lecturers in the universities	4 (%20)	5 (%25)	2 (%10)	6 (%30)
Benefit from international resources	-	2 (%10)	1 (%5)	5 (%25)
Benefit from their own experiences	1 (%5)	-	-	1 (%5)

“While teaching the topics in physics curriculum that will be gradually applied as of 2013-2014 school year, what elements may cause the students to have conceptual challenges while learning?” was the last question that was asked to the participating physics teachers. Teachers first explained their opinions about the New Physics Curriculum. A total of 30(79%) teachers thought that the new curriculum was better than the previous one while 31 (82%) teachers thought that it did not impose restrictions on teachers in teaching the topics in the curriculum and 35(92%) teachers believed that it did not comply with university placement test. Among the participants, 25(66%) teachers found the textbooks incoherent with the new curriculum and 34(89%) teachers thought conceptual challenges would reoccur in the new curriculum due to the ranking of the topics and insufficiency of the periods. Fifteen (75%) of the teachers who taught Grade 9 physics curriculum stated that Grade 9 New Physics Curriculum differentiated from Physics Curriculum in the second semester; however, while the ranking of the topics was better in the New Physics Curriculum (see Table 1, Table 1.1), the allocation of periods was insufficient and the titles in new textbook provided better motivation for the students. Five teachers (25%) mentioned that they appreciated the Physics Curriculum much more (See Table 2, Table 2.1). It was identified that 18 teachers teaching Grade 10 thought that was inappropriate to place the optics topic at the end of the semester, as it was a quite significant and comprehensive topic. Two teachers (10%) were found to believe that they would have troubles while teaching the topics, as they would have to step out of their routines due to the requirement of the New Physics Curriculum on not to introduce any numerical expressions. Besides, all the teachers of Grade 10 told that the periods allocated to teaching were insufficient and should be increased. In addition, all physics teachers of Grade 11 reported that a basic topic such as vectors which was placed in Grade 11 physics curriculum should have been taught at the beginning of Grade 9, it was not appropriate and it would be too late to teach it in Grade 11, and that this situation would cause some troubles as the students needed the knowledge of vectors while learning the topics listed prior to vectors. Among the participants, 19 teachers (95%) who taught Grade 12 stated that the topics were too intense considering the fact that the lessons were inefficient as students focused on the university placement test, they pushed the school in the background and focused on the preparatory courses due to their exam anxiety, or they stepped out of the curriculum and solved questions for university placement test. Teachers mentioned that the number of topics in the Grade 12 curriculum should be reduced. It was identified that they thought

“Applications of Modern Physics in Technology” topic could be taught at the university level and it would be more appropriate not to apply a heavy curriculum to the high school students. One (5%) of the teachers told that he appreciated the Grade 12 curriculum as it was more comprehensive.

#### 4. Conclusion and discussion

In the light of the data obtained in this study, which intended to identify the opinions of the physics teachers about the conceptual challenges experienced in teaching the topics of the physics curriculum; it has been identified that the students had difficulties in understanding concepts in motion, torque, simple harmonic motion topics in “Force and Motion”; in granularity of the light, wave feature of particles in “Modern Physics” unit; in alternate current, capacitors, bobbins, transformers and the elements of electric circuits in “Electric and Electronic” unit at most, and these challenges generally resulted from the insufficiency of the periods, the deficiencies of the students in numerical expressions and the fact that they learned mechanically without understanding the topic. According to the opinions of teachers, the curriculum has certain problems that stemmed from the ranking of the topics in New Physics Curriculum, the insufficiency of the periods, and these problems resulted in various conceptual challenges for students.

Referring to the opinions of participating physics teachers, it has been determined that the students have difficulties in understanding motion in “Force and Motion” unit in Grade 9, current in electric circuits, tension and electrical power in “Electric” unit and particularly in specific relativity in “Modern Physics” unit in Grade 10. It has also been determined that students found torque in “Force and Motion” unit challenging in Grade 11 as well as the granularity of the light and wave feature of particles in “Modern Physics” unit. In Grade 12, simple harmonic motion in “Force and Motion” unit, along with the alternate current, capacitors, bobbins, transformers and the elements of electronic circuits in “Electric and Electronic” unit were challenging for the students to learn. The reasons why students had difficulties in learning the topics in physics curriculum were identified as follows: mechanical learning without understanding the topic, the deficiencies of the students in numerical expressions, the insufficiency of the periods allocated, the knowledge deficiencies and misconceptions of the past learning experiences, lack of motivation, inappropriate level of teaching for the students, inclusion of abstract concepts in the “Modern Physics” unit (Wosilait, Heron, Schaffer, & McDermott, 1999), deficiencies of teachers in the field of expertise, the intention of teachers to give more information than required in the curriculum, the inability to perform experiments in teaching of the topics, and the negative attitudes of students towards physics due to the anxiety of the university placement test, particularly experienced in Grade. Previous studies have shown that misconceptions occurred when the students studying for the university placement test were not able to learn the topics thoroughly, the topics were explained superficially and fast due to the insufficiency of the periods, the students were incompetent at numerical expressions due to their prejudices about mathematics and these deficiencies affected the teaching of physics (Çınar & Teyfur, 2006; Yaygın & Dindar, 2007; Karakuyu, 2008; Tüysüz & Aydın, 2009; Kutluca & Aydın, 2010). It has been identified that the reason why all the acquisitions in the curriculum could not be addressed was the intensity of the topics and the insufficiency of the periods according to the opinions of most teachers. The study by Göçen and Kabaran (2013) is also supportive of the findings of this research. They have stated that in cases where the periods cannot be increased, decreasing the number of the acquisitions in the curriculum can reduce the load of each lesson, and they think the teacher can teach and observe the students more easily in a longer period. In the light of these studies, it is believed that decreasing the number of the acquisitions or increasing the length of the periods could be implemented to overcome the insufficiency of the period, which is a frequent problem.

It has been found that the physics teachers used instruction method, inquiry method, modeling method, demonstrating method, problem solving method, individual studying method, discussing method and analogy method while teaching the topics that were challenging to learn conceptually. In the research, it was found that the usual methods, techniques and strategies of the teachers were not different from the methods, techniques and strategies that they used while teaching challenging topics (Karakuyu, 2008; Kapucu, 2010). It is believed that instead of using the same method, technique and strategies while teaching the topics that are challenging to learn conceptually, teachers should benefit from different methods, techniques and strategies, which are open to changing and development and as well as being appropriate for the level of the students, ensuring the achievement of curriculum goals, embodying the topic and addressing more than one sense organs in accordance with the topic.

Teachers are determined to think the topics that are challenging to learn conceptually are related with mathematics, geometry and chemistry. Besides, it has been emphasized that some topics of chemistry are related with especially topics of Grade 12. The relationship between these three disciplines and physics is that according to teachers, the students who have no deficiencies in math, chemistry and geometry or have learned these lessons meaningfully have less conceptual difficulties in the topics that are related with these three lessons compared to other topics. When physics and chemistry curriculum are analyzed, it is seen that some topics of chemistry are related to radioactivity and nuclear structure in “Modern Physics” unit in Grade 12 physics curriculum at most. There are some teachers who think that this relationship has some positive effects. In addition, considering



the high number of acquisitions in physics curriculum and inadequate periods, and the suggestion of Özdemir et al. (2011) to reduce the number of the topics in physics curriculum, it is would be appropriate to revise the topics that are common in physics and chemistry and design the curriculum in such way that these topics will not be repeated.

In-service training activities contribute to the continuity of the education of teachers and continuous updating of teachers' knowledge (Kanlı, 2001). It has been identified in this research that the teachers prefer to exchange opinions about the topics that are challenging to learn conceptually with their colleagues and the lecturers in the universities, and benefit from the international resources and their own experiences; however, they do not prefer to participate in in-service training activities as they do not mention anything about benefitting from these activities. The reasons why they do not prefer to benefit from these in-service training activities may be that they think these activities are not effective in developing their professional knowledge and skills as Kanlı (2011) has stated in his research. These training activities are believed to be more preferable if they are reorganized in such way to improve teachers' professional knowledge and skills, alternative solutions are found for the passive listener role of the teachers, teachers are encouraged to participate in these activities and the activities are performed by the experts.

Among the principles agreed upon without grounding on only one model, approach or method in New Physics Curriculum, it has been adopted that the students learn by interpreting the new knowledge using their previous knowledge (MONE, 2013). But after the interviews with teachers in this research, it has been found that there were certain problems resulting from the ranking of the topics in the New Physics Curriculum. In accordance with the result, it can be said that the absence of the relationship between the rankings of the topics in the curriculum does not coincide with the adopted principle and this problem may complicate the conceptual learning. Other conclusions of this study are as follows: the ranking of the topics in Grade 9 physics curriculum and the change of titles in the textbook have a positive influence on the students (see Table 1); the place of optics topic that is the last topic in Grade 10 physics curriculum should be changed as it is an important and comprehensive topic; vectors as a basic topic of Grade 11 physics curriculum should be among the first topics of Grade 9; the intensity of the topics should be reduced as the requirements of Grade 12 curriculum cannot be met due to the fact that the students focus on the university placement test and push the school in the background and attend preparatory courses. In addition to these results, it has been identified that it would be more appropriate to teach the "Application of Modern Physics in Technology" at the university level instead of Grade 12. Other opinions of the teachers teaching Grades 9, 10, 11 and 12 about New Physics Curriculum are as follows: it does not impose any restrictions on the teachers about teaching the topics of the curriculum contrary to the previous one; the content of the curriculum is more simple; the number of teaching hours allocated is insufficient and should be increased; the textbooks are not coherent with the new curriculum, and the curriculum is not coherent with the university placement test. In order to eliminate this problem, either the university placement test should be modified to comply with this curriculum, or a curriculum that is more compliant with the university placement test should be developed (Kutluca & Aydın, 2010; Nartgün et al., 2011). In the research conducted by Yiğit (2013), it was stated that teachers did not want to adhere to a theory directly within the teaching-learning approach in the New Physics Curriculum. Due to the independence emerging from the fact that teachers can teach without adhering to a theory directly within the teaching-learning process, it is believed that there will be differences in the ways teachers teach, which would lead to conceptual challenges and negative influences for teachers.

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# Teacher's competences for the use of web pages in teaching as a part of technical education teacher's ICT competences

Jan Kubrický, Pavlína Částková

*Department of Technical Education and Information Technology, Czech Republic, Olomouc Žižkovo nám. 5, 771 40*

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## Abstract

The submitted contribution focuses on the question of ICT competences as a necessary part of technical education teacher's professional qualities. The aim of this contribution is to outline the area of ICT competences and their importance for the work of a teacher in the so called information society. Through a survey we then present partial results of the research realized within writing of the dissertation theses named Teacher's Competences for Evaluation and the Use of Web Pages in Teaching.

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*Keywords:* ICT competences; undergraduate preparation; pedagogical research; Q-methodology; web pages

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## Introduction

The strength and power of technology is a typical feature of this era. Technology and information technology are an integral part of everyday lives of adults and children as a component of material culture influencing the whole development of science, art or sport. Technical education is specific mainly by its relationship between social and natural phenomena, when it uses natural laws to satisfy social needs. This caused that a contemporary person is existentially dependent on technology. The basic philosophy of technical education assumes that technology is one of the critical factors of current and future being. The progress and necessity of implementation of information technologies into education is reflected mainly on education content. Technical education attempts at systematic development of pupil's knowledge and skills, but above all, his positive attitudes to technology and its use, so that it positively influences the quality of life in contemporary culture. A teacher, who is the crucial factor in influencing the level of pupils' education, has here doubtless importance. His professional and personal qualities are therefore the object of attention of many researchers in the field of pedagogical reality.

## Undergraduate Preparation of Technical Education Teachers at Palacký University in Olomouc

Undergraduate preparation of future technical education and information technology teachers is realized through the study program Specialization in Pedagogy in bachelor and master study programs, which are guaranteed by the Department of Technical Education and Information Technology. In bachelor study programs there are Fundamentals of Engineering Sciences and Information Technologies for Education and Information Technology Focused on Education. Students can then continue in master program Teacher Training in Technical Education and Information Technology for Secondary Schools and Second Stage of Elementary Schools.

Characteristic features of technically focused disciplines is the endeavor to create optimal assumptions for mastering the set of competences essential for graduate's employment in information-technical society. The program Information Training Focused on Education includes, apart from disciplines of information and mathematical nature, also fundamentals of electrical engineering and electronics so that the graduate is fully able not only to know but also mediate all necessary terminology of information activities, knowledge of software structure, programming, information technologies functions, knowledge of operating systems as well as technical knowledge.

Bachelor and master graduates should possess general knowledge and master basic skills and processes in their fields. They should also be ready to apply scientific and technical findings and creative skills in a creative way and by methods emphasizing active approach. They should stimulate the development of desirable ties and attitudes to techno sphere, technology and the use of technology and information technologies. The graduate is then employed especially in the field of education, according to the needs of institutions providing lower or higher secondary education (ISCED 2, ISCED 3, elementary schools, special schools, technical lyceums, secondary vocational schools and practical schools).

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· Jan Kubrický. Tel.: +420 585 635 806.  
E-mail address: jan.kubricky@upol.cz

## ICT Competences of Technical Education Teachers

The work with modern ICT requires, given its scale and varied character, analytical, critical and creative thinking (Uhlířová 2004, p. 206). Attention is directed mainly at the use of ICT. The time when it seemed that everyone will have to learn to program is long forgotten. The current situation requires „use and get“, „use and move further“ approaches. Information literacy is therefore more „user-based“ and more open to other areas of activities. Out of this reason there are new, higher demands placed on teachers regarding efficiency.

ICT integration into education depends on complex teacher's readiness. In connection with this, there arise many questions, e.g. how will teachers use ICT, how will they be able to make the best of them, how they will implement them into education process, which ways of learning will they stimulate at pupils, how will they develop the components of pupil's personality etc.

The document „Škola pro 21. století“ (2009, p. 7) states long-term key priorities of the use of ICT in education and sets two conditions essential for reaching the aims of innovation process in education. One of them is modification of teaching practices and teacher's role. The teacher has to go through phases, from which, as we judge, teacher's competences with direct link to the use of ICT have to develop and become more precise. The phases of this process can be summarized as follows:

1. **Necessity** – this is mainly accepting the necessity to know ICT, which are generally possible to be used in education and teacher's profession.
2. **Mastery** – the choice of more effective strategies, better teaching models and freedom from ICT specialists enabled by increasing technical knowledge
3. **Empathy** – the move of attention towards pupils, technology is not the aim but the means, the range of usable technologies is broadening.
4. **Innovation** – the achievement of functional creativity, own adjustment of education aims, plans and practices.

The area of teacher's ICT competences is elaborated in outlined links. The competences are first understood as a set of yet unlabeled structures, thanks to which the teacher effectively uses modern ICT, aiming to reach better education results and simplification of his own work.

Teacher's ICT competences are dealt with on two levels; first explicitly defined or implicitly incorporated (resp. deducible) parts of teacher's professional competences classification (in the Czech Republic e.g. J. Vašutová or V. Švec). V. Rambousek (2007, p. 53) labels them as the necessary part of teacher's ICT competences for incorporating ICT into education, and on the level of field expertise, also for the realization of modern information education. Teacher's ICT competences therefore represent a whole, built from technological and functional point of view on information literacy, and including components, identified by different authors. We will introduce some definitions which enable us also more schematic comparison of their development in time. E.g. M. Černochová (2003, p. 16) defines components of teacher's competences as follows:

- professional skills and discipline knowledge,
- pedagogic and manager skills and teaching knowledge necessary for ICT supported education,
- teacher's information and communication technological skills necessary for ICT application in education,
- language competences – knowledge of a foreign language, especially English,
- social communicative competences.

The above list contains items known from the systems of teacher's professional competences but entails also some specific ones. These are mainly the language competences, the binding of which is distinctively reflected in the frame of English language usage in ICT generally. Another important part are social communicative competences, under which it is crucial to understand the set of teacher's skills and abilities to motivate and activate a pupil while using ICT in education.

It is challenging to compare it with the model of DfEE study, which identifies three areas of teacher's ICT competences (taken and adapted from Uhlířová 2004, p. 207):

1. **Curricular area**, including:
  - Orientation in specific teaching ICT means and teaching environments, ability of their critical evaluation.
  - Knowledge of various utilization of ICT within and outside education.
  - Qualified choice and use of ICT products regarding fulfillment of education aims.
2. **Methodological area**, including:
  - Choice of stimulation and pupil's leadership methods.
  - Choice of method of work in case of pupils with specific needs.

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\*\*\*\*\* These are mainly initiating changes leading to optimizing the use of technical means in teaching process.

3. **Organizational area**, including:

- Adaptation on the use of different organizational forms of education.
- Creating and use of education proposals supported by accessible ICT means.
- Organization of such forms of work, which stimulate mutual cooperation among pupils and the need to develop their existing knowledge.

Individual areas outline the connection of teacher's preparation for tuition and its realization supported by ICT, with the main goal of enhancing the efficiency of education. This targeting interconnects ICT competences with teacher's professional competences and enables to view different links of pedagogy and ICT expressed in teacher's competences.

A broader connection of teacher's ICT competences with the areas of professional competences and own personality is included in the innovative model used by the Chilean Ministry of Education. The document *Competencias y Estándares TIC para la Profesión Docente* (2011), which aims at setting the basic frame of teacher's ICT competences, is based on five areas describing the relationship of a teacher to ICT (in their specification we mention the parts significant for this study):

1. **Ethical, social and legal area** – primarily focused on teacher's abilities to use ICT as a means of social inclusion together with new forms of socialization.
2. **Pedagogical area** – teacher's abilities to add value to teaching, incorporates ICT to enhance teaching efficiency.
3. **Professional area** – firstly entails self-development and secondly teacher's abilities to mediate more recent and effective perspective in ICT to the pupils and students.
4. **Organizational area** – uses ICT to improve curriculum's organization, school-pupil and school-family relationships.

This model reflects broader links and the trend of ICT in today's society. It spreads onto aspects of pupil's and teacher's personalities' development in environment which moves more and more towards social contacts and communication realized via ICT. In the mentioned areas there are reflected pedagogical requirements to increase efficiency of education as well as cross-curricular requirements focused on every person's ability to become a full member of society, able to adjust to continuous changes.

In the current conception we understand teacher's ICT competences as a part of his professional competences, which is not strictly limited (i.e. including e.g. only technical knowledge and skills connected with the use of ICT in teaching), but linked and consequent with other areas of teacher's professional competences. The nature of teacher's ICT competences lies in the connection of ICT with teacher's educational activity, from this reason we perceive them as superior to teacher's competences for evaluation and use of web pages for teaching.

We present the following set relationship:

Teacher's competences for evaluation and use of web pages for teaching.	€	Teacher's ICT competences
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The research dealing with ICT competences of teachers at the second stage of elementary schools was realized within the writing of the dissertation thesis. We built on Schulman's theory (Janík 2005, p. 40) of pedagogical knowledge:

- **Knowledge of the content of teaching** – including not only the facts and terminology of given field, but also teacher's ability to understand the cause of the formation of the content, judging which topics are essential and which are less important (Janík 2005, p.40).
- **Didactic knowledge of content** – expressing the connection of teacher's didactic and content knowledge. Under these we understand knowledge of presentation and approach to different forms of subject matter and knowledge associated with the specifics of teaching different contents.

Knowledge of the content of teaching as well as didactic knowledge of content are in J. Vašutová's (2004) model a part of current teacher's competences. It can be assumed that it is not necessary to analyze these areas more deeply within the discussed competences and focus only on technological knowledge. However, according to modern pedagogical theories, developed abroad as well as here, technological knowledge cannot be understood separately, but always in interaction with the content of teaching and didactic aspects of their utilization. It follows from the work of professors of Michigan State University P. Mishra and M. J. Koehler (2006) that it is the separation of technological knowledge from the content and didactics which results in inefficient use of technologies, often only as a compulsory supplement in teaching or diversification which is only short term and without the desired effect.

### Using Web Pages in Teaching

In introducing ICT into education processes was and is seen a risk of little explored and in many respects unclear activity (Průcha 2006, p. 310). Nevertheless it is practically unthinkable to imagine current school without broader use of ICT within or

outside teaching. The centre of content of web pages use falls in the interaction teacher – subject matter – pupil to the area marked by the dash lined ellipse, see Fig. 1. It means that the features of web pages through which the education process is influenced and education aims are being met.

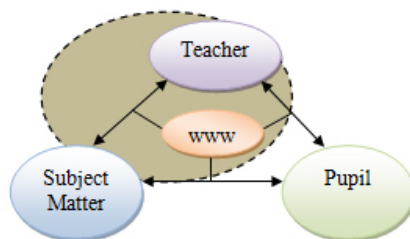


Fig. 1. Identification of Web Pages Features in Teaching

Many pedagogues dealt with the question of ICT in education, or the position of specific technologies in teaching. It is well known that this area is so progressive and fast developing that it can never be considered complete and closed in particular time. The authors therefore attempt at the greatest universality, abstraction and separation from specific technological solutions. We are interested above all in the role of the Internet in education and also the use of web pages regarding anticipations which they could fulfill thanks to their features.

The World Wide Web service or WWW (simply also Web) belongs among three most widely used Internet services. From the original environment for sharing and viewing text documents it became the centre of enormous amount of hypertext and hypermedial objects and a synonym for easy, fast and cheap information sharing. The current strategy (version) of the service WWW labeled as Web 3.0 is, unlike in the past, more focused on users interaction, sharing own information and most recently use of mobile technologies.

The didactic functions of web pages or the way of their use in teaching need to be connected with the meeting of pedagogical constructivism principles. We see the educational potential of web pages in the support of reflecting the requirements of constructing of knowledge, discovering information and their wider context, support of active learning and different forms of cooperation. Next, it is necessary to take into account the complementary principles of connectivism such as interconnection of information resources, widening and sharing of current knowledge database and the possibility to learn and communicate in creative environment.

## Survey Methodology

Q-methodology was used to ascertain the views of respondents on the use of web pages in teaching. Questioned teachers from the field of technical and information education expressed their opinion on individual components of competences on the basis of the question:

How important are the claims, stated on individual cards, for teacher's competences for evaluation and the use of web pages in teaching? The respondents then compared individual claims and allocated them degrees of importance from the most important to the least important. Individual claims (Q-types) were prepared based on the content of dimensions of teacher's web pages competences. The formulation of Q-types was approached with the aim to make them as close to respondents' language as possible, link them semantically and simplify them.

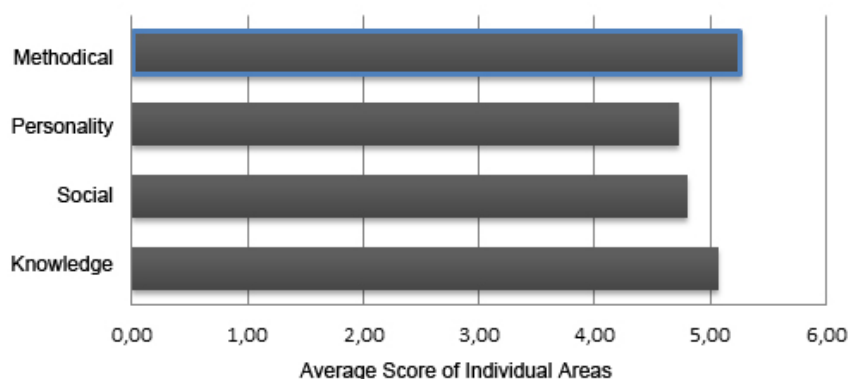
Q-types were semantically classified into four working areas. This intention lied in the need of wholeness, better transparency and possibility of level comparison of Q-types within the dimension of respective competence, from which the Q-types were derived. Characteristics of individual Q-types working areas:

1. **Knowledge area** (dimension) – focused on the content of professional knowledge,
2. **Social area** (dimension) – focused on the social area,
3. **Personality area** (dimension) – focused on teacher's personality, his teaching and flexibility,
4. **Methodical area** (dimension) – focused on professional knowledge application.

## Analysis and Interpretation of Partial Results in Relation to Teacher's Competences Characteristics

In the initial phase of the final analysis of results in relation to specified competences of a teacher for web pages we divided the Q-types into charts according to individual areas and ranked them according to the order of average score and standard deviation. Graph 1 depicts the total average Q-type evaluation within the areas of individual dimensions.

Graph. 1. Average Dimensions, in Formulated



Score of Areas of Which Q-types Were

Average score as a whole is balanced, was certain emphasis on Q-methodical application of knowledge). From characteristics of competences there

of individual areas fundamentally nevertheless, there dominance in types in the area of dimension (i.e. professional the evaluation and individual can be formed an

overall picture about the significance of these competences and about the layout of dimensions in the context of evaluation and the use of web pages in teaching. It is evident that considering the structure of a competence in the conception including personality and social aspects fulfils the set purpose, i.e. to capture the characteristics of a competence in terms of behavior, cognition and experiencing (Duismann 2005, p. 66). Mastering the professional knowledge within knowledge dimension and its application represented by methodical dimension are always adequately interacting with personality and social dimensions, which provide the competence with wholeness and interconnection with the structure of teacher's personality.

## Conclusions

The conclusions that we reached underline the current constructivist orientation of education on pupil, his personality and needs. In the personality dimension defined competences there prevails the emphasis on teacher's ability to perceive the pupil as a partner, mediate him free and creative environment with the help of web pages – be always creative and inventive in this respect; be able to learn from pupils in this area since their experience often anticipates teacher's experience. Teacher's ability of reflection and self-reflection of own education appeared to be essential. From the point of view of the social dimension the emphasis is put on the ability to communicate and cooperate with pupils, to reflect their corresponding interests and needs, the ability to adjust one's own personal style to changes. Similarly e.g. in (Wiegerová 2012, p. 49). Teacher has to use web pages as an organic part of education, incorporate them into pedagogical situations to avoid interrupting the content of education itself.

The competences focused on evaluation and use of web pages for the development of pupils' independence and creativity proved to be of key importance in the whole system of defined competences, which proves the flexibility and variability of web as an environment, which, if used efficiently, enables participation in pupils' personality development and contribution to the quality and innovation of education. As it was assumed, the competences focused on technological aspects proved to be less significant. They are, however, in their conception not dissociated from pedagogical orientation of the whole system, still their characteristics reflects the current trend of departure from the need of technological knowledge and skills to greater orientation on broadening and innovation of didactic and pedagogical areas of teacher's professional competences.

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# Teachers' organizational citizenship behaviors and organizational identification in public and private preschools

Kamile Demir<sup>\*</sup>

*Department of Primary Education, Mehmet Akif Ersoy University, Burdur, 15030, Turkey\**

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## Abstract

The purpose of the present study was to compare organizational identification and organizational citizenship behaviors of public and private preschool teachers. Participants included 159 teachers from diverse school backgrounds with a wide range of teaching experience. The data of the research were collected with Organizational Citizenship Behavior and Organizational Identification Scales. Differences in organizational citizenship behaviors and organizational identification between public and private school teachers were tested using Multivariate Analysis of Variance. The results of the study indicated that there was a statistically significant difference in teachers' organizational citizenship behaviors and organizational identification based on their job status.

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*Keywords:* Organizational citizenship behaviors; organizational identification, job status, preschool teachers

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## Introduction

Organizational citizenship behaviors and organizational identification influence the social and psychological environment of schools, since these involve perceptions of oneness with the school and teachers' extra role behaviors toward school. These teachers help students with class materials, acquire expertise in new areas that contribute to their work, prepare special assignments for higher or lower level students, volunteer for school committees, help absent colleagues by assigning learning tasks to their classes, and work collaboratively with others (Bogler & Somech, 2004; Mael & Ashforth, 1992). Organization Citizenship Behavior is defined by Organ (1988, 4) as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" This definition stresses three main features of organizational citizenship behavior. First, the behavior must be voluntary; that is, neither role-prescribed nor part of the formal duties. Second, the behavior benefits the organization from the organizational perspective. The important point here is that organizational citizenship behaviors do not simply occur haphazardly within an organization, but are behaviors directed towards, or seen as, benefiting the organization. Third, organizational citizenship behavior has a multidimensional nature (Bogler & Somech, 2004; Somech & Ron, 2007; Belogolovskya & Somech, 2010; Podsakoff, Podsakoff, MacKenzie, & Maynes., 2014).

Several researchers have postulated that organizational citizenship behavior is likely to result in higher levels of organizational performance and task effectiveness. According to Podsakoff, MacKenzie, Paine, and Bachrach. (2000), organizational citizenship behavior provides a means of managing the interdependencies among members of a work unit, which increases the collective outcomes achieved; reduces the need for an organization to devote scarce resources to simple maintenance functions, which frees up resources for productivity; and improves the ability of others to perform their jobs by freeing up time for more efficient planning, scheduling, problem solving, and so on. Oplatka (2009) also stated that activities such as volunteering, persisting, helping, following rules and endorsing organizational objectives are conceived of as increasing employers' productivity and contribution to organizational success.

Podsakoff et al. (2000) reviewed organizational citizenship behavior studies, and identified over 30 different forms of organizational citizenship behavior. After comparing those, they proposed seven common dimensions of organizational citizenship behavior: helping behavior, sportsmanship, organizational loyalty, organizational compliance, individual initiative, civic virtue and, self-development.

As Somech and Ron (2007) pointed out that determining the reasons why individuals engage in organizational citizenship behaviors has attracted a substantial amount of research attention. Attempts to understand the correlates and causes of organizational citizenship behavior frequently focus on individual characteristics. However, recently scholars have argued that these behaviors might be further understood by an investigation of how they are embedded in different contexts, such as job status.

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<sup>\*</sup> Corresponding author. Tel.: +90 248 2134042; fax: +90 248 213 41 60.

E-mail address: kdemir@mehmetakif.edu.tr

Compared with organizational citizenship behaviors, organizational identification has received little attention as a unique research topic until recently. Researchers in organizational behavior, social psychology, and communication re-discovered organizational identification as a unique construct in the late 1980s (Riketta, 2005). To date, the concept of organizational identification has played a significant role in organizational research during the past 20 years. There is a large and growing body of literature focusing on this construct (Johnson, Johnson & Heimberg, 1999). Organizational identification is defined by Mael and Ashforth (1992) as a perceived oneness with an organization and the experience of the organization's successes and failures as one's own. Dutton and Dukerich (1991) is defined organizational identification as shared beliefs and attitudes among employees on the central, enduring, and distinct characteristics of the organization, which is one of the most crucial factors holding employees together and committed to the organization.

One of the key theoretical bases for understanding organizational identification is social identity theory that people use groups as sources of information about themselves and individuals may use their status or social standing in their organizations to enhance their self-worth (Cheung & Law, 2008). Organization identification is a specific kind of social identification which serves the individual's needs for belonging, safety, or self-enhancement (Pratt, 1998; Kane, Magnusen, & Perrewe, 2012). Thus, an individual who identifies more strongly with an organization will have more of his or her needs satisfied and will therefore express a greater level of job satisfaction (van Dick et al., 2006). Following this, as stated by Dutton, Dukerich, and Harquail (1994), the more individuals identify with their organization, the more they think and act from the organization's perspective and the more effort they expend on behalf of the organization.

Organizational identification has emerged as a predictor of various individual and organizational level outcomes (Rousseau, 1998), such as organizational citizenship behaviors. Organizations with high levels of employee identification, therefore, can be expected to benefit from a more cohesive work atmosphere and greater levels of cooperation, altruism, participation and exertion of effort on behalf of the organization, including greater levels of citizenship behavior (Ashforth & Mael, 1989; Cheung & Law, 2008; Gonzalez & Chakraborty, 2012). Many studies demonstrated organizational identification is positively related to organizational citizenship behavior. Bergami and Bagozzi (2000) and Dukerich, Golden, B.R., and Shortell (2002) found that organizational identification has a significant positive impact on organizational citizenship behavior. Meta-analysis from Riketta (2005) also indicated a positive correlation between organizational identification and extra-role behavior. Members who have a high level of organizational identification will think and act from the angle of group norms and values, even if the work contract or control mechanism does not require explicitly, they have fused the group norms and values with their self-concept.

Although the study of citizenship behaviors has increased remarkably in the past few years, little work has focused on the relationship with organizational identification. Also, studies that compare organizational citizenship behaviors and organizational identification levels for teachers employed on public schools with private school teachers are few in number. In Turkey, preschool education is offered in both public schools and private schools. While the job status of teachers working in state schools is permanent, the job status of teachers in private schools is contracted. Honingh and Oort (2009) have stated organizational behavior of employees in public sector and private sector organizations differs. Hence, teachers' organizational citizenship behaviors and identification with their schools also may differ according to job status. Therefore, the purpose of the present study was to compare organizational identification and organizational citizenship behaviors of state and private preschool teachers.

## **Method**

### *Participants*

Participants included 159 preschool teachers from diverse school backgrounds with a wide range of teaching experience. Data for this study were collected via a survey of preschool teachers, who participated in a professional development seminar. The teachers who participated in the survey from two different school-types (public school,  $n=75$ , and private school,  $n=84$ ). On average, their teaching experience was 6.7 years (standard deviation [SD] 6.24, median 5, range 1–40).

### *Measurement*

The data of the research were collected with Organizational Citizenship Behavior Scale (DiPaola, Tarter, & Hoy, 2005) and Organizational Identification Scale (Mael & Ashforth, 1992): The Organizational Citizenship Behavior Scale is a 12-item Likert-type scale that measures the degree to which the teaching faculty of a school engages in organizational citizenship behavior; the higher the score, the greater the extent of organizational citizenship of the school. Two negatively worded items were reverse coded. Each item was answered by using a 1–5 rating scale numbered from 1 (Strongly agree) to 5 (Strongly disagree). Example of items is: 'Teachers volunteer to support extra-curricular activities' (DiPaola, Tarter, & Hoy, 2005). The scale was adapted to Turkish by Tasdan and Yilmaz (2008). Total variance explained by the Turkish version of scale 46.39%. The internal reliability of the scale (Cronbach's alpha) was 0.85. In the present study, Cronbach's alpha inter reliability coefficient of the scale was 0.90.

The strength of organizational identification was measured with a six-item Likert-type scale developed by Mael and Ashforth (1992), adapting it for the school context. The scale was adapted to Turkish by Tak and Aydemir (2004). Example of items is: 'This school's successes are my successes'. Each item was answered by using a 1–5 rating scale numbered from 1 (Strongly agree), through 3 (Neither agree nor disagree), to 5 (Strongly disagree). Total scores could range from 6 to 30 with higher scores

indicating stronger organizational identity ( $\alpha=.85$ ). Factor loadings of the items in the scale are larger than 0.63, and the total variance explained by the scale is 56%. In the present study, Cronbach's alpha reliability coefficient of the scale was 0.83.

## Result

Pearson correlation coefficient was used to examine the relationship between teachers' organizational citizenship behaviors (OCB) and organizational identification (OI). This analysis was found to be statistically significant,  $r_{(159)}=0.52$ ,  $p < 0.01$ , indicating a moderate positive relationship between organizational citizenship behaviors ( $M=45.08$ ) and organizational identification ( $M=23.91$ ).

Differences between public and private school teachers in organizational citizenship behaviors and organizational identification were tested using Multivariate Analysis of Variance. The Box's Test of Equality of Covariance Matrices checked the assumption of homogeneity of covariance across the groups using  $p < 0.001$  as a criterion. It was observed that Box's  $M$  (5.958;  $p=0.12$ ) was not significant. As indicating that there are no significant differences between the covariance matrices. Therefore, the assumption is not violated and Wilk's Lambda is an appropriate test to use. The Levene's Test of Equality of Error Variances was not significant for both dependent variables (OCBs,  $p=0.52$ ; OI,  $p=0.97$ ), which means the variances of each variable are equal across the groups.

Table 1. Descriptive statistics

	Job Status	N	Mean	Std. Deviation
OCBs	Public	75	43.32	7.13
	Private	84	46.67	8.12
	Total	159	45.08	7.82
OI	Public	75	22.91	4.80
	Private	84	24.80	4.99
	Total	159	23.91	4.98

Table 1 provides descriptive statistics of study variables for each group taken separately. According to the results the organizational citizenship behaviors levels of private school teachers ( $M=46.67$ ) were higher than public school teachers ( $M=43.32$ ), while organizational identification level of private school teachers ( $M=24.80$ ) were higher than public school teachers ( $M=22.91$ ).

Table 2. Results of one-way multivariate analysis of variance (MANOVA)

Source	Dependent Variable	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	OCB	443.781 <sup>a</sup>	1	443.781	7.546	.007	.046
	OI	141.679 <sup>b</sup>	1	141.679	5.878	.016	.036
Intercept	OCB	320848.309	1	320848.309	5455.784	.000	.972
	OI	90169.201	1	90169.201	3741.257	.000	.960
Job Status	OCB	443.781	1	443.781	7.546	.007	.046
	OI	141.679	1	141.679	5.878	.016	.036
Error	OCB	9232.987	157	58.809			
	OI	3783.906	157	24.101			
Total	OCB	332913.000	159				
	OI	94791.000	159				
Corrected Total	OCB	9676.767	158				
	OI	3925.585	158				

a. R Squared = .046 (Adjusted R Squared = .040)

b. R Squared = .036 (Adjusted R Squared = .030)

As shown table 2, there was a statistically significant difference in a linear combination of organizational citizenship behaviors and organizational identification based on a teachers' job status ( $F_{(2, 156)} = 4.194$ ,  $p < 0.05$ ; Wilk's  $\Lambda = 0.949$ , partial  $\eta^2 = 0.05$ ). Teachers' job status has a statistically significant effect on both organizational citizenship behaviors ( $F_{(1, 157)} = 7.546$ ;  $p < 0.01$ ; partial  $\eta^2 = 0.46$ ) and organizational identification ( $F_{(1, 157)} = 5.878$ ;  $p < 0.05$ ; partial  $\eta^2 = 0.36$ ). The findings of this research clearly revealed that there was a statistically significant difference in teachers' organizational citizenship behaviors and organizational identification based on job status.

## Conclusion

The purpose of the present study was to compare organizational identification and organizational citizenship behaviors of state and private preschool teachers. Differences between public and private school teachers in organizational citizenship behaviors and organizational identification were tested using Multivariate Analysis of Variance. The study findings show that teachers' organizational citizenship behaviors had a moderate positive relationship to organizational identification. This is consistent with previous studies. For instance, according to Riketta (2005), the motivation for organizational citizenship behaviors may stem from internalization of organizational norms and emotional attachment to the organization. These two variables, however, are at the core of most definitions and measures of OI. Bergami and Bagozzi (2000) and Dukerich et al. (2002) also found that organizational identification has a significant positive relationship to organizational citizenship behavior.

The results of the study also indicated that there was a statistically significant difference in teachers' organizational citizenship behaviors and organizational identification based on job status. Teachers' job status has a statistically significant effect on both organizational citizenship behaviors and organizational identification. Honingh and Oort (2009) have stated organizational behavior of employees in public sector and private sector organizations differs. For instance because of difference in monitoring and evaluation of performance, the visibility of individual efforts in private schools is higher than public schools. This may make public school teachers less inclined to expend extra-role effort because they feel that their individual contributions cannot be identified. Organizational citizenship behaviors are based on the principle of reciprocity or social exchange (Kamdar, McAllister, & Turban, 2006; Wat & Shaffer, 2005). Social exchange theory is a model of human behavior; employees' desires to maximize rewards and minimize losses support the interactions between them and the organization or its representatives (Wat & Shaffer, 2005). Generally, high quality social exchange relationships are likely to motivate employees to engage in behaviors that have favorable consequences for the organization (Rhoades, Eisenberger, & Armeli, 2001; Sluss, Klimchak, & Holmes, 2008). On the other hand, private schools are generally considered more prestigious in Turkey. According to Dutton et al. (1994), members may feel proud to belong to an organization that is believed to have socially valued characteristics. They stated that individuals identify with an organization partly to enhance their self-esteem: the more prestigious one perceives one's organization to be, the greater the potential boost to self-esteem through identification. The private schools operate in a highly competitive sector. Mael and Ashforth (1992) asserted that perceived competition is antecedent of identification with organization. They noted that during competition, group boundaries are drawn more sharply, values and norms are underscored, and increase school spirit.

Organizational citizenship behaviors levels of private school teachers were found higher than public school teachers in this study. Similarly, the strength of organizational identification of private school teachers also was higher than public school teachers. The findings of this study also show that the o were higher, while, Goulet and Frank (2002) compared employees in public, non-profit and for-profit organizations, and found that private sector employees were the most identified with their organizations. Similarly, Honingh and Oort (2009) found that teachers in privately funded schools in the vocational sector identified with their schools more than their colleagues working in publicly funded schools. Feather and Rauter (2004) also found that organizational citizenship behavior was higher in private schools in comparison to that of the public schools. Thus, these findings of the study confirm results obtained in prior studies.

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# Teachers personality of various approbation orientation

Katarína Cabanová

Comenius University in Bratislava, Faculty of education, Department of psychology and patopsychology, Račianska 59, Bratislava 81334, Slovak republic

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## Abstract

In the current school teacher takes a key role in the education of students. There are high demands required of the teachers personality, which could be characterized as professional, educational, psychological and practical competence. Paper offers detailed view at the teacher's personality, namely, the research focuses on a different profile of teachers of nature and of social focus. We administered Cattell 16PF questionnaire to 50 respondents (25 social sciences teachers and 25 teachers of mathematics, physics and informatics). We focused on global factors, extroversion, anxiety, rigidity, independence and self-control. The greatest differences were found in the dimension of extroversion - introversion.

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*Keywords:* personality, teacher, approbation, personality traits

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## 1. Introduction

Teacher's personality is of interest to both psychologists and educators, because the teacher is the second important factor in raising children immediately after parents and children spend with teacher's fairly large part of the day. Kariková (2001) says that the teacher is not only an important model for the identification of students, but also intermediary of information and knowledge, it is the person who teaches children to learn and leads them to be interested in acquiring this knowledge. This brief characteristic implies that the teaching profession requires from its proprietor competence in education and educational areas. Therefore, according to Kariková (2001) teacher should have adequate theoretical and practical knowledge of several areas:

1. expert knowledge of the subjects they teach,
2. expert knowledge of the developmental characteristics of students,
3. knowledge regarding the organization of the lesson
4. knowledge of didactics
5. adequately developed language and speech skills,
6. knowledge of evaluation.

Zelina (1990) states that the teacher's personality can be structured into three main areas:

1. area of knowledge, skills, cognitive amenities teacher; his intellectual capacity, intelligence;
2. non-cognitive area, beyond intellectual, which some authors call affective area of teacher's personality (R. de Charms 1976 in Zelina, 1990). This area includes the emotional equipment of the teacher, his work motivation, activity, socialization, communication skills and abilities, his values and ethical relationships and his creativity;
3. area of teachers' work conditions - their optimization with respect to the objectives of education and training, as well as the self-development of teacher's personality.

High requirements are being put on teacher's personality. On the one hand he has to be professional, expert, scientist and on the other hand an artist, an actor who can mediate his knowledge to the audience, it means his pupils. According to Kariková (2001) when talking about the teacher's personality, we should not forget that above all it should be a man personally mature and mentally healthy. And this condition is associated with multiple requirements:

1. Adequate assessment of reality. Fairness and objectivity in resolving conflicts, to be able to react properly to the arisen situation, problems and assessment of pupils.
2. Efforts to self-knowledge. Self-awareness and self-reflection increases the level of teaching.
3. The ability to control your actions. Emotional stability is very important for teachers and helps smooth and satisfactory course teaching.
4. Creativity and initiative. Creative and active teachers pay more individualized attention to students.
5. Ability to create a positive emotional bonds. As reported by Goleman (1997), successful workers in professions targeting people should have emotional intelligence, that manifests itself in knowledge and managing their own

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\*Corresponding author. Tel.: +421250222343

E-mail address: cabanova@fedu.uniba.sk

emotions, in sensibility to the emotions of others and in the ability to motivate yourself.

6. The moral demands on the teacher's personality. As important traits for a teacher, for example Štefanovič (1991) finds in particular rectitude, honesty, sincerity, credibility, consistency, fairness. Justice as personality characteristics was also presented in the first place in the survey, which concerned the destination profile of the "ideal teacher" for the first grade of primary school. 68 teachers identified this as the most important characteristic (Kariková, 1999). Requirements for character and morality of the teacher are important because the first grade teacher at primary school in particular is the first and leading example for the children with which they meet outside the family (Kariková, 1999).
7. Load resistance. C. Henning and G. Keller, authors of the publication Antistress program for teachers (Kariková, 1999), note that the teaching profession belongs to the groups most at risk in terms of the stress occurrence. States of exhaustion and nervousness among teachers were the subject of medical research at the beginning of the 20th century. Ch. Kyriacou (1999, in Višňovský, Kačáni, 2001) uses directly the term teacher stress, which is defined as, „situations in which teachers feel angry, depressed, disappointed, when they feel anxious or tense due to some facts related to their educational activity ". Fontana (1997) notes that stress is caused for teachers in many different, often mutually contradictory claims from pupils, colleagues, parents, directors.
8. Sense of humor and optimism. As stated by Fontana (1997), sense of humor is given by students in a list of properties of "a good teacher" in the second place, just after the justice. Therefore he almost invites teachers to be entertaining in the classroom. Teachers should have the characteristics such as optimism and sense of humor. It is not only related to the positive atmosphere that such an approach will create in class, but also to their resistance to stress, to creativity and empathy (Kariková, 2001).
9. Ability for the optimal communication. Under this requirement we imagine all the components of communication, it is an important aspect of the relationship of the teacher and the pupil.

There are several typologies of teachers. Doring's typology, Luke teachers typology, Vorwickel's teachers typology. Caselmann's teachers typology, Pavlovian teachers typology. Each of these typologies distinguishes between different types of teachers. Typology importance lies in that it allows us to know a particular teacher's personality sooner and better.

Like any personality formation, the formation of the teacher's personality depends in the first place on the talents, the assumptions for the teaching profession, the motivation to engage in the occupation. These capabilities, assumptions can be summarized under the common concept - teaching talent. More specifically, the following characteristics are love of children, interested in working in youth organizations already in high school, the inclination to teach, impart the knowledge and others. Later, the teacher's personality is formed during theoretical and practical training for practicing teacher's profession. During learning, the teacher prepares on the one hand at a technical level, i.e. to the subject he is going to teach and on the other hand, at education level, which includes knowledge of pedagogy, didactics, education, school organization, psychology. The objective of this training is best to prepare future teacher and his profession and act as a factor in school education process.

Based on various studies there have been confirmed some generalizations about teachers, outlined in their publication Research in classes (1989, in Kariková, 1999) LW Anderson and R Burns:

1. There is no universal definition of good or effective teacher. The main argument for this thesis is the fact that the scope of the teacher's professional activities is so large and diverse that no teacher can meet this range evenly.
2. Teachers are very different in many personal and professional characteristics, only some of which have a direct impact on the effectiveness of teaching. That argument is based on research findings that teachers differ in their attitudes, interests, motivations, value preferences and the like, which do not correlate significantly with the learning results of students.
3. Characteristics of teachers don't have a direct impact on school grades. As the key term in this thesis is considered "direct impact". That argument does not claim that personality characteristics don't affect pupil's school grades at all, but notes that this influence is indirect rather than mediated.
4. Teachers develop in a way that progresses through several fairly well predictable and qualitatively distinct stages, i.e. from the beginner status to the expert status.

The aim of our research is to determine whether there is the difference between personality of the humanitarian subjects teachers, and the personality of the teacher of mathematics, physics and informatics, and therefore we can talk about some personal differences with the respect to approbation at all.

For our research we set the following assumptions:

1. We assume that the teachers of humanitarian subjects will be more extrovert as the teachers of Mathematics, Physics and Computer science. On the contrary, they will be rather introverted.
2. We assume that humanitarian teachers will be more tense, alert and reactive in the dimension of anxiety than the teachers of Mathematics, Physics and Computer science. On the contrary, they will be more relaxed, confident, trusting.
3. We assume that the teachers of humanitarian subjects will be more socially bold, opened to changes, independent in the dimension of autonomy than the teachers of Mathematics, Physics and Computer science. On the contrary, they will be more adaptable.
4. We assume that the teachers of humanities subjects are more likely to be not self-possessed, matching the rules, dreamy in the dimension of self-control than the teachers of Mathematics, Physics and Computer science, they in turn will be more principled, realistic, perfectionists, serious.

## 2. Research methods and research sample

We used the 16PF Questionnaire - Fifth Edition by authors Raymond B. Cattell, Karen S. A. Cattell, Heather EF Cattell (update: M. Jurčová) issued by Psychodiagnostika a.s. Bratislava in 1997, the original edition of 1994. Although 16PF fifth edition is updated and revised, it continues measuring the same 16 primary personality factor scales that Cattell identified 45 years ago. 16PF fifth edition contains 185 entries, constituting 16 primary personality factor scales (Warmth A, Thinking B, Emotional stability C, Dominance E, Liveliness F, Consistency G, Social boldness H, Sensitivity I, Vigilance L, Reverie M, Containment N, Jittery O, Openness to changes Q1, Self-reliance Q2, Perfectionism Q3, Tension Q4) and 5 global factor scales (Extroversion EX, Anxiety, Stiffness TM, Independence IN, Self-control SC).

The total number of collected questionnaires is 50. The number of respondents in these files are listed in the following table 1.:

Table 1 Numbers of respondents.			
Approbation orientation	N	Gender	N
Teachers of Mathematics, Physics and Computer science	25	Man	17
		Women	8
Teachers of humanitarian subjects	25	Men	5
		Women	20

## 3. Result 16PF- Fifth Edition

**Ho (statistic hypotheses):** between the studied performance of humanitarian subjects teachers and teachers of mathematics, physics and informatics is a consensus (no statistically significant difference).

We focused on the results of global factors, the factor **extroversion, anxiety, stiffness, independence** and **self-control**. For the global factor extroversion \* we made one more calculation on the basis of the primary factors **Warmth (A +), Liveliness (F +), Social boldness (H +), Openness to change (Q1 +)**, which statistically significantly correlated with extroversion (see Appendix), as in the global factor extroversion there were the most obvious differences, but not statistically significant.

Values are classified on the basis of achieved weighted scores into the groups „a”, „b”, „c” a „d”.

The classification to groups based on the results is shown in tables 2,3,4, 5, 6, 7,8.

- a) a = introvert (WS 1, 2, 3)
- b) b = rather introvert (WS 4, 5)
- c) c = rather extrovert (WS 6, 7)
- d) d = extrovert (WS 8, 9, 10)

Table 2 Extroversion results structure.				
Extroversion	a	b	c	d
Maths/ Physics	2	9	10	4
Humanitarian	0	5	11	9

- a = low anxiety (WS 1,2,3)
- b = rather low anxiety (WS 4,5)
- c = rather high anxiety (WS 6,7)
- d = high anxiety (WS 8,9,10)

Table 3 Anxiety results structure.				
Anxiety	a	b	c	d
Maths/ Physics	1	11	9	4
Humanitarian	1	8	11	5

- a = open-minded, open (WS 1,2,3)
- b = rather open-minded, open (WS 4, 5)
- c = rather stubborn, resolute (WS 6,7)
- d = stubborn resolute (WS 8, 9, 10)



Table 4 Stiffness results structure.

Stiffness	a	b	c	d
Maths/ Physics	5	10	5	5
Humanitarian	5	16	3	1

a = adaptable (WS 1, 2, 3)

b = rather adaptable (WS 4,5)

c = rather independent, stubborn (WS 6,7)

d = independent, stubborn (WS 8, 9, 10)

Table 5 Independence results structure.

Independence	a	b	c	d
Maths/ Physics	2	9	12	2
Humanitarian	0	8	13	4

a = not self-possessed (WS 1, 2, 3)

b = rather not self-possessed (WS 4, 5)

c = rather self-possessed (WS 6, 7)

d = self-possessed (WS 8, 9, 10)

Table 6 Self-control results structure.

Self- control	a	b	c	d
Maths/ Physics	4	11	9	1
Humanitarian	2	18	4	1

a = introvert (WS 1, 2, 3)

b = rather introvert (WS 4, 5)

c = rather extrovert (WS 6, 7)

d = extrovert (WS 8, 9, 10)

Table 7 Extroversion\* results structure.

Extroversion*	a	b	c	d
Maths/ Physics	16	31	37	16
Humanitarian	4	29	42	25

For optimal result, for "extroversion" and "independence" we combined the column "a" and "b" into one in the calculation, as Pearson test of good consent can distort the outcome of the data O.

Table 8 Result of the global scale PF16 - Fifth Edition.

Variable	Chi- square statistics	Chi- critical	df	alfa	Hypotheses
Extroversion	4,221	5,991	2	0,05	Ho accepted
Anxiety	0,785	7,815	3	0,05	Ho accepted
Stiffness	4,551	7,815	3	0,05	Ho accepted
Independence	1,180	5,991	2	0,05	Ho accepted
Self- control	4,279	7,815	3	0,05	Ho accepted
Extroversion*	9,559	7,815	3	0,05	Ho not accepted

In assumption No.1, we came to rather large differences, which were not statistically confirmed. We tried to verify this assumption on the basis of correlated primary factors Warmth (A +), Liveliness (F +), Social boldness (H +), Openness to change (Q1 +). In this case, the differences were confirmed statistically significantly. In the group of teachers of humanitarian subjects there was significantly lower number of introverts (also rather introverts) than in the group of teachers of mathematics, physics and computer science, there was a higher number of introverts (rather introverts).

#### 4. Conclusion

Humanitarian subjects teachers have more representatives who tend to focus on people, seek relationships with others. They have a greater orientation towards people, they initiate and maintain social contact. Teachers of Mathematics, Physics and Informatics have more representatives, who tend to spend more time with them than with others, they are hesitant to express their views and needs. This is also coming from what was already said, the very nature of naturalists, whose exploration and scientific approach to life has attracted more introverted personality and humanity-oriented approach to life attracts extrovert personality.

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# Teachers' evaluations about elective mathematic applications for 5th and 6th grade curriculum

ZeynepDEMİRTAŞ<sup>a</sup>, SerhatARSLAN<sup>b</sup>, AhmetESKİCUMALI<sup>c</sup>, Esra CİVAN<sup>d</sup>

<sup>a,b,c,d</sup> Sakarya University Faculty of Education, Sakarya, Turkey

## Abstract

In Secondary Schools, Mathematics Applications course started to be taught at 5th and 6th grades in 2013-2014 academic year electively. The aim of this study is to analyze the curriculum of Mathematics Applications class in accordance with teachers' viewpoints. In this research, interviewing technique of qualitative research methods is used. A semi-constructed interview form was prepared by the researchers. Interview form was finalized in accordance with expert views. In the research, with purposeful sampling method, interviews were conducted with 20 teachers who work at secondary schools in Pendik, Istanbul. Data collected in the interviews were analyzed via descriptive analysis method. Results achieved in the research: 1- The teachers were not adequately informed about the program, they reached the information about the curriculum on Internet sites. 2- The strength of the program was that it enabled more practice for students; whereas the shortcoming was that there were uncertainties in the implementation of the program. 3- Objectives aimed at the program were not clear and understandable, activities were not appropriate for students, and lack of examination in the evaluation decreased the level of students' motivation towards the class. 4- That there was no course book and no teacher guide book was a big problem. 5- That there were high course dropout levels because grades did not have any place on term papers and the activities were not appropriate for the students' level.

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**Keywords:** Elective Mathematic Applications, Curriculum, Secondary School.

\* Corresponding author: Ahmet Eskicumalı Tel.: +0-264-614-10-33.

E-mail address: ecumali@sakarya.edu.tr

## 1.Introduction

Mathematics is one of the leading courses at which students who study at primary and secondary school are unsuccessful (Tıraş, 1999). The reasons why students are not successful at this course are associated with the facts that no relationship can be built between mathematics and everyday life, the contents are not related to one another, and the subjects are comprised of disciplines, theories, equations and formulas. In this context, Mathematics is seen as irritating and a class which should be learned by memorizing (Baki, 2006). Today, Subjective information which people acquire via transfer based on their own experiences rather than objective and fixed information come into prominence (Çetin, 2004). The information taught in Mathematics class needs to be comprehended, constructed and put into practice by students so that it can be beneficial. For instance, learning proportion subject does not contribute to the student's everyday life; because people are not asked anything about proportion except for examinations. Apart from that, while planning any day, a person can encounter with such a situation as "last time I spent 7 hours to paint the 85 m<sup>2</sup> wall. Today, I need to paint 700 m<sup>2</sup> walls. How much time does it take?" (Altun, 1998). When it is taken into consideration that Mathematics has an important place in solving problems we encounter in our lives, (Baykul, 1998) Mathematics activities associated with daily life are of great importance.

Quests for benefitting from Mathematics in daily life have started and attention has been directed to mathematics subjects and teaching period. Increasing efficiency in teaching Mathematics, time spared to teaching Mathematics and how the subjects thought to be hard to learn by some people are taught are discussion issues (Altun, 2002). In order to effectiveness in teaching Mathematics, certain points should be reflected to the activities carried out in the classroom. Since what should be put into the center is not scientific information, but students who attend the process through activities actively (Duru&Korkmaz, 2010). Doyle (1988) thinks that students should be provided with taking responsibilities and duties in the activities carried out so as to have them take part in the class actively (Özmantar, Bozkurt, Demir, Bingölbalı&Açıl, 2010).

The aim of Mathematical Applications classes which started to be taught in secondary schools in 2013-2014 school year is; "have them love Mathematics and have a positive attitude towards Mathematics while improving mathematical information and skills by giving opportunities to make mathematical applications appropriate for their level" (MEB, 2013: 1). The way how to teach a lesson is determined in accordance with this aim. Problems which need to be chosen should be associated with daily life and should enable practical applications. They should also be meaningful for students at the same time. Students should

produce solutions to the determined problems by making group work, groups should present solution suggestions to the class and via discussion method, the most appropriate solution technique should be chosen all together. Teacher should be a listener and a leader after explaining the problem (MEB, 2013).

Mathematics is one of the courses which implementation takes a great place in daily life, too. Moreover, Mathematics also increases students' thinking and questioning ability. For this reason, teaching mathematics at school and mathematics activities should be given great importance. Since activities support an easy learning of Mathematics and create a positive attitude towards Mathematics. Students who like activities develop a positive attitude towards Mathematics, too. For this reason, conducting researches about the effectiveness of the classes with Mathematics activities and discussing how those classes can be rendered more effectively are important. The aim of the present study is to analyze the curriculum of Mathematics Applications in accordance with teachers' viewpoints.

## 2. Method

### 2.1. Participants

In this research, interviewing technique of qualitative research methods is used. A semi-constructed interview form was prepared by the researchers. Interview form was finalized in accordance with expert views. In the interview form, there are five open-ended questions. The teachers were asked questions as to whether informing about Mathematics Applications class curriculum was made or not, how they reached the information about the program, good and bad sides of the program, acquisitions aimed at the implementation of the program, activities and evaluation dimensions, course books and course materials, the problems encountered in the implementation of the program and their own suggestions for solving the problems. In the research, via purposeful sampling method, 20 teachers who work at secondary schools in Pendik, Istanbul were reached. 12% of teachers who comprise of working group are female. 8% of them are male. The age average of teachers is 25.7 and the seniority average is 3.4. Interviews made with the teachers were recorded by taking permission from them. The audio records were transcribed later. The data gathered was analyzed with the method of descriptive analysis. Descriptive analysis; is comprised of four stages; creating a framework for descriptive analysis, processing the data in the thematic framework, identification of findings and interpreting them (Yıldırım & Şimşek, 2008: 224). For the analysis of the data, a thematic framework was identified by the researchers. Within this scope, the data were firstly coded by each researcher. And then, by comparing the data raked together, common codes were made in common themes with common viewpoints. The teachers who were interviewed are shown in G1, G2, G3 ... shape.

### 3. Findings

The teachers' viewpoints about Mathematics Applications curriculum are shown as tables in the following. When examined the teachers' situation of being informed about the curriculum, all of the 20 teachers interviewed expressed that they were not informed about the curriculum. The studies conducted by the teachers to get informed about the curriculum are presented in Table 1.

Table 1. Teachers' viewpoints about their situation of being informed about the curriculum

Theme (Categories)	Codes	n	%
Studies for getting informed	Getting informed from Internet sites (forums, social networks) (G1, G4, G5, G6, G7, G8, G11, G12, G13, G15, G16, G19, G20)	13	65
	Getting informed by communicating with group teacher and teacher friends (G3, G4, G6, G8, G9, G15, G17, G18)	8	40
	Examining the curriculum, yearly lesson plan (G2, G9, G16)	3	15
	Examining the workbook (G1, G2, G9, G10, G14, G15)	6	30

As Table 1 shows that, 65% of the teachers got information from forums and social networks. Other viewpoints are getting informed from group teachers and communicating with other teacher in %40 percentage, getting informed about the curriculum in %30 percentage, examining the curriculum and yearly lesson plan in %15 percentage. The quotations from the teachers' viewpoints are presented below.

"No informing about the curriculum was made. I tried to reach the information about the curriculum on the Internet sites such as "Eğitimhane". I tried to identify my own curriculum by communicating with our teachers who taught Mathematics at the past. (G4)

"No informing was made. I also reached my own information from the Internet. " (G13)

"Informing was not made. I got informed when I examined the curriculum. In fact, I think there is no certainty. I do not think all schools evaluate them in the same way." (G14)

"No informing was made. After approximately 2 months, a workbook was sent by MEB. I taught my lessons in the light of this workbook. (G18)

"Actually there could have been better information. The process went on with my exertion. Since I thought the lesson and applied the activities according to the plan that I found in the internet. I think I could have been informed much more." (G16)

The teachers' opinions about the superior and limited properties of the program are presented in table 2.

Table 2. The Teachers' ideas about the superior and limited properties of the program

Theme/Category	Codes	n	%
Superior Properties	It provides applying group work (G1, G2, G7, G9)	3	15
	It gives chance to solve much more problems (G2, G3, G11, G16, G15)	5	25
	It provides brain storming (G7)	1	5
	It provides solving intelligence problems (G8)	1	5
	It provides playing math games (G15)	1	5
	It makes the students to link the math with the real world (G17, G18)	2	10
Limited Properties	There are some unclear points while applying the program (G3, G4, G18, G19, G5, G20)	6	30
	Lack of equipment makes it harder to apply (G4, G17)	2	10
	It provides less mathematical addition (G12, G13)	2	10

Table 2 shows that teachers think the program provides 25% more problem solving. Other opinions about the opportunities of the program are as follows: it provides 15% group work, 10% linking with the real world, 5% brain storming, solving intelligence problems, playing mathematical games and it increases students' mathematical thinking. The teachers' opinions about the limited properties of the program are 30% unclear parts while applying the program, 10% lack of equipment and it provides less mathematical improvement. The quotations given by teachers are presented below.

"I applied the activities which are included in the book for a week. I solved the mathematic problems and made the students solve them in another week. I sometimes copied the activities in the book and divided them into groups. When they had difficulties I gave them some clues. It is beneficial for them. It is good that there is a program which provides this kind of applying." (G2)

"I think it is beneficial when it is applied according to the aim. But there is not enough electronic equipment. There are some unclear parts about the plan, so some difficulties of making the students interested in mathematical world occur." (G4)

"We are negotiating the problems. We are brain storming. We are trying to create new solutions. It is different that we have group working. It is a good program for students." (G18)

"Although there are some problems because of the unclear sides of the program it is of course beneficial. I think making the students face with the real world problems improve them." (G18)

The opinions of the teachers about acquisitions, activity and evaluation aspects are presented in Table 3.

Table 3. The opinions of the teachers about acquisitions, efficiency and evaluation aspects

Themes (Categories)	Codes/Teachers		n	%			n	%
	Positive				Negative			
Acquisition					Not appropriate for students level (G8, G14)		2	10
	Appropriate for students level (G1, G3, G9, G16)		4	20	It is hard to distinguish the acquisitions between 5th and 6th grade (G4, G10, G11)		3	15
	Clear, understandable (G2, G5, G9, G16, G17)		5	25	Acquisitions are not related to Mathematics (G7, G15, G19)		3	15
					Are not understandable (G11, G20)		2	10
					Not in sufficient number of (G1, G8, G9, G15, G19)		5	25
Activity	Appropriate for students level (G3, G13, G16, G17)		4	20	Not appropriate for students level (G1, G4, G5, G6, G7, G13, G18, G20)		8	40
					No material (G3, G10)		2	10
	Interesting (G12, G14)		2	10	5 <sup>th</sup> and 6 <sup>th</sup> classes are processing together. That causes differences in level (G2, G16)		2	10
					Without Examination, course is not acknowledged (G5, G11, G18)		3	15
Evaluation	Absence of Examination removes the pressure (G3, G4)		2	10	Absence of Examination causes decreasing motivation (G1, G2, G3, G6, G8, G9)		6	30
	Using assessment methods without examination does not create problems. (G7, G15, G16, G17)		4	20	Absence of Examination causes absenteeism (G1, G2, G12, G13, G14)		5	25

As seen in Table 3 teachers' views regarding to acquisitions, efficiency and evaluation aspects are divided into "positive" and "negative" themes. The view of teachers according to acquisitions is the item "clear and understandable" and is represented with 25%. A different view is that acquisitions are gained through "appropriate for student's level" and is represented with the rate of 20%. Teachers' negative views through acquisitions are most valued with 15% and are the items "it is hard to distinguish the

acquisitions into 5th and 6th grade” and “acquisitions are not related to Mathematics”. Again different negative views rated with 10% are “not appropriate for student’s level” and “are not understandable”. Negative views towards activities are mostly ranked by 40% with the element “not appropriate for student’s level”. Different views show the result of 20% that activities are “not in sufficient number”, and 10% that “No material” is available and “5th and 6th classes are processing together. That causes differences in level”. Teachers’ positive view towards the evaluation is mostly rated with 20% to the item “Using assessment methods without examination does not create problems”. A different view is that “absence of Examination removes the pressure” and is rated with 10%. Teachers’ negative opinion towards evaluation is highly valued with 30% by the item “absence of Examination causes decreasing motivation”. Different views are valued with 25% by the item “absence of Examination causes absenteeism” and 15% with the item “without Examination, course is not acknowledged”. The quotations given by teachers are presented in the previous part below.

“It is possible to increase the amount of activities. In my opinion, in books there should be activities for each level. Teachers’ should have the opportunity to make the activity according to the level of the class. That will help to overcome problems related to compliance with class level.” (G1)

“It affects in a negative way that the evaluation is done by examination. Some of the student’s interest decrease to almost zero. There are problems caused by absenteeism because we do not have regular attendance.” (G2)

“In my opinion, the acquisitions are not appropriate for 5th grade students. For instance, ratio and proportion is taught in 6th grade, but there are two ratio and proportion gaining activities prepared.” (G18)

“I think a few of the activities do not fit to 5th grade students. It is possible that there are activities which are not taught yet. As a matter of fact, it would be beneficial to prepare the Textbooks with diligence in later years.” And in my opinion the 5th and 6th grade students should not work together.” (G16)

“Some of the activities are not appropriate for classroom. The use of computers and excel program would be beneficial. We have not that in our school. For that reason, the application would not succeed.” (G11)

Teachers’ views towards textbooks and course materials which change during the program are represented in table 4.

Table 4. Teachers’ views towards textbooks and course materials which change during the program

Themes (Categories)	Codes	n	%
Strong Sides	Books are not exiting and boring (G1)	1	5
	Activities are related to the real world (G1)	1	5
Weak Sides	Activities are not appropriate to the level (G2, G16)	2	10
	There is no content in the activity book (G3, G7)	2	10
	No guidebook (G3, G4, G15, G8)	4	20
	Activity book does not fit to the level (G5, G6)	2	10
	Distribution in activity book are disproportionate (G9, G19)	2	10
	There should not only activities in the textbook (G10)	1	5
	No textbook (G11, G12, G13, G14, G15)	5	25
	Span of activity is to long (G17)	1	5

In the 4th table there are opinions of the teachers regarding to textbooks and course materials which change during the program are shown in two themes; “strong sides” and weak sides”. Teachers’ views about the strong sides are ranked with 5% that “books are not exiting and boring” and “activities are related to the real world”. The weak sides according to the teachers’ view are mostly valued with 25% to the item “no textbook”. The other views are ranked with 20% that there is “no guidebook”, 10% is the score for the items “activities are not appropriate to the level”, “there is no content in the activity book”, “activity book does not fit to the level” and “distribution in activity book are disproportionate”. Eventually, the items “there should not only activities in the textbook” and “span of activity is to long” are valued with 5%. The quotations given by teachers take place below.

“I think, the preparation of the textbook are well arranged. The activities are related to the daily life and it is easy to motivate students because they are exciting.” (G1)

“In general, I do not like the textbook. Because the activities for 5th grade class are created without taking into consideration that they are not taught yet.” (G2)

“We have no textbook, only a book with activities which is on the net.” (G14)

“Some of the activities take 4 hours. In my opinion, the time factor should be considered carefully in the construction phase.” (G17)

The thoughts of the teachers about the difficulties they encounter in applying the program and the ideas for solutions are given in table 5.

Table 5. The opinions of the teachers about the problems they encounter in applying the program and the suggestions for solutions.

Theme(Categories)	Codes	n	%
Problems	Late check in of the course grades to school report causes absence (G1, G12, G13, G14, G17)	5	25
	No check in of the course grades to the school report reduces attention (G1, G8, G9, G18)	4	20

Solution Suggestions	Course not arranged for the level of students (G1)		
	The level of activities is not convenient for the students (G2, G6, G7, G16, G18)	5	25
	It is hard to understand the activities. (G5)	1	5
	There are uncertainties in the program (G4, G11, G20)	3	15
	It is overshadowed by the mandatory Mathematics (G3)	1	5
	Due to the crowded class size, it is not efficient (G15)	1	5
	There is difficulty in finding material and copying (G10, G11)	2	10
	Activities are not interesting (G6)	1	5
	Allocated time for the activities is not enough (G13, G14)	2	10
	Distribution of the activities to the subjects is not right (G19)	1	5
	Due to the differences between the level of students classroom management is difficult (G6)	1	5
	Students do not have awareness of the course (G14)	1	5
	Course should effect the school report (G1, G6, G8, G9, G12)	5	25
	Students should be grouped according to class level (G1, G16, G18)	3	15
	Level of activities should be scrutinized (G2, G7, G16)	3	15
	Activities should be diversified (G11, G14, G17, G19, G20)	5	25
	Elective course should be included in mandatory mathematics (G3)	1	5
	There should be a guidebook for the teachers and teachers should take in-service training (G4, G16, G20)	3	15
	Physical conditions of the schools should be regarded (G5)	1	5
	There should be teachers who have expertise on the activities (G5)	1	5
	Materials should be improved (G10, G17)	2	10
	Activities should be correlated with the subjects of mandatory Mathematics (G6, G7)	2	10
	Elective courses should be abolished (G12, G13)		
	Books sent to schools should be in different levels (G13, G14, G20)	2	10
	Problem solving should be concentrated on (G15)		
		3	15
		1	5

In the 5th table opinions of the teachers are indicated in two themes; problems and solution suggestions. In the opinions of the teachers about the application of the program, “late check in of the course grades to school report causes absence” and “the level of activities is not convenient for the students” are the highest rated problems with 25% ratios. Other opinions are, respectively; “no check in of the course grades to the school report reduces attention” with 20%, “uncertainties in the program “ with 15%, “difficulty in finding material and copying” and “allocated time for the activities is not enough” with 10%, hardship in understanding the activities, being overshadowed by the mandatory Mathematics, crowded classroom size, no striking activities, distribution of the activities to the subjects, classroom management and awareness of course with 5% ratios. Teachers’ solutions for problems that there faced with is scored with the rate of 25% by the item “the level of activities is not convenient for the students” and “Activities should be diversified”. Different suggestion are in sequence, with 15% the item “there should be a guidebook for the teachers and teachers should take in-service training”, “students should be grouped according to class level” and “level of activities should be scrutinized”. The items “materials should be improved”, “elective courses should be abolished” and “activities should be correlated with the subjects of mandatory Mathematics” are valued with 10% and with rate of 5% the items “elective course should be included in mandatory mathematics”, “physical conditions of the schools should be regarded” and “problem solving should be concentrated on” are ranked with rate of 5%. The quotations given by teachers take place in the previous part below

“It would make sense, if the number of the weekly mathematics lessons in the curriculum were taken into compulsory lessons and also the content of the activities. At least, students would gain the logic that the application is given in mathematics lesson, not under a different lesson. Also that they are equal (some of them choose, some not) and in a regular schedule.” (G3)

“One of the biggest problems is the low interests; because the course is elective. Students attend the course for marks, not for learning. Students with this mentality do not care about the lesson.” (G8)

“I would change some of the main lines, which are; the teachers’ who give lessons should attend an in-service training course. Because the background knowledge is weak. Guide books should be sent to the schools. I would separate 5th and 6th grade. After that, I would adjust the conformity of the activities with the level of proficiency.” (G16)

“It is possible to distribute the themes according to activity issues.” (G19)

“The classes are crowded so the activities are not much valuable. For that reason I limit the activities” (G15).

#### 4. Discussion

The results which are obtained in the research about selective application of mathematics curriculum and the views of the teachers could be summarized as following: 1- The teachers were not informed about the program, they reached the information about the curriculum on Internet sites mostly. 2- The good side of the program is that it enabled the solution of more questions; whereas the bad side of it is that there are uncertainties in the implementation of the program. 3- Acquisitions aimed at the program are not clear and understandable, activities are not appropriate for students, that the examination does not exist in the evaluation decreases the level of students’ motivation towards the class. 4- That there is no course book and no teacher guide book is a big shortcoming. The activities in the workbook are not appropriate for the students’ level. 5- That there are absences because grades do not have any place on term papers and the activities are not appropriate for the students’ level and these are

the leading problems experienced. That grade affects term papers and that activities should be varied are these are the leading suggestions for solutions of the problems.

According to the results of the research, it is easy to say that there are uncertainties in the procedure of selective mathematics application, particularly in the process of supplying the program application. This situation leads to dissimilarities in practice. The reasons of these differences are defective information about methods in acquisition, activities and evaluation classes and the missing guidebooks which are not sent. The Investigations of Bozkurt (2012) related to mathematical activities in primary and secondary class shows the necessity to inform teachers about the concept of mathematical activities, otherwise the expected outcome cannot be seen. In order to overcome this obstacle, it is essential to create an environment in which the teacher is able to grasp the importance of the activities, also the opportunity to improve the effectiveness of their professional development to create such activities.

Another result obtained in the study is the negative effect caused by not distributing the textbooks which affect teachers as well as students. Students, who are unable to catch the importance of this course and incompetent to create the sufficient awareness, do not continue the class. This leads to absenteeism. Schools with economic problems have not the chance to print out the copy of the activity book from the Internet. As a result, the activities are limited for the teachers who are able to write it on the whiteboard. Moreover, teachers lecture the compulsory mathematics course with editing covered topics so far, solving logic and intelligence questions and sometimes playing mathematic games.

Işık (2008) mentioned the importance of teachers' decision in terms of choosing the textbooks which should be taken into consideration, when the textbooks will be deploy to the schools. Because these factors influence primary second stage mathematics teacher in usage of course book, the frequency and level of the course book. An investigation occurs in order to determine expectation of the course book and it is appropriate that the ministry delivers the course books for free, whereas the negative effect is that the books are changing every year. As consequence teachers' are unable to become familiar with it, so that they cannot use it in full extent.

The predicted aims for acquisitions are clear and understandable; on the other hand, it is obtained that the activities are inappropriate for the level of students. Demirtaş, Arslan, Eskicumalı ve Kargı (2014) found that elective curriculum related to applications of mathematics teachers stated that gains are definite and precise. Karakuş and Yeşilpınar (2013) investigated the process of assessment and teachers' procedure of application and evaluation according to activities which are applied in elementary sixth grade mathematics level class. For this reason, the obstacles are structure content, level and physical features caused by students and educational settings.

There are no written examinations in the elective course. Besides, the notes are not represented in school report. As a consequence according to the study, a lack in students' motivation or problems in attendance of the course occurs. There should be alternative assessment methods to avoid such situations. This could be only achieved with in-service training. To illustrate the necessity of in-service training of alternative assessment methods, Arıbaş and Göktaş (2004) found out that the secondary mathematics class teachers' have not enough background knowledge about the need of alternative in-service training. Furthermore, a study of Baki and Girgin, (2004) related to individual development file whether monitoring and evaluation of students' performance is an effective technique shows that increasing importance of introducing teachers' in the field of pre and in-service training in order to use it as a tool of assessment and a technique for students' individual development.

According to the current research, to represent the course grade in the report, some essential steps should be taken. First of all, enough information about the program must be implied. Measures should to be taken to avoid uncertainties during the application. The activities which are in the program should be revised and adjust to students level and the material and sources related to the course should be sent by the involved department.

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# Teachers' management roles in the development of communication skills

Corina Constanta Sirbu<sup>a</sup>, Elena Tonea<sup>b</sup>

*a Banat University of Agricultural Sciences and Veterinary Medicine Calea Aradului 119, Timisoara-300645, Romania*

*b Banat University of Agricultural Sciences and Veterinary Medicine Calea Aradului 119, Timisoara-300645, Romania*

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## Abstract

This study tries to analyze the problem of the communication phenomenon in the university environment. The university education as a priority area of the social life, contributes to the formation of human resources, so the communication between the teacher and the student is very important for the student's professional evolution. For this reason the teachers have to understand the students, to guide them and value their potential. The communication in the education area is very complex, there for we consider that the students should be frequently involved in intercommunication activities so they will be more self-confident and they will improve their communication skills.

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*Keywords:* communication; teacher; student; organization; coordination;

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## 1. Introduction

In present, all life areas, including the educational activity, are based on communication, so there is a complicated mutual relationship between communication and education. In the didactic communication, the teacher and the students are continuously interacting, changing information in order to achieve the objectives established during the teaching – learning – evaluation process.

The communication from the university environment has the following characteristics:

- Is always realized between two persons: teacher – student, student – teacher or student - student
- The message is always logically structured by the teacher in order to achieve the established objectives
- By actively involving the students it has a teaching, learning and developing effect
- The communication process involves the following types: verbal and non-verbal communication.

For an efficient communication process the teacher has to be a good manager in order to take the best decisions, to plan, to organize, to control, to evaluate and not last to motivate the students using verbal appreciations and nonverbal reactions to encourage positive behavior.

In all pedagogical and psychological studies it is mentioned that communication has past, present and mainly future.

Landshere quoted by Silvas A. analyzes the verbal interactions between teacher and student discovering nine functions which cover the most important teaching events:

- Organization function – refers to the participation and organization of students and pupils
- Assessment function – involves information, solving methods and suggests answers
- Development function – stimulates and structures the students' thinking
- Personalization function – interprets a personal situation
- Positive feedback function – specific and stereotype approval respecting the students' answer
- Negative feedback function – stereotype, ironic and accusing disapproval
- Materialization function – a figurative presentation material using audiovisual technics
- Positive emotionality function – recognition, encouragement, compensation of the students' activity by using nice words
- Negative emotionality function – criticizes, threatens, accuses, etc.

In the education, the transmitter is the teacher, the receiver is the student and between them there is an information transfer where barriers can occur and alter the desired messages.

These barriers are caused by:

- Lack of trust
- Negative behavior
- Wrong perception
- Different cultures

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\* Corresponding author. Tonea Elena Tel.: 0040-744859021  
E-mail address: elenatonea@yahoo.com

- Prejudices, etc

## 2. Material and method

In this study we used as research method the survey, applied on a sample of 120 students from the Banat's University of Agricultural Sciences and Veterinary Medicine from Timisoara, aged between 18 and 30 years. During the research we respected the following steps:

- We established the structure of the sample
- We distributed the survey
- We collected the answers
- We analyzed the answers

## 3. Results and discussions

The teachers are real managers with an important role in transmitting the information necessary to achieve the objectives, coordinate the intermediary communication sources and make act in such a way that the important communication reach in time the students.

For an efficient communication in the University it is very important to choose a way to transmit the information as fast and correct as possible.

In table 1 we presented the most important communication channels used by the teachers and the students from Banat's University of Agricultural Sciences and Veterinary Medicine from Timisoara.

Table 1. Communication channels used in the university

Communication channels	Advantages	Disadvantages
Face to face meeting	Offers the possibility to check the understanding of the message and of the answer.	Takes more time (time consuming)
Electronic means (e-mail, fax)	The message is transmitted fast and the receiver can reply fast	There is a risk of personal information leak
Telephone	The information is transmitted immediately	No visual contact.
Planned meetings (meeting between two persons or of a group of teachers and students)	The information is transmitted, the decisions are taken and the objectives are achieved.	Time consuming and the persons from the meeting can deviate the discussions to other subjects and the objectives are not achieved

Question: What does the term communication mean for you?

For this question the participants had the possibility to choose one of the following variants:

- To speak correctly, fluently;
- To transmit information, decision, ideas;
- To be heard, understood and to establish a relationship.

In table 2 we can notice that the participants understand differently the communication: 31% chose "to speak fluently", 49% "transmit information, decisions and ideas" and 20% consider that communication means to be heard and understood.

Analyzing the answers we can conclude that the students consider that through communication we transmit ideas, decisions and information they need in order to succeed.

Table 2. Communication perception

The term "to communicate"	Value	Percentage (%)
To speak correctly, fluently	37	31
To transmit information, decision, ideas	59	49

To be heard, understood and to establish a relationship	24	20
<b>TOTAL</b>	<b>120</b>	<b>100 %</b>

Question: Do you think that a person's nature influences the communication?

In table 3 we can notice that 73% of the participants answered yes, a person's nature influences the communication, and 27% answered that a person's nature does not influence the communication.

Table 3. Analysis according to human nature

The importance of human nature in communication	Value	Percentage (%)
Yes	87	73
No	33	27
<b>TOTAL</b>	<b>120</b>	<b>100 %</b>

Analyzing the answers we noticed that the students consider that the intonation is very important in communicating information, and if the teachers have a choleric nature manifested by irritability and screaming, creates a dissatisfaction feeling among the students which can lead to failure in achieving the objectives and to an unfavorable work environment.

Question: Do you think that a good communication increases the self-confidence?

76% of the participants answered that yes, a good communication with the teacher increases their self-confidence, 5% answered that they don't know and 19% consider that communication does not make them more self-confident.

Table 4. Communication efficiency

Efficient communication	Value	Percentage (%)
Yes	91	76
No	23	19
Don't know	6	5
<b>TOTAL</b>	<b>120</b>	<b>100 %</b>

Question: Do you consider that your teachers have highly developed communication skills?

Table 5. Communication skills

Communication skills	Value	Percentage (%)
Large extent	72	60
Small extent	48	40
<b>TOTAL</b>	<b>120</b>	<b>100 %</b>

In table 5 we notice that 60% of the students consider that their teachers have developed communication skills, fact that determines them to go to courses with pleasure, to listen and understand the teacher, but 40% consider that they need to develop the communication skills because it is not enough to have the information but they also have to transmit it and explain it.

#### 4. Conclusions

Whatsoever the communication means are, the teachers should be aware that they have to control not only the students' success but also their human evolution and this can be realized only through a real and efficient communication.

The main communication channels used by the teachers from Banat's University of Agricultural Sciences and Veterinary Medicine from Timisoara are: face to face meeting, e-mail, fax, telephone and meeting with the students.

Analyzing the answers we can conclude that the students consider that through communication we transmit ideas, decisions and information they need in order to succeed.

The participants that the intonation is very important when transmitting the information, there for we consider that the teachers with a choleric nature should control themselves and understand that this aspect creates an unfavorable working climate and the student – teacher relationship is damaged.

We recommend to create a pleasant, trustful, respectful education environment leading to the development of healthy,

receptive and communicative personalities.

40% consider that they need to develop the communication skills because it is not enough to have the information but they also have to transmit it and explain it.

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# Teachers' opinions about the renewed fifth grade mathematics curriculum and comparison of two versions

Zeynep DEMİRTAŞ<sup>a</sup>, Serhat ARSLAN<sup>b</sup>, Ahmet ESKİCUMALI<sup>c</sup>, Gurbet KARGI<sup>d</sup>

<sup>a,b,c,d</sup> Sakarya University Faculty of Education, Sakarya, Turkey

## Abstract

The aim of the present study was to determine mathematics teachers' opinions about the renewed fifth grade mathematics curriculum and to investigate the new mathematics curriculum and the former one comparatively. In the current study, two qualitative research methods namely, document review and semi- structured interview methods were used. With document review, the similarities and differences between the renewed fifth grade mathematics program and the former one were discussed by comparing the two curriculums. The related documents were derived from mathematics curriculum that was published in Turkish Education Board official website. With semi structured interview form, teachers' opinions about the new curriculum was determined. In the present study, in which the purposeful sampling was used, 18 mathematics teachers were interviewed that worked at schools depending on the Ministry of Education in Sakarya province Ferizli district. The obtained data was analyzed via descriptive statistics. According to findings, the new mathematics curriculum and the former one were similar in general, and teachers had both positive and negative opinions about the new curriculum.

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**Keywords:** Mathematics curriculum, Mathematics teaching, Teachers' opinions.

## 1. Introduction

In the 21st Century, the knowledge has changed rapidly and in the globalizing world, it has increased in value. As it always has been in every area, in education area the change necessity shows up. Nowadays, with the extensiveness of the application fields, the mathematics has become indispensable for all scientific fields. The mathematics education given in school life, forms a significant part of the teaching that individual takes for his/her life (Baki, 2006). Mathematics was accepted as a universal language that builds on symbols and figures. Mathematics includes processing data, producing information, making prediction, and solving problem by using this universal language (Ministry of Education, 2005.) According to Askar (1986) learning mathematics is highly important for the individual who can improve higher order thinking skills as communicating, thinking creatively and independently in daily life. Altun (2003) indicated that, mathematics teaching was important in terms of improving students' intellectual and creative thinking competencies. According to Olkun and Toluk (2003), nowadays, the effective education that is appropriate to the structure of mathematics can be actualized with associative learning, which is explained as the knowledge of concepts and operations and the relationship between them and which also ease remembering and using the information. As Baykul stated that (2003), the important part of the student problems related to learning the mathematics is derived from mathematics teaching methods. In our country, reforms have been made for more effective mathematics teaching. The new primary and secondary school mathematics curriculums that were in the direction of program development efforts in education system, and which were tested with a pilot study in 2004, were put into practice in 2005-2006 years by the Ministry of Education. The method, applied before 2005, was in accordance with the traditional teaching methods, while after 2005, it was arranged in accordance with contemporary methods. In the 2006 program, the principle of "Every child can learn the mathematics" used as base. Within the scope of the curriculum aims, raising individuals that can use the mathematics, solve problems, share their solutions and thoughts, work in groups, feel confident in mathematics, and develop positive attitudes towards mathematics is essential (Ministry of Education, 2005). The 2013 mathematics curriculum had the same aims with 2006 mathematics curriculum. Furthermore, 2013 program included extra skills like students' appraisal of the mathematics, being enjoyed while dealing with the mathematics, considering the mathematics as useful, using the mathematics in daily life, and communicating with mathematic knowledge in addition to features that should be brought to students (Ministry of Education, 2013). In the renewed mathematics curriculum, the content was simplified, and accordingly, the necessary features in terms of more effective and fruitful mathematics teaching were determined. The aim of the present study was to investigate the renewed fifth grade mathematics curriculum and the former one comparatively and to determine teachers' opinions about the renewed fifth grade mathematics curriculum.

## 2. Method

The current study was divided into two stages. In the first stage, the renewed fifth grade mathematics curriculum and the former one were compared. The new curriculum was stated as “2013 program”, and the former one was stated as “2006 program”. The similarities and differences between the two programs were discussed. In the first stage, the document review method that is one of the qualitative research methods was used. The related documents were derived from mathematics curriculum that was published in Turkish Education Board official website. In the second stage, teachers’ opinions about the renewed fifth grade mathematics curriculum (2013 program) were determined. In this stage, interview method that is one of the qualitative research methods was used. With semi structured interview form, teachers’ opinions were determined. In the present study, in which the purposeful sampling was used, 18 mathematics teachers were interviewed that worked at schools depending on the Ministry of Education in Sakarya province Ferizli district. In the semi structured interview form teachers’ opinions about the followings were included: getting informed about the new curriculum, the foreseen gains of the program, the content, activities, evaluation methods, problems in the application process of the curriculum and teachers’ solutions offers for these problems. The obtained data was analyzed via descriptive statistics and findings were presented as tables.

### 3. Findings

The fifth grade mathematics curriculum that was applied in 2005-2006 academic year and that of 2013 program were investigated comparatively in terms of the following criteria: the vision of the program, the aim of the curriculum, its approach, explanations towards applying the curriculum (teacher- student role, course book, workbook, teacher guidebook; learning areas, and skills), mathematics learning and teaching, assessment and evaluation, number of gains, and course hours.

#### 3.1. The vision of the Program

In 2006 program, under the title of the vision of the program, the vision was explained while in 2013 program, there was no such a title. The vision of 2006 program based on the principle that “Every child can learn the mathematics.” On the other hand, in 2013 program, the vision of the curriculum was described in the direction of general purposes. In the curriculum, students’ appraisal of the mathematics and improving problem solving abilities were emphasized. In addition, preparing learning environments that provide students with considering the mathematics as “perceivable, useful, worth the effort” was emphasized.

#### 3.2. The Aim of the Program

The aims of the 2006 program were to improve students’ individual skills and abilities such as independent thinking, making their own decision, and self-regulation. The 2013 program included similar aims and the aim of the program was described as “bringing students in knowledge, skills, and attitudes that are specific to the mathematics and students can need those things in their lives and further education steps”. The aim of the program was presented in 15 items in 2006 program, whereas it was stated in 10 items in 2013 program.

#### 3.3. The Approach of the Program

Both the 2006 program and the 2013 program adopted the conceptual approach. The conceptual approach requires spending more time to form a conceptual basis of mathematical knowledge, thereby forming an association between conceptual and operational knowledge and skills is necessary. 2006 program aimed to make students form mathematical meanings based on their concrete experiences and feelings. On the contrary, 2013 program aimed to encourage students to be fast in their mathematical operations and to communicate with mathematical knowledge. Besides, it put emphasis on improving students’ problem solving skills.

**Teacher- Student Role:** Both of the curriculums used similar expressions while mention to roles of teachers and students. In 2006 program, student is active while teacher is the guide. On the contrary, in 2013 program, the active role of the student was expressed as active participant whereas the guidance role of the teacher was expressed as planning well structures activities and actualizing activity applications in the classroom.

**Learning Areas:** Both in the 2006 and 2013 programs, there were 5 learning areas. Differently, in 2006 program the learning area of “Numbers” was changed as “Numbers and Operations” in 2013 program. Moreover, in 2006 program, “Geometry” and “Measurement” learning areas were approached separately while in 2013 program they were mentioned under the title of “Geometry and Measurement”. Finally, in 2006 program, there was a learning area called as “Probability and Statistics”, while in 2013 program, there were learning areas as “Probability” and “Data Processing”.

**Skills:** In 2006 program, skills were divided into two categories as “Skills Specific to Common Field” and “Mathematical Skills”. Skills that are specific to the common field covered effective, correct, and fluent Turkish performance, critical thinking, creative thinking, communication, problem solving, research, making decision, using information technologies, and entrepreneurship. On the other hand, the mathematical skills included problem solving, communication, association, and reasoning. In 2013 program, skills were collected under the same title as “basic skills that the program gains”. These skills

included problem solving, mathematical process skills (communication, reasoning, and association), affective, and psychomotor skills, and information and communication technologies. In both programs, mathematical skills were similar. Differently, in 2013 program, affective and psychomotor skills took part in the curriculum.

Course book, Workbook, Teacher Guidebook: In 2006 program, information related to the course book, workbook, and teacher guidebook took part in the curriculum whereas in 2013 program there was no such information. In the application of 2006 program, students and teachers provided with books. However, in the application of 2013 program, students and teachers provided only with the course book, and the workbook and teacher guidebook was not provided.

### 3.4. Learning- Teaching Approach

The learning and teaching approaches were indicated in similar expressions in both programs. Students' active participation to learning process should be provided. Learning environment based on problem solving should be benefited. Students should be assisted in terms of forming meanings from their concrete experiences and abstracting. Individual differences should be considered. Learning based on cooperation should be emphasized. Information and communication technologies should be used effectively. Differently, in 2006 program, associating the gains with intermediate disciplines were given importance while in 2013 program, this issue was not mentioned.

### 3.5. Explanations Related to the Application of the Curriculum

In both programs the explanations related to the application of the curriculum were stated as items in detail. Differently, in 2013 curriculum, suggestions related to preparing individualized education programs for students who needed special education took place.

#### Assessment and Evaluation Methods

In both programs, as an assessment and evaluation concept, progress evaluation was given particular importance. Students' evaluation of themselves and their friends were emphasized. Using the necessity of various assessment and evaluation methods was stated. In addition to student evaluation, both the evaluation of the curriculum and teacher's self-evaluation were emphasized. Differently, in 2006 program, all alternative assessment and evaluation methods were introduced and explained in detail. On the other hand, in 2013 program, there was no explanation related to methods.

#### The Number of Gains and the Course Hours

In 2006 program, the number of gains was 94 and the course hours were 144 hours in total. On the contrary, in 2013 program, the number of gains was 57, and the course hours were 180 hours in total. When considering the number of gains and the course hours of the two curriculums, it can be said that 2013 program was simplified. In 2013 program, the weekly course hours of the mathematics of the fifth grade was increased to 5 hours in a week. Thus, the allocated time for the gains was more than that of 2006 program.

Teachers' opinions about the renewed fifth grade mathematics curriculum were represented as tables below. Teachers' opinions about getting informed about the curriculum were presented in Table 1.

Table 1. Teachers' opinions about getting informed about the curriculum

Themes/ Categories	Codes	N	%
Getting informed	There was no informing. (T1,T2,T3,T4,T5,T6,T7,T8,T9, T10,T11,T12,T13,T14,T15,T16,T17,T18)	18	100
Getting information methods	I got information on the internet.(T2, T4, T5, T6, T7, T8, T9, T10, T11, T12, T14, T15, T17, T18)	14	77,7
	I got information from the course book. (T1, T13, T16)	3	16,6
	I got information about the curriculum by attending the classes. (T3)	1	5,5
	Source books. (T4, T7)	2	11,1
	I got information by discussing with other group teachers. (T5, T9)	2	11,1

As seen in Table 1, all of the teachers indicated that they got no informing. Moreover, 77,7% of the teachers got information about the curriculum from the internet, 16,6% of them got information from the course book, 11,1% of them got from source books, and by discussing with group teachers, and 5,5% of them got information by attending the classes. Direct quotations from teachers' opinions were as follows:

"There was no informing. I reached information from the course book." (T1)

"... We reached information about the curriculum on the internet and by discussing with other mathematics group teachers." (T5)

"...We leagued together with group teachers and we exchanged opinions. There was no informing. We reached necessary information from the internet." (T9)

Teachers' opinions about the elements of the curriculum like the gains, the content, activities, and evaluation methods were presented in Table 2.



Table 2. Teachers' opinions about the elements of the curriculum

Themes (Categories)	Codes					
	Positive	n	%	Negative	n	%
The gains	They are appropriate to student level (T1, T3, T4, T6, T12, T15, T17)	7	38.8	They are not accessible (T5, T7, T11, T13, T14)	5	27.7
	They are clear and explicit (T1, T2, T3, T5, T6, T8, T9, T10, T15, T6, T18)	11	61.1	Time of the gains is insufficient (T4, T7)	2	11.1
The content	It is compatible with the gains (T3, T4, T5, T6, T7, T10, T11, T12, T14, T16, T17, T18)	12	66.6	It is not sufficient (T1, T5, T6, T8, T9, T14, T17, T18)	8	44.4
	Topics are concrete (T5, T15)	2	11.1	It is not appropriate for student level (T11, T13)	2	11.1
				It is not compatible with the immediate environment (T4)	1	5.5
Activities	They are compatible with the gains and the content (T1, T3, T4, T5, T6, T17, T18)	7	38.8	They are not enough (T2, T11, T14, T15)	4	22.2
	They are appropriate for student level (T8, T10, T12, T13)	4	22.2	They are not applicable in the classroom (T5, T7, T9, T11, T14)	5	27.7
				Time is not enough (T12, T13, T17)	3	16.6
Evaluation methods	They are compatible with the student level (T2, T5)	2	11.1	Insufficient (T9, T11, T12, T13, T15, T16, T17, T18)	8	44.4
	They are applicable in the classroom (T3, T6, T14)	3	16.6			

As Table 2 shows that the elements of the curriculum was categorized into four groups as “the gains”, “the content”, “activities” and “the evaluation methods” and teachers’ opinions about them were coded as either positive or negative. Teachers’ positive opinions about the gains were mostly related to clarity and explicitness with 61.1%. Other positive opinion was related to their appropriateness to student level with 38.8%. Teachers’ negative opinions about the gains were mostly related to inaccessibility with 27.7%. Other negative opinion was related to insufficient time with 11.1%. Teachers’ positive opinions about the content were mostly related to its appropriateness with the gains with 66.6%. Other positive opinion was related to concrete topics with 11.1%. Teachers’ negative opinions about the content were mostly related to its insufficiency with 44.4%. Other negative opinions were related respectively to its inappropriateness to student level with 11.1%, and its inappropriateness to the immediate environment with 5.5%. Teachers’ positive opinions about the activities were mostly related to its compatibleness with the gains and the content with 38.8%. Other positive opinion was related to its appropriateness to student level with 22.2%. Teachers’ negative opinions about the activities were mostly related to inapplicability of them in the classroom with 27.7%. Other negative opinions were related respectively to its insufficiency with 22.2%, and insufficient time with 16.6%. Finally, teachers’ positive opinions about the evaluation methods were mostly related to their applicability in the classroom with 16.6%. Other positive opinion was related to their appropriateness to student level with 11.1%. Teachers’ negative opinions about the evaluation methods were mostly related to their insufficiency with 44.4%. Direct quotations from teachers’ opinions were as follows:

“It is a program that students can understand. The gains are clear and explicit. Moreover, the gains were prepared in a level that student can reach. The activities mentioned in the curriculum are compatible with the gains and the content.” (T1)

“In my opinion, some gains are not in a level that students can be brought, even the gains exceed the level of some students. I think the content is compatible with the gains. However, the activities are not applicable in the classrooms because of the high class size.” (T7)

“Most of the contents and gains are not compatible with the student level. They should be prepared by considering students’ intellectual development. The time is not enough to apply the activities. In my opinion, the evaluation methods are insufficient.” (T13)

Teachers’ opinions about the problems they confronted in the application process of the curriculum and their solution offers were presented in Table 3.

As seen in Table 3, teachers confronted with some problems in the application process of the curriculum. 26.3% of the teachers thought that students’ readiness level is not enough for the fifth grade mathematics subjects, and the evaluation methods were insufficient. 22.2% of them stated that there was an imbalance between the content and the course duration, and there was no workbook and teacher guidebook. 11.1% of them indicated that they experienced problems while applying the curriculum related to be not informed about the curriculum. Teachers offered some solutions to solve these problems. 38.8% of them stated that the content should be more interesting for the students. 33.3% of them thought that the evaluation methods should be increased. 26.3% of them indicated that schools should be provided with necessary source books (workbook, teacher guidebook), and materials. 22.2% of them pointed out that the allocated time for the subjects should be arranged in a more planned way. 11.1% of them asserted that interactive CDs related to subjects should be prepared. Direct quotations from teachers’ opinions were as follows:

“There were problems because we got no information related to the fifth grade mathematics curriculum before, and students’ readiness level was not enough. Students were used to a single teacher so that they were confused for a long time. Students associate the Mathematics with some words such as complicated, difficult, operation etc. This is because of the facts that the curriculum does not attract students’ attention. While preparing the content, alternative sources that can attract students’ attention and help teachers should be provided or should take part in course books.”(T4)

“I had problems while applying the curriculum because we cannot exceed students’ habits from the primary school. I would include more evaluation methods because they are insufficient. The content should be more interesting.” (T1)

“As for me students should have workbook. This was not published in this year so that students cannot do enough practice. I should increase some revisions that enable students to use their intellectual capacity instead of memorizing, and reveal creative ideas. In other words, I would make it more interesting for the students.” (T5)

#### 4. Discussion

The findings the present study that compared the renewed fifth grade mathematics curriculum and the former one, can be summarized as follows:

1. The vision of the curriculum was every child can learn the mathematics in 2006, whereas in 2013 it was the mathematics is valuable. 2. In terms of the aims of the curriculum, in 2006, the curriculum put emphasis on individuals’ independent thinking, making their own decision, and self- regulation, while in 2013 program, bringing individuals in knowledge, skills, and attitudes specific to the mathematics for the future was emphasized. 3. In terms of the approach of the curriculum both programs adopted the conceptual approach. 4. In the sense of Teacher- student roles, the 2006 the curriculum asserted that the student was active and the teacher is the guide whereas the 2013 program stated that student was the active participant and the teacher was someone who was responsible from applying the activities. 5. With regards to learning areas, both programs collected the learning areas under five titles. 6. In terms of skills, in 2006 program the skills specific to the common field and to mathematics skills were handled separately. On the contrary, in 2013 program, it was mentioned as basic skills that should be gained in mathematics. Furthermore, in 2013 program affective and psychomotor skills were defined. 7. In the sense of source books, in 2006 there were course book that was compatible with the curriculum, student workbook, and teacher guidebook. On the other hand, in 2013 program, there was only a course book. There was no student workbook and teacher guidebook. 8. In both curriculums, the suggestions in terms of applying the curriculum were similar. Differently, in 2013 curriculum, suggestions related to preparing individualized education programs for students who needed special education took place. 9. With regards to assessment and evaluation, in 2006 program, there were explanations about alternative evaluation methods, whereas in 2013 program, there was no such information. 10. In terms of gain numbers and course duration, in 2013 program, the number of gains was decreased and the course duration was increased as compared to 2006 program.

In general, the 2006 and 2013 programs are similar to each other. In 2013 program, there was no appropriate student workbook and teacher guidebook, and there was no information related to evaluation methods in the curriculum, and these were shortcomings of the curriculum. According to researches, it was found that teachers had problems in terms of assessment and evaluation in the application process of the curriculum because the curriculums did not mention enough explanations and examples in terms of applying the evaluation methods. Although student-centered assessment and evaluation was suggested in the curriculum for this reason, teachers evaluate students with traditional methods due to lack of information (Bal, 2009; Güneş & Baki, 2011; Budak & Okur, 2012). In the new curriculum, decreasing the number of gains and increasing the course hours are thought to be superior things about the program. The researches about the former curriculum show that teachers had problems in the application process of the curriculum mostly because the course hours were not enough for bringing students in foreseen gains of the curriculum (Güneş & Baki, 2011; Üzel & Şimşeker, 2012; Budak & Okur, 2012; Anılan & Sarier, 2008; Keleş, Haser & Koç, 2012). It can be stated that with decreasing the number of gains and increasing the course hours in the new curriculum, this problem can be overcome.

In the present study, findings derived from teachers’ opinions about the renewed fifth grade mathematics curriculum can be summarized as follows:

1. Teachers got no information about the curriculum. Teachers reached information about the curriculum mostly from the internet. 2. The positive features of the foreseen gains of the curriculum were they are clear and explicit while the negative features were they are not accessible. The positive thing about the content was its appropriateness to gains, whereas the negative thing was the content is not sufficient. The superior characteristics of the activities were they are in line with the gains and the content, while the shortcoming about them was they are not applicable in the classroom. The positive feature of the evaluation methods was they can be applied in the classroom whereas the negative feature of them was they are insufficient. 3. The most important problem that teachers confronted in the application was students’ readiness level was not sufficient, and the evaluation methods were insufficient. The most suggested solution was the content should be more interesting for students. In the current study, it was found that teachers got no information about the new curriculum, and they reach necessary information on the internet. It is thought that in order to apply the new curriculum as proposed in the classes, it is important to give information to teachers about the curriculum. Teachers had troubles in the application because they did not have enough information about the curriculum. This is in line with the literature that, according to findings, teachers experienced problems in the application because the new curriculum was not introduced to them adequately (Duru & Korkmaz, 2010; Güneş & Baki, 2011; Demirtaş, Arslan, Eskicumalı & Civan, 2014). Similarly, as Halat (2007) stated that class masters cannot apply the curriculum exactly in

mathematic course because they had no informative seminars about the curriculum. Besides, Keleş, Haser and Koç (2012) indicated that mathematic teachers needed effective in service training so as to apply the curriculum as proposed. In the present study, it was found that teachers considered the gains as clear and explicit but not reachable. This is compatible with the previous researches that the positive things were the gains are clear, explicit, and understandable (Bal & Dinç-Artut, 2013; Budak & Okur, 2012), while the negative things were they are not compatible with student level (Güneş & Baki, 2011) so that they are not reachable for students. In terms of the content and activities, the findings of the current study show that teachers considered the content as compatible with the gains but as insufficient. Similarly, they thought that the activities are in line with the gains and the content but they are not applicable in the classroom. Budak and Okur (2012) indicated that for teachers' opinions, the content's being compatible with the gains and the activities' being compatible with the gains were found at good levels while the content's being enough for actualizing the gains and the activities' being applicable were found as moderate level. Bal and Dinç-Artut (2013) found that the content was superficial and insufficient, and activities were not applied completely. In the present study, with regards to the evaluation methods, it was found that for teachers methods were applicable in the classroom but they were still insufficient. Budak and Okur (2012) stated that teachers thought assessment and evaluation activities were applicable in moderate level and enough. Besides, Aksu (2008) pointed out that the evaluation activities were not sufficient. In the current study, it was found that teachers had problems because the students' readiness level was not enough, and the evaluation methods were insufficient so that as a solution offer they suggested that the content should be arranged in a way that it should be more interesting for student. Previous researches showed that the program's being incompatible with the student level, students' being not ready for the new curriculum, and not accommodate to it, the readiness level of students' being not enough, and students' being uninterested to the curriculum were considered as problems (Güneş & Baki, 2011; Keleş, Haser & Koç, 2012). Moreover, as Bal and Dinç-Artut (2013) stated that the subjects were not interesting for students. In addition to this, according to Aksu (2008), the content was not applicable. Thus, it is thought that it is important to prepare the content as compatible with students' readiness and learning levels, and arrange it in a way that it is interesting and attractive especially for applying the curriculum effectively.

All in all, the followings can be suggested according the findings of the present study: teachers and students should be provided with the sourcebooks that are appropriate to the curriculum, the evaluation methods should be explained in more detail in the curriculum, besides, a separate brochure related to the assessment and evaluation methods should be prepared, related persons should be informed about the new curriculum before the application process, and the gains, the content, activities, and evaluation methods of the new curriculum should be revised in a way that they are compatible with students' readiness and interest levels

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# Teachers' understanding about the brain in East China

Pei, X.<sup>a</sup>, Howard-Jones, P.A.<sup>b\*</sup>, Zhang, S.<sup>a</sup>, Liu, X.<sup>c</sup>, Jin, Y.<sup>a</sup>

<sup>a</sup>*School of Education Science, East China University, Shanghai, China*

<sup>b</sup>*Graduate School of Education, University of Bristol BS5 8HZ, United Kingdom*

<sup>c</sup>*Shandong Normal University, Jinan, China*

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## Abstract

Here, we report the first survey of teachers' ideas about the brain in East China (N=238), aimed at identifying the prevalence of “neuromyths” thought to detract from effective classroom practice. Analysis identified many neuromyths popular in Europe (e.g. value in teaching to learning styles, left-brained or right-brained learners and in using only 10% of the brain). However, some important differences with the European data also emerged (e.g. greater belief in the importance of attention and avoiding emotional disruption of thought). An inverse relationship between favouring genetic influence and a belief in a biological limit to student achievement was also observed.

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*Keywords:* Brain; neuroscience; neuromyth; China; genetics

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## 1. Introduction

A global field of enterprise is developing around attempts to bridge the gap between education and neuroscience. Formal organised initiatives to build bridges between neuroscience and education are so recent that their many progenitors are still settling on a name for this enterprise, with “Brain, Mind and Education”, “Neuroeducation” and “Educational Neuroscience” all currently contending. Efforts in the last decade have included a supranational project on “Learning Sciences and Brain Research” by the Organization for Economic Cooperation and Development (OECD)’s Centre for Educational Research and Innovation (CERI) from 1999 to 2006, and the formation of the International Mind, Brain and Education Society in the US which launched its journal “Mind, Brain and Education” in 2007. A second journal “Trends in neuroscience and education” was launched last year. Research centres combining neuroscience and education are springing up around the world, often associated with popular postgraduate courses. East China Normal University (Shanghai) has now opened its centre in Educational

Neuroscience and this year, supported by the OECD and UNESCO, the School of Education Science at East China University hosted the International Convention on Science of Learning. Here, global and local experts in education mingled with neuroscientists to discuss news forward in developing a new scientific basis for educational practice. Given the current Western interest in the high-performance (PISA) of schools in cities such as Shanghai, such initiatives in the East may have global political significance.

However, as the dialogue increases between neuroscience and education, there is a growing concern about the prevalence of neuromyths in many schools. In 2002, OECD defined “neuromyth” as “a misconception generated by a misunderstanding, a misreading, or a misquoting of facts scientifically established” (OECD, 2002). These myths are related to the practices of teachers and are often promoted by brain-based programmes and books marketed to teachers that are intended to inform their teaching strategies. There is good reason, therefore, to consider these misunderstandings contribute to poor practice in the classroom.

Studies have found high levels of neuromyths amongst teachers in the UK, Netherlands, Portugal, Brazil, China and Turkey. Beyond the impact of commercial brain-based programmes in promoting myths, it seems likely that cultural contexts will influence the types of myth that become prevalent in a particular country. Neuromyths may provide the opportunity for our biases to distort scientific fact and create misunderstandings about the brain that become popular. However, given that different cultural forces and biases exist amongst the peoples of different nations, it cannot be assumed that the prevalence of all neuromyths will be the same across international boundaries. For example, only half of the UK population report any affiliation with any religion (Park, Clery, Curtice, Philips, & Utting, 2012) and here, only 15% of trainee teachers believed that the mind results from the spirit, or the soul, acting on the brain (Howard-Jones et al., 2009). The people of Greece, however, have notably high religious involvement. High levels of religiosity characterize a large proportion of the Greek people (Hirschon, 2009) and the majority of this population are Christian Orthodox. Here, 72% agreed with the statement that “The mind is the result of the action of the spirit, or of the soul, on the brain”.

Here, we report the first survey of neuromyths amongst teachers in China, using a questionnaire used to assess levels of misunderstandings about the brain in Europe.

## 2. Method

### 2.1. Participants

Participants were 238 primary, secondary and high school teachers recruited in Shanghai, Shandong, Jiangsu and Zhejiang provinces.

### 2.2. Procedure

The translation and suitability of the survey was first validated through preliminary interviews and piloting with teachers not included in the final survey sample. The research was presented as a study of how teachers think about the brain and its influence on learning.

### 2.3. Instruments

Participants were asked to complete a survey used in a previous study of UK trainee teachers (Howard-Jones et al., 2009). This consisted of 40 assertions (15 correct and 16 incorrect factual assertions, and 9 open to subjective opinion) to which participants were asked to respond agree, don't know or disagree and is provided in Appendix 1. Of these 40 assertions in our survey, 38 statements were originally created by combining assertions used in a study of public neuroscience literacy (Herculano-Houzel, 2002) with ideas that have arisen in interviews with educators (see Howard-Jones et al., 2009 for further details concerning the underlying rationale for including these statements). The survey included the two additional statements of subjective opinion ("There is a biological limit to what some individuals can achieve in their education", "There is no biological limit to what any individual can achieve in their education") that Howard-Jones et al. (2009) used in a follow-up survey to explore ideas around genetic determination. Related to this issue, respondents were asked what percentage of educational outcome they attributed to a student's genes, their educational environment and their home environment. Participants also provided background information for the purpose of characterizing the sample (type of school, years of experience, gender, age, etc.) and whether they were familiar with a range of brain-based programmes common in the US and Europe (Brain Gym, Multiple Intelligences, Learning Styles). 15 of these participants were then randomly selected for in-depth interview in which they explained their responses.

## 3. Results

The summary of responses of our sample of teachers to our 9 statements of subjective opinion is shown in Table 1. Summaries of responses to assertions related to general knowledge and educational issues regarding the brain are shown in Tables 2 and 3.

Table 1. Beliefs of our sample of teachers in East China regarding 9 statements that might be regarded as open to subjective opinion, including the mind-brain relationship, the impact of developmental difference on moral responsibility and belief in a biological limit to achievement.

	Response as percentage % of sample		
	Agree	Don't know	Disagree
The mind is the result of the action of the spirit, or of the soul, on the brain	85	11	4
State of mind is a reflection of the brain state in a given moment	82	14	4
If there are ways to study brain activity, the mind can be studied through them	60	31	9
The mind is a product of the working of the brain	88	9	3
Without a brain, consciousness is not possible	75	11	14
Intuition is a "special sense" that can't be explained by brain	71	15	14

Individuals are not responsible for behavior associated with a developmental difference in brain function	24	20	57
There is a biological limit to what some individuals can achieve in their education	61	29	10
There is no biological limit to what any individual can achieve in their education	27	25	48

Table 2. Responses of our sample of teachers in East China to general assertions regarding the brain (C = correct statement, I = incorrect statement). It should be noted that some scientific evidence supporting one statement (marked C\*) has recently been found, raising questions about the correctness, or otherwise, of this statement.

	Response as percentage % of sample		
	Agree	Don't know	Disagree
Brain activity depends entirely on the external environment: with no senses stimulated, we don't see, hear or feel anything (I)	34	8	57
Emotional brain processes interrupt those brain processes involved with reasoning (I)	93	4	3
Cognitive abilities are inherited and cannot be modified by the environment or by life experience (I)	8	4	88
Learning is not due to the addition of new cells to the brain (C*)	53	36	12
One's environment can influence hormone production and, in turn, personality (C)	88	12	0
We use our brains 24 hours a day (C)	57	16	27
To learn how to do something, it is necessary to pay attention to it (C).	89	3	8
Learning occurs through modification of the brain's neural connections(C)	68	29	3
Performance in activities such as playing the piano improves as a function of hours spent practicing (C)	37	7	56
It is with the brain, and not the heart, that we experience happiness, anger, and fear (C)	65	11	25
Hormones influence the body's internal state, and not their personality (I)	36	27	37
Memory is stored in the brain much like as in a computer. That is, each memory goes into a tiny piece of the brain (I)	78	16	5
We mostly only use 10% of our brain (I)	59	36	5
Memory is stored in networks of cells distributed throughout the brain (C)	53	31	16
Keeping a phone number in memory until dialing, recalling recent events & distant experiences, all use the same memory system (I)	24	44	32
When we sleep, the brain shuts down (I)	8	9	82

Table 3. Responses of our sample of teachers in East China to assertions regarding the brain that are related to educational practice (C = correct statement, I = incorrect statement).

	Response as percentage % of sample		
	Agree	Don't Know	Disagree
Children are less attentive after sugary drinks and snacks (I)	62	29	10
Omega 3 supplements do not enhance the mental capacity of children in the general population (C)	44	42	14
Extended rehearsal of some mental processes can change the shape and structure of some parts of the brain (C)	66	26	8
Environments that are rich in stimulus improve the brains of preschool children (I)	89	6	5
Individuals learn better when they receive information in their preferred learning style (e.g. visual, auditory, kinaesthetic) (I)	97	3	1
Short bouts of co-ordination exercises can improve integration of left and right hemispheric brain function (I)	84	13	3
Regular drinking of caffeinated soft drinks reduces alertness (C)	52	37	11
Differences in hemispheric dominance (left brain, right brain) can help explain individual differences amongst learners (I)	71	23	7
Learning problems associated with developmental differences in brain function cannot be remediated by education (I)	50	19	31
There are no critical periods in childhood after which you can't learn some things, just sensitive periods when it's easier (C)	80	7	14
Vigorous exercise can improve mental function (C)	40	15	46
Individual learners show preferences for the mode in which they receive information (e.g. visual, auditory, kinaesthetic) (C)	93	6	1
Drinking less than 6-8 glasses of water a day can cause the brain to shrink (I)	5	30	65
Exercises that rehearse co-ordination of motor-perception skills can improve literacy skills(I)	79	18	3
Production of new connections in the brain can continue into old age (C)	44	40	16

The mean percentage of educational outcome that participants attributed to genetics, home environment and school environment were 28 (SD= 16), 36 (SD=14) and 35 (SD=15) respectively. The mean percentage of educational outcome attributed to genetics that participants who agreed (N=140) and disagreed (N=23) with the statement “There is a biological limit to what some individuals can achieve in their education” was 29% (SD 16%) and 22% (SD 12%) respectively. An independent samples one-tailed t-test revealed this difference to be significant ( $t(161)=1.84$ ,  $p=0.033$ ). The mean percentage of educational outcome attributed to genetics that participants who agreed (N=62) and disagreed (N=110) with the statement “There is no biological limit to what any individual can achieve in their education” was 23% (SD 11%) and 30% (SD 16%) respectively. An independent samples one-tailed t-test revealed this difference to be significant ( $t(169)=3.01$ ,  $p=0.001$ ). The percentage of teachers who were familiar with Brain Gym, Multiple Intelligences, Learning Styles were 6%, 61%, and 53% respectively.

#### 4. Discussion

The research revealed that teachers in East China held many neuromyths and misconceptions about the brain that have been recorded elsewhere in Europe. These include almost three-quarters (71%) of teachers (compared with 91% and 86% in UK and Netherlands, Dekker et al. (2012)) believing that differences in hemispheric dominance (left brain, right brain) can help explain individual differences amongst learners, and the great majority (97%) believing in the effectiveness of teaching to learning styles (compared with 93% and 96% in UK and Netherlands respectively).

However, there were also appeared to be some differences between responses of teachers in our sample and those collated in previous studies elsewhere. For example, fewer teachers (only 40%) in East China appeared enthusiastic about the potential for vigorous exercise to improve mental function, compared with 65% teachers in Greece, 63% of UK trainee teachers. However, this result may need to be treated with caution. Through our interviews with teachers, it became apparent that vigorous exercise was being interpreted as meaning a highly repetitive task rather than aerobic physical activity. This points to difficulties we encountered in translating the language and concepts used in our survey which designed for Western teachers. This process of translation creates many opportunities for both linguistic and cultural misunderstandings. Indeed, a high number of teachers in East China were enthusiastic about co-ordination exercises improving integration of left and right hemispheric brain function (84%), and about exercises aimed at motor-perception skills improving literacy (79%). These figures, respectively, are similar to and sometimes higher than those from surveys in European countries. They can be compared, respectively, with 88% and 78% for UK teachers and 82%, 63% for teachers in the Netherlands (Dekker et al. 2012), or 65%, 35% for trainee UK teachers and 56%, 72% for teachers in Greece (Deligiannidi and Howard-Jones, 2014). Popularity in these other countries has been attributed to programmes such as Brain Gym, but in our sample of teachers in East China, only 6% were familiar with this programme. Some insights into the popularity of physical exercise arose from the interviews, in which 6 teachers offered rationales to justify their enthusiasm for it. Two teachers explained in terms of oxygen provision to the brain, two teachers in terms of improved attentional abilities, and another recounted his observations that coordination skills in sport (e.g. basketball) appeared associated with literacy skills. Another teacher referred to her own tendency to walk around when learning a foreign language, and also to the film *Akeelah and the Bee* in which Akeelah remembers her spellings better while skipping with a rope. It may be that programmes such as Brain Gym exploit a popular association between exercise and learning that already exists in many cultures.

Compared with UK trainee teachers, teachers in East China appear more enthusiastic about attention (89% believe “To learn how to do something, it is necessary to pay attention to it” compared with 43% in the UK) and less enthusiastic about emotion in reasoning (93% believe “Emotional brain processes interrupt those brain processes involved with reasoning” compared with 69% in the UK). These may reflect genuine cultural differences. For example, while the Western media is fascinated with the idea of multitasking, there is an old Chinese saying that “a man cannot spin and weave at the same time”. In terms of attitudes to emotion, European American individuals have been shown to value high-arousal positive affect (e.g., excitement) more than do Hong Kong Chinese, while Hong-Kong Chinese value low-arousal positive affect (e.g., calm) more than do European American individuals (Tsai et al., 2006). The American philosopher Ralph Waldo Emerson (1841/2000, p262) believed that “Nothing great was ever achieved without enthusiasm,” while the Chinese philosopher Lao-tzu (6th century; as cited in Cleary 1989, p2) believed “If people can be clear and calm, heaven and earth will come to them.”

The fact that 50% of our sample of teachers from East China agreed that “Learning problems associated with developmental differences in brain function cannot be remediated by education” can be interpreted in a number of ways. It appears considerably higher than the 9% of UK trainee teachers (Howard-Jones, et al., 2009), or 16% of UK teachers and 19% of Dutch teachers in the Dekker et al. (2012) study. This may reflect differences in how the phrase “Learning problems” is interpreted compared with participants in these other studies. That is, it may communicate more problematic disorders (e.g. amentia) than those it may associate itself with amongst European teachers (e.g. dyslexia). Alternatively, it may suggest teachers in East China consider the brain is less plastic than those in Europe. In either respect, further research on this topic may be illuminating and helpful in understanding different cultural attitudes towards the brain and learning disorders.

We also believe the somewhat contrary results we derived for opinions with regard to the mind-brain relationship also point towards the need for further research. Our current results suggest 85% of Chinese teachers believe “The mind is the result of the action of the spirit, or of the soul, on the brain” but at the same time 88% believe “The mind is a product of the working of the brain”. However, in Chinese, this first statement used words without religious association for spirit, or soul. This resulted in there being little potential conflict between these statements. Further research is planned that is intended to disentangle beliefs of teachers more carefully regarding the mind-brain relationship.

Our finding that there was a relationship between belief in genetic influence and a diminished sense of student’s potential (or a biological limit to their achievement) emphasises the potential importance of teachers gaining a better understanding of neurodevelopment and genetics. There is increasing scientific and media interest in the role of genetics in education, but if these messages are misinterpreted then our results suggest this will influence the attitudes of teachers in the classroom.



## 5. Conclusions and recommendations

In summary, since many of the myths and ideas we report here are directly related to practice, we conclude that the knowledge and practice of teachers in East China would benefit from more accurate knowledge of the brain, as might be received from teacher training and in-service professional development. This may be an important first step for future efforts in China to enrich education with insights from neuroscience. Comparison of our results with international data sets suggests cultural factors influence teachers' understanding of the brain, and better understanding of these factors would be a valuable target area for future research.

**The complete set of statements used in the questionnaire. Participants were asked to indicate their agreement with these statements as agree, don't know or disagree.**

The mind is the result of the action of the spirit, or of the soul, on the brain  
"State of mind" is a reflection of the brain state in a given moment  
If there are ways to study brain activity, the mind can be studied through them  
The mind is a product of the working of the brain  
Without a brain, consciousness is not possible  
Intuition is a "special sense" that cannot be explained by the brain  
Individuals are not responsible for behavior associated with a developmental difference in brain function  
There is a biological limit to what some individuals can achieve in their education  
There is no biological limit to what any individual can achieve in their education  
One's environment can influence hormone production and, in turn, personality (C)  
We use our brains 24 hours a day (C)  
To learn how to do something, it is necessary to pay attention to it (C).  
Learning occurs through modification of the brain's neural connections(C)  
Performance in activities such as playing the piano improves as a function of hours spent practicing (C)  
It is with the brain, and not the heart, that we experience happiness, anger, and fear (C)  
Hormones influence the body's internal state, and not their personality (I)  
Memory is stored in the brain much like as in a computer. That is, each memory goes into a tiny piece of the brain (I)  
Memory is stored in networks of cells distributed throughout the brain (C)  
Keeping a phone number in memory until dialing, recalling recent events & distant experiences, all use the same memory system (I)  
When we sleep, the brain shuts down (I)  
Learning is not due to the addition of new cells to the brain (C\*)  
Brain activity depends entirely on the external environment: with no senses stimulated, we don't see, hear or feel anything (I)  
Emotional brain processes interrupt those brain processes involved with reasoning (I)  
Cognitive abilities are inherited and cannot be modified by the environment or by life experience (I)  
We mostly only use 10% of our brains (I)  
Children are less attentive after sugary drinks and snacks (I)  
Omega 3 supplements do not enhance children's mental capacity in the general population (C)  
Environments that are rich in stimulus improve the brains of preschool children (I)

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# Teachers' views related to the effectiveness of in-service training programs in primary schools

Aysun Kurt Katman<sup>a</sup>, Ömer F. Tutkun<sup>b</sup>;

<sup>a</sup>Teacher, Ministry of Education, Turkey

<sup>b</sup>Sakarya University Faculty of Education, Sakarya, Turkey

## Abstract

The purpose of this study is to determine primary school teachers' views related to the effect of in-service training programs on teaching-learning process. The research study group consists of 120 primary school teachers working in the formal primary schools. "The Determination of Teachers' Views related to the Effect of In-Service Training Programs on Teaching-Learning Process Survey" was used as the data collection tool in the study. The research results are as follows: The majority of the participants argue that in-service training supports the development of the education system; that in-service training programs have a purpose; that in-service training increases teachers' professional knowledge and skills. On the other hand, only half of the participants argue that in-service training meets teachers' educational needs.

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**Keywords:** In-Service Training, Curriculum, Teaching and Learning, Primary School, Teacher.

## 1. Introduction

Recent developments in science and technology necessitate to learn new knowledge and technologies in each profession and to educate employees on these issues. In this regard, today's organizations seek for some competencies in their employees such as having multi-faceted skills, understanding complex intra and extra-organizational relationships and adapting to effective teamwork. From now on, human resource management has taken the place of the concept of personnel management in organizational structure. Therefore, requirements for staffs undergo some changes. In order to adapt to this new understanding and applications, it is necessary that education system must be established in an open structured frame which is open to developments and adapt other things to itself rapidly (Çiftçi, 2008; Doğan, 2009).

In this context (Uçar&İpek, 2006; Çiftçi, 2008), within the scope of "lifelong learning" getting increasingly common and important, it is clear that teachers' professional and personal development also should be developed, that their efficiency should be increased and that in-service training activities for preparation for senior positions should be provided. Because the quality of school depends on the quality of educational services presents by teachers. For this reason (Taymaz, 1981; Tutkun, 1991), it is necessary that both teachers should be trained well before pre-service training and that they should improve themselves continuously during the service. In this context (Özyürek, 1981; Tutkun, 1991), it can be said that training of a teacher who performs his/her profession does not come to an end only with starting to work. Continuing education is a must for a member of a profession in order to fulfill service required by job effectively, not to remain behind professional development and to keep himself/herself updated. This process is referred to as in-service training.

On the other hand, major changes and increases have occurred in the knowledge, attitudes and skills which an individual should have in this new era 21st century (Tutkun, 2010; Tutkun&Aksoyalp, 2010; Tutkun&Aksoyalp, 2012). It is no longer sufficient that these information is brought to individuals during only formal education process. Due to lack of knowledge and skills and changes in information acquired during the education of individuals who begin their professional career passing through different educational levels, acquiring knowledge, skills and techniques relates to their profession, producing solutions to professional problems, adapting their institutions and thus being successful are dependent on continuous training throughout their professional lives.

The history of understanding and practice of in-service training dates back to the Egyptians. Egyptians trained the captives brought from other countries for work. This training was made directly on-the-work. There were "Summer School" and "Harvest Holiday Camps" for teacher in England and Wales Coast before the 1840s. Aiming compliance training in staff training, on-the-job training, task-based training, teaching the crafts requiring dexterity, apprenticeship training has come forward in the 20th century. Some courses opened for teachers and imams teaching in some teacher training schools and Ottoman primary schools in the 1890s can be accepted as the first in-service training activities for teachers in Turkey. In-service training unit in the

organizational structure of Turkish Ministry of Education was established in 1960. Starting centrally initially, in-service education activities was conducted as "On-the-Job Training Seminars for Teachers", which were held in teacher training schools and higher education institutions training teachers, in the form of evening courses and summer courses later on. Before this date, the in-service training activities were planned and conducted at the local level. Since 1982, these types of in-service activities has been conducted by "In-service Training Department" (Pehlivan, 1997; Özyürek, 1981; Milli Eğitim Bakanlığı, 2014).

Teaching profession is a field of occupation which has social-cultural, economic, scientific and technological dimensions concerning with education sector, which is based on specialist knowledge and skills in the field, which requires academic study and professional training in the professional status (Basic Law of National Education, 1973; Aydın, 2006). In this context, teaching profession as an occupation requires some qualification. Nowadays on which education has gained so much importance, both public and private sectors have to give a systematic training to their staffs in order to provide quality products or services toward their purposes. The way to achieve this is "in-service training". In-service training (Taymaz, 1981; Aytaç, 2000, Günbayı&Taşdöğen, 2012) is the training provided to the staff who is assigned for a fee or works in the workplaces belonging to legal and natural persons, without any sector distinction, for the purpose of both increasing efficiency of the share of labor factor for the goods or services produced, and providing people to gain or enrich necessary knowledge, attitudes and skills. The main purpose of in-service training is to inform teachers and administrators on changing and evolving training understanding and bring them necessary knowledge, skills and behaviors in order to be efficient and effective in this process.

Providing expected benefits from in-service training depends on that the whole processes planned should be tackled in a systematic approach and be consistent, logical, simple and applicable. Planning of in-service training allows usage of all sources in the most appropriate and efficient manner system development and ensuring effective coordination among other elements. In-service training activities for teachers in Turkey are conducted in cooperation and contribution with Ministry of National Education, Higher Education Council, Universities, Turkey Middle East Public Administration (TODAIE), other public-private institutions/ organizations, nongovernmental organizations and cultural centers of other countries (Ministry of Education, 2012; Erdogan, 2010; Ministry of Education, 1995).

The fundamental element of being a developed country is to train qualified people. Education system training these types of people and teacher the most important element of the system has to adapt to changes occurring in each area and renew themselves constantly. The quality of a school depends on the quality of the training teachers offer. It is possible to make this realize for teachers on the condition that they should be both trained well pre-service and improve themselves constantly during the profession. It is contemplated that the results of this study will contribute to designing qualified in-service training programs planned according to scientific criteria and to implementation processes. In this context, the purpose of this study is to determine teachers' opinions related to the effectiveness of in-service training programs in primary schools.

## 2. Method

### 2.1. Methods

In this study, general descriptive survey research method was used. Descriptive models are a research approach aiming to describe a situation occurred past or now in its existing shape (Karasar, 2003, 77).

### 2.2. Study group

The study group consists of 120 teachers determined by random sampling method from the classroom teachers working at the primary schools in the province of Çayirova in Kocaeli.

Table 1. Participants' gender, age, graduation level, seniority, education state based for the appointment of the teaching profession and number of participation in in-service training

		f	%	Total (f)
Gender	F	87	72,5	120
	M	33	27,5	
	20-30	42	35,0	
Age groups	30-40	56	46,7	120
	40-45	13	10,8	
	45-50	3	2,5	
	50+	6	5,0	
Graduation level	Associate degree	5	4,2	120
	Undergraduate degree	107	89,2	
	Master degree	5	4,2	
	Other	3	2,5	
Seniority	0-5	22	18,3	120
	6-10	53	44,2	
	11-15	25	20,8	
	16+	20	16,7	
Education state based for the appointment of the teaching profession	Institute of Education	7	5,8	120
	Faculty of Education	104	86,7	
	Other	9	7,5	

87 (%72,5) of the participants are female and 33 (%27,5) of them are male. There are 42 people (%35,0) in 20-30, 56 people (%46,7) in 30-40 age group, 13 people (%10,8) in 40-45 age group, 3 people (%2,5) 45-50 age group, 6 people (%5,0) in 50 and older age group. 5 (%4,2) of the participants have associate degree, 107 (%89,2) of them have undergraduate degree, 5 (%4,2) of them have master degree and 3 (%2,5) of them selected other graduation level. 22 (%18,3) of the participants have 0-5 years seniority, 53 (%44,2) of them have 6-10 years seniority, 25 (%20,8) of them have 11-15 years seniority, 20 (%16,7) of them 16 and older years seniority. 7 (%5,8) of them graduated from an institution of education and 104 (%86,7) of them from a faculty education while 9 (%7,5) of them selected other graduation state.

## 2.3 Data Collection

“Survey for Determining Teachers’ Opinions related to Effects of In-Service Programs on Teaching-Learning Processes in Primary Schools” developed by Doğan (2009) was used for data collection instrument in the study. First part of the survey having two parts contains personal information. There are 30 items aiming to describe the effects of in-service programs on teaching-learning processes in the second part. The survey is rated in Likert-typed with the options of “strongly agree, agree, undecided, disagree, strongly disagree.

## 3. Findings

### 3.1. Primary School Teachers’ Opinions related to the Effectiveness of In-Service Training Program

Table 2. The Distribution of Teachers’ Views related to the Effectiveness of In-Service Training Programs in Primary Schools

Teachers’ Opinions related to In-Service Training Programs		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		f	%	f	%	f	%	f	%	f	%
1	In-service training increases teachers’ professional knowledge and skills.	13	10,8	16	13,3	12	10,0	58	48,3	21	17,5
2	In-service training increases effectiveness and efficiency in the education system.	7	5,8	15	12,5	27	22,5	60	50,0	11	9,2
3	In-service training provides unity and solidarity among teachers.	6	5,0	20	16,7	16	13,3	61	50,8	17	14,2
4	In-service training provides morale and motivation among teacher.	5	4,2	18	15,0	22	18,3	65	54,2	10	8,3
5	In-service training changes existing negative behaviors.	3	2,5	24	20,0	32	26,7	53	44,2	8	6,7
6	In-service training completes the shortcomings of pre-service training in terms of professional competence.	5	4,2	20	16,7	25	20,8	58	48,3	12	10,0
7	In-service training brings the teachers who just begin to work as a teacher in the education field the knowledge, skills and behaviors which teaching profession requires.	2	1,7	19	15,8	21	17,5	67	55,8	11	9,2
8	In-service training supports the development of education system.	2	1,7	14	11,7	18	15,0	77	64,2	9	7,5
9	In-service training ensures teachers’ compliance to the organization.	2	1,7	21	17,5	25	20,8	64	53,3	8	6,7
10	In-service training prepares teachers prepares teachers for an upper task.	6	5,0	27	22,5	32	26,7	49	40,8	6	5,0
11	In-service training meets teachers’ training needs.	4	3,3	38	31,7	33	27,5	34	28,3	11	9,2
12	In-service training increases the quality of teaching.	2	1,7	25	20,8	21	17,5	65	54,2	7	5,8
13	In-service training gives the opportunity to capitalize for the acquaintances and to take vacation in resorts.	20	6,7	48	40,0	23	19,2	24	20,0	5	4,2

14	In-service training means showing off and giving the impression about doing something to upper levels.	15	12,5	48	40,0	23	19,2	29	24,2	5	4,2
15	In-service training is to burden chores on teachers.	10	8,3	52	43,3	34	28,3	19	15,8	5	4,2

Table 2. Cont.

Teachers' Opinions related to In-Service Training Programs		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		f	%	f	%	f		f	%	f	%
16	In-service training does not have any aim.	14	11,7	70	58,3	16	13,3	15	12,2	5	4,2
17	In-service training provides beginning teachers to adapt to the profession.	3	2,5	13	10,8	17	14,2	75	62,5	12	10,0
18	In-service training prepares teachers for an upper task.	4	3,3	31	25,8	29	24,2	48	40,0	8	6,7
19	In-service training teaches teachers new developments in science and technology.	4	3,3	25	20,8	23	19,2	59	4,2	9	7,5
20	In-service training brushes up past information of teachers.	5	4,2	14	11,7	20	16,7	48	56,7	13	10,8
21	In-service training contributes to teacher-student interaction.	5	4,2	17	14,2	24	20,0	65	54,2	8	6,7
22	In-service training makes more efficient teachers and teaching.	4	3,3	13	10,8	28	23,3	65	54,2	10	8,3
23	In-service training provides teachers to increase information about accurate communication with students.	3	2,5	21	17,5	14	11,7	73	60,8	9	7,5
24	In-service training increases teachers' information on classroom management.	3	2,5	20	16,7	21	17,5	64	53,3	12	10,0
25	In-service training provides teachers informed on the subjects about conflict management.	3	2,5	25	20,8	22	18,3	62	51,7	8	6,7
26	In-service training give information about the importance of teacher and parent communication.	5	4,2	30	25,0	25	20,8	54	45,0	6	5,0
27	In-service training gives information to teachers about adapting to change.	4	3,3	9	7,5	25	20,8	75	62,5	7	5,8
28	In-service training increases teachers' competences in using IT.	5	4,2	23	19,2	22	18,3	61	50,8	9	7,5
29	In-service training encourages teachers to develop themselves.	3	2,5	17	14,2	17	14,2	75	62,5	8	6,7
30	In-service training provides to learn personal rights of teachers.	7	5,8	25	20,8	23	19,2	57	47,5	8	6,7

#### 4. Conclusion Discussion and Suggestions

The participants, in general, believe that in-service training programs are effective. The majority of the participants argue “that in-service training supports the development of the education system, that in-service training programs have a purpose, in-service training increases teachers' professional knowledge and skills, that in-service training practices are effective for providing beginning teachers to adapt to their profession, and that in-service training encourages teachers to develop themselves”. On the other hand, half of the teachers argue that “in-service training meets the training needs of teachers, gives information about the importance of teacher parent communication, and prepares teachers for an upper task”.

The expressions which the teachers reported at the highest level for presenting their opinion related to the effect of in-service training programs on teaching-learning process are respectively as follows:

1- “In-service training provides beginning teachers to adapt to the profession.” It is stated for this item that %10,0 of the teachers are strongly agree, %62,5 of them are agree, %14,2 of them are undecided, %10,8 of them are disagree and %2,5 of them are strongly disagree.

2- “In-service training supports the development of education system.” It is stated for this item that %7,5 of the teachers are strongly agree, %64,2 of them are agree, %15,0 of them are undecided, %14 of them are disagree and %1,7 of them are strongly disagree.

3- “In-service training encourages teachers to improve themselves.” It is stated for this item that %6,7 of the teachers are strongly agree, %62,5 of them are agree, %14,2 of them are undecided, %14,2 of them are disagree and %2,5 of them are strongly disagree.

4- “In-service training programs do not have any purpose.” It is stated for this item that %4,2 of the teachers are strongly agree, %12,2 of them are agree, %13,3 of them are undecided, %58,3 of them are disagree and %11,7 of them are strongly disagree.

5- “In-service training means showing off and giving the impression about doing something to upper levels.” It is stated for this item that %4,2 of the teachers are strongly agree, %24,2 of them are agree, %19,2 of them are undecided, %40,0 of them are disagree and %12,5 of them are strongly disagree.

6- “In-service training gives the opportunity to capitalize for the acquaintances and to take vacation in resorts.” It is stated for this item that %4,2 of the teachers are strongly agree, %20,0 of them are agree, %19,2 of them are undecided, %40,0 of them are disagree and %6,7 of them are strongly disagree.

7- “In-service training meets the training needs of teachers.” It is stated for this item that %9,2 of the teachers are strongly agree, %28,3 of them are agree, %27,5 of them are undecided, %31,7 of them are disagree and %3,3 of them are strongly disagree.

8- “In-service training gives information about the importance of teacher-parent communication.” It is stated for this item that %5,0 of the teachers are strongly agree, %45,0 of them are agree, %20,08 of them are undecided, %25,0 of them are disagree and %4,2 of them are strongly disagree.

The research findings of Dogan (2009) support these results. In the study, the teachers gave the highest score to “In-service training increases teachers' professional knowledge and skills” item while they gave the lowest score to “In-service training programs do not have any purpose”. These results are also consistent with the research results of Demirtaş (2008), Uçar&İpek (2006), Aytaç (2000). In these studies, the majority of the teachers stated that in-service programs are useful but there are some deficiencies in the programs.

In accordance with the results of this study, it can be suggested that:

- 1- In-service training activities should be planned by identifying teachers' training needs, desires and expectations.
- 2- In-service training practices should be carried out by qualified experts and academicians.
- 3- Teachers should be believed the professional and individual benefits of in-service training.
- 4- Some researches discussing teachers' expectations from in-service trainings and their results should be done.

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# Teaching “principles of Atatürk and history of revolution” class at the universities

Şefika ÖZMEN

Selcuk University Ilgın Vocational School, Konya, 42600, Turkey

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## Abstract

History is a discipline, which enables to make healthy predictions related to the future and to produce correct policies within the process of the time, by means of questioning the past. Every society examines the facts and events within its own knowledge, skills, conditions, and capabilities as well as tries to give direction to the future by taking lesson from all those experiences. From this point of view, ‘History of Revolution’ class is far from being just a static history class confining itself to narration of the past. At the same time, it is a dynamic, sociality-increasing culture class, lighting the things that happened in near history by evaluating them within the known special conditions of the country and thus showing how to use that knowledge for correct decision-making process for the future. Hence, this study deals with teaching ‘Principles of Atatürk and History of Revolution’ class at the universities with an effort to find answers to the questions of ‘when this class was started to be thought at the universities?’ and ‘what kind of a progress did it show within the time?’ Firstly, the reasons for the emergence of such a class and the opinions related to the History of Revolution at one-party period was explained and then the studies regarding the formation of History of Revolution programs within the periphery of Turkish-Islamic synthesis were presented, by using descriptive scanning method.

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**Keywords:** History class, History of Revolution, history education, Principles of Atatürk.

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## 1. Emergence of ‘The Principles of Atatürk and History of Revolution’ Classes

History rooted from VHR in Hebrew, means ‘to narrate, to transfer, and to tell’. In Western languages it means a discipline ‘historia’ that describes true life past and is based on true life past. In addition to its lexical meaning, many descriptions have been attributed to history. In two of these descriptions, history has found meaning. The first one describes history as a science which is based on human and social events and the second one describes history as a science based on past. No matter how it is described, the mission of the history as a science is to research past and also transfer this to the people of today and future. At this point a question is asked “What does teaching and learning history do?”. Learning history helps analyse the past of societies and therefore let people direct and organize their lives based on this experience and by taking lessons. Moreover, it directs nations to live according to their national values and to remain standing in a healthy way. At this point teaching history becomes an important issue (Göç, 2007). In nation states, one of the most appealing ways to procure national culture and national identity has been education of history included in national education. Education of history has been reclaimed as a tool to nationalise history and a political legal source. The reason for history to be used in such practical aims is that it is one of the best ways of nurture and one of the richest treasures to create national conscience. Such duty which is attributed to history to create national identity and conscience has also shaped the education of history. Research of history has an important role in developing cultural policies and societies (Köken, 2004:188).

As the Ottoman Government submitted the appalling conditions of Armistice of Montrose signed on the 30th of October, 1918, at the end of World War I, they could not stop the country from being occupied. In this setting, Mustafa Kemal, who came to Anatolia as an official inspector, started Turkish War of Independence. The main aim of this movement is to found an independent Turkish State that is appropriate for European model over the ruins of Ottoman Empire which demolished at the end of World War I. (Sarıay, 2004: 55). Turkish public struggled to survive in this independence war. After this war was won, foundations of the new Turkish State were laid, with the developing political events Turkish State got through a period of time when reforms took place. It was thought to be important for Turkish public to know this process and understand it (Göç, 2007:10).

After the declaration of Republic, Atatürk rapidly started reforms. As he was bringing these reforms into life, he applied his ideas about history into the process. Studies about history started at early years of Republic, accelerated at the end of 1920s. Atatürk used the history as a moral support to improve the state and modernise it and he acknowledged history as the most reliable tool for Turkish public to gain individuality (Öztaş, 2009:94).

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\* Corresponding author. Tel.: +90-332-8857262; fax: +90-332-8857301.

E-mail address: ozmen@selcuk.edu.tr



In 1925 Ankara Courthouse Law School was opened to raise people that would pursue reforms. The philosophy of Turkish Revolution was given as a class in the name of "History of Revolution" by Mahmut Esat for the first time in this school. In this respect, lecturers of this school conducted conferences every month which were open to public and including debates. On the other hand, with the decision of council of ministers on the 13th of January 1926, Turkish Revolution history classes took place among the other classes of Faculty of Literature which were accepted by the 6th clause of Ottoman University regulations (Erdaş, 2006:11).

It is observed that the emergence of History of Revolution classes is related to three reasons. First, History of Revolution emerged as a part of science of History since the early years of republic. Second, History of Revolution emerged as a part of citizenship education. Each new regime regulates educational programmes according to their ideals to raise people which adopt its ideals. In Turkey, raising citizens who adopted the ideals of this new regime and making use of history and social disciplines were highly important for the continuity of the regime. The third reason of education of History of Revolution was to form a comparative history of revolution (Kaya, 2008:6).

Turkish Republic has inherited the modernism reservoir and philosophy of Turkism from Ottoman and revised it as 'Westernization despite the West' and accepted it as the starting point of reforms. Although the influence of this philosophy can be observed in political, social and economic reforms, particularly, the foundation of Turkish History Investigation Committee (Turkish Historical Society) which is one of the cultural reforms should be analysed in this context (Şimşek, 2007:12).

IV Congress of Turkish Hearts which gathered on the 23rd of April 1930, took the first steps of founding Turkish Historical Society. In this congress, "Turkish History Committee" which is a part of Turkish Hearts was established in order to investigate Turkish history and civilization. The first meeting of this committee was conducted on the 4th of June 1930 under the presidency of M. Tefik Bıyıkhoğlu. After this date, the committee had eight meetings until the 29th of March 1931 and also Atatürk attended these meetings. Turkish History Committee wrote 605-page "Guidelines of Turkish History" in 1931. Atatürk started history studies to properly define Turkish history and to reveal groundless allegations about Turkish history. After 1930, history studies started to become institutionalised, and first "Turkish History Committee" (1930), then "Turkish History Investigation Committee" (1931) were established. With the help of Turkish History Investigation Committee "Turkish History Thesis" was put forward and it aimed to indoctrinate national consciousness. In order to teach history, "Guidelines of Turkish History" was published (Öztaş, 2007:97-104).

The most determiner effect of Turkish revolution over the literature of Turkish history was the First Turkish History Congress which took place between the 2nd and 11th of July 1932 in Ankara Community Centre and the Turkish History Thesis which was accepted at the end of this congress.

This congress was conducted by official attempt of Ministry of Education and initiative of Mustafa Kemal. The congress started with the speech of Mahmut Bozkurt, Minister of Education in that period, and continued sessions of four main topics and witnessed intense debates. The history thesis which was accepted in the congress had these following aims: 1. Legitimizing the existence of Turkish Republic in Anatolia, 2. Emphasising secularism and in order to keep the new national identity away from religion, researching Pre Islamic Turkish history (Middle Asia), 3. In order to have equal relations with other contemporary and independent nations in the world, defending cultural expansion thesis based on Middle Asia, which would bring Turkish people among those who created the civilization of today's world (Yetim&Erşan, 2008:727).

In 1932 Reşit Galip offered to teach history of Revolution in universities in the honour of 10th Anniversary of the Turkish Republic. This offer took place two years later. The fact that Ottoman University at that time was not coherent with the new regime completely played an important role in such an offer. Therefore, the youth of the university established an Institution of Revolution depending on history department of the new universities and this institution had the aim of engaging in ideals of the republic, adopting the understanding and philosophy of revolution. According to Reşit Galip the first qualification of new universities was their nationalism and reformism. These new universities would treat the ideology of Turkish Revolution. Turkish Revolution Institution which was established for this aim, would investigate the reasons of Turkish revolution in the fields of law, politics, legalisation, society and economics; core elements and principles of Turkish Revolution; future of Turkey in every aspect. Four staff was allocated for the lecturers that would teach the class. The first one was allocated to Yusuf Hikmet Bayur and his assistant Ass. Prof. Enver Ziya Karal to teach political history of Turkish revolution. The second one was allocated to Mahmut Esat Bozkurt and his assistant Ass. Prof. Yavuz Abadan to compare Turkish Revolution with other reforms in the world and to present its judicial aspect. The third one was allocated to Yusuf Kemal Tengirşenk and his assistant Ass. Prof. Ömer Lütfü Barkan to economically analyse reforms. The last one was allocated to Recep Peker and his assistant Ass. Prof. Hıfzı Veldet Velidedeoğlu to evaluate the political life in Turkey in comparison with political parties and political systems in the world (Göç, 2007:13).

The lectures were decided to be given for three months, four times a week and in the afternoon. Senior students of the university and senior students of War Academy, Engineering, Economy and Trading schools took these courses. The classes were compulsory and the students were responsible for "Atatürk's Speech" and "History IV" along with other courses in the exams. As today, foreign students were expected to be successful in courses given by the institution in order to graduate. The aim of this approach is to inform young people who were resigned to pursue Republic about how the secular order which is lead by science was gained and could be maintained ( Erdaş, 2006:14) .

On the other hand, on the 9th of March 1934, a Revolution Chair was established in Ankara Law School. Students from Faculty of Law, High School were enrolled to this course and also audience out of the school were invited and the classes were lectured by lecturers assigned in Istanbul Revolution Institution. Education in this school started through a conference by Prime Minister İsmet İnönü on the 20th of March. İnönü stated that the meaning of the revolution should not only be analysed in political fields but also in social and moral fields. He added that it was the duty of the chair of Revolution history to do so. With the establishment of Revolution Institution and Revolution Chair the first serious researches including Republic period started. In order to define the roots of Turkish revolution Bayur wrote books including the period from 1876 to the end of World War I. These books were: History of Turkish Revolution (1940-1967), External Politics of New Turkish Republic (1935), Atatürk's Life and Masterpiece. These books were the main pieces that aimed to adopt principles of revolution (Erdaş, 2006:15).

From 1934-35 educational year to 1942, Recep Peker, who was teaching History of Revolution in Istanbul University and Ankara Law Faculty, had these topics in his first four classes respectively: The Meaning of Revolution, Revolution of Independence, Reactions of Class Revolution (Çapa 2002:44).

With the 4240 Law dated 15th of April 1942, Ankara University "Institution of History of Turkish Revolution" which was assigned to give classes on "History of Revolution" prepared a curriculum for "History of Turkish Revolution Class". In this class broad evaluations and comparisons were made about the revolutions in world and their places in a conference. Later, this method changed and the emphasis was given on the specificity. This mentioned curriculum consisted of an introduction and four chapters:

Introduction

The Aim of History of Turkish Revolution

- A View on the Collapse Era of Ottoman Empire

Chapter One

- The State of Ottoman Empire at the End of World War I

Chapter Two

- The Period From the Beginning of National Independence to the Establishment of Turkish Grand National Assembly

Chapter Three

- The Period From the Establishment of Turkish Grand National Assembly to the Declaration of Republic

Chapter Four

- Evolvment of Turkish Revolution, Republic Period (Aksoy, 2006:66).

## **2. Teaching History Of Revolution In The Period Of Multi-Party System**

The history policies applied in the period of İnönü, particularly between 1940 and 1946, were discussed by public opinion after 1946 and in this context the historiography and history curriculum of İnönü period were questioned. After 1948, not only one part of the Turkish history but whole of it was analysed. In 1946, transition to multi-party system and democratization made out alternative views of history against humanism centred history policies. Nationalism and Turkish History Thesis which were accepted in the period of İnönü were left and instead antique Greek and Latin (Humanist) culture were accepted. The main goal to develop the country was westernization. To achieve this "Main principles of Western civilizations and Greek and Latin cultures should be known and understood." In the history research in the first years of republic, studies to find out history and culture of Aegean and Anatolia played an important role among Turkish highbrows to have "Humanist" tendencies (Güler, 2013:3).

Views of the single partied Government on History and History of Revolution continued until 1950. When Democrat Party got in charge, western history started to take more place in programmes in order to be more close to western countries. Moreover, as the multi-partied life began, both History programmes and History of Revolution Programmes were shaped in the frame of Turk-Islam synthesis. In addition, as the countries started annihilated their enmity after World War II, studies started to annihilate concepts of enmity in History programmes and books. In the frame of the studies carried by UNESCO, terms and concepts about enmity were removed from history books. On the other hand, words and sentences that humiliated other nations were also removed from the History of Revolution. In 1960s and 1970s, History of Revolution programmes that were included in the curriculum of history continued to shape according to existing political ideas. This period is the one when cultural pluralism was constituted and was based on secular state understanding. The fact that this period was called pluralist proved that the programme was under the influence of politics. Moreover, some of the topics of history were removed from the programme and they were treated as reading passages in the programme. According to 4240 numbered programme published in 1942, the course called "History of Revolution and the Regime of Turkish Republic" changes into "Atatürk's Principles and the History of Revolution" by the law 2547 published on the 6th of November 1981. This new class which was perceived as teaching history of revolution and considered to be separate from History programme since 1930s, officially separated from the discipline of History in 1981. The new programme was in practice in 1982. Also in 1982, Kemalism concept was added at the end of the name of the lesson and the name was changed into Republic of Turkey History of Revolution and Kemalism. After the intervention the programme was constituted by taking the societies Islamic structure and national values around Atatürk's Principles (Kaya, 2008:7).

With the acceptance of Higher education Law no 2547 and according to the constitution, Principles of Atatürk and History of Revolution course was added to the curriculum of all universities beginning from the first class and it was started to be taught

more systematically compared with the past(Yılmaz, 2004:9). In the beginning of 1998-1999 Educational year, in accordance with University senates' law no. 2547, article 5, sub clause "ı" and Board of Higher Education Executive Council decisive dated 19.8.1991 and numbered 91.30.920, History of Revolution classes should be minimum 60 hours for at least 2 semesters(Aksoy, 2006:67).

### 3. Conclusion

In the early years of Turkish Republic, Atatürk and his friends were aware of the fact that education is very important. Among the reforms, special emphasis was given to teaching of history. It is a fact that each state should tell the basic idea to its citizens in order to protect its existence. When we consider the importance of history education in terms of forming the national personality of young generations, it is natural that history education is to be carried out in accordance with the national perspective. For this reason, students had studied national history from primary school to university and they have still been studying. The course of History of the Revolution emerged as a part of history of science and it has been taught since 1932. A Revolution Institute was established depending on the universities' history branch. At this institute, it was decided that students had to attend courses during three months. In the following years, Revolution Chair was opened in Ankara School of Law and therefore, serious researches had started to be done including the republican regime. While the name of the course was History of the Revolution in 1942, it became Principles of Atatürk and History of Revolution. The course was designed again with the decision of the executive committee of Board of Higher Education dated 19.08.1991 and it was decided to be taught at least two semesters.

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# Teaching creativity

Leonardo López Monroy<sup>\*</sup>

UNAM, Ciudad Universitaria 04510, Distrito Federal, México.

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## Abstract

Art is a language which tries to convey abstract information. The main element of art is the uniqueness of the transmitted message. A Masterpiece is the correct execution of a unique and unrepeatable creative idea. Thus, creativity is the main object of artistic labor, but it goes beyond the objectives of academic education. Artistic creativity is halfway between memory and imagination, how these two elements plays in art creation is the subject of this work.

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*Keywords:* Art Creation; Creativity; Memory; Social Networks; Traces.

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## 1. Art and Creativity

Art is the most complex of human languages; its complexity is not limited to the left hemisphere of the brain. This language means to relate concepts that are apparently disjointed, extract their meanings, assign them emotions and express them synthetically. The message transmitted is extremely complex, generally in the field of sensations and emotions. It has been said a lot that the creative process in the artistic field as a god's inspiration, state of grace or totally unconscious self-absorbed state (Zweig, 2010); but rarely this process relates to the living experiences and the transformation from memory into imagination. This work intends to fill that void.

## 2. The Study of Memory

Philosophically, the study of memory is still dominated by Greek metaphors. Phenomenology of memory stems from the metaphor of the wax block. This metaphor is the basis the icon theory. For Socrates experiences are printed in the human soul as a stamp leaves its imprint on the warm wax. The metaphor of the imprint, however refers to a foreign cause that pushes the object to make their mark. This foreign cause, or movement, in turn implies an internal split of the mental image or a double intentionality.

Then Socrates proposes to imagine the soul as a book. On whose pages, memory, as a scribe who thinks over the sensations, writes truths or lies of a soul that determine the true or falsity of the opinion or speech. Moreover, after this writing a painter sketches on the soul the images corresponding to the things made or intended. These texts and images contrast with the external traces left by past events, which are physical and objective documents of history.

Plato's metaphor of the portrait highlights the problem of the fidelity of the memory. Consider the existence of a printing means to distinguish between the mold that was printed and the imprinted mark. The comparison among them solves the problem of the faithful as opposed to imitation. That is, faithful memory against fantasy.

The idea of the imprint leads directly to the concept of memory trace. Paul Ricœur (2000) distinguishes three types of memory traces: the physical trace, the psychic and the cortical. The physical trace is the external evidence of the passage of time, i.e. the physical document. The psychic trace on the other hand, is the sensation obtained by the experience with thoughts and opinions. Finally, the cortical trace refers to neuronal storage experiences, generally consider as unknown field. These three types of traces make up a triangle that points to the fact that generated the imprint.

However, trace and memory are distinct. Memory, as Aristotle says, belongs to the past, while the trace is what remains to the present by the action of the past. The confusion between trace and memory is the basis of the complex relationship and difference between memory and imagination.

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<sup>\*</sup> Corresponding author.  
E-mail address: leus@unam.mx

Now, the psychic trace is the cause identified as a present image and feel that we call memory. This memory that Aristotle named “*mnesis*” is perceived as a condition and is ontologically different from the active pursuit or “*anamnesis*” that we identify as a remembrance. The “*mnesis*” is the simple evocation, singular recall; while the *anamnesis* is the effort of remembrance. This intellectual effort involves the schematic interpretation of juxtaposed images where each constitutes a point of remembrance, from which the route on the return to the original trace is profiled.

### 3.The Memory Social Network

Internally, the cortical trace can be identified as a set of neurons and the relations created between them. A system consisting of a set and a relationship defined between the elements of the set are mathematically defined as a network. Clearly, the cerebral cortex has the structure of a network. Moreover, this network is strongly related that contains a huge number of connections. This property gives not only stability but also makes it capable of accepting contradictions.

Mathematically this network implies the properties of a social network (Newman, Barabási, & Watts, 2006). The most direct example of a social network is Internet. Internet as a social network continuously flows information. The flow in a social network continuously alters its structure, adding or strengthening connections. The neural network is continuously traveled by an electrochemical flow. The electrical impulses which flow into the neural network are the psychic trace. Thus, the psychic trace flowing in the brain are thoughts that run through the concepts generated by the experiences. Thus, events or human experiences are stored within this structure as a bounded subset of the neural network remembered by electrical stimulation.

In this order of ideas, related experiences share among them part of their neuronal structure. The storage of new experiences is done relating the information already contained in the network and expanding its structure. In such a way that contact with new experiences change previously stored information and determines to some extent the perception and the same storage.

As mentioned above, the electrical impulses flow continuously in the neural network by changing its structure, i.e. they add relationships or reinforce connections. New relations caused by the continuous flow, which do not have their origin in experiences are pure imagination. One of the functions of the prefrontal region of the cerebral cortex is to control the separation between the experiences and imagination. In other words the psychic trace is the origin of imagination and memory modification. It is here where creative ideas are conceived.

Art is however part of the tangible physical world. The physical expression of ideas is what is philosophically called exegesis and inevitably requires some interpretation. (Ricoeur, 2003) The physical expression of ideas thus defined a hermeneutic problem. Fortunately, and it is not a coincidence, arts education generally focuses precisely in the practice of the correct physical expression i.e. in exegesis. Similarly to what happens in the cerebral cortex, the transformation of the external physical world through the human driving force using the technical elements developed by artistic discipline, leads to the material creation of art. In this external process we can again distinguish the psychic trace generated by the electrochemical impulses that produce the motor functions of the body acting on the physical trace which is the outside world.

### 4.Conclusions

The artistic creation involves the realization of two disjoint processes: the generation of a message to convey and the execution of the work of art. Obviously the transformative element is the psychic trace that we can identify with the intent; but it requires enough information stored in the cerebral cortex to generate creative ideas. This information can only be stored through life experiences or transmitted through human interaction.

Finally, humans are constantly swimming in a sea of data from where senses select information relevant for its own proposes (Meadows, 2001) i.e. the complexity of cortical trace depends on the amount of information that the senses collect from the outside world.

On the other hand, each artistic discipline uses a specific vehicle to communicate feelings and emotions. Thus, art education focuses on teaching the technique necessary for the use of these vehicles. This is what is known as Academy. The proper execution of the work of art is the usual issue of the Art Academy. Then, artistic creation is only possible if there are sufficient psychic elements to be carried out. This includes enough technical practice within some of the artistic disciplines to faithfully express creative ideas.

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INTE 2014

# Teaching health information science for health care instructors

Pasquale Fiore\*

*Camosun College, Victoria, BC, Canada  
University of Victoria, Victoria, BC, Canada*

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## Abstract

Health Information science is part of health care. Today the use of technology by health care students is relevant in all parts of their communication. How can we better prepare students wanting to work in health care to face these various technology challenges in health? How can we bring health care students to be competent, ready and comfortable enough to face the health care technology challenges in their specific field?

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*Keywords:* health information science; education; technology; student participation

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## Introduction

Bringing content from Health Information Science (HIS) that will provide students with tangible activities is important for future health care professionals and their instructors. Concern has been raised by many educator colleagues about the unsatisfactory, poorly structured emails that students send. This brought me to explore the question: “what are the communication issues that exist in a virtual environment?” Many believe that *students are computer savvy* but these instructors are not satisfied with the performance of these computer savvy students in something as simple as an email. One student stated: “how can you expect students to compose a professional email when we were never taught how to do this?” This was the beginning of my journey to find a solution to this issue. I was thinking: what kind of learning activities would students and instructors would find essential to work through and embed in their practice. Four main activities were developed and suggested to be offered in a third year nursing course. This paper discusses the development of these four activities, how these activities were evaluated by the students, the results and what outcomes were identified for future research. In the latest edition of the activity handbook a link was made between the specific learning activities and the new *Nursing Informatics Entry-To-Practice Competencies for Registered Nurses* developed by the Canadian Association of Schools of Nursing (CASN).

### 1. Objectives

When consulting the document *Competencies in the Context of the Entry-level Registered Nurse Practice in British Columbia* (College of Registered Nurses of British Columbia ((CRNBC)) it is noticed that: “Entry level registered nurses understand the significance of nursing informatics and other information communication technologies. They use existing health and nursing information system to manage nursing and health care data.” These statements guided my selection of activities to be practical for the future health care professional working in the field. Researching the literature, I had the opportunity to read this interesting report: *Educating Tomorrow's Nurses – Where's Nursing Informatics?* This document complimented very well the Doctoral research from Mrs. Sylvie Jetté. Two specific recommendations triggered me to develop four specific activities.

point 2 : *Cibler les ressources internes suivantes dans la formation des infirmières et infirmiers :*

- *La recherche sur les banques de données scientifiques électroniques;*
- *L'évaluation des sites internet en sante;*
- *La sécurité des données électroniques en lien avec les droits des patients*

point 4 : *Utiliser diverses stratégies à l'intérieur du programme de formation pour familiariser les*

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\* Corresponding author. Tel.: 1-250-589-3882; fax: 1-250-370-3177.

E-mail address: fiore@uvic.ca; fiore@camosun.bc.ca

This second recommendation provided me the energy to share the HIS handbook activity with my coworkers at Camosun College.

In the meantime, the National Expert Commission launch: *A nursing call to action* (Canadian Nurses Association, Vancouver, 2012). This document linked directly the application of the HIS handbook activities, calling educators to focus on: “working collaboratively to reach consensus on the scientific knowledge, education, competencies and skill sets demanded of effective 21<sup>st</sup> century registered nurses”. At the same time CASN launched their competencies and I had developed the activity that was linking all of this. I was invited to implement these activities at the University of Victoria, School of Nursing. The handbook activity was developed with the main goal to provide activities that can help and enhance discussion between the health care instructor and the student. These self-directed activities can be completed prior to come to class and then it provides a great resource foundation for future assignments.

## **2. Health Information Sciences activities**

The four health information sciences activities are:

- confidentiality & access with technology,
- social media,
- email/text communication and
- evaluation of health care web sites.

The first activity provides an opportunity to gain an understanding of how health care students are keeping in mind the ethical considerations when they access, view and interact with data through technology. The second activity focus on social media and how future health care professional can interact, enhance their practice by still keeping their boundaries with a respectful professional behavior. The email/text communication activity provides the student with a greater understanding of the rules, the etiquette and the core elements included in writing a professional email or a text message. The evaluation of health care web sites is the last activity in the HIS handbook. The future health care professional will acquire the skills on how to determine the validity of a health care web site with feeling more confident about searching the credibility, authority and reliability of the information consulted on health care web sites from the World Wide Web.

## **3. Evaluation**

The first year that these activities were implemented, students and nursing instructors provided very positive feedback - through spontaneous oral feedback or the receipt of emails. After reviewing the feedback ideas and suggestions were then included in the activities for the next time the class was offered. The activities were then included as part of a mini 2% assignments activity due in class. The last day of the semester marks were provided to the students and anonymous feedback was sought through a free clicker application (Socrative). Thirty four students out of 40 participated in the survey. Students were asked to compose their own unique identification an answering the following questions to the corresponding Likert scale (Strongly agree, Agree, Undecided, Disagree & Strongly disagree). The last two questions (Q5 & Q6) where open-ended questions for students to answer.

Q.1: Learning how to write a professional email or text communication was a valuable activity for my future RN practice?

Q.2: Learning how to evaluate a health care web site was a valuable activity for my future RN practice?

Q.3: Learning how you can use various social media to enhance your practice and reach more clients was a valuable activity for my future RN practice?

Q.4: Learning the differences between confidentiality, privacy and security was a valuable activity for my future RN practice?

Q.5: Do you have any suggestions that can enhance these 4 main activities?

Q.6: What other topics would you like to see in the next edition of this handbook?

## **4. Results**

Fig. 1 - Evaluation of the four main activities & satisfaction rate of students question 1 to 4.



Question	Strongly agree	%	Agree	%	Undecided	%	Disagree	%	Strongly disagree	%
1	13	38%	18	53%	2	6%	1	3%	0	0%
2	18	53%	13	38%	3	9%	0	0%	0	0%
3	4	12%	22	65%	6	18%	2	5%	0	0%
4	9	26%	18	53%	6	18%	1	3%	0	0%

Fig. 2- Student's suggestions to enhance these four main topics from the HIS handbook activity.

N	Answers :
14	No, None, N/A, the activities were just fine, can't think of anything in particular.
3	Well structured, well lay' d out
3	Make the assignment worth more
5	The assignments were good and relevant to nursing, well done gives me a great resource. The activities were short, simple, and applicable to practice...Without needing to be changed or modified. No suggestions
2	Confidentiality issue should be more expanded to community settings
2	Discussion with the group or group work
3	Discussing them in class a bit. More clarification on Moodle.

Fig.3 – Other topics that students would like to learn in a future HIS handbook.

N	Answers:
26	No, None, not sure,
8	Making/creating professional social media page, paperless hospital, nursing application and resume, using Facebook and Instagram professionally, more practice with professional communication in the work place, how to be professional for a presentation. Teaching regimes to patient, advocacy, policy making in epidemiology.

## 5. Discussions

The analysis of the data collected from questions 1 to 4 in this survey provides information on the various HIS learning activities student's satisfaction rate. The evaluation of a health care web site is the most popular activity with a *strongly agree* satisfaction rate of 53 %. The following activity "how to use various social media" received an *agree* satisfaction rate of 65 %. The two other learning activities received the same *agree* satisfaction rate of 53%.

When compiling the results for question 5 it motivated me to readjust the syllabus for subsequent years' course. The value of the mini activities was increased, at the beginning of the semester students received a written guideline with an explanation for each learning activity, one week before the activity was due activity was validated with students and further clarification was offered. One area identified for future development was a more specific activity on confidentiality when caring for people in community and public health without neglecting the link between the community and the acute care settings.

The last question in the survey provided precious data on what were the topics students would like to learn more about. When reading the data it is fascinating to corroborate information that was recommended by the Doctoral study of Mrs. Sylvie Jetté and this survey. Students identified that they would like to learn more about how to develop a professional presentation with interactive tools and how to understand how to use social media better.

## 6. Conclusion

This project began in the summer of 2012 and since then the embedding of these learning activities into the clinical practice of students and faculty is visible. After consulting with peers (at local, provincial and national levels) and receiving encouragement from students and other UVIC nurse educators, I decided to seek the possibility of having this handbook published on a nursing resource web site. On April 15<sup>th</sup> 2014, I received an email confirmation that NurseONE. from the Canadian Nurses Association has decided to post this content on their new public resources tab. I am looking in the near future to develop a second handbook with four other topics that can be inspiring for the health care community when interacting with health information sciences technology.

## Acknowledgements

In the summer of 2012, Mr. Robert Fraser commissioner from *A nursing call to action* posted this document on his web site (<http://robertfraser.ca>) for the nursing community to share. I was flattered and honored of his acknowledgment, Thank you! I would like to thank the UVIC students and instructors for their supportive feedback. A special thank you to Dr. Lenora Marcellus. Thank you to the kind and wise words of Heather McCue & Jenna Grant nursing students for their specific feedback, I truly appreciate it. Since the last edition this handbook has been translated into French and adapted to the Quebec context by Mrs. Sylvie Jetté under the name: “Enseigner les sciences de l’information dans les soins de santé, manuel de l’enseignant” and presented to RN’s in Quebec on June 11<sup>th</sup> 2013. I was honored of this special request for permission to translate my handbook in another language and be part of the review team, Merci beaucoup Sylvie! The French edition was lately reviewed in 2014 and now available under the name: “*Enseigner les sciences de l’information dans les soins de santé*”. The latest English edition was part of the reviewing process in 2014 and is now available under the name: “*Teaching Health Information Science in Health Care*”. Thank you to my life coach Mrs. Wilma Van Wiltenburg for your work with me. I would like to say a special thanks to the PD funding committee at Camosun College for allowing me to present my SD 2012 project at the *2014 International Conference on New Horizons in Education*, Paris, France

"Be inspired, always learn & teach others"  
– Pasquale Fiore 2012.

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# Teaching in megastore

Michela Mazzucchelli

Department of Architectural Sciences, Polytechnic School, University of Genoa, Stradone Sant'Agostino 37, Genoa 16123, Italy

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## Abstract

The study investigates the role of drawing teaching of *Master of Science in Product Design and Boat* conducted at the Polytechnic School of the University of Genoa.

In particular, it aims to illustrate the training of the *Laboratory of Design* and sketch for the first year of studies and experiments that for some years has seen the University to collaborate with IKEA multinational company that provides the students their own exhibition spaces and their products to be the subject of study and drawing representation. The teaching of freehand drawing aims to develop the student's understanding of how to represent an object means to know, exploring the dimensional, qualitative, material and chromatic character.

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*Keywords:* drawing teaching; representation; megastore;

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## The Drawing Lab

The training that is offered by the courses to obtain a degree in Product and Nautical Design at the Polytechnic School at the University of Genoa has, as its objective, the training of “project technicians” able to operate with competence in all the execution phases of projects for industrial artifacts.

Upon completion of the course, degree-holders shall, in particular, be in possession of knowledge of a scientific, technologic, and humanistic nature, which is able to back up the diverse project specializations in the various course paths that have been taken. These can be related to “the design of the product”, the “design of its communication/advertising”, and “nautical design”. In particular, as seen in the “Qualifying Training Objectives of

the L-4 Industrial Design Class” it becomes evident how, for the students acquiring this degree – in a transverse manner to the training course path taken – *it is essential to have acquired the ability to visualize the project's idea in the diverse phases of the process: from the research and definition of the problem at the heart of the project, to the processing of the concept, all the way to the technical and working drawings used to put it into production. Therefore, the knowledge and the competences related to languages and artistic, visual, and representative culture, which allow for the elaboration of expressive modes and languages that are adequate to transmit the design idea, are of central importance.*

Consistently with the pursuing of these educational objectives, the Drawing Laboratory is a fundamental course to be taken during the first year of studies. It lasts a year and corresponds to 10 University Training Credits (CFU), which can imply 250 hours of individual study and exercises, on the part of the student, aimed at the learning of the program and therefore the passing of the final exam. The study program at the Laboratory is divided up into a series of ex cathedra lessons, which are followed by graphic exercises of an analogous type carried out by each student on an individual basis.

The professors to allow the student to become aware – in a critical sense – of his own studies route, punctually evaluate these targeted exercises, structured to verify the understanding of the notions acquired. The choice of integrally using analog drawing techniques derived from the necessity of having the student understand that drawing is – above all – an essential tool for understanding, which, in order to be adequately used, requires the knowledge of a very precise method. In the first, place the ability to *observe* is required, and therefore the need to train one's eye in the comprehending of the essential characteristics of any object. Next, one must *reason*, and therefore train the mind to attribute such characteristics to known geometric forms, to then understand which and how many are to be the characterizing signs to be used to transfer the thought onto paper.

This latter act must be born from the training of the hand, which must learn to use the instruments and the supports for drawing, thereby producing efficient signs, because one must even “persuade” in order to carry out correct communication. This instrument of understanding therefore sets the basis for all types of idea processes that the student has, because (...) *the first signs the pencil draws on a sheet are the traces of a thought being born, which the drawing transcribes as the first representative tracts of that which will take form in the mind* (Ruffilli, 2010).

The drawing of a reality today, as the first experience to arrive, therefore, at a drawing of one's own project, tomorrow.

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\* Corresponding author. Tel.: +39-010-209-5955; fax.: +39-010-209-5905  
E-mail address: mazzucchelli@arch.unige.it

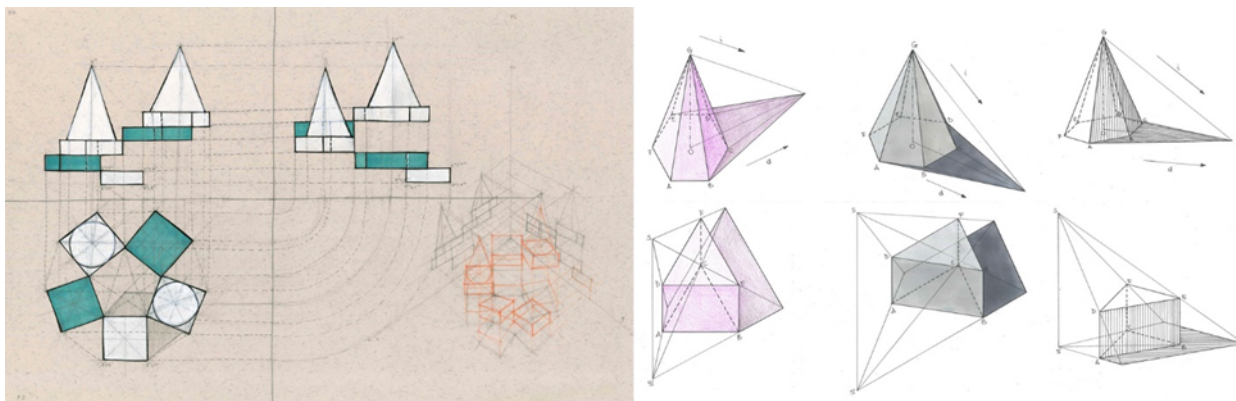


Fig. 1. Drawing representation of plane figures and of solid and composition of solids and studies of shadows. Students: (a) Beatrice Bianchetti (b) Sofia Aquila.

### Analog Drawing as an instrument of knowledge

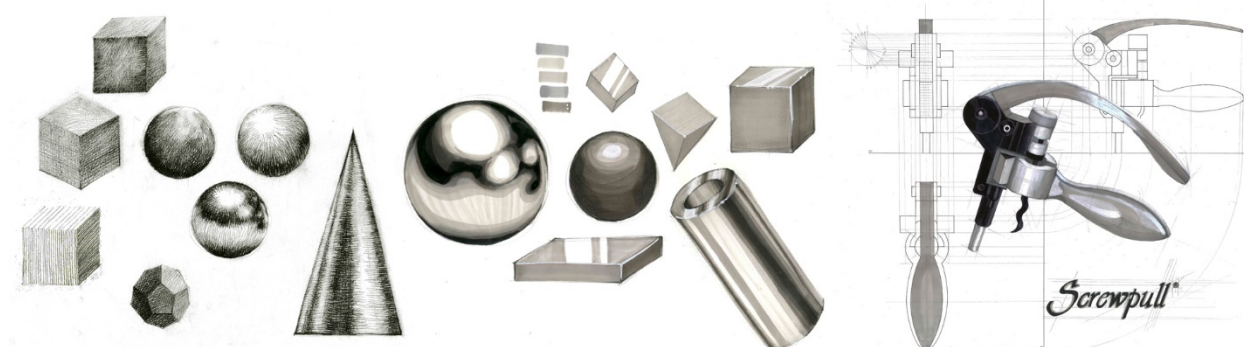


Fig. 2. (a) Verification of the effect of light on volumes in space (b) Synoptic table composed of orthogonal projections and 3D view. Students: (a) (b) Lamberto Anderloni (c) Beatrice Bianchetti.

The first part of the course tackles the teaching of Drawing from a semantic point of view. The drawing is, in fact, a universal language whose lexicon and whose syntax must be mastered by the student himself with the goal of producing an efficient form of communication. Therefore, the teaching path starts with the need of sensitively improving the student's manual skills, in order to give him greater expressive confidence in his own graphics.

His work must become, in fact, an immediate instrument to translate and communicate in an efficient way, his own design thoughts, be they still tied to the investigation of that which exists, be they the source of inspiration for the creations of new concepts.

Therefore, an illustration is given of the tools to be used (pencils, charcoal, pastels, pens, watercolors) and the supports that can be used for drawing and which are the first graphic exercises to be done to learn how to use these tools. A series of exercises is therefore assigned, to be done by free hand, relating to the graphic development of the background, shadowing, and texturing, based on hatching. These exercises allow the student to evaluate his own manual ability in the use of the above-mentioned instruments and to understand which ones, among these, are most harmonious with his way of expression, and which best reflect his own character. Once greater confidence has been acquired in the use of the "tools for design", the lessons then concentrate on the semantics of design, with the illustration of diverse systems of representation and their respective graphic norms, through a series of seminars on projective geometry. Drawing means to carry out, in fact, a double operation of projection and selection, through which it is possible to transfer the image of a tridimensional object onto a two-dimensional plane. The nature of this projection – cylindrical or conic – allows for the obtaining, respectively, of orthogonal projections, axonometric (isometric) projections, and perspective projections. The graphic exercises related to this part of the program are always those of an analog type, and foresee the use of the instruments stated as follows for technical drawings: rulers, set squares and compasses.

The exercises first of all look at the representation of the fundamental elements of drawing (points, lines, and planes), to later address the representation of plane figures and of solids – and compositions of solids – that are lying on the three fundamental

planes (the horizontal, the vertical, and the lateral) which are perpendicular to each other, as well as to the planes that are generically placed in space. These exercises are educational for the elaboration and resolution of the most complex problems, tied to the representation of the intersection of solids variously placed, whose comprehension and capacity for resolution offer the student the method and the capability to handle, in a later moment, the representation of any type of industrial product.

Having acquired the notions related to geometric drawings, it becomes essential to have the student do exercises in the understanding of the forms of the objects that surround him, to be able – in a process of synthesis – to transform any item into a noted form (plane or solid) and thereby make it easily rendered. Several drawing exercises of real items are therefore proposed, in which the requirement is to redraw design objects using freehand drawing. *The procedure for the carrying out of a drawing from a real item, cannot be shown schematically, as often its implementation is tied to the person who is carrying it out. Generally speaking, we can identify three distinct preparatory levels for the execution of a drawing: seeing, comprehending, and synthesizing. Teaching how to see is not easy, because one must remove a series of psychological conditions and above all be in command of the projection process, which allows for the passing, through an operation of projection and sectioning, of space onto a plane ... The mental process of understanding pushes the perception organs into evaluating the relationships between the various parts which make up the object, to identify its structure and its formal qualities. ... In this phase, we also select those elements, which have a strategic value to identify the object that is to be depicted .... The understanding of the hierarchy of values allows for the passing to real drawing, which is always an operation of synthesis, as it in itself is represented only by a part of the elements, which make up the object.* (Docci, 2002).

Freehand drawing helps develop in the student a comprehension that how to represent means to understand an object, exploring its dimensional, qualitative, material, and chromatic character.

The fundamental passages for the creation of a hatched drawing to induce understanding is, therefore, the reading of the proportions, which underlay the forms and the ability to reproduce such forms passing from a tri-dimensional view to its representation in a two-dimensional plane. The choice of the method for representation to be used will privilege, from time to time, the descriptive aspect of the single components of the object (orthogonal projections), the system of the assembly of these (isometric projections), and the realistic perception of the object in space (perspective projections). *In addition to being an indispensable form of communication, the drawing is - in fact - a tool for comprehension and for ideas ... The drawing allows, first of all, for the understanding of the real nature of an object or a manufactured artifact: the object is disassembled, all its components sectioned, analyzed, studied, and therefore fully understood.* (Cecconello, 2009).

Particular attention is given to the elaboration of synoptic tables composed of orthogonal projections and exploded isometrics and/or broken isometrics. The choice of showing on the same sheet a two-dimensional (orthogonal projection) and the three-dimensional view which are not altered neither in the dimensional relationships nor in the degrees of the angles of the objects that are analyzed (isometric projection), allows in fact students to represent and comprehend the spatial combination of the planes of reference (the horizontal, vertical, and lateral planes) and to better handle, in future, the orientation of the UCS (User Coordinate System, the UCS icon visualizes the orientation of the system of coordinates users of tridimensional space), whenever they will use the program for digital design. Greater skills in handling three-dimensional space and the correct layout of the parts that constitute an object are in fact the necessary condition for the handling of any type of idea process. *Let us remember in fact that in philosophical discussions, where the act of representing happens to coincide with that of knowing and of thinking, the representation – in that it is a conscious act – assumes over time different meanings which – simplifying greatly – end up taking us, on the one hand, to an automatic mode of the internalization of objective data and of their reproduction of signs, and on the other, to a process of international character, creative thought-action tending to the externalization of the idea* (Bistagnino, 2010).

## The Drawing of Material and of Color

To acquire expressive and appropriate ability in the field of the representation of objects, it is not possible to do without the study and the understanding of what graphic techniques are the most efficient in the realistic representation of their material and color components: *... to identify and render in the layout those which are, from an optical point of view, the main qualities of a given material, that is the characteristics which make it recognizable at first sight. To this end the element that must be most kept in consideration is the light-material relationship. Before passing to depiction, it is necessary to understand if the material absorbs or reflects light and the type of chiaroscuro produced* (Verucchi, 1987). The natural evolution of the expertise acquired through the drawing of isometrics and perspectives is, in fact, the ability to redirect drawings in which one takes account – not just in intuitive terms but also with the correct geometrical handling of the forms – of the verification of the effect of light on volumes in space. The second part of the course deals, therefore, with the teaching of the theory of shadows: *Geometrical studies, which allow, once the light source has been set, for the construction through a series of geometrical graphic operations of the movement of the shadows themselves and of those created by a determinate object* (Docci, 2002).



Fig. 3.  
The  
advertising:  
(a) the  
original, (b)  
studies (c)  
photo-  
realistic  
render.  
Student:  
Sofia Aquila.

The practical exercises regard the representation in isometrics and perspectives, first of compositions of regular solids, and then of those of objects which are of a more complex design.

The student trains his own graphic ability, not just seeking to resolve real design exercises, but also by copying some drawings of particular interest: the advertising. This exercise requires the student to reproduce a three-dimensional form, which, however, is represented on a two-dimensional surface thanks to the technique of photography. Therefore, the purpose here is to make a drawing that is defined as photo-realistic by using the representational technique of analog drawing. The instruments proposed are therefore mainly felt pen markers, which offer an ample range of colors and allow for a rapid application adding interesting immediate graphic effects. The felt pen markers, with tips of differing thicknesses, allow in addition for an ever more precise definition of the object depicted. This technique offers notable results when used in drawings with mixed techniques as the marker can be easily enriched, in fact, by the use of additional instruments to depict with more contrast – and therefore with greater efficiency – the zones of light, be it diffused or incidental, semi-darkness, shadow sides, or cast shadows.

The following instruments can be used in this sense: colored pencils, white pencil, colored chalks, white chalk, white ink pens, and felt pens of diverse thicknesses. The drawings requested of the students need therefore to be related to all the themes that are contained in the copying exercise of a graphic communication such as an ad, studying separately its components: drawings (forms and colors), words (lettering), and the corresponding graphic signs (Falcidieno, 2006). In particular, concerning lettering, the typical fonts used must be studied geometrically and reproduced. In addition, evaluation must be done of the possibility of synthesizing these letters with a box of equivalent dimensions. Concerning the graphic signs, they must be positioned correctly in the setting of the composition.

Concerning the background, various tests of the final product must be done with differing techniques in order to evaluate which one is most similar to the original. These range from the use of colored paperboard to the use of an airbrush. The study of the object to be depicted requires obviously a greater number of drawings: the form of the object must be correctly reproduced – translating the photographic image into a perspective view, showing the material of which it is made and its chromatic components, in addition to the all the effects of the interaction of the object with light. Extremely interesting are the cases, for example, of glass objects with metallic components, or the reproduction of textiles and leather characterized by a particular weave.

### **The Workshop in the Megastore**

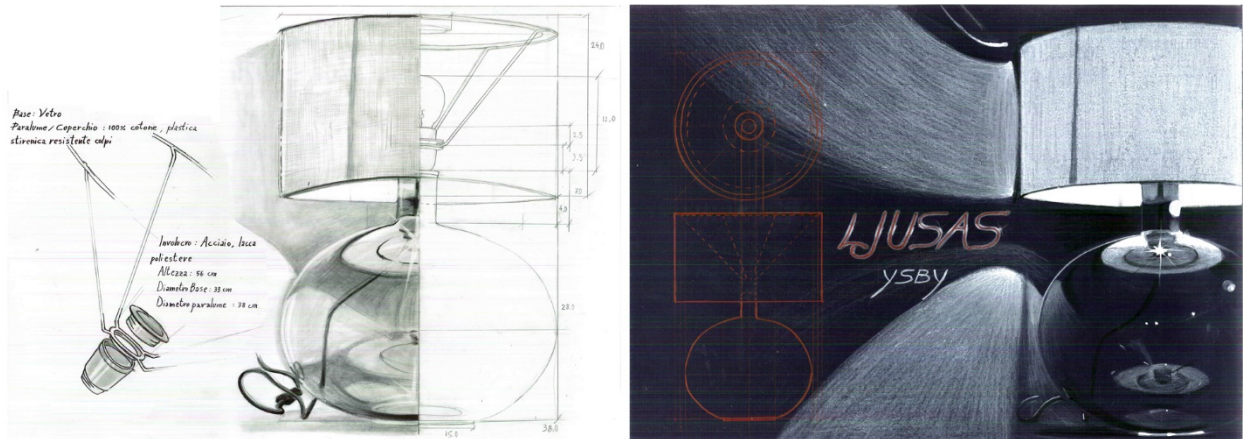
The Drawing Lab also has a final exam, which is the moment to verify the knowledge acquired en route by each student. At the end of the year, therefore, required as a “written exam” is the drawing up of a graphic exercise which contains a sort of synthesis both of what has been transmitted as the study program as of the exercise carried out up till that moment. This drawing exercise is structured as the graphic tale of a design object which is to be communicated, both in a two-dimensional as in a three-dimensional manner, through visual proportions, without the support of setsquares and rulers, but simply by freehand. It is also requested that the perspective depiction be rendered, that is, given the graphic information, which aims to reproduce both the material of which the object in question is composed, as its chromatic components.

Starting from the 2009/2010 academic year, up to this present academic year, and thanks to a Convention Framework that has been stipulated with the Department of Science for Architecture at the University of Genoa, the company called IKEA which has a branch in our city, has placed at the disposal of the Drawing Lab its own exhibition spaces with the purpose of offering the students the possibility to observe, draw, and tell about the objects that it produces. During these five years of work, approximately 800 students have had this experience and, obvious, done an equal amount of drawings.

The final workshop is organized for two days of work, one introductory to the other. On the first day, the students choose a design object of a moderate size to bring to the university hall, and there they make, during a day of study, a drawing of this object, synthesizing on one sheet, which is to be handed in at the end of the day. This is



the preliminary test before they exercise their skills at IKEA. This first exercise allows them to calibrate the time that they have at their disposal in relation to the three drawings required: an orthogonal projection, a freehand rendering on a perspective



depiction, and the reproduction of the lettering of the brand of the company that makes the object that they have chosen. The students have to design the layout of the sheet requested while keeping in mind, in their graphic composition, the general criteria of perception and communication: the existence of an invisible grid of reference and relative alignments, legibility and the evaluation of the different visual weights of each component, and graphic coherence between the drawings proposed. This passage is considered fundamental in the educational program of the lab because ... *the knowledge [of the student] indicates his skills and abilities with respect to the instruments and the contents. These need to serve as the basis of the design of a communication. Such knowledge allows, in fact, for the avoidance of ambiguities, incomprehension, or even errors, because it allows the selecting of the best elements with respect to the final [communicative] end to be reached* (Falcidieno, 2009).

Fig. 4. Workshop at the IKEA: (a) studies; (b) freehand ex-tempore drawing. Student: Giangiacomo Guida.



The corrections and the related notes on this first drawing allow the students to critically evaluate their own work before carrying out the real exercise of the exam, which deals with IKEA products. In preparation for this exam, the students are invited to carry out a site survey at the exhibition space of the company and there they are oriented, in their choice of the object that they will depict, towards interior design accessories of medium size, which are not monolithic, but which can be disassembled, to analyze each single part which makes it up and the consequent assembly system. The key moment at the workshop is the day in which the students are hosted by IKEA and do their written exam by the use of a freehand ex-tempore drawing. The students spread out along IKEA's exhibition route and draw a real object, which is on exhibition, chosen in accordance with their teachers. This type of practical exercise is carried out in a new setting for the student, who is used to drawing in the classroom. A situation of unease is caused by the lack of tables and chairs on which to work, the confusion of the sales environment with its flow of visitors, and the fact that it is impossible to isolate the object that was chosen from its own exhibition context. All the same, and in spite of the problems, the students show (and above all see it themselves) that they have matured during the course of the Lab, acquiring a greater feel for drawing, a greater self-confidence both in the handling of the instruments as in the management of time for the execution of the various depictions along with a new expressive maturity with regards to their own graphics, such that they can overcome these difficulties with new concentration and greater attention.

This is surely a prime result that is very interesting in the course of work studies carried out in the classroom during the months of the Lab. Obviously the most important results are given by the quality of the drawings done during the six hours of work at the workshop and, in particular, the critical ability of the student to choose an object which responds to the requisites requested and the ability to design a layout before starting to draw, and therefore to acquire self-confidence and knowledge with respect to paper space which is at his disposal, and the communicative aspect of the drawing. The graphic maturity acquired in learning the "language" of drawing is therefore verified by the student himself, before even being seen by the professor, for his own ability to methodologically face the problem proposed with the application of the techniques of drawing which are considered to be the most expressive and pertinent to the expression of the material and chromatic characteristics of the object chosen.

This knowledge is the true essence of design: being able to graphically communicate a project in a punctual and efficient way, both with respect to the communication of the existing, as the fruit of an ex novo design. IKEA renews each year with pleasure and enthusiasm this challenge (which is also numerical) of welcoming the students into its own exhibition space, without altering the normal flow of visitors/buyers, and it does this because it has verified the enthusiasm, knowledge and professionalism with which the students face this final test. Moreover, this moment of meeting has generated, in the past and we hope in the future, opportunities for work contacts between the company and the students, offering the most worthy the possibility of an active internship for their professional training.

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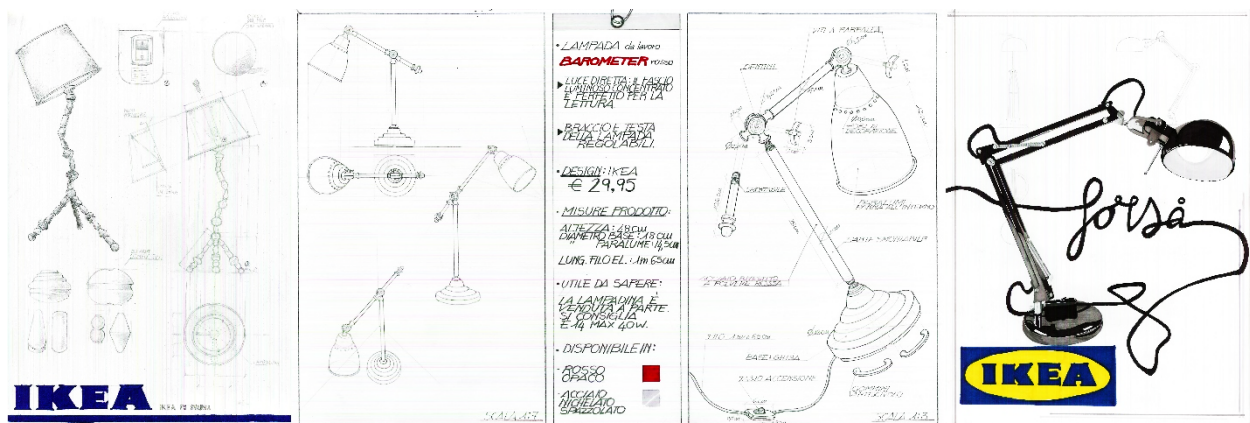


Fig. 5. Workshop at the IKEA. Students: (a) Andrea Sancasciani (b) Barbara Molinelli (c) Marco Repetto.

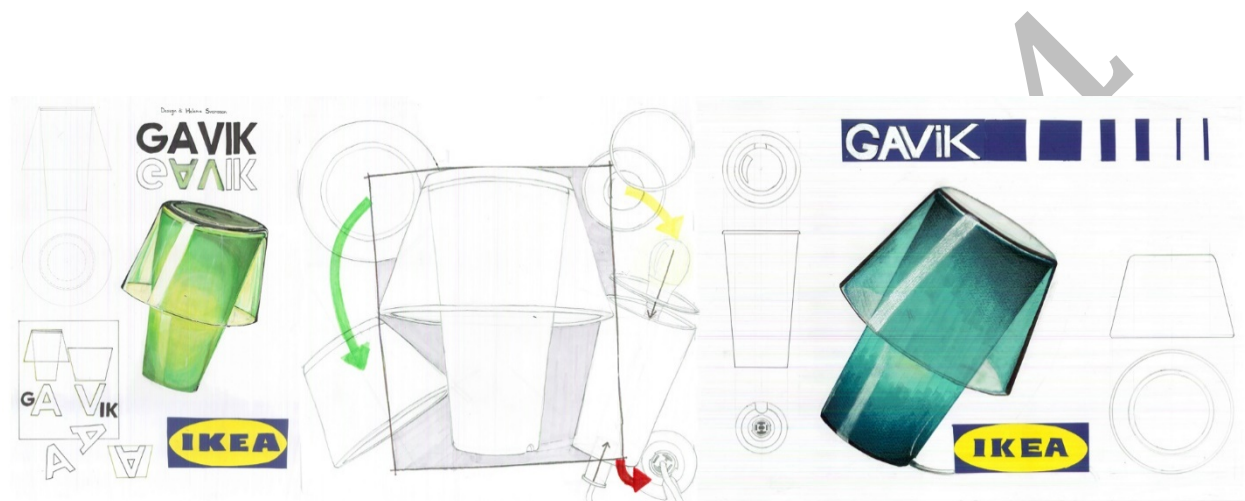


Fig. 6. Workshop at the IKEA. Students: (a) Beatrice Gobbo (b) (c) Sara Balbi



Fig. 7. Workshop at the IKEA. Students: (a) Marta Bianchi (b) Francesca Comparato (c) Valentina Bresciano.

# Teaching microeconomic principles for IT students

Emese Tokarčíková\*\*\*\*\*, Mária Ďurišová, Alžbeta Kucharčíková

*University of Žilina, Faculty of Management Science and Informatics, Department of Macro and Microeconomics,  
Univerzitná 8215/1, 010 26 Žilina, Slovak Republic*

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## Abstract

The demand for experts in the field of information and communication technologies, who in addition to professional knowledge and skills have quality management and economic capabilities, is constantly growing. It is due to the fact that these candidates are not only technically proficient, but are able to respond to the new demand, innovate old markets and gain the interest of customers. The contribution introduced points out the content and methodological aspect for teaching bases of Microeconomics for the students of Informatics. It presents the occurrence of Microeconomic theory in practice and proposal of teaching methods for the practical application of economic knowledge.

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- *Keywords:* teaching microeconomics, content and methodological aspect of teaching, economical skills

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## 1.Introduction

The primary objective of universities is the creation of knowledge, as well as their replication, publication and application. The added value of each educational institution in the process of education is determined by not only the number, but mainly the quality of the graduates in the form of their ability to further growth and facilities for practice. The continuous development of information and communication technologies is reflected also in the growth of the number of candidates for study in the fields of Informatics, Computer engineering, and other related information and communication fields. Many young people today, however, come to study with the idea of what they want to be and how much they would like to earn in the future, but without knowledge of what the specific requirements they will be asked for in the future in a given employment or working position. Universities must also adapt the methods and content of teaching to the current requirements of the labour market. Therefore, their primary task is the identification and analysis of the current educational needs, which includes a series of activities, which lead to the definition of the difference between the desired state in the future and the present and the subsequent choice of appropriate educational activities. In doing so, it is necessary to examine not only the needs of a particular company, market, as well as the needs of society and economy as a whole.

The objective of our contribution is, based on the analysis of the current state, to identify the areas of Microeconomics the students of the Department of Informatics can meet with in their future profession and subsequent proposal of teaching methods, how to make this area of Economics the most addressed to them.

## 2.Related work

There are many perspectives and recommendations how to bring economic theory nearer students. The reference literature in this field includes research results f. e. from Gardner, 1991, Walstad & Allgood, 1999, Becker, 1995, Becker & Watts, 1997, Davis& Ereksón, 1998. The results of the experts point out that the students of universities have little economic knowledge, despite the fact that they went through a variety of economic subjects and courses during their study. (Walstad & Allgood, 1999; Gardner, 1991; Allgood, 2001). The cause of the problem, according to experts at the education in the field of Economics, is the reluctance of teachers to apply new and innovative teaching methods. As a result of this approach there may come to failure how to keep the attention of those students who are more technically and philosophically-minded, and decrease in their performance. "Educational activity is successful if it fulfils set learning objectives and expectations of interested subjects" (Rostašová, Čorejová & Chrenková, 2013). Many experts think that the key to understanding economics is first and foremost an understanding of the everyday activities of people.

It is also disputable that, standard outlines of subjects are primarily focused only on teaching economic theory according to the neo-classics and they do not admit teaching about new economic approaches and paradigms, although on the other hand, many agree that the understanding of the main issues of Economics, as they are defined in the neo-classical economics, is essential and necessity for students to their further economic education. Some experts on education in the field of economics emphasize non-

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\* Dipl.Ing. Emese Tokarčíková, PhD. tel.: +00-421-41-513 44 22; fax: +00-421-41-513 40 55  
E-mail address: Emese.Tokarcikova@fri.uniza.sk

traditional teaching strategies (Sloman & Mitchell, 2002; Taylor, 2002, Walstad & Saunders, 1998) or even the importance of that outline of the subject contains not only the theoretical foundations but also reflect the recent developments in the economy (Sutcliffe, 2002; Holt & McDaniel, 1998, Williams & Walker, 1993; DeYoung 1993, Volpe, 2002; Buckles, 1998; Noussair & Walker, 1998; Oxoby, 2001). Also, the use of information and communication technologies (ICT) in the process of teaching and learning of Economics is notable and useful (Hobbs & Judge, 1995; Brooksbank et al, 1998; Sosin, 1998; Chalmers & McCausland, 2002; O'Leary & Ramsden, 2002, Elliott, 2003, Frank, 1998). "Effective management of innovation processes (also in field of education ) encourages innovative activities in business and will bring it expected results in the future." (Lendel, & Varmus, 2013).

### 3.Method, data and partial findings

University teaching of Microeconomics can't do without the knowledge of other disciplines, especially Mathematics, as well as without the knowledge of requirements of the practice. When drafting the content of the subject, it is therefore important to know these links and clarify what students of Informatics should know after graduating from this subject. The fundamental questions, which should be clarified include:

- What subjects students have already gone through and what knowledge they have already mastered?
- What economic areas the students of Informatics have the greatest weaknesses?
- What are their strengths and weaknesses?
- What working situation indicates a need for education in Microeconomics?
- What will students know to do better / more efficiently after graduating Microeconomics? (What is to be a value added of subject for IT students?)
- What would happen if they did not have a chance to take Microeconomics?
- How to take interest of students as much as possible? (What educational method to choose in teaching Microeconomics for IT students?)

Since we have been working at the Faculty of Management Science and Informatics for a long time, where we have been providing economic subjects, we have found the answers to these questions using the analysis of the environment in which we operate. Our students of Informatics meet with Microeconomics in the second semester. Students are taking the following compulsory subjects in the first semester:

- Informatics 1 – the objective of the subject is a general introduction to computer programming with an emphasis on object access and algorithmization. Practical application in Java.
- Algebra – focused on basic knowledge of linear algebra on the base of algebraic structures and linear space.
- Mathematics for IT students – the subject is focused on the teaching of Discrete Mathematics.
- The basics of economic theory – students on the subject will obtain the key economic terminology; understand basic relationships, context and principles of the interaction of economic phenomena, processes and subjects in the economic system.
- An introduction to the study - the objective of this subject is to acquaint students with the basic principles of Informatics, legal and ethical aspects of the use of information technologies. Draw attention to the possible risks of abuse on the part of companies and workers and contribute to conscious and sensitive perception and application of the code of ethics in the information and media practice. Teach them how to use PC to search for information on the Internet, make calculations, prepare a document, create and use databases, prepare presentations.

The compulsory subjects are supplemented with optional subjects:

- Practicum of programming, 1, English language 1, German language 1.

We have made an entry testing of knowledge of students from the area of Economics and Mathematics on the subject of Microeconomics in the course of 3 years. The objective of testing was to determine what knowledge they acquired during the previous half-year. Students did not prepare for testing; even teachers did not revise the basic knowledge from the first semester. The correct answers and results from testing were then discussed with the students. A sample of students was made up of an average of 80 students each year (90% men and 10% of women). After comparing the results of the first semester of study, we have identified the following facts from the results of entry testing and subsequent discussions:

- most of the students, despite they passed examination of particular subjects, could not remember the knowledge acquired, build on them, or create connections among them,
- students lacked a deeper understanding of continuous mathematics, i.e. mathematical analysis (e.g. they were able to calculate the derivative of simple linear functions, but did not know what derivative meant and what was its practical application),
- students did not follow the current economic events and used the economic phrase learned, which they knew to identify correctly, but did not realize what is their real use in their future profession,

- despite the amount of teaching material, which is located in the library and on the Internet, students prefer university textbooks of those specific teachers, where they attended the subject.

### 3.1 Characteristics of IT specialist and his roles

IT specialist (computer expert) is a general term for the position where the special information and technological knowledge is used, including the development, deployment, sale and administration of information and communication systems. Many IT specialists find the use in practice as a developer and administrator of a variety of company information systems. Considering this perspective, we have identified the following basic IT roles requiring not only the computer, but also economic knowledge:

- IT business analyst. In this the role, IT specialist of sales connects trade with IT. His basic working activities include:
  - identification, analysis and documentation of requirements of stakeholders at the beginning of IT project,
  - communication with key users and business customers,
  - proposal of architecture, standardization and optimization of software solutions developed,
  - cooperation with the department of development to increase product quality and customer satisfaction of software,
  - analysis and proposal of business effects achieved using ICT,
  - coordination of the deployment and customization of the software, application developed, etc.
  - planning the future development of applications,
  - coordination of the new requirements and the implementation of the requirements for a change.
- IT project manager, provides:
  - formation and coordinating of IT project team,
  - formation of the timetable and budget for IT project,
  - setting priorities in solving and reporting the problems,
  - patch management, optimization of manual operations and proposal of automation,
  - test management,
  - ensuring communication with internal and external partners.
- Sales manager with IT products and services, has the task:
  - search for potential customers and develop the optimal offer on the basis of their requirements,
  - marketing (creation, registration and evaluation of marketing activities), sale and purchase of IT products and services,
  - communication with the media, PR activity, website content management.

The other roles of IT include:

- Information systems developer,
- Information systems and applications manager.

Even though, the basic job description does not require these roles, IT specialist also needs basic economic literacy to improve software quality and customer satisfaction of economic software. In addition, we cannot forget the fact that many of the students of information study intend to start their own business in the future, where it is necessary to understand and be familiar with the economic terminology, relations and context.

## 4. Findings

Human capital is one of a key factor for increasing the productivity of each company. Also “the competence of efficiency utility of knowledge and skills are the basic of the new economy. Firms and society need high competent workers” (Kucharčíková, 2014). At present, graduates of Informatics must demonstrate in the work process, in addition to professional competence, additional knowledge and skills, such as languages, managerial experience, economic literacy, etc. Good knowledge of microeconomic allows them to:

- become a more well-founded manager (or project manager), who can assemble his team, communicate with co-workers, plan the budget of the team, manage and evaluate team members, etc.
- to better understand, e.g. their customers, suppliers or customers, communicate with them more effectively, and where necessary, optimize the selected processes, not only from a technological but also economic point of view. Also to realize that “in time of crisis, the real uncertainty, associated with placement of the product to market are rises” (Kozubíková, 2013).
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- in the case of private business, to acquire faster a variety of economic, business and management skills in connection with the setting-up of the company as well as with other activities related to the business (business plan, financial management of the company, making the pricing strategy, accounting, use of marketing tools, managing the logistics processes, etc.). Knowledge of “the relationships between costs, prices, levels of sales and profits are extremely useful for the management”

(Ďurišová, 2011) and other business activities.

- last but not least, regardless of the professional orientation of economic education, to offer useful tools for each individual for decision making and everyday solution of work as well as personal problems.

On the basis of an in-depth analysis of the problems we have come to the conclusion that when teaching Microeconomics for IT students, it is necessary to intervene in the area of:

- **Knowledge**, intellectual skills – explain students basic information using diagrams, algorithms and other educational methods, which are close to them (e.g. understanding of derivatives, bordering quantities).
- **Skills** – strengthen the application of knowledge in the practice (e.g. using concrete examples and demonstration of the existing software applications).
- **Attitudes** – change their opinion, beliefs and thoughts about what will be their future working content, i.e. in addition to the computer knowledge, they will also need economic knowledge. In this respect, we cannot expect an immediate change, but at least we want to start up this change.

On the basis of the above findings, we have decided to identify selected examples from the area of microeconomics and demonstrated them using existing software applications. Students can see concrete assignments and software solutions and better understand that it is not enough to be just a good IT specialist within the meaning of having excellent computer knowledge, but it is necessary to know to sell IT products / services. Since most of IT products / services are demanded for the area of sales, marketing, business processes, banking, public services, it is also necessary for IT specialist to know the "language" of customer. In each of the areas of microeconomic theory, the interconnection of knowledge on their possible future application we recommend the demonstration in the following way:

- **Consumer Preferences and Consumer Choice**

„Continuously increasing competition and technical progress has caused that individual trade businesses begin to direct their efforts towards consumers' wishes and to be aware of their own responsibility for the welfare of society“ (Križanová, Majerová, Klieštík, Majerčák, 2013). Firstly is needed to explain and understand the basic terminology of the consumer theory (indifference analysis, model of rational customer choice, changes and elasticity of the demand and supply curve). Then we can show some sample of software products focused on the detection and evaluation of different:

- individual's preferences depend on different consumption bundles,
- marketing activities (launching and adaptation of product, measurement of the consumer satisfaction),
- business activities (product lifecycle, product sales prognosis, database of clients, interconnection of microeconomic knowledge to CRM systems).

For IT students can be very interesting to see and try some software applications in this field developed for the banks, research agencies and marketing agencies. Students can realise the synergy between their microeconomic knowledge and IT solutions. Students of the study programs of Informatics once will be employed as a project manager or will have your own business, so as a manager “will communicate with potential partners and their employees actively and join them into the cooperation creation” (Vodák, Soviar, Lendel, 2013).

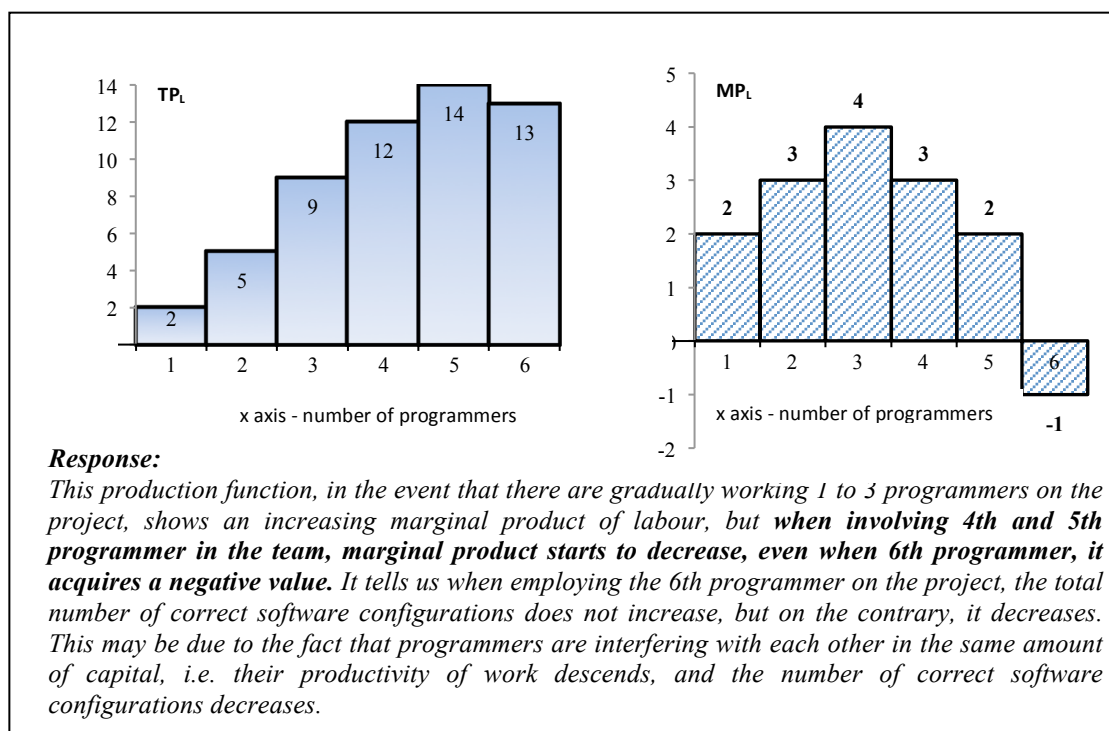
- **The Production Decision**

Existing company information systems and their specific modules enabling to present simply the formation of software products and their improvements will be required from the future IT specialist in practice. Each company information system (CIS) must include monitoring, evaluation, and data connection acquired from the production process on the costs and benefits, the determination of the effective production and maximization of profits, etc. under the terms of CIS, classic microeconomic analyses include the BEA analysis and analysis of "produce or buy". We suggest bolstering teaching of Microeconomics using simple examples that solve "problem" of the area, which IT specialist can meet with in practice, and which is described in the "language" of IT specialists within the assignment. Table no. 1 and Table no. 2 show the concrete sample of such assignment and example of solution.

- Table no.1. Concrete microeconomics assignment and example of solution for IT students

*Example: A computer company performs its activity on the project under permanent capital equipment. When analysing, they found that if it gradually increases the number of programmers on the project from 1 to 6, then the amount of the administrative configuration of the software accepted is hereby changed as follows: 2, 5, 9, 12, 14, 13. Calculate the marginal and average product of labour for this production function. Does this production function have a decreasing marginal product of labour?*

Table no.2. Graphical solution and response of microeconomics assignment



#### Market structures and the state

“In an economy where the offer and the demand meet even more often in the virtual space, it is high time to eliminate the time and space barriers, and to use Internet as a business environment” (Moga, Buhociu, Ionita, Virlanuta, Antohi, Zugravu, 2009). Synergistic with this fact and considering the presentation of the knowledge in these areas of Microeconomics, we suggest inviting experts from different IT companies, who would present what software products and web applications they have developed for:

- international companies managing their business activities in different parts of the world and requiring complex company information systems containing the evaluation of the global and local market position, the creation and evaluation of strategies in oligopolistic industry (on the basis of knowledge of game theory), the creation and evaluation of price discrimination in monopoly industry, etc.
- government and state institutes, which are the sponsor of various governmental and state contracts in all areas of e-Government,
- multinational research and marketing agencies,
- the world agencies and institutions requiring the creation of database of economic data, their processing and evaluation for their activities and decision making. (OECD, Eurostat, ILO, World Bank, etc.)



## 5. Discussion

The effective results of education process depend on the choice of the appropriate educational methods, which represent the path, or way in achieving the educational objectives defined in the teaching process. Biggs (1989, cited in Gibbs, 1992) recommend including four key elements in the teaching to encourage students to adopt a deep approach to their learning:

- Motivating context – increasing the motivation of all available means – positive emotional learning climate. It is like in real business where “creative proactive motivation leads the managers to utilize an individual approach to their employees and use perceptiveness to the needs and expectations of the employees and organisational environment” (Blašková, 2010).
- Active learning in the form of activation teaching methods (heuristic, situation, simulation, staging, didactic games).
- The teaching base a student may apply for a new problem (interconnection of theory and practice – project teaching, autonomous student groups and peer tutoring).
- Discussions (respect of student personality and helping students to develop a well-structured knowledge base).

We can increase the efficiency of results from the introduction of new educational methods using a mix of appropriately complementing methods. These educational methods include:

**Programmed learning** – is an educational method based on management of teaching activities of the students. It is based on the basic formula of S-R (stimulus – response), which takes the form of L-S (learning – strengthening). It uses university available ICT (computers, internet, multimedia). Study material is usually presented as a book or on a computer and processed into the programme according to:

- The principles of small steps – distribution of teaching material for very short follow-up periods, steps (frames), which have three elements: Information, Questions, and Correct solution (key) usually at the end of the text.
- The principle of active response – study material is presented as a question or problematic situation and therefore, it forces student to approach the subject and learning actively.
- The principle of strengthening – student is confronted with the results of his work after each step. In the event that he makes a mistake, he is immediately warned to return to the previous step, analyse the problem again and avoid previous mistakes.
- The principle of own pace – responds the situation, when more skilful students may be detained by weaker students during the educational process, and therefore, there is created space for them to pass using individual pace.

**Educational method of algorithm** – it uses an algorithm involving logical and psychological factors suitable for the use in the educational process. The algorithm is a sequence of finite number of elementary steps toward resolving the given tasks using the apparatus of mathematical logic. This method assumes the correct structural definition of the objectives of teaching and requires a division of the individual creative processes. These processes are appropriately accompanied by specific instructions by the teacher so that they are easily understood by all students. The use of algorithm leads to the solving of the task so that all students perform similar activities and reach the same result. The method of using algorithms rather corresponds with convergent type of tasks, and it is unusable in some cases, since some of the problem tasks require non-algorithmic solution, creativity and alternative approaches. On the other hand, the method of algorithms finds the appropriate application in programme teaching.

**Simulation and game** – are among the activation educational methods. When creating authentic conditions, students are confronted with the real situations of company environment and have the opportunity to practice how to analyse, develop and implement alternatives, formulate own ideas, evaluate the consequences of their decisions without errors when the damage occurred. "In an atmosphere encouraging new initiatives, teams and individuals themselves can compare their current direction and results with the obligations that they have given, regardless of whether they existed in plans or in the form of a continuous dialogue on searching new directions" (Vodák - Kucharčíková, 2011). Playing their roles they may examine the model internal problems, but also problems of interpersonal relations in difficult work situations and obtain socio-economic skills in this context, which are necessary in the development of strategies and subsequent decision making.

**Education using ICT** – “In the time of globalisation, internetisation, social networks, information spreading and new way communication the ability to make something new, creative, efficient and unique is a key factor of success” (Soviar & Vodák, 2009). Thanks to the new technologies, the nature of education and learning is changing. **E-learning** uses modern information and communication technologies as laptops, tablets or smart phones. It is possible to study in online mode by logging in through the web interface or in off-line mode. They include e-learning, using e.g. all-university online system (e.g. Moodle, iTutor, eDoceo, IBM learning), or using domestic but also international web portal of the subject (Coursera, MIT), or using social networks. CBT and WBT represent progressive form of education, which use a combination of traditional educational methods with the use of advanced multimedia technology. „Thanks to new technologies, we have new tools for faster satisfaction of educational needs in spite of our limited cognitive abilities” (Tokarčíková, 2011). Using ICT there is created an interactive educational environment, which provides its users the maximum local, time, personnel and instrumental freedom.

**Blended Learning** is a combination of traditional forms of teaching (face-to-face) and form of online learning (e-learning). Its



effectiveness lies in the fact that students can attend "information" part of the development using the computer, at the time and in an environment they are most comfortable with and they may focus, in particular, on practicing the techniques, acquiring skills and the exchange of experience with consultant and other participants within the traditional learning.

## 6. Conclusion

"The knowledge-oriented world receives more and more attention, which does not limit the development prospects given the immensity of its capabilities." (Litvaj, Poniščiaková, Stančeková, Drbúl, 2013) Economic literacy allows understanding how to effectively manage limited resources and achieve individual, but collective prosperity. It allows understanding it how money has shaped and formed our whole world. A quality university education process aims to master the expertise and enables Informatics graduates easier application in the labour market. Appropriate educational methods and innovation are the key factor in this regard, since it allows students turn information faster on the knowledge in lectures and create a consolidation of theoretical knowledge and practical applications in seminars. Regardless of the professional orientation, economic knowledge and skills are useful in everyday decision making and they help graduates to solve the complex situations occurring either in the workplace, but also in personal life. Since the relationship of students to the subject that are not related to their primary specialization tends to be rather dismissive, the role of the teacher of economic subjects is to choose and apply appropriate educational methods and innovation to bring the students the basic economic connections and their usefulness in practice using more attractive way.

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# Teaching migration studies through collaborative learning practices in an intercultural environment.

## The case of the erasmus ip *sono un migrante*

Paolo Diana, Domenico Maddaloni+++++, Lorenza Melillo,  
Grazia Moffa

*Università di Salerno, via Giovanni Paolo II, 132, Fisciano (Sa), 84084, Italy*

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### Abstract

Collaborative learning refers to methodologies and environments in which learners engage in a common task where each individual depends on and is accountable to each other. These include both face-to-face conversations, working group and online forums, chat, etc. The aim of this paper is to outline the main features of a project of collaborative learning in an international context: the Erasmus Intensive Programme *Sono un Migrante* to be implemented at the University of Salerno. Funded by the Italian Erasmus LLP Authority, the project involves the participation of students and teachers from 7 different universities of 6 EU countries.

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*Keywords:* Collaborative learning, Erasmus Intensive Programme, intercultural context

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### 1. Introduction

The purpose of this paper is to present the main features of a project still under way at the University of Salerno. The Erasmus Intensive Programme *Sono Un Migrante* was launched in September 2013 and will end in July 2014. It shall involve students and teachers from 7 Universities of 6 EU countries. Tutors and technical staff from our University will also be involved.

In our opinion, the importance of this project lies in its attempt to combine the use of new technologies to promote processes of interaction in the classroom, in order to create a *learning community* that should be able to overcome the language and curricular barriers between the national and institutional contexts of origin. Of course, the project aims to contribute to the social construction of shared knowledge on migrations – what we can call a *civic culture of migration*: with special reference to migrations related to the Mediterranean region –, thus helping participants to develop a broader awareness of the complexity of social processes. It also aims to provide a stronger sense both of European identity and a shared social and educational citizenship.

The article is divided into two sections, each divided into two parts. In the first section we discuss the organizational and technological features of learning processes, with a brief review of the concepts of collaborative learning and collaborative e-learning. In the second one, we refer instead to the purpose and structure of the project.

#### 1.1. Pathways and educational tools to build a learning community

The first step of our journey is to describe the organizational and technological characteristics we focused while developing the *Sono Un Migrante* project. We identified our key references, firstly, in the now extensive and well-established literature on the use of ICT in the educational field and, secondly, in the contribution by Ulf-Daniel Ehlers (2011; 2013) on open and innovative learning resources and practices. Moreover, the wider debate on *collaborative* or *cooperative* learning (Dooly, 2008) was important for the definition of our procedures. We chose *collaborative learning* because, facing the social and political relevance of the migration issue, we felt that students are easily motivated to "take almost full responsibility for working together, building knowledge together, changing and evolving together and of course, improving together" (p. 21). In this section we will refer therefore to the concepts of collaborative learning and collaborative e-learning.

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\* Corresponding author. Tel.: +39-089-962278; fax: +39-089-963013.

E-mail address: dmaddaloni@unisa.it

### 1.1.1. On collaborative learning

According to Vygotsky (1978), students can perform at higher intellectual levels in collaborative situations than when working individually. Furthermore, group diversity (within the group, as well as among groups) can contribute positively to the learning process. In this case, students are faced with different interpretations, explanations or answers about what they are studying and this forces them to “re-think” their own viewpoints. The basis of collaborative learning is *constructivism*: knowledge is constructed, and transformed by students. Thus, the learning process must be understood as something a learner does by activating already existent cognitive structures or by constructing new cognitive structures that accommodate new inputs. Learners do not passively receive knowledge from the teacher; teaching becomes a transaction between all the stakeholders in the learning process.

Collaborative Learning (CL) is, therefore, a mode of learning in which students work together in small groups to achieve common goals, trying to help each other in the learning process. The CL is “considered not only a learning theory or a method of teaching, but a theory or a method which helps to identify a set of educational principles that, from a systemic perspective, define how students can learn from each other as they work together in the implementation of task” (Cacciamani, 2008, p. 32).

This method differs, therefore, both from competitive learning and individualistic learning; unlike these, it can be applied to each task, and for each topic of study. It is a mode of learning in a group characterized by a strong positive interdependence among members. In a CL environment, the so-called *social skills* (Gut & Safran, 2002) held by the student become more important because, along with the cognitive and motivational skills, they become the main foundations on which to structure a learning process.

CL is aimed at enabling the students to take almost full responsibility for working together, building knowledge together, changing and evolving together and of course, improving together (Dooley, 2008). Successful collaboration involves, therefore, some agreement on common goals and values: the pooling and spreading of individual skills for the benefit of the group; the autonomy of the learner in choosing who to work with; and flexibility in the organization of groups (Kaye, 1994). This condition is not achieved simply by bringing the students together, or stimulating their cooperation, or asking them to get together in order to produce a final output. Rather, it is the result of the ability to adequately structure the tasks to be assigned to the group, set up the necessary materials for learning and prepare activities in order to educate its members of the social behaviors needed for effective cooperation.

For CL to be effective, there should be both “group goals” and “individual accountability” (Slavin, 1989). This means that the collaborative learning task must ensure that every group member has learnt something. Ideally, a CL task would allow for each member to be responsible for some concept necessary to complete the task. This implies that every group member will learn their assigned concept and will be responsible for explaining/teaching this to other members. Thus, as evidenced by Tessaro (2002), an effective CL practice needs the following basic elements:

- a. *Positive interdependence*. Group members have to rely on each other to achieve the purpose. If someone in the group does not do his/her part, the others suffer the consequences. Students should feel responsible for their own personal learning as well as the learning of other group members;
- b. *Individual responsibility*. All students in a group must be accountable for their part of the work and for what they have learned. Each student should demonstrate personally what he has learned by means of appropriate verifications;
- c. *Face to face interaction*. Although part of the group work may be distributed and carried out individually, it is necessary that the members of the group work interactively, checking the chain of reasoning, the conclusions, the difficulties, and providing a feedback to each other. In this way the teaching staff can receive another advantage: the students peer teaching;
- d. *Appropriate use of collaborative skills*. The students in the group are encouraged and helped to develop confidence in their abilities, such as communication, leadership, the ability to make choices and defend them, conflict management in interpersonal relationships;
- e. *Evaluation of the work*. The members of the group periodically evaluate the effectiveness of their work and the functioning of the group, and identify the changes needed to improve efficiency.

The social benefits of education based on CL have been shown by some studies (Cacciamani, 2008) which show the following advantages:

- *Better student performance*: all students work longer on the task and with better results, improving the intrinsic motivation and developing greater capacity for reasoning and critical thinking;
- *More positive student relationships*: the students become aware of the importance of the contribution of each of them to the common work, and therefore develop mutual respect and team spirit;
- *Improved psychological well-being*: the students develop a greater sense of self-efficacy and self-esteem, coping better with the difficulties and stress.

### 1.2 On collaborative e-learning

Training needs and learning objectives guide the choice of the appropriate technological system for a given context (Arcangeli & Diana, 2009). For example, the presence of a high number of students and objectives aimed at the transfer of well codified

knowledge suggests learning patterns near the base of the pyramid shown in Fig. 1. If, however, the educational goal is the acquisition of problem solving skills, models and technologies that also ensure a good level of interpersonal communication can be useful. Finally, if you want to develop the ability to work in a team and the ability to build new knowledge, sharing their own experience with that of others, the most useful technologies will be those aimed at cooperation (Trentin, 1999).

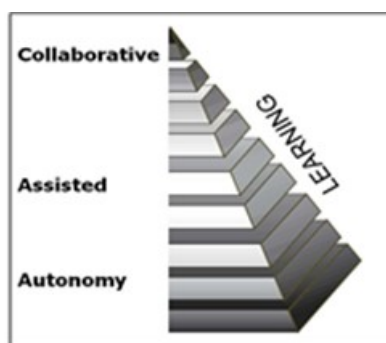


Fig. 1. Pyramid: approaches in e-learning

Therefore, there are three models of e-learning that can be chosen within integrated training courses (Midoro, 2002; Banzato, 2003). These differ in two fundamental elements, primarily attributable to the mode of learning and the type of system through which the educational process is realized. The choice of one approach over another is actually determined by the organizational, educational, and technological practices of the different contexts in which the training project takes place.

The taxonomy is divided into three basic classes: *self-paced training*; *assisted training*; and *collaborative training* (Fig. 1). Near the base of the pyramid we can find the network applications supporting processes of self-learning; in a central position, instead, there are the applications in which the network supports assisted learning processes; and, finally, near the top we find the network applications that support collaborative learning processes.

At each level there is a different use of the network and internet services. The more we move away from the base of the pyramid and we build an integrated use of the system of interaction (e-mail, forums, newsgroups), the more we move toward models of aided education, in which assistants such as technical assistants, tutors and teaching staff come into play and interact with participants, aiding them in the use of materials. In aided education, access to the materials is still important, but to a lesser extent in relation to the previous level, because here human communication, although mediated by the computer, assists and enhances the learning process, no longer based exclusively on the study of materials. The more you approach the top of the pyramid, the greater, however, the importance of interpersonal interactions, not only with tutors or teachers, but among the learners.

In the upper layers of the pyramid lie, in fact, systems based on CL and learning communities. Here the most important activities are carried out cooperatively by the participants and the technology is designed to encourage collaboration, while allowing services access to materials and communication. The teaching materials collected in the net are the *common catalog* of this community; the latter uses the network as a support to communicate and cooperate (Harasim, 2000; Midoro, 1998).

In this type of networked education there are three fundamental elements: a pool of *materials* (available on the network and / or sent by mail); *ICT* used by the community as a means to communicate, cooperate, access and produce information and knowledge; a *learning community* consisting of several figures with many functions (educators, students, experts and observers).

As for the *materials*, we can distinguish three types: those relating to the *organization* and *carrying out* of the course; those related to *technology*; those relating to the *content*. The first consist of a course guide, setting out the objectives, content, structure, scheduling and materials. It may also be useful the creation of a website where the learner can find a course guide, a description of the community, links to the learning environment, questionnaires for participants, and anything that can offer a vision of the course. The materials relating to technology refer to the CMC (Computer Mediated Conferencing) used (user of the system, guidance on how to download local software from the network, etc.). The last class includes materials that participants use to study individually and conducting group activities suggested by teachers. It is noteworthy that, in these systems, the materials are a “living body” that changes during the course. Participants can add new materials or produce new ones, so that you have a content enrichment by the students at the end of the course.

Turning now to the ICT technologies in online courses, it is widely recognized that they fulfill four main functions: *communication*; *sharing*; *access to information*; *cooperation*. *Communication* within the virtual community is mainly accomplished using a system of CMC. Sometimes, synchronous modes of communication such as chat or audio conferencing can be used in these systems. The information *shared* by the community may be contained in the documents prepared by the teachers, in printed material, videos or even Web sites. In a CMC environment a “library” area is often open, where all the documents used or produced inside the course are deposited. Furthermore, a systematic *access to information* contained in websites is often provided.

Finally, *cooperation* can take place on two levels: within *local* groups or *virtual* groups. Local groups interact on a face-to-face basis. Collaborative activities involve a sharing of tasks and an explicit intention to “add value”, as opposed to a simple

exchange of information or execution of orders. In this case it is important to distinguish and define the various figures involved in the process of collaborative e-learning. The *virtual community* of an online course usually includes: students; tutors; a technical staff; teachers.

Incorporating network-based learning into the process of collaborative learning can be very beneficial in terms of knowledge and experience: students will be working in a group context and this interaction may bring them to re-formulate some of their ideas (Bruner, 1985). In this kind of educational practice, teachers must help their students learn to interact positively with people who are different from themselves and who may not think the same way they do. Through online or classroom collaboration, students may come to see the importance of taking responsibility for their own learning and feel empowered to do so while learning to respect the opinions and work of their online partners. Of course, a feeling of confidence is a very important factor for ensuring that students will be willing to participate and contribute in online interaction. It may be a good idea to make sure that the learners have some prior experience in small online exchanges before “diving into” a full collaborative project.

## 2. The SUM project

Having described the major features of the educational approach, we turn now to the description of (1) the aims our project intends to achieve, and (2) the main phases in which the project takes place and the tools developed to ensure its effectiveness.

### 2.1. Main goals: Or, what the SUM Project intends to be

Our LLP Intensive Program 2013/2014 *Sono Un Migrante* (SUM), approved by the Erasmus LLP Italian Authority, has a duration of one year. Our course will gather 19 teachers with different skills in the area of social sciences, particularly Economics, History, Sociology, Psychology, Gender Studies, Demography, and 47 students from 7 universities (5 of which are in the public sector and 2 are private) of France, Spain, Romania, Greece, Italy and Cyprus. In addition, 7 persons of the technical staff, and 5 tutors selected among the students of the Advanced Degree in Sociology will take part in the course. The crucial phase of the IP will be carried out from July 7th to 19th, 2014, at the Campus of the University of Salerno, as a project leader.

The more direct goal of the project is to improve knowledge on international migration among students, with respect both to its more general features, and to the specific nature of the most recent phase; moreover, our intent is to explore both the quantitative and the qualitative dimensions of this phenomenon. The IP, then, has the goal to overcome the curricular and linguistic differences among learners in order to promote the spreading of a *civic culture of migration*, seen not as a mere repository of information of various kinds, but as a real internalization of critical knowledge.

As stated, we chose a CL technique in order to obtain these results. We felt that, in our case, the use of a collaborative approach in order to produce socially shared knowledge may not be only related to the technological and organizational features that make it suitable to work in a multicultural context (with the use of English as *lingua franca*). The use of this approach seemed particularly appropriate to us, also considering the relevance of migration for European culture and citizenship today.

In their study courses, European students of Economics, History, Social or Political Sciences and Psychology usually approach contemporary migration processes in a partial way, referring to specific aspects or local contexts. On the contrary, we believe that the complexity of contemporary migrations and the problems they pose in European public and scientific debates need a comprehensive approach (Maddaloni, 2012). The geography of contemporary migrations, in fact, has changed both for the articulation and the overlapping of their routes, and the global character they have assumed since the 80s (Castles & Miller, 2009). Countries of long standing emigration, such as Italy, for example, now become at the same time areas of emigration and immigration. Migration in this sense becomes, as Castles and Miller have shown, a true *total social fact*, which redraws the social, political, economic and cultural landscape of the contemporary world. Migration now not only involves those who migrate, but affects the society as a whole: it is the origin of new social and cultural hybridization that is affecting the identity of the Europeans.

We think, therefore, that the multidisciplinary skills of the teaching staff and the teaching approach we have chosen will be particularly useful in order to allow students a broader understanding of this complex phenomenon, by integrating its historical, economic, demographic and social dimensions with those more specifically psychological or related to gender studies. Furthermore, since the development of a responsible attitude towards migration and cultural pluralism in European societies can easily be seen as a very important aspect in a more general process of European identity building, an indirect goal of our project is to contribute to the spread of a deeper awareness about our *being Europeans*.

Another indirect purpose of the IP is “to expand the cultural competence of educators and other professionals who are increasingly called upon to perform in the global, transnational arena” (Aust, Furman, Quesada, 2008, p. 2), thus increasing their ability to develop networks and communities in the educational field and improving the effectiveness of educational policies in the European context. For the participating teachers, many of which already have specific educational experiences related to migration, participation in the project may mark an important milestone. They will have the opportunity to test themselves in an innovative educational experience on the topic, characterized by international and interdisciplinary dialogue, and learning by

doing. So, they will be able to broaden their professional horizons as teachers and improve their educational practices, becoming promoters of social innovation at both national and European levels

## 2.2. Steps and tools

Let us now turn to examining the stages and tools of the learning process we propose to the participant students. Our project is articulated in two steps inspired by the educational practices presented above. The first phase takes place *in a remote mode*, through the platform dedicated to the project implementation (<http://des-k.it/sum>), in order to allow (1) a greater communication in all its phases, (2) an easier sharing and discussion of documents, and (3) smoother and more transparent monitoring. In particular, at this stage teachers collect and select the materials aimed at the realization of the educational intervention. The materials collected for a first approach to migration focus on biographies, non-standard interviews, songs, movie scenes, documentaries and cartoons. Furthermore, we collected and selected a large amount of statistical material, processed in the form of tables, graphs or maps (Fig. 2), which are useful for constructing scenarios of current international migration.



Fig. 2. SUM Project: geo data

Once collected and sorted, educational materials are made partially available to students, in order to encourage a first socialization to the issue, although again individually. *Moving from individual study to collaborative learning*, there are communication tools within the platform such as forums and chat rooms, through which students not only introduce themselves and socialize, but also have the opportunity to revise the materials provided in a collaborative dimension. This phase has the additional function of socializing the participants to the use of ICT for the construction and sharing of knowledge. By way of example, Figure 3 shows the page of the platform dedicated to forums.



Fig. 3. SUM Project: forum

The second step concerns the *work in the classroom*, that will be implemented on a two-week basis (that is, from July 7<sup>th</sup>, to July 19<sup>th</sup>, 2014). The work will be divided into three stages. The first (days 1-3) will be based mainly on statistical material, and allow students to gain a clear picture of the scale of the phenomenon in the Mediterranean area, the multiplicity of migrant subjectivities, and the diversity of their motives and destinations. The second stage (days 4-9) will be based instead on the use of life stories and other non-standardized documents, in order to bring the student to re-live the experience of specific migrants in different stages of the migration process, stimulating an attitude of greater understanding for the difficulties and obstacles inherent in migration projects in the contexts of departure and arrival. The third and final stage (days 10-12) will be dedicated to the creation of a multimedia communication tool that will show the IP results in order to “export” the students’ experience in the different countries of origin.

CL will be especially crucial in this phase of work in the classroom: the student will be at the center of the educational activity and will perform an active role in the process of social construction of knowledge. Since his/her arrival, each student will be placed in a multicultural working group, coordinated by teachers and supported by tutors. Each group will be asked to produce their own perspective on the topics proposed. Therefore, discussion within the group, as well as comparison and sharing between

groups, will be central in this phase of the educational process. In this regard, it should be noted that the adoption of a collaborative approach, as pointed out by several studies (Sharan, 1980; Comoglio & Cardoso, 1996), can reduce those linguistic problems, which are seen as a major obstacle in the development of transnational educational communities (Aust, Furman, Quesada, 2008). Cooperation among students creates an environment with more opportunities for communication and the possibility of more widespread help from their colleagues. This can also be useful in order to overcome the differences between learning styles embedded in the students' national cultures. We believe that, in our case, CL can be an educational strategy that can both respect the personal characteristics related to a particular cultural identity, and promote the integration of students from different cultural groups.

The role of the teacher, as previously described, while not being traditional is nevertheless of great importance. He/she remains, in fact, an essential point of reference in the selection and organization of materials and a valid support and facilitator in the learning process. This explains the ratio of 1 to 3, which marks the teacher/student relationship in this project.

### 3. Concluding remarks

The international research team that has supported this project aims to use the experience gained in the CL to introduce significant changes in their usual educational contexts. The more general purpose of our IP is to develop communities of practice that focus not only on learning, but on the social construction of knowledge useful to the community in the perspective identified by Scardamalia and Bereiter (Bereiter, 2002; Scardamalia, 2002). Following these authors, we intend to push the stakeholders of educational systems to reconceptualize learning activities and to think of European schools and universities as *learning communities* producing valuable, critical knowledge for their students and for the wider societal context.

This is therefore an example of collaborative learning in a sociological discipline in an intercultural context. In our opinion, the project raises issues of great interest for teaching sociology – and, more generally, social sciences – in a time when the need for the internationalization of university activities is becoming widespread, and the quest for a learning society is becoming more urgent (Kuhn, 2007).

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# Teaching robotics at the primary school: an innovative approach

David Scaradozzi<sup>a</sup>, Laura Sorbi<sup>a,\*\*\*\*\*</sup>, Anna Pedale<sup>a,b</sup>,  
Mariantonietta Valzano<sup>c</sup>, Cinzia Vergine<sup>c</sup>

*a*Dipartimento di Ingegneria dell'Informazione, Università Politecnica delle Marche, Via Brecce Bianche, 60131, Ancona, Italy

*b*National Instruments Italy, Centro Direzionale Milanofiori Nord, Palazzo U4, Via del Bosco Rinnovato, 8, 20090, Assago (MI), Italy

*c*Istituto Comprensivo Largo Cocconi, Laro Girolamo Cocconi, 10, Roma, Italy

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## Abstract

Many researchers and teachers agree that the inclusion of Science, Technology, Engineering, and Math in early education provides a strong motivation and a great improvement in learning speed. Most curricula in primary schools include a number of concepts that cover science and math, but less effort is applied in teaching problem solving, computer science, technology and robotics. The use of robotic systems and the introduction of Robotics as a curricula subject can bring the possibility of transmit to children the basics of technology and to give them other kind of human and organizational values. This work present a new program introduced in an Italian primary school thanks to the collaboration with National Instrument and Università Politecnica delle Marche. The subject of Robotics becomes part of the Primary school curricula for all the five years of formation. The program has allowed the teachers training and a complete way through which children have demonstrated great learning abilities, not only in mere technology but also in collaboration and teamwork.

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*Keywords:* Robotics, primary schools, innovative program.

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## 1.Introduction

Many researchers have been investigating the use of robots to support education. Studies have shown that robots can help students develop problem-solving abilities and learn computer programming, mathematics, and science. The educational approach based mainly on developing logic and creativity in new generations since the first stage of education is very promising. To these aims, the use of robotic systems is becoming fundamental if applied since the earlier stage of education. In primary schools, robot programming is fun and therefore represent an excellent tool for both introducing to ICT and helping the development of children's logical and linguistic abilities of children. Robotic teaching experiences have been carried out in Italian schools since 2000-2001, when the first project was proposed. It was called "Building a robot" and its description can be found in [Merlo, 2010]. Moreover, learning robots programming also becomes an opportunity for primary school pupils for developing their linguistic and logical skills, always focusing on pedagogical rather than technological issues. This paper presents an innovative program developed in order to teach robotic basics at the primary school as a curricula subject. The same instruments are used as a multidisciplinary validation and motivation for other subjects (Italian, Mathematics, Science, etc...). Education in Italy is compulsory from 6 to 16 years of age and is divided into five stages: kindergarten (scuola dell'infanzia), primary school (scuola primaria), lower secondary school (scuola secondaria di primo grado or scuola media), upper secondary school (scuola secondaria di secondo grado or scuola superiore) and university (università). The Scuola primaria (primary school), also known as "scuola elementare", is commonly preceded by three years of non-compulsory nursery school (or kindergarten, "asilo"). Scuola elementare lasts five years. Until middle school, the educational curriculum is the same for all pupils: although one can attend a private or state-funded school, the studied subjects are the same. The principal subject are Italian, English, Mathematics, Natural Sciences, History, Geography, Social Studies, Physical Education and Visual and Musical arts.

Until 2004, pupils had to pass an exam to access Scuola secondaria di primo grado (Middle school), during which they had to demonstrate their abilities in composing a short Italian essay, passing a Math test and an oral test regarding all the other subjects. The exam has been abolished, only private primary schools legally recognized maintains this kind of test. In order to introduce Robotics as subject during the Primary school five years, a special program has been introduced. The global five-years schedule is divided into two main blocks: during the first two years pupils are introduced to logics and mechanical feel with remotely

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\* Corresponding author. Tel.: +39 338-5995438

E-mail address: l.sorbi@univpm.it

controlled independent machine (using Lego WeDo system); in the last three years childrens are asked to design, build and program their own independent robots, using Lego NXT system.

The LEGO Education WeDo is an easy-to-use robotics platform that introduces young students to hands-on learning through LEGO bricks and the easiest form of graphical programming software that National Instruments has to offer. It is a fun and simple way to get younger students exposed to basic engineering concepts at an early age. The use of LEGO Education WeDo provides a hands-on learning experience that actively engages children's creative thinking, teamwork, and problem-solving skills. LEGO Education WeDo is a hands-on platform that primary school students can use to build simple robotics applications driven by a personal computer with a simplified version of LabVIEW. By combining the intuitive and interactive interface of LEGO Education WeDo software with the physical experience of building models out of LEGO bricks, students can bridge the physical and virtual worlds to provide the ultimate hands-on, minds-on learning experience ([LabVIEW Graphical System Design]). The system has being applied in other countries, proposing their use in primary schools and studying the possible benefits for children education. In [Mayerová, 2012], for example, the author analyzes the first-contact situation in which 3rd grade pupils in primary school encounter LEGO WeDo for the first time. In [Romero, 2012], a pilot study of robotics in primary schools is described, together with motivation of choosing The LEGO WeDo for children activities: the low learning curve of the programming language (visual programming rather than code writing), and the educational content provided with it.

Recent years have seen the development of cooperation between National Instruments, Università Politecnica delle Marche and primary schools to improve the use of new technologies since the first grade of the school. One of them is Primary School Istituto Comprensivo Largo Cocconi.

Both the scientific and educational communities recognize the role of ICT company investment in improving science and engineering education, engaging students with technology, and equipping educators with resources to help them teach fundamental engineering concepts in a fun, hands-on way. Specifically, the National Instruments and Lego provide interactive, real world learning experiences; low-cost and free training opportunities; a strong global mentorship program; technology and funding.

Initiatives such as K12Lab.com for primary and secondary school teachers and the NI courseware portal for university professors feature effective content that educators can use directly or adapt to their learning environments [<http://k12lab.com>]. The K12Lab is a website where teachers can browse and share lesson plans, find inspiration from what others are accomplishing with technology, and get tools and support to help their students connect theory to reality faster. K12Lab users gained access and contributed to a growing library of 86 lesson plans for subject areas such as physics, robotics, and computer science.. The Austin Children's Museum (ACM) creates innovative learning experiences for children that equip and inspire them to be the next generation of creative problem solvers. The ACM program, TechReach, provides students from low-income families with opportunities to gain hands-on science, technology, engineering, and math skills. Working with LEGO MINDSTORMS NXT kits, participants learn the basics of designing, building, and programming robots. The TechReach program addresses a three-fold problem for economically disadvantaged children in Austin: shortage of access to technology, the need to build 21st century skills, and the lack of interest and awareness in a science-related future [9, 10]. Another interesting experience could be found in the Lana Stone, a technology instructor, with the Govalle Primary school team participation on the FIRST LEGO League. National Instruments recently chose to partner with "The Boys & Girls Club", a non-profit organization dedicated to enabling all young people to reach their full potential as productive, caring, and responsible citizens. At the clubs, youth are provided a safe place to learn and grow ongoing relationships with caring adult professionals, life-enhancing programs and character development experiences, as well as hope and opportunity. In the project the LEGO Education WeDo has been used. The kids who attended the workshop ranged in age from 6 to 15 years old. It was clear that they had not been exposed to this type of technology before which made the volunteer's experience particularly rewarding. Many of them had interacted with LEGOs but were extremely excited to make a LEGO robot that moved. One child was surprise at a LEGO alligator that bit his finger through the use of a motion sensor is: "It is always motivating to see the eyes of a child light up when they learn something new." It was also rewarding to watch the proud, glowing faces of the parents who were dragged into the computer lab by their kids who wanted to show off the robots that they had built and programmed [austintexas].

Following what already done in the past form a lot of institutions and the experiences in pedagogical, technological and teaching aspects the here presented project arises from the collaboration among three principal groups of researchers from Università Politecnica delle Marche (UNIVPM), of teachers from Istituto Comprensivo Largo Cocconi and the National Instruments Company for the hardware involved in this work.

The paper will presents the different aspects of the project and the preliminary results. The presentation is organized as follows: Section II describes the objectives and the expected results of the project; Section III explains the instruments and times used to realize this project, while Section IV illustrates the preliminary results, and the conclusions and future developments are illustrated in Section V.

## 2.Objective and expected results

The first and main aim of this project concerns the introduction of Robotics at the Primary school as a normal subject in the curricula besides being proposed as a lateral extra curricula activity to be performed out of official school hours. The projects wants the children to increase their capabilities, teaching them to program a machine and to consider robotics as a normal method of work rather than an exceptional way of operating. With robotics, the students can have a different opportunity for developing their logical ability and their creativity, features at the base of reasoning and critical thought. The first experimental work done in the last five years has covered a complete Primary school cycle; it has been performed with the priority of introducing the subject ROBOTICS as a curriculum component, improving the usual Gantt of the regular Ministry plans with a new teaching theme involved in its Didactic years, weekly Programming and the regular learning evaluation methods.

The presented scholastic program has been divided within the five years of Primary school and the new study program for each Class is proposed in the following.

The main objectives of the project are distributed as follows:

### 1. Class I

- Learning the roboethics concepts with the introduction of the Asimov's literature and the three robotics laws;
- Gaining knowledge of the single mechanical elements through simplified programs of ordering and planning: learning the differences among shapes, materials, colors and functionalities of the elements presented on the market;
- Planning a model using LEGO system through a simplified program;
- Understanding the model verification and validation concepts in the work environment.

### 2. Class II-III

- Acquiring the ability to attribute coherent purpose to a constructed robot;
- Introducing to the concept of ROBOT as a machine that must complete a specific task;
- Studying sensors and actuators through the comparison with human apparatuses;
- Introducing the software programming for the LEGO WeDo system.
- Realizing a simple robot able to interact with the environment.

### 3. Class IV-V

- Acquiring the ability of attributing coherent purpose to a complex constructed robot.
- Acquiring the ability of building a robot in accordance with specific and relative complex purposes.
- Planning a robot for a specific scope of research, that is able to live in a defined environment.
- Introducing software for robot analysis.
- Realizing a technical manual for the final operator in order to explain how to design and realize a robot.

During the quinquennial of the educational training the main objectives are accomplished by mean of different activities.

The activities are scheduled in didactic units, different for each school year and class. Each didactic unit consists in specifics aims and skills developed in activities, increasing and pursuing children competences.

The first activity is aimed firstly at involving the children to collect the changes in the surrounding environment about the technologies development. Secondly, the same activity is focused on the relevance of practical activities, to increase curiosity, fantasy, and logic in the children. The evaluation of the accomplished knowledge is be checked asking children to realize a document filled with images about different robot duties and aims useful for human being.

The second activity concerns of the approach to the Robotics laws, in particular guiding them to analyze the necessity of the three laws and their connection to society laws. The purposes are to educate children to social values and to have respect for others; moreover, it becomes important to underline the necessity of establishing rules that save and increase the well-being of all people. Another aim is to learn technological progress as a positive aspect in life, and to increase collaboration with other subjects giving own contribution to the group. Practically, teachers help children to learn and to apply the three robotics laws working with pictures.

The third activity is aimed at planning and building a robot made of structured and not structured materials, using WeDo for the first two years, NXT for the third and the fourth classes and custom hardware with COTS and LabVIEW for the last year). The objective is to increase logic in the activity of materials discrimination and classification, coherently increase creativity in order to handle different materials, and try to make objects with the use of acquired skills. The children are asked to pass two final tests. The first, where the children have to correctly classify different robot pieces and a second where the children

have to put in order the different parts to make a robot. Other evaluation activities are carried out in groups; each group have to assemble pieces and to build a robot.

The fourth activity concerns the training on how to program with visual development tools (mainly the WeDo and the NXT with an introduction to LabVIEW). The final aim is to give some basics about programming, using a visual framework, which is, therefore, quite simple and intuitive; at the same time, they start discovering the new functionalities made available by a computer. They learn how programming a robot and its specific functions that change according to the abilities the robot itself has to show. Then it is important to stimulate children to think about personalizing the robot program. The skills developed with this work are the comprehension and the execution of deliveries and instructions for understanding and communicating own experiences in clear way, being able to use computer and graphic programs and lastly to attribute purpose to an object. This work is aimed at understanding the single blocks during the elaboration of the program realized. The teacher supports the children when they have difficulties during the software production, or they can be tutored by classmates.

The fifth activity aims at building and programming a robot, according to specific aims: examination of the robot skills, classification of building pieces, robot software production and check of robot work. This project is aimed at getting pupils confident with materials manipulation, stimulating their curiosity, dealing with new challenges. Moreover, it is important to transmit the feeling of group spirit and working together towards a common goal. This activity helps children to understand how to solve a problem or mistakes in their work by finding alternatives, and at the end to understand the necessity of respecting the three laws of robotics in building and programming robots. The final test of this activity wants to verify how the children create the Robot according to the assignment. They are required to produce a text where the process is explained. The above composition can be done individually or collectively.

The last activity involves the elaboration of fantasy texts in which the protagonists are the constructed robots. The aims are: collaborating with classmates, bringing positive contributions to the group, learning to accept other people ideas, to respect differences, understanding the necessity of rules that safeguard the well-being of everybody and finally increasing creativity and fantasy through the production of a coherent text. The enhanced skills are instead to understand and to execute deliveries and instructions, communicating own experiences in clear way, interacting in a conversation through questions and narrating direct experiences, observing and confronting.

These scholastic activities will emphasize the importance of the prefixed objectives for children and it is very important stimulating logic and ability of analysis. The continuous exercise encourages them to stimulate the curiosity in specific cognitive instruments, to reinforce the abilities to attention and concentration and to observe experiments with the use of the scientific method.

### **3.Instruments and times**

The time established for these activities is placed within the “hours for the optional disciplines” established by Ministry in the regular timetable weekly magazine of the curriculum activities. The plan include didactic trips, beginning from second-third class of the primary school, inherent to the programmed activities, in science museums or research institutes, where the pupils will be involved in more specific workshops about mechatronics and robotics.

The hardware and software involved in this project for the children training include five kits of LEGO WeDo® (Fig. 1) for the first and second classes, five Kits LEGO MINDSTORMS® NXT (Fig. 2) in the other classes.

Università Politecnica delle Marche, LEGO Education and National Instruments together provide the framework for learning how to systematically and creatively solve problems. This means understanding key science, technology, engineering and math concepts. The UNIVPM, LEGO Education and NI platform helps teachers with the power of robotics, useful to create learning opportunities for students for developing the skills like creation, problem solving and contribution to a global society.



Fig. 1. Lego WeDo® kit



Fig. 2. LEGO MINDSTORMS® NXT kit

National Instruments and LEGO, sharing a vision of inspiring creativity and innovation in children, have already partnered to develop the next generation of LEGO MINDSTORMS® - programmable robots that are smarter, stronger, and more intuitive. Starting from LabVIEW, graphical system design software used by scientists and engineers, a more user friendly desktop software has been developed which turns any LEGO MINDSTORMS® Education set into a full-feature science and engineering learning station, preparing students for high grade school, university courses and engineering careers where LabVIEW is already used.

LabVIEW for LEGO MINDSTORMS® is the most advanced software environment for programming the NXT. LEGO MINDSTORMS products take maximum advantage of NI's world-class software for their latest hardware innovations, delivering LabVIEW software to applications spanning from kindergarten to rocket science. The WeDo Robotics Construction Set is a set of pieces and mechanical parts that can be used to build robots. The WeDo is designed to teach simpler concepts to slightly younger kids, and it uses many recognizable Lego pieces. The WeDo Software allows programming the robots, controlling its actions, sounds and responses. All the programming is drag-and-drop; just line up programming blocks to tell the robot what to do. The educational training is focused to a specific knowledge of the robotic subject and the base language for programming its functions. The teachers also will gain these specific competences, so they will be modernized on the topic of computer science, industrial and theoretical robotics. Educational developing meetings with the teachers about the construction of activities for the pupils in the class will be scheduled.

#### 4. Preliminary results

Preliminary results are based on activities described in the second Section, carried out in a given period of time. The proposed criteria have been able to teach new concepts to children, to attribute coherent purpose to a constructed robot, and to teach the roboethics with the introduction of the Asimov's three robotics laws. Selected groups of professional operators will have also invited to attend and to take part to intermediate tests and experiments.

The first experimental Robotics subject has been taught in the Istituto Comprensivo Largo Cocconi in Rome – Italy. The primary school teacher Mariantonietta Valzano and the University professor David Scaradozzi developed the experimental

project after their observation about primary pupils. They focused the project on increasing and pursuing logical and creativity, important educational skills in modern school. They succeeded in starting the project four years ago in the mentioned school.

During the project, a responsible role has been assigned to one teacher of the Primary school (Mariantonietta Valzano). Her main role has been the definition of educational objective, the localization of the learning strategies, and the organization of formative activities with the pupils involved. The second person involved in the project is Cinzia Vergine as adviser of didactic activities, with the role of controlling the participation to these learning strategies. She has been responsible of formative activities with the pupils. The third person involved has been David Scaradozzi, as the technical designer supervisor. He has studied and developed the technical instruments and he head the technical training for teachers and pupils.

The team project during this term has collaborated whit Scuola di Robotica di Genova and Mondo Digitale di Roma, attending diffent kind of situations and skills.

Actually, at the middle of the fifth year, the preliminary results concerns:

- Definition of educational objectives;
- Creation of strategies to learn;
- Planning of formative activities with the pupils in classes;
- Planning of the times to release software, hardware and technical training for the teachers.
- Verification and validation of the didactic program
- Technical and computer science training to learn the bases of robotics.



Fig. 3. Children programming with Lego Mindstorm



Fig. 4. Children constructing a simple robot with Lego components



Fig. 5. Children during their trip at University

Improvements registered by teachers are very relevant and have demonstrated the great value of using robotic system in each aspect of teaching. Pupils have been always curious, receiving the single aspects of the training, from the pure robotic construction and programming to the importance of working together, in group, of achieving new skills, and facing new problems. Fig. 3 and 4 show some students directly involved during the practical activities, in particular the visual programming and the mechanical construction of the robots.

The last figure shows students during the planned trip to Università Politecnica delle Marche in May 2014, where they were introduced to the world of administration and learning at University, and they participated to a workshop about the LabVIEW professional framework. Teachers have scheduled to complete training LabVIEW Professional the next school year, giving to students the basis of professional robot programming.

Teachers have stated positive differences in educational results if compared with other classes not involved in the project.

## 5. Conclusion

In September, the fourth year of the pilot project "ROBOTICS IN SCHOOL" has been started in the Institute Comprensivo Largo Cocconi in cooperation with engineers from Università Politecnica delle Marche and National Instruments, who believed in the validity of the training project providing the tools used in these years.

In October 2012 the project received "la medaglia del Presidente della Repubblica", an Italian award recognizing the most innovative project of the year during the Global Junior Challenge competition event.

The project allows children to get awareness of the robotic science and to develop a good knowledge of the technology they are using. Lessons are aligned with the students' curriculum. This project showed a great upgrade in the children education, in particular to develop general skills necessary in their life. The curriculum involves the entire engineer design process from ideation, to construction and implementation. This innovative way of transmitting skills revealed to be useful for all types of academic pursuits. This program helped students to develop the skills that will be necessary to be successful in the 21st century.

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# Teaching simulation in logistics by using Witness and Captivate software

Leo Tvrdoň<sup>a</sup>, Karla Jurásková<sup>b</sup>

<sup>a</sup>*VSB-Technical University of Ostrava, Ostrava 701 21, Czech Republic*

<sup>b</sup>*VSB-Technical University of Ostrava, Ostrava 701 21, Czech Republic*

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## Abstract

The paper is focused on the method of teaching of logistics by using simulation methods. The aim is to describe a new way of teaching by using simulation software with a practical example. The main part of this article consists of a description of an actual application in education including graphic illustrations of work in the simulation software Witness and Captivate. In conclusion, the authors point out the benefits of learning by using simulation software for students of logistics and possibilities of applying their gained knowledge in business practice.

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*Keywords:* Dynamic simulation; Education; Logistics; Witness; Captivate

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## Introduction

Simulation is a method often used in both business practice and in the educational process, where it is in the form of strategic simulation games beginning to occupy a very important position in the last decade. There are many requirements on graduates applying their first job, the practical experience is often among them. Many students, however, lack practical knowledge.

The universities equip their graduates with very good theoretical background, which is however necessary to be applicable in practice. Simulation allows students to explore patterns of simulated reality in a safe environment and systematically analyze and evaluate the current situation and verify the decisions which should lead to the improvement of the condition.

The aim of this paper is to describe the introduction of a new way of teaching using simulation software Witness and Captivate at the Faculty of Economics, VSB-TU Ostrava and to demonstrate a practical example.

The use of dynamic simulation in education provides students deepening of their knowledge in three broad areas. The first area is the implementation of the acquired theoretical knowledge into specific, in this case the logistic, problem, simulated implementation of the proposed solutions within the given simulation model and finding of consequence of these solutions. Another large area is to improve communication, teamwork and an individual's ability to defend and enforce the proposed procedure within the research team. The last and equally important area is to understand the principle of simulation and an eventual familiarization with the particular simulation program, which can be very useful in practice.

The first part of the paper is dedicated to the theoretical introduction to the basic notions and understanding of the benefits of simulation in the teaching process. The following part contains a brief description of the used software tools. The next part presents the current situation and the proposed application of the new way of teaching. Finally, this paper focuses on the debate regarding the future direction of development of teaching logistics by using simulation.

## Literature review

According to Macurová et al. (2011) the dynamic simulation can be understood as a transfer of real process into the virtual environment where time runs much faster than real time. Thanks to this attribute the simulation can quickly evaluate different variants of the proposed solution of the problem. The principle of the simulation is thus mimic of the behavior of real system using the model in a given time period. It is the only method that enables to describe the behavior of complex systems in dynamic contexts into account all relevant internal links and external influences, and considering the randomness of the ongoing events.

According to Matúšová, Hrušková & Javorová (2011) the simulation model is dynamic model, in which the individual

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\* Corresponding author. Tel.: +420 596 992 352; fax: 596 110 026.

E-mail address: leo.tvrdon@vsb.cz

essential elements are arranged as in the system which is modeled. Fishwick (1995) defines the computer simulation as a discipline of creation of computer simulation model of an actual or theoretical physical system, converting this model into digital form, simulation, and analysis of the obtained results. Institute for Simulation & Training of University of Central Florida (2013) introduces simulation in a broader perspective as an imitation, abstraction of the real system, while it is a specific application of the model to achieve any result. The methodology of simulation describe for example Lenort & Tvrdon (2010). Number of authors has been dedicated to the issue of simulations and their use in the educational process since the 70s. Neuhauser (1976), Wolfe (1976) or Sims et al.(1976) can be mentioned as examles.

The simulations are now used in the educational system in the large number of fields. These include simulations used in the training of doctors, pharmacists and other health care disciplines, see Burns & Reeves (2013), Kerr et al. (2013), Cant & Cooper (2010) and many others.

At the economic faculties are, of course, used other types of simulations. For the acquisition of management skills and interconnection of knowledge of marketing, management, investment management, accounting, etc. are suitable managerial simulation games, see Peterková (2011), Leemkuil & de Jong (2012) or Zantow et al. (2005).

There are also simulations that help to deepen knowledge in a particular sector. These include simulations used in the preparation of accounting specialists, even these students must be able to deal with unforeseen circumstances within the simulation and develop their ability to appreciate the ambiguous situations (Riley et al., 2013).

The extensive list of benefits of using simulations and the concept of simulation in the learning process, including a comprehensive literature review provides for example Cojocariu (2009). Heuer (2010) also notes that there may be the data from teaching with simulation software used to identify the strengths and weaknesses of students, which can be taken into account when drawing up the curriculum for future years.

## Witness and Captivate

Information about the software tools Witness are taken from company Dynamic Future, s.r.o., (2010). Software Witness is a product of the British company Lanner Group Ltd. This software is used to simulate business processes. It focuses on simulation and optimization of servicing, manufacturing and logistics systems. It allows to test a large number of variants, for a reasonably low cost in a safe environment and selection of the optimal variant.

It is used for business process improvement, process optimization, quality improvement, more efficient use of available resources, etc.

The software can model business work environment and simulate the consequences of each decision, which allows to predict the outcome even more before the implementation of the decision.

Witness software is available in two industry versions. Version Manufacturing Performance Edition is designed for use in logistics and production, Service and Process Performance Edition is aimed at the services.

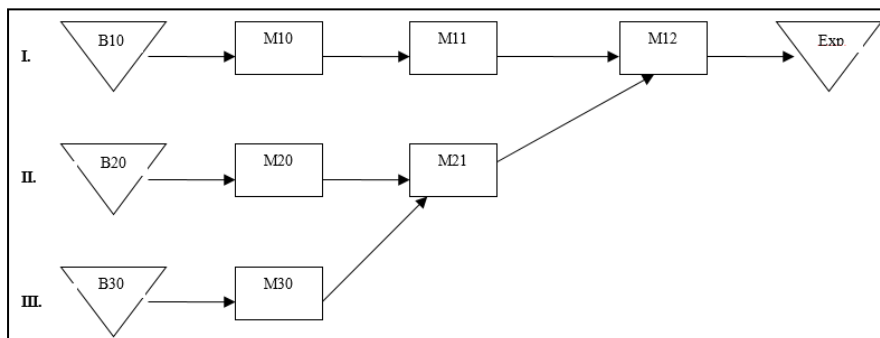
Captivate software (Adobe Captivate) is the output of Adobe Systems Software Ireland Ltd. It is used for creating e-Learning courses. It allows the user to add to the course - presentations – inter alia, YouTube videos, and direct links to Web browsing. It also provides the ability to record audio including the explanation of the topic (Adobe, 2014).

## Description of an actual situation

Logistics has been taught by using simulation software Witness at the Faculty of Economics, VSB – TUO, business administration department already five years. This software is used in the course Logistics C in exercises where students apply theoretical knowledge and use the illustrative model to process the term paper. It involves the use of the investment to increase production when the investigators (students) decide how large sums to invest into particular areas so as to maximize production, increase profits and increase the maximum efficiency of the entire production process.

Students have already created a simple production model in the simulation software Witness, demonstration see Fig.1 and 2.

Fig. 1. Outline of the production model



Key:	I., II., III. ....	Production line
	B <sub>x</sub> ....	Buffers
	M <sub>x</sub> ....	Machines
	Exp ....	Expedition of finished products

The entries are defined by the following parameters:

- input data: price, delivery date, purchase quantity,
- machine (workstation): operating times, intervals and times of adjustment, timing failures and their time repairing,
- finance: costs of production for individual machines, the price of the product, the price of corrections and adjustments,
- investment: the total possible investment, the prices of individual potential improvements (e.g. reduction - operating time machine, time adjustment and repair; increase - interval adjustment and repair, etc.).

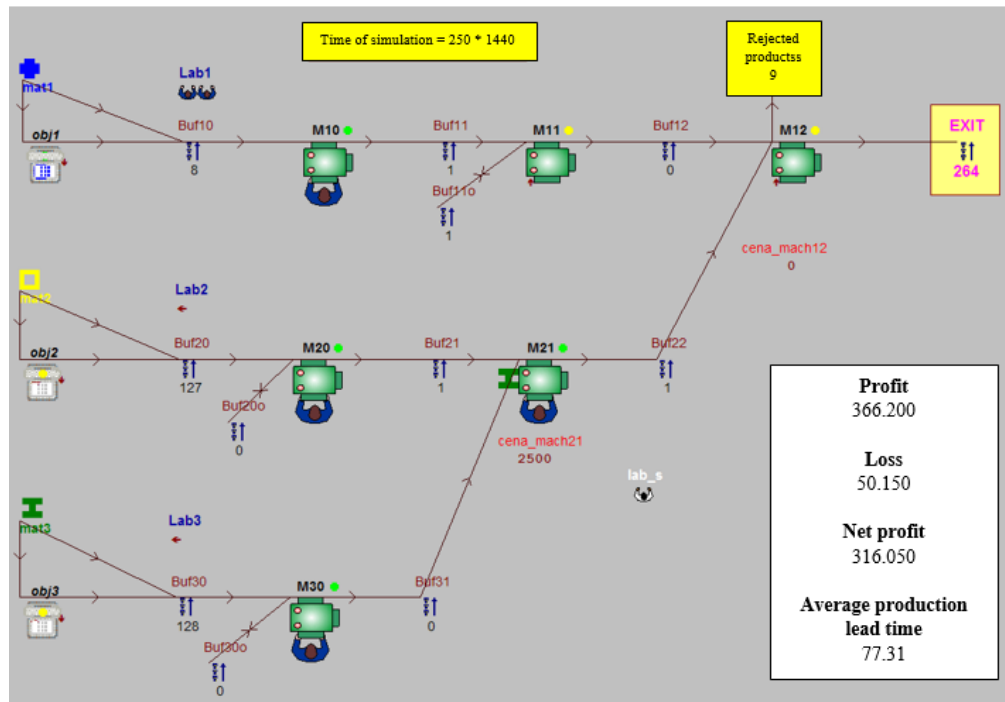


Fig. 2. Printscreen of model created in software Witness

The following parameters are monitored in the created model:

- profit (selling price - production costs - the cost of rejected products),
- loss (costs of non-conforming and non-repairable products),
- rate of use of labour,
- average production lead time,
- average value of capital tied up in work in progress.

The aim is to streamline the working of the entire system using the investment, with a focus on maximum production, minimizing the value of tied up capital, maximizing net profit and shortening production lead time. Furthermore, it is necessary to determine the method of ordering raw materials, including determining the size of purchase quantity.

## New way of education

Students solve a task that was described in the previous chapter, in a pre-made model, because they have no experience with Witness. That is the reason why the project is processed. The aim is the introduction of a new course Simulation in logistics in which the basic skills of building models in the Witness will be also teaching. Students will get familiar with the theoretical foundations of simulation and the simulation software Witness during lectures. At the seminars, a simulation model according to the requirements of term paper will be built, using the Captivate.

Due to the number of students, the capacity of computer classrooms and minimum capacities of teachers who have knowledge of working with Witness, the solution is to use software Captivate. It is the processing of video clips describing practical tasks such as defining components, machines, buffers, variables, etc., including narration, which describes how to work in the simulation program. Samples video clips are in Figure 3 a and b.

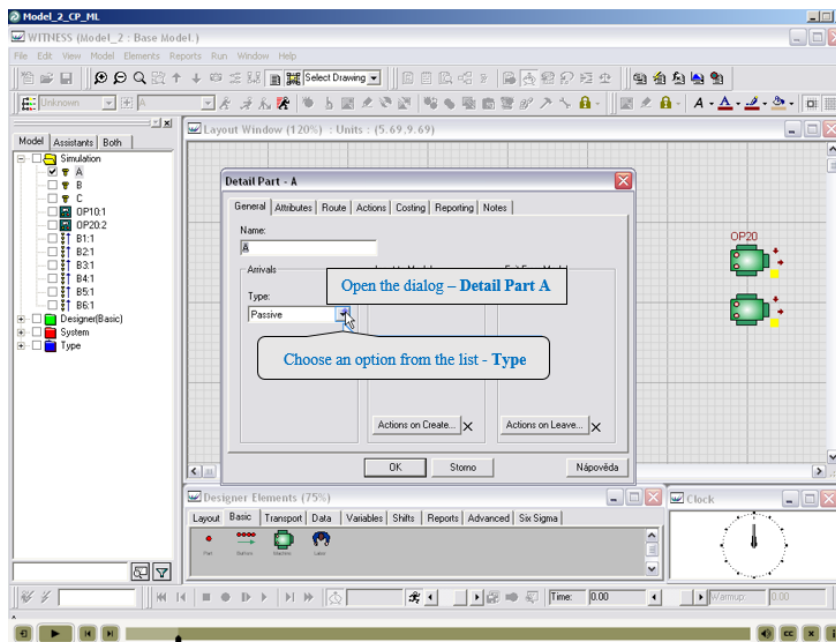


Fig. 3. (a) Samples video clips in Captivate

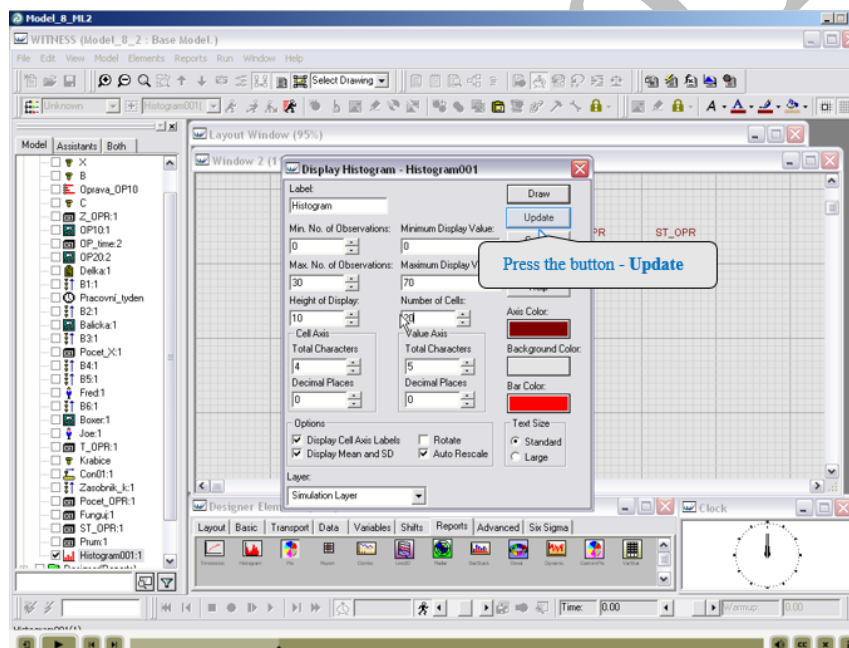


Fig. 3. (b) Samples video clips in Captivate

The benefit of this solution is that it enables interactive teaching program, if necessary, in several classrooms simultaneously. The lecturer in this case does not explain individual acts, but becomes advisor during the difficulties encountered and students can work independently according to the individual skills.

After completion of both these subjects, students will have a basic knowledge of the dynamic simulation and its capabilities, including ideas on how to create models. The aim for graduates of this field is to understand how dynamic simulation can be used in practice.

## Conclusion and discussion

The article outlined a new way of teaching a new planned course Simulation in logistics, which will focus on teaching using simulation software Witness and product Captivate. This course should be included in training at the end of the first year of the master's degree as students in the second year have a subject Logistics C, for which the mastery of the Witness is prerequisite. At the same time, students can use their knowledge they have gained in the courses Logistics A and B, which are included in

bachelor degree.

The given practical example is not the only one we can solve in exercises with student. There can be also created models which relate to the storage, transport, distribution, layout etc. It is also possible to combine several problems to solve during the semester.

The question is, how many data should be used in student's simulations. Complex simulations provide a better idea of simulated reality but they increase the time consumption and solution evaluation. Students must consider the consequences of their decisions, it is necessary to understand the causal connection between elements of the simulated system. The more of these elements, the more difficult the understanding is.

Students within lessons understand the advantages of simulation and its limitations. They should be able to imagine what types of problems can be solved by using simulation and to understand its principles. At the same time they gain knowledge on how to create simulation model, including ideas about what the phase prior to the simulations includes, mainly data collection and validation of the simulation model.

The enterprises' demand for the use of simulations is growing, and it is a big advantage for the students of this course that they understand and are able to use simulations in practice. At the same time, students can use dynamic simulation to solve their thesis.

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# Teaching teachers to teach physics to high school learners

Naven Chetty

*School of Chemistry and Physics, University of KwaZulu-Natal, Pietermaritzburg, 3201, South Africa*

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## Abstract

To address the past inadequacies of high school teacher education in South Africa a course was taught to equip teachers with a basic understanding of Physics. This work discusses measures implemented in this module to increase cohort pass rates from around 40% to over 80%. The measures implemented include Problems Based Learning (PBL), technological learning (TL) and group learning (GL). This increased pass rate has a significant impact on throughput and also a far-wider reaching impact - that of improving the quality of education at high school level. In this work, we also highlight the difficulties faced by the students who are all in full-time employment with language barriers consequent of English being a second language. The methods employed while lecturing this cohort have been adopted by the cohort in their own classrooms with significant results noted. The study employs a mixed modal approach to quantify all data with qualitative responses.

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*Keywords:* PBL; technological learning; physics education; adult learners; high school

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## 1. Introduction

The Apartheid regime in South Africa (1948-1994) resulted in the oppression of non-white citizens and severely curtailed their rights (Allen, 2005; Beck, 2000; Du Pre, 1994; Lacour-Gayet, 1977 & Geldenhuys, 1990). This significantly impacted all aspects of their lives and more especially the educational system suffered severe setbacks (Prew, 2009). The South African educational system, although significantly improved since the fall of apartheid, can best be described as a high-cost low-performance one (Prew, 2009 & Modisaotsile, 2012). It does not compare favorably to other educational systems in Africa or indeed worldwide with other educational systems in countries with a similar developing economies (Prew, 2009 & Modisaotsile, 2012).

Year-on-year the enrolments at high schools increase but yet the exit level Grade 12 output continues to decline quite substantially (Modisaotsile, 2012). In fact the number of learners exiting the schooling system with adequate numeracy in mathematics and physical sciences has been steadily declining since democracy (Modisaotsile, 2012). Further the majority of learners who do pass Grade 12 are unable to access tertiary education at universities as they have failed to meet the minimum entry requirements of these institutions (Prew, 2009 & Modisaotsile, 2012).

The statistics show a far greater problem, that of a 50 % drop-out rate of learners from enrolment in Grade 1 to exiting in Grade 12 (Prew, 2009 & Modisaotsile, 2012). Part of this is a direct consequence of a shortage of teachers, underqualified teachers and poor teacher performance (Prew, 2009 & Modisaotsile, 2012). These issues permeate the classroom environment and result in poor learner performance due to questionable standards of the teachers and lack of learner discipline (Prew, 2009 & Modisaotsile, 2012). Inadequate resources and infrastructure further exacerbate the problem.

Closure of teacher training colleges and low levels of commitment to teacher training provided by higher educational institutions has worsened the crisis in an already dysfunctional educational system. Financial constraints for human capital development, resources and infrastructure development have also hampered the deployment of a quality educational offering by teachers to learners (Prew, 2009 & Modisaotsile, 2012). Prew (2009) suggested that the educational crisis in South Africa is further complicated by the low-erosion rate of teachers.

Being underqualified but holding positions within the educational sector make change for these teachers difficult (Prew, 2009). The problem intensifies when new teachers enter the foray at schools with these seasoned educators. The new recruits are often better qualified and skilled in modern educational methods. They meet vehement opposition from the seasoned teachers at the school and are thus unable to practice their modern teaching methods (Prew, 2009). This causes situations of immense conflict which ultimately results in many new teachers resigning and the rest following the rut of the seasoned educators and thus the cycle of inadequacy continues (Prew, 2009).

After democracy in 1994, a structured plan for educational development (SED) was implemented. This had however not achieved the outcomes it was anticipated to. A very disturbing position considering that 18.5 % of GDP was invested in education (Modisaotsile, 2012). Mji and Makato, 2006, showed the dismal failure of these initiatives to improve the results of learners in the mathematical and physical sciences. Data shows that from early as Grade 6, most teachers have below basic levels

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\* Corresponding author. Tel.: +27 33 260 5660/5329; fax: +27 86 577 5576.

E-mail address: chetty3@ukzn.ac.za

of content knowledge (Spaull, 2013). A high proportion of the teachers were unable to answer content questions aimed at their learners (Spaull, 2013)

In 2004, ten years after the implementation of SED, two major initiatives were launched to replace SED. The first was the teacher developmental framework and the second was the review of teacher education programmes (TESA, 2005). The main thrust of these initiatives were to increase supply and demand of teachers and to improve the attraction of teachers into the profession. Included in this was the re-skilling (or improving qualifications) of teachers already in the system. These initiatives also paved the way for the design and delivery of initial teacher education programmes for the South African context and with the hope of changing the dismal landscape of education in the country (TESA, 2005).

As part of this strategic development of programmes, the University of KwaZulu-Natal's Faculty of Education launched the advanced certificate in education (ACE) to provide a quality teacher education programme for existing educators and those who wished to specialize in a particular subject area. The programme was designed to not only help teachers improve their subject content knowledge but to also gain some management and administration skills to help them develop for progression beyond simply teaching if they so desired.

This work will only focus on the delivery of the Physics component of the ACE programme. Three modules were offered in the Physics component over a two year period. These modules were designed to align with the school syllabus as defined by the educational system at the time (NCS, 2003 & CAPS, 2010) so that the teachers gained sufficient subject content knowledge to effectively deliver lessons at school and thus help improve the skills and knowledge base of the learners. Teachers enrolled in the ACE programme had to pass all three Physics modules in order to graduate. The modules were structured on the distance learning concept and thus were offered part-time, over weekends and during the teachers school term breaks. The details of the module will be discussed in the following sections.

## 2. Research context

### 2.1. Outline of the module structure

The ACE Physics programme was split into three modules which collectively covered the Physics curriculum for learners from Grade 10 – 12. Table 1 lists these modules and enrolments over the research period. The enrolment numbers varied due to the number of centres where the contact sessions were offered. This work focusses entirely on the researchers class and not the other centres offering the same contact sessions. The distance learning concept (O' Lawrence, 2007) of the module dictated that only a minimal number of contact sessions were run. The distance learning method of instruction balances the need for full-time employees to acquire new skills without interrupting their working lives for extended periods of time and the need to reduce the cost of such education (O' Lawrence, 2007). These contact sessions were full-day programmes that ran for at least 8 hours in duration and were spread-out over a typical university semester (3 months) which translated to approximately a session once every three weeks. For the purposes of this study, we will present the results for the PHYSED1A 2010 and 2012 cohorts only.

Table 1. Structure of the ACE Physics programme.

Module Name	Content	No. of contact sessions	No. of students registered in 2010/2011	No. of students registered in 2012/2013
PHYSED1A	Mechanics and Elasticity	7	14	14
PHYSED2A	Electricity and Magnetism	7 (including 1 practical session)	14	11
PHYSED2B	Waves, Light & Sound and Nuclear physics	8 (including 1 practical session)	20	29

The students were provided with a study pack when they registered in the module which highlighted the dates of the contact sessions, the module outline of topics to be covered in each session, the assessment schedule together with the sections to be tested in each section and a comprehensive set of summarized notes. The summaries were based on the prescribed textbook: Physics principles with applications (Giancoli, 2010).

At the first session the teachers were acquainted with the structure of the module and the distance nature was again emphasized. A detailed work plan was then handed out to each teacher which prescribed the work that they would have to accomplish before the start of each of the subsequent contact sessions. They were also made aware that the contact sessions were to be used to cover the more difficult concepts in depth and to focus on problem-solving techniques. This thus implied that they



would need to cover the bulk of the work on their own before the session. The quantity of material that needed to be covered in each session was substantial and thus impossible to cover in detail in a single session.

The assessment was made clear at the start of each module and consisted of three tests approximately a month apart interspersed with written assignments that they could take home and complete either alone or in groups. The idea behind the assignments was again to promote the concept of problem solving techniques.

## *2.2. Research methodology*

The effectiveness of a particular educational approach (in this case the ACE Physics programme) and its teaching effectiveness (as demonstrated by student knowledge of the subject matter and evidenced by performance in the assessments) needs to be determined (Chetty, 2014). The aim of this study was to determine the knowledge gained by the teachers in terms of factual knowledge, conceptual understanding and functional proficiency in physics to effectively teach their respective school classes.

A mixed model (qualitative and quantitative data sets) approach (Tashakkori & Teddlie, 2003, Creswell, 2003) was used in this study to garner information and thus answer the above research question. The quantitative data was obtained from the results of the formal assessments (tests) in the module and the qualitative data resulted from the interviews with the teachers (either individual feedback or group discussions). The research spanned four year duration (2010 – 2013) for two cohorts of teachers. The teachers had all been teaching the subject at high school level for a minimum of 4 years in both cohorts and the mean age of the cohorts was in the upper 30's. Various teaching mechanisms were employed to assist the teachers in understanding the material and thus improve their knowledge base. The assignment, test and exam results were used as measures to gauge the effectiveness of the academic interventions.

## *2.3. Researcher context*

The researcher has a PhD in Physics and had been teaching for many years at University level. The 2010 cohort was the first adult class he had taught since joining the academic fraternity. In a mixed model study such as this one, the researcher plays an integral role in the research despite attempts to remain an impartial observer (Maxwell, 2005, White *et al.*, 1995) and as such the observations and interpretations of the researcher are represented in the qualitative part of the study (Creswell, 2003, Tashakkori & Teddlie, 2003, Maxwell, 2005, White *et al.*, 1995).

## **3. Results and discussion of teaching interventions**

The first contact session in 2010 (the first adult class for the researcher) was pre-planned to follow the following order based on the researcher assumption that since the teachers had already been teaching the subject as part of their duties, they would understand the content (at least the basics):

- 1) Brief discussion of the course and plan for the subsequent sessions (20 mins)
- 2) Discussion of the basics of the section (2 hours)
- 3) Highlighting and emphasizing problem subject material and key points (3 hours)
- 4) Tutorial work and problem solving techniques discussion (2 hours)
- 5) Recap and summary (40 mins)

This did not happen. The class was completely un-prepared and not a single teacher had been through the material requisite as background for the contact session, even though they had been told to go through the material in advance. This highlighted the challenges with distance education for the first time to the researcher. To understand the reasons for the non-compliance with the instruction the following question was posed to the cohort:

*Why did you not complete the assigned reading and tutorial work before the contact session?*

The majority of the class indicated that a lack of time to focus on the material was the main reason for not having attempted the task. Family time and work commitments weighed heavily on the teacher and left little time for study. This is replicate of the study by Kerka (1986) where it was shown that no single factor prevented students in a distance learning programme from completing the work but rather that it was a myriad of life circumstances and individual attitudes that contributed to non-participation.

The teachers also indicated that they were unaware of what was required of them even though they had been through the instructions for contact sessions. Most were unable to dissect what "self-directed learning" required. Norman (1999), Attri (2012)

and Keegan (1996) approached the idea of self-directed learning and highlighted the problems associated with it: to be successful in self-directed learning, the individual needs to be able to assess their weaknesses and to harness their strengths.

Further probing of the class of teachers revealed that while most taught the subject regularly, many had never had any formal training in the subject and relied solely on textbooks for their information. Further many could easily understand and explain applications of the subject matter but had very little understanding of the theory thereof and thus could not understand their weaknesses or strengths. The successful distance learning student needs to have a number of characteristics such as tolerance for ambiguity, a need for autonomy, and an ability to be flexible (Threkeld & Brzoska, 1994). Inman and Kerwin (1999) found that distance learning requires students to be more focused, better time managers, and to be able to work independently and with group members, traits that many of the cohort had not encountered before.

Attri (2012) suggests that the development of the study guides must reflect the distance nature of the module. He also suggests that since materials are prepared for all the teachers in the modules, rural and urban teachers would dissect these differently. In the ACE Physics programme this was not considered an issue since the summaries had been designed to be of a distance nature and to encourage self-directed learning. At a particular level we have to attain similar learning experiences so the actual content for all teachers was the same but examples, activities and experiments were included in learning material according to their needs, learning experiences and expectations (Attri, 2012).

The course summaries included a large selection of question and answers for the teachers to gain experience with, the questions were arranged to test the basic assumptions (single concepts) and then to progressively get more difficult and to test multiple concepts. To assist the students to understand the requisite of the module, the researcher proceeded to explain to students the nature of self-directed learning and the need for completion of reading beforehand. Further to assist the teachers, the researcher allowed contact session venues to be open two hours earlier than start time to allow students to do some work before the session began. The students were then taught how to use the summaries and subsequent questions. The links with the textbook was emphasised. Teachers requested solutions to the problems to aid their studying and these were also provided.

The teachers were then assigned to groups based on their work and/or living proximity to each other to encourage group learning and peer motivation (Attri, 2012). They were also provided with email, telephone and facsimile details of the researcher to encourage communication with the researcher other than just during contact sessions (Attri, 2012). The students were asked to provide an email and/or cellphone number for the lecturer to provide feedback and to facilitate regular communication between the teacher and researcher. The researcher would after the first session send out emails or text messages to students on a weekly basis to remind them of the material they should have covered so far and the material still to cover. It would also remind them of upcoming deadlines and impending tests. The students were given an assignment to complete based on the work they had been expected to cover before the next contact session.

The second contact session for the 2010 cohort was in sharp contrast to the initial one, more than 75% of the class admitted to having managed to complete a significant portion of the material (>50% of content and tutorial questions completed). This was evidenced by the students submission of their attempts at the questions. The second contact session also heralded in the first test. The test was written at the start of the session. Figure 1 shows the results for the first test and assignment.

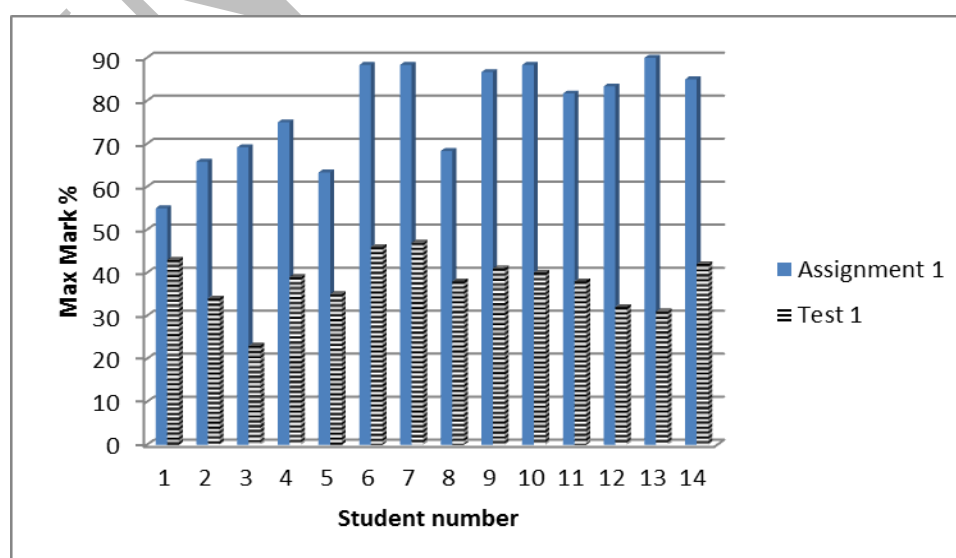


Fig. 1. First test and assignment results for the 2010 PHYSED1A module

It is very interesting to note that the students outperformed in the assignment than the test. The average mark for the assignment was 78% while the test average was just 38%. Quite shocking results considering that the test questions were based largely on concepts covered in the assignment and in a small percentage (<10 %) the questions in the test and assignment were repeated with mere numeral changes. Dissecting this further Figure 2 shows the assignment results plotted for all the students.

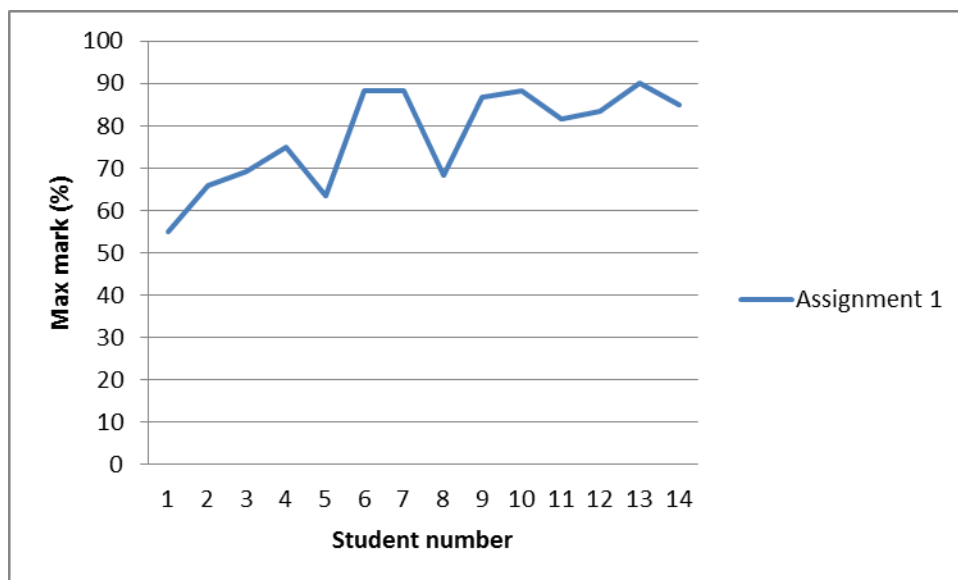


Fig. 2. First assignment results for the 2010 PHYSED1A module

It shows that for many students the marks were similar and with quite a few students having the same mark. It was determined further that the bulk of students with similar or exact marks for the assignment were in the same study groups. When the teachers' were questioned on this they indicated that they had all worked together and thus had similar solutions (or the same solutions). Clearly this highlighted a further problem in that students working in groups were reliant on the group for assistance with solving problems but had not mastered the technique and theoretical basis to do so on their own and without study materials. To remedy this the teachers were advised that although they could work in groups, they would need to submit their own work or face punishments for plagiarism and copying. Beaman (1998) highlighted assessment as one arm of deterrents to adult distance education. She indicated the need for assessments to be meaningful to the students and their lives otherwise they felt it irrelevant and subsequently performed poorly.

The teachers were then questioned on their poor performance in the test through either individual interviews or group sessions to determine if Beaman's (1998) comments had merit here. Their responses to various questions are detailed below.

*What factor/s affected your performance in the test?*

*a) Time*

Most of the students (>78%) of the class indicated that they found the time restrictions quite disturbing. They worked on the assignment at leisure and thus were ill prepared for the test conditions and fixed duration for the completion of the test. They spent disproportionate amount of time on long and short questions and in most cases did not finish the last question of the test. It was also noted that the students were unaware of how to relate the marks allocated to a question to a corresponding time allocation per question. Chetty (2014) showed that a similar problem arose with first year university students. There seems to be a trend for assessments not to be rigidly adherent on time in the school system.

**Solution:** The teachers were coached on time management for tests and exams. The students were provided with a clock in the classroom so that they always had a time reference. All examples were timed so that the students were aware of the time allocation to questions and the relevance of the mark allocation to the overall time allocation. All assessments set were time allocated so as to facilitate time management even outside the classroom. This was heavily based on the students self-directed learning outside the contact session but they had been provided with the tool to make time management possible. Chetty (2014) considered measures such as these and found them to be highly successful.

*b) Language*

A large fraction of the class (>82%) found the language used in the assessment not clear. Being second language English speakers (the language used in the module was English) the teachers found the language used in the tests confusing, difficult and hard to interpret. Chetty (2014) found such problem permeate the scientific world and should not be construed as barriers to education.

**Solution:** The students were coached on the language and grammar of test questions. Phrases such as “define”, “explain”, “justify” and “derive” were explained and further demonstrated in the contact sessions. The use of non-traditional words (as used in the textbook) in example questions, such as elevator and ferris wheel were replaced with South African equivalents such as lift and big-wheel. Questions were simplified so as to minimize the complications of language from hampering question solving (Chetty, 2014). In the technological ambit, the teachers were introduced to the use of online dictionary sources and mobile google via their cellphone web browsers. Valk, Rashid and Elder (2010) have emphasized the important role cellphones (mobile phones) play in improving educational outcomes.

The enhanced searching capabilities of search engines was also explained, demonstrated and used extensively during contact sessions to help students use this important tool in their own self-directed learning. For example, during a contact session, the researcher would ask students to find the value of a constant such as the speed of sound by using their cellphones, or to search for the meaning of a word that may be problematic to the teacher. Many of the teachers indicated that they had subsequently introduced the use of mobile internet into their own classrooms. In South African schools are under-resourced and internet and computers are non-standard in most school whereas most learners at schools own a wap enabled cellphone making such use common and practical.

*c) Visual tangibility*

Students cited the lack of demonstration of concepts impeded their understanding of the concept. Most were learners who preferred experiential learning as opposed to just textbook knowledge. O’Neil, Singh and Donohue (2004) showed the benefits of introducing e-learning programmes for higher education. Tarbin and Trevitt (2001) showed the success of online e-learning which made online learning a means of providing tangible visualization for the students.

**Solution:** PhET (PhET, 2014) simulation links were given to the students for their viewing in their self-study time. During contact sessions the researcher would introduce the students to the online learning possibilities such as PhET and leave them to further explore outside of the formal contact session. The MIT (MIT, 2014) open courseware site was also provided to the teachers, although the previous language barrier was highlighted and the students were asked to use with caution. The UC Berkley Physics (UC Berkley, 2014) demonstration site was also recommended.

*d) Not having seen the questions before*

Many of the students reported that they found the test difficult as they had not seen the questions before and thus the time constraint coupled with the unseen questions cost them marks.

**Solution:** The students were then made aware of the similarity of the test questions to the assignment questions. This again highlighted the problem that students completed the assignment in groups without really paying attention to the questions and thus they were unable to correlate the test questions to previous assignment questions and thus demystify the test questions. The students were then coached on the importance on the assignments and the need to answer them individually as well as to understand the principles, method and concepts of the assignment, class examples and tutorial questions.

*e) Test run at the start of the contact session*

The students believed that the test being administered at the start of the contact session disadvantaged them, they complained that there was no time to cover questions that they may have had regarding the material as well as for complicated theory or applications to be explained.

**Solution:** The test was moved to 2 hours after the start of the contact session. This allowed the students to ask questions and complete some revision before writing the test.

The problems faced by the students indicated the need for an educational reform to take place in the classroom. This reform was the introduction of Problem-Based Learning (PBL). PBL is a student-centered pedagogy in which students learn about a subject through the experience of problem solving (Hmelo-Silver, 2004). Students learn both thinking strategies and domain knowledge (Hmelo-Silver, 2004). The PBL format originated from the medical school of thought, and is now used in other schools of thought too. The goals of PBL are to help the students develop flexible knowledge, effective problem solving skills, self-directed learning, effective collaboration skills and intrinsic motivation (Hmelo-Silver, 2004).

In problem-based learning (PBL) courses, students work with classmates to solve complex and authentic problems that help develop content knowledge as well as problem-solving, reasoning, communication, and self-assessment skills (White, 2001). PBL is an effective method for improving students’ problem-solving skills (Chetty, 2014, White, 2001). Students will make strong connections between concepts when they learn facts and skills by actively working with information rather than by passively receiving information (Gallagher, 1997; Resnick & Klopfer, 1989).

In the contact sessions the students were asked to work in their study groups to solve problems while making use of the technological learning tools such as mobile phones and e-learning. The groups were then asked to present their solutions and each group member was tasked with doing a small part of the presentation so that all members of the group had to work. This prompted the teachers to take responsibility for their own learning and work with information and link concepts with skills and facts, an integral part of the PBL method of instruction (Chetty, 2014).

This enhanced the teacher’s self-confidence and further aided with their self-directed learning (White, 2001). The teachers were also asked to develop simple experiments that they could use to illustrate some basic concepts from the module itself. This was useful not only in increasing their own understanding of the topics but also helped them to improve their classroom delivery and thus positively impacting on teaching and learning of their own school learners. The contact sessions took the form of PBL sessions interlaced with salient theory discussions as necessary.

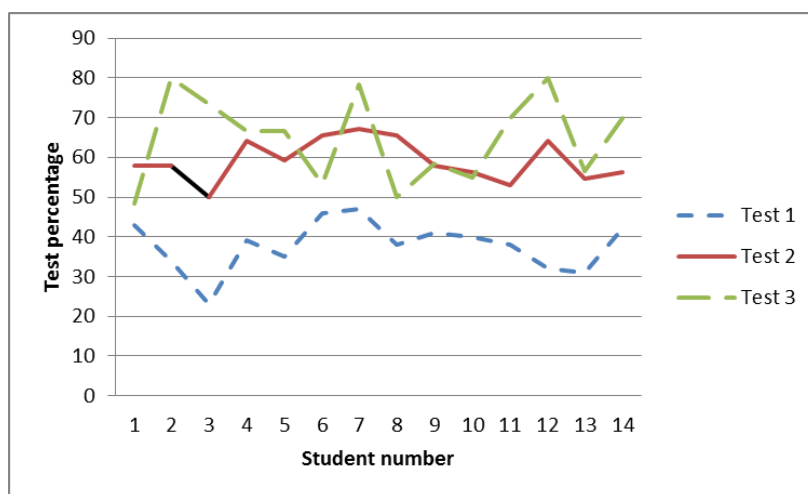


Fig. 3. All test results for the 2010 PHYSED1A module

Fig. 3 shows the results for test 2 and 3 in relation to test 1. There is a marked improvement in the test 2 and 3 results with test 3 being better than test 2. Clearly the interventions seemed to have worked to help improved test performance. Fig. 4 shows a strong correlation to the students’ assignment and test marks, a stark contrast to the initial results. This shows more evidence of students having understood the material better and further highlights the improvement in their self-directed learning. A similar pattern between test 3 and assignment 3 results is shown in Fig. 5 which further enhances the results confirming the success of the interventions.

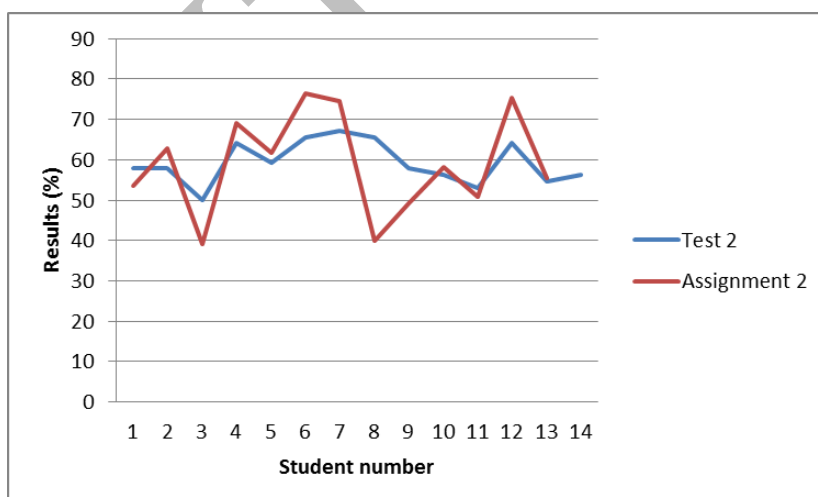


Fig. 4. Test 2 and Assignment 2 results for the 2010 PHYSED1A module

The strong correlation between Assignment 3 and Test 3 is shown in Fig. 5. It is interesting to note that the average for the test and assignment are quite similar at 73% and 65% respectively. Impressive given that Test 1 lagged behind Assignment 1 by almost 40%. When questioned after the assessments, the students commented that the use of technology, dictionaries and the

PBL approach had helped them understand the work much better. They felt more confident and their results reflected this confidence.

The final test of success lays in the final exam results. The final exam was based on concepts covered in the tests and assignment but was mostly unseen applications of the respective theory. For example if in class the student was asked for the velocity in a certain problem, a similar concept was tested in the exam but now required the acceleration to be determined instead. Fig. 6 represents the final exam and class mark results for the cohort. There results shown that most of the students achieved final results that were fairly similar to their class mark results. The class mark is a combination of the students' test and assignment results.

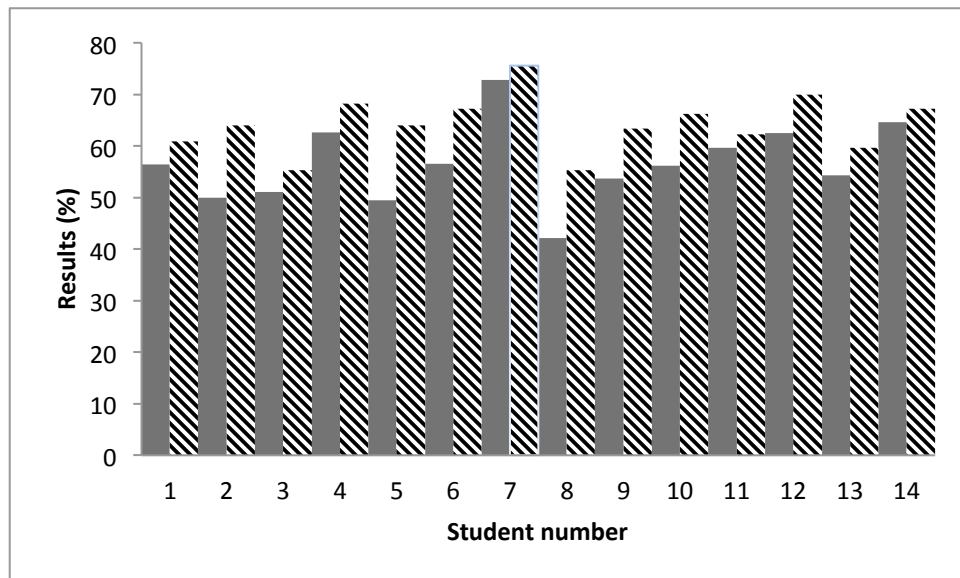


Fig. 5. Final exam and class mark results for the 2010 PHYSED1A module

Armed with the knowledge of the problems experienced in 2010, the researcher was able to start the module initially in 2012 using the same interventions as in 2010. The results for the initial assessments show a marked improvement when compared with those of 2010. It must be noted that the maximum marks for the tests and assignments remained constant for both cohorts which makes direct comparison possible. Further the content tested in each was the same. The 2010 cohort showed an average mark of 68% for the assignment and 56% for the test. This is a very different to that of the 2010 cohort and may be the direct result of the interventions in place.

Fig. 7 shows a comparison of the first test results for both cohorts and this clearly shows that the 2012 cohort performed better initially than the 2010 cohort which may in large part be attributed to the interventions learned from in 2010. Fig. 8 shows the exam and class mark distribution of marks for the 2012 cohort. The discrepancy between the two is approximately 10% with the class mark being higher. This is indicative of the students having performed fairly well in the exams and displaying a strong understanding of the subject material.

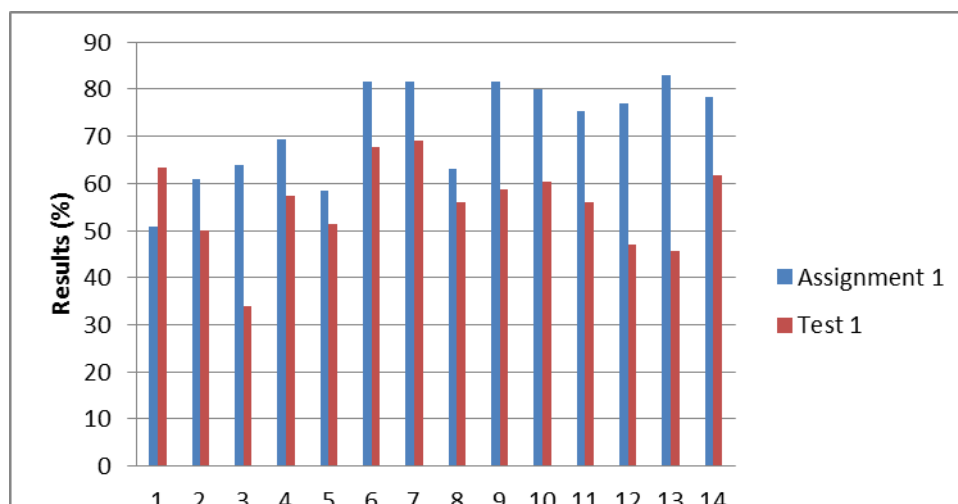


Fig. 6. Test 1 and Assignment 1 results for the 2012 PHYSED1A module

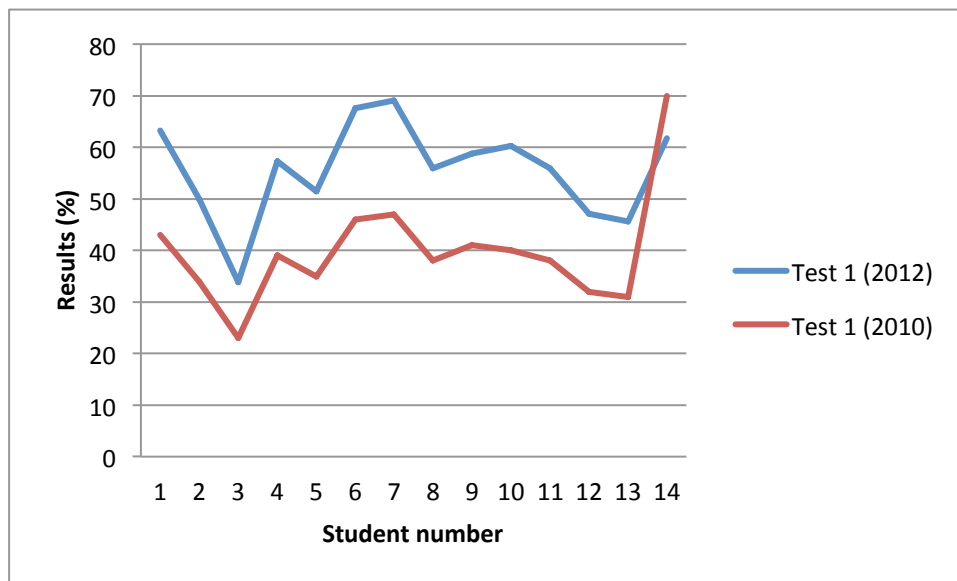


Fig. 7. Test 1 results for the 2010 and 2012 PHYSED1A module

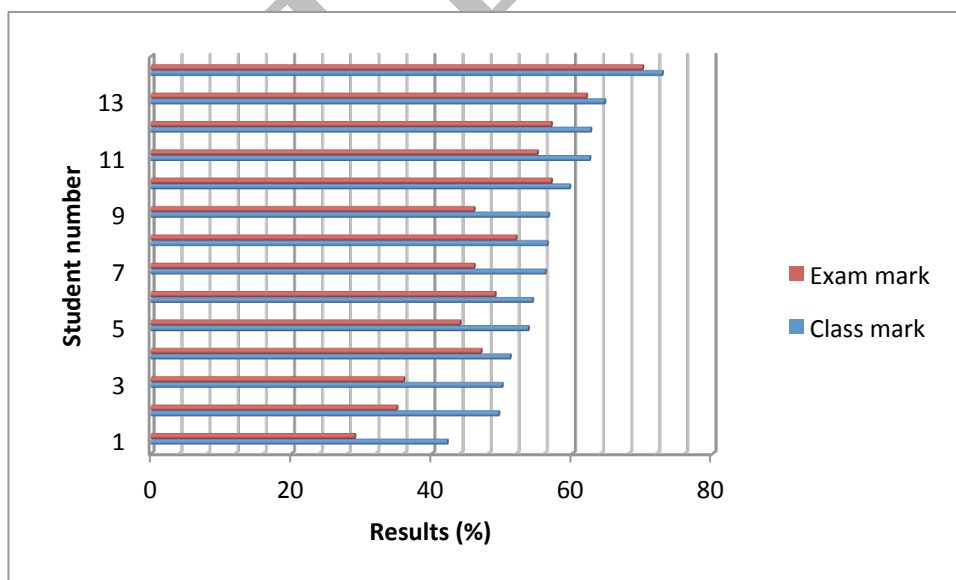


Fig. 8. Final exam and class mark results for the 2012 PHYSED1A module

## 4. Conclusion

The results of this work have shown that the use of PBL, Group learning and technological learning have helped to significantly improve the retention and knowledge of teachers learning Physics. This then translates to better and more knowledgeable teachers educating the learners in our public schooling system. This will greatly improve the quality of learners who exit the high school system. This study has been limited to adult learners being taught via distance education but it is in no way restricted to this. The methods employed will be of benefit to all educational scenarios.

We showed that the results of the teachers increased significantly when they were allowed to work in groups as prescribed by the PBL method. Further the use of technology helped reduce the anxiety of teachers as they had resources on hand to attempt their prescribed work. Further the communication between the researcher and the teachers helped improve the results since the teachers were able to query problems and resolve them once they arose rather than waiting for the contact session by which time the problem may have been forgotten altogether.

The social problems of funding, food security and health related aspects have not been discussed in this work. Their impact on the teacher performance may be significant however the researcher is not equipped to deal with the psychological ramification of these. It is not possible to delve into these problems without offering some counselling or emotional assistance.

These results do open the way for further research into the PBL method of instruction and its context with adult learners. It definitely in this study help improve the self-directed learning of the cohorts and thus improved results and throughput. Ultimately increased throughput is important however the tangibles of this throughput are qualified teachers who can make a marked difference in improving standards of school education.

Technological learning and mobile learning in developing countries such as South Africa are becoming more and more necessary especially in the increase of distance educational offerings. Meeting the need to improve education in the country will only be possible if the current cohorts of teachers are helped to improve their qualifications. Given the full-time nature of the employment, distance education makes educational sense.

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# Team-based learning:

## Enhancing academic performance of psychology students

Nadia Rania<sup>a</sup> ·, Stefania Rebora<sup>a</sup>, Laura Migliorini<sup>a</sup>

<sup>a</sup>*School of Social Sciences, Department of Education Science, University of Genoa, C.so A. Podestà, 2, 16128, Genoa, Italy*

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### Abstract

Team-based learning (TBL) is a learning-centred teaching strategy used with small groups primarily in medical courses. A new perspective is the application of TBL to a psychology course. The aim of the present work is to study the effects of TBL (modified version: MTBL) on improvement in student performance. Taking part in this study were 76 psychology students from the University of Genoa (Italy). Findings show that MTBL improves academic performance. Furthermore, participants identified it as a very constructive experience, improving their academic results and stimulating a deeper learning. They suggest greater implementation of MTBL in university courses.

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*Keywords:* Team-based learning; Teaching technique; Academic performance; Small groups; Psychology students.

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### Introduction

Team-based learning (TBL) is an active learning-centred teaching strategy that employs small groups to offer an alternative to traditional lecture classes. TBL was originally developed by Larry Michaelsen for instructing business students in the 1970s (Michaelsen, 1982). The method is used for large classes divided into small groups (called teams), and fosters individual, small group, and class accountability (Michaelsen, Parmelee, McMahon, and Levine, 2007). Students working in small groups, usually consisting of five to seven students, communicate and learn from each other, and are actively engaged with the course materials. After working together for several sessions, a group could become a team (McMahon, 2010).

Simply creating a student group and telling them to work together is not enough to reach the goals. The teacher must work to transform the group into a team, explaining the importance of teamwork, defining clear objectives for the team project, creating a psychological contract between members and a positive interdependence, and recognising and reinforcing their work (Page and Donelan, 2003). A team is different from a small group because of the high level of trust among the members and a commitment to the benefit of the group. A group becomes a team when the members spend time interacting, working on a task that becomes a common goal, and receiving frequent feedback on their performance. If those conditions are present, a teams will work efficiently and successfully achieve their goals. Each member can tolerate a high level of effort, and they can challenge each other without taking offence, because they appreciate honest communication (Fink, 2004). The aim of TBL is for students to use the concepts they learned in class to solve practical problems that are comparable to those they will face in the working world (Sparrow and McCabe, 2012).

The teacher must redesign the course to use TBL (Michaelsen and Sweet, 2008). This teaching method requires students to study the class topics in advance using texts selected by the teacher. In class students must demonstrate their knowledge by answering a set of multiple-choice questions individually. The questions point to the concepts that the students need to know in order to solve the team application problem. After that, students also answer the same set of questions, but this time as a group, reaching a consensus on the answer. Then the instructor provides clarification to the students about the concepts they have been working on during class. Students have to feel prepared to solve problems similar to the ones they will encounter during their careers. In the final step they have to solve each problem, and if asked, defend their choices to the class. A group can request that the teacher consider an alternative answer to the one that was chosen as the best, so the group must explain why their answer is should be chosen as the best (Parmelee, Michaelsen and Cook, 2012). At the end of those steps, groups have learned how to apply the course contents to real problems. Furthermore, because they worked together, groups become more cohesive and committed to team success (Michaelsen, Knight and Fink, 2004). Michaelsen and Sweet (2008) argue that a teacher's task is also to consolidate and extend the students' understanding of the course content and group processes by fostering their reflections about what the TBL experience has given them in terms of the course concepts, interaction promoting real teamwork, the value

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\* Corresponding author. Tel.: +39 010 20953747; fax: +39 010 20953728.

E-mail address: nadia.rania@unige.it

of teams, and how some aspects of the course have encouraged positive group norms.

TBL enhances different kinds of learning, usually generated by the use of small groups (Fink, 2004). According to the author, TBL is different from the other approaches of small group teaching because it is a specific instructional strategy, not a set of small group activities. Furthermore, it develops a team, which is a social unit different from small groups. Small group activities are employed to help students understand the course content and also strengthen the learning of the content by applying these, and by working on assignments that require them to use their acquired knowledge. Moreover, TBL offers students the occasion to understand how to apply course concepts, by both a quantitative (due to the time spent in application activities) and qualitative improvement (the ability to solve increasingly difficult problems). These improvements are possible because working in a large group provides more intellectual resources to employ in solving problems, and also because spending time together makes the group more capable of working together as a high-performance team. Furthermore, grading the group work provides incentives to the teams to spend time and make an effort to do their best to obtain a good result. TBL develops one more kind of learning: team skills. Providing feedback about individual and group work makes students aware of their works' quality, their learning, and how they are working as a team. Finally, the teaching technique helps students understand the value of working on a team to solve complex problems (Fink, 2004).

## **1. The aim of the present study**

Many other studies support the purpose of our study—that is, the value of the TBL method (Zgheib, Simaan and Sabra, 2010; Nieder, Parmelee, Stolfi and Hudes, 2005) and how it improves student performance (Koles, Stolfi, Borges, Nelson and Parmelee, 2010; Koles, Nelson, Stolfi, Parmelee and Destephen, 2005). These studies typically investigate TBL in healthcare courses, whereas the present work enriches the literature by studying a modified version of TBL (MTBL) in teaching psychology.

## **2. Method**

### *2.1. Participants*

Taking part in this study were 76 undergraduate psychology students (63 female and 13 male; 27.3 years old) from the University of Genoa, in northern Italy. They were in the Qualitative Research Methodology course in the academic years of 2011 (Group\_2011,  $n = 29$ ) and 2012 (Group\_2012,  $n = 47$ ), when MTBL was employed.

### *2.2. Measure*

A university office provided the following academic performance data for the students that took classes conducted with the MTBL course (Group\_2011 and Group\_2012): the point average before taking the exam for Qualitative Methods where the MTBL method was employed; the point average of the three basic exams in the psychology curriculum (General Psychology, Developmental Psychology, and Social Psychology); the grades of different students that took the course in 2009 (Group\_2009) and 2010 (Group\_2010), when the MTBL method was not employed. The teacher was the same for both the classes of 2009 and 2010 that used lecture lessons, as well as the classes of 2011 and 2012 that used MTBL. Additionally, the subjects of the lessons and the evaluation method adopted were the same; in fact, the final exam was considered the draft of a research project that employed the qualitative instrument presented by the teacher during the course. Group 1 and Group 2 students also filled out a personal, academic and demographic form with information such as their gender, age, point average, and residence. Finally, at the end of the MTBL, they wrote down their opinion of their experience with this teaching method.

### *2.3. Procedure*

In both Group\_2011 and Group\_2012 classes, student small groups (called teams) were created to allow them to be enriched by the different peculiarities and perspectives of each member (Michaelsen and Sweet, 2008). The following criteria were used: gender, residence, curricula of studies (Development Psychology or Community Psychology), age, graduation exam's grade, high school they attended, grade point average of exams. The teams were the same for the duration of the course so they could be considered a stable group. For the present work, Michaelsen's original method was modified (MTBL). In fact the students were not required to study before class started, because was the teacher to give general indications about principal concepts of the course of Qualitative Research Methods: different instruments employed in qualitative research. During class, the structured activities proposed were to build each instrument of research introduced by the teacher: semi-structured interview, EFI (Ecocultural Family Interview), diary, focus group, participant observation in natural environment, photovoice, audio-tour, and video-tour. In class, while they were working, participants could ask the professor for clarification. The work was then presented to the whole class and discussed, which allowed the professor to evaluate the students' level of comprehension of that lesson. This was followed by a more practical phase. Students made a simulation of a research project submitting some potential participants to the different instruments created during classes, audio-recording and videotaping the process. Then the class discussed the recorded material that was obtained. Lastly, participants had to create a research project and discuss it during the final exam with a group presentation to the professor.

#### 2.4. Data analysis

Data were analysed by SPSS (2008) software. The performance of groups that attended MTBL classes (Group\_2011 and Group\_2012) were considered for the analysis, not those of each team. Independent sample t-tests were conducted to examine if the academic performance of Group\_2011 and Group\_2012 were improved by the MTBL method. To evaluate this, the grade achieved on the final exam of each participant was compared with their point average before taking the course that used MTBL; the grade achieved on the final exam of each participant was also compared with the grade points from courses that provided basic skills in a psychology curriculum, taken during the first year of academic studies: General Psychology, Developmental Psychology, and Social Psychology. Furthermore, we compared the point average to the Qualitative Methods exam (Group\_2011 and Group\_2012), and the point average of other students that took the same exam, taught without using the MTBL method (Group\_2009 and Group\_2010).

### 3. Results

Data were used to evaluate the academic performances of participants, and to verify whether the MTBL method improved their performance. In an intergroup perspective (Table 1) the grades achieved on the MTBL final exam (Group\_2011 M= 30.31, SD= 1.07; Group\_2012 M= 29.85, SD= .88) were compared by paired sample t-test with the exams' point average before the same students took the MTBL courses: Group\_2011 (M= 28.31, SD= 1.12) and Group\_2012 (M= 27.78, SD= 1.38).

Table 1. Comparison between the grades achieved in the MTBL final exam and the exams' point average before taking MTBL courses.

	M	DS	T
Group_2011 grades achieved on the MTBL final exam	30.31	1.07	9.43**
Group_2011 exams' point average before taking MTBL courses	28.31	1.12	
Group_2012 grades achieved on the MTBL final exam	29.85	.88	9.33**
Group_2012 exams' point average before taking MTBL courses	27.78	1.38	

\*\* p<.05

The comparison of the grades achieved on the MTBL final exam with the exams' point average before the same students took the MTBL courses highlights that in both groups, there was a significant difference (Group\_2011  $t(28)= 9.43$   $p<.05$ ; Group\_2012  $t(46)= 9.33$   $p<.05$ ). The grades achieved on the MTBL final exam of Group\_2011 and Group\_2012 were also compared with their average exam scores of the three basic exams for a psychology course (General Psychology, Developmental Psychology, and Social Psychology). Table 2 shows a significant difference in both groups (Group\_2011  $t(28)= 9.86$   $p<.05$ ; Group\_2012  $t(46)= 15.46$   $p<.05$ ).

Table 2. Comparison between the grades achieved on the MTBL final exam and average exam scores of the three basic exams.

	M	DS	T
Group_2011 grades achieved on the MTBL final exam	30.31	1.07	9.86**
Group_2011 exam scores of the three basic exams	26.52	2.17	
Group_2012 grades achieved on the MTBL final exam	29.85	.88	15.46**
Group_2012 exam scores of the three basic exams	24.71	2.31	

\*\* p<.05

Furthermore, to have an intragroup perspective and corroborate the hypothesis that MTBL could improve academic performance, an independent t-test was conducted, comparing the grades achieved on the MTBL final exam by Group\_2011 and Group\_2012, with the grades achieved in the final exam by students who took the course of Qualitative Methods in 2009 (Group\_2009 n= 35, M= 28.37, SD= 1.92) and 2010 (Group\_2010 n= 16, M=28.68, SD= 1.57), when the MTBL method was not employed. Referring to the comparison with Group\_2011, there was a significant difference with both Group\_2009 ( $t(62)= 4.83$   $p<.05$ ) and Group\_2010 ( $t(43)= 4.09$   $p<.05$ ), as illustrated in Table 3.

Table 3. Comparison between the grades achieved on the MTBL final exam in 2011 and grade achieved on the final exam in 2009 and 2010.

	M	DS	T
Group_2011 grades achieved on the MTBL final exam	30.31	1.07	
Group_2009 grades achieved on the final exam	28.37	1.92	4.83**
Group_2010 grades achieved on the final exam	28.68	1.57	4.09**

\*\* p<.05

A significant difference is highlighted also in Table 4 concerning the comparison of Group\_2012 with Group\_2009 ( $t(80)=4.65$   $p<.05$ ) and Group\_2010 ( $t(61)=3.66$   $p<.05$ ).

Table 4. Comparison between the grades achieved on the MTBL final exam in 2012 and grade achieved on the final exam in 2009 and 2010.

	M	DS	T
Group_2012 grades achieved on the MTBL final exam	29.85	.88	
Group_2009 grade achieved on the final exam	28.37	1.92	4.65**
Group_2010 grades achieved on the MTBL final exam	28.68	1.57	3.66**

\*\* p<.05

#### 4. Discussion

Results indicate that MTBL improves the academic performance of participants. The grades taken during the course using the MTBL method are compared by a paired sample t-test with the individual exam scores that each participant had before taking the Qualitative Methods course, along with their exam scores on the three basic exams for a psychology course (General Psychology, Developmental Psychology, and Social Psychology). These analyses reveal significant differences and an improvement in the students' performance, demonstrated by a higher exam scores. The hypothesis that MTBL improves academic performance is also proven by independent sample t-tests, which compared the grades of the students who took the Qualitative Methods course when MTBL was employed, with the students that took the course during the two years previously, characterised by lecture classes. In this case, a significant difference is found, and there is an improvement in the results of the students that took courses where MTBL was employed. Even if in Social Psychology the group experiences are characterised not only by cooperative experiences but also by conflicts, LeDoux (2012) explains that interpersonal incompatibilities between team members can develop, or the team members can have divergent opinions about the achievement of their tasks. However some conflicts, if moderate, can be functional and can contribute positively to the performance (Kozlowski and Ilgen, 2006).

From the impressions written by participants about their MTBL experience, a very positive opinion emerges. Many students felt that this method should be implemented at the university. Gianni, declared: "*The group is a very powerful tool that I would like to use in the future and beyond.*" This finding is in line with other research. Vasan, DeFouw and Compton (2009) affirm that a large majority of their sample expresses positive feelings about working on a team. Kim (2008) reports that most students are very satisfied with the content of the course and also with the MTBL format. Zgheib et al. (2010) find that students want more MTBL courses in the future.

Further studies could apply the MTBL method—modified or the original one—to other psychology courses, and in general, to promote and extend its use within the university. Furthermore, it would be important to conduct a more quantitative study to verify the benefits of the MTBL method, making a comparison between the performance of students who took the same course with or without the use of MTBL, and to examine if this method improves the university system in order to verify if the general academic performance is better than the years before, when MTBL was not used.

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# Team-building in the 24 seasons drums education: From physical exercise to music

Soo Mei, Lee @ Jake Lina Lee<sup>a</sup>, Fung Ying, Loo<sup>b</sup>, Zaharul Lailiddin bin Saidon<sup>c\*</sup>

<sup>ab</sup> Department of Music, Cultural Centre, University of Malaya, 50603 Kuala Lumpur, Malaysia

<sup>c</sup> Faculty of Music and Performing Arts, Universiti Pendidikan Sultan Idris, 35900, Perak, Malaysia

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## Abstract

24 Seasons Drums performance began at Foon Yew High School, Malaysia and it has been a popular performing art genre since. The art combines a fusion of elements from Chinese culture such as martial art, dance, music and Chinese calligraphy. There is still a lack of literature concerning its transmission method and therefore, this article highlights its training approaches by examining how a music co-curriculum activity with physical exercise along with elements of philosophy and culture has been transmitted along with an emphasis on team-building. Research was carried out at Foon Yew High School in Johor. Data were collected through observation and interview along with video recording. The troupe playing the 24 Seasons Drums consists of sixty-nine team members who are students at the school. Practice sessions were recorded to encompass the instructional activities in the training system. The outcome shows how various elements are combined in this co-curricular activity: physical fitness exercise, music theory, Chinese cultural elements and team-building.

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*Keywords:* Team building; drum; martial art; music; training method

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## Introduction

24 Seasons Drums, more commonly known among the Chinese community in Malaysia as *Ershisi Jieling Gu* in Chinese Romanization (二十四节令鼓) was invented in 1988 by music teacher, Tan Hooi Song with poet Tan Chai Puan, at Foon Yew High School in Johor, Malaysia. Since then, it has become a popular Chinese performing art genre, as seen from virtual field visits such as YouTube, it is frequently performed not only in Malaysia but also in other countries, including the West. The success of Foon Yew's troupe and its fame continues today, with local press reporting receipt of an award and invitations to perform aboard (New Straits Times, 2012). Also, their performance in the promotional tour of Malaysia for Taiwanese celebrities Ethan Juan and Joe Chen's promotional tour in Malaysia for their television drama *You Are My Destiny* (The Star, 2008) received positive feedback from viewers.

Instrumentation consists of twenty-four membranophones called *shigu*, a large Chinese drum commonly seen in lion dance performance. The drums are played using two wooden sticks, striking the drum on its surface, at the side of the drum, or hitting the two sticks together, resulting in a timbre with strong resonance such as 'dung' or sharper tones of the latter 'tak' and 'tik' (see Matusky and Tan, 2004). The performance involves choreographed movement and rhythmic patterns based on Chinese elements such as martial arts, calligraphy, and music. The initial concept was based upon agricultural activity during the four seasons of the Chinese lunar calendar used in traditional farming in mainland China. The four main seasons are subdivided into six seasons (*jieling*) to make a total of twenty-four. Choreography ideas are included in drumming and are actually a reflection of farmers' movement.

Literature concerning Chinese performing arts in Malaysia includes Tan (1984) on Ko-Tai, Tan (1989 & 2007) on lion dance, the *huayue tuan* (Tan 2000), Loo and Loo (2012a; 2013) on innovation of Chinese folk tunes for a modern multiracial Malaysian audience, Buddhist music and musical theatre by Loo, Loo and Lee (2012), Loo & Loo (2012b), Loo (2013), and Loo, Tee and Loo (2014), and Chinese *shidaiqu* re-contextualized in Malaysia (Loo and Loo, 2014). Study of 24 Seasons Drums is very limited. Ethnomusicologists Matusky and Tan (2004) and Chan (2006) introduced the 24 Seasons Drums, its founder and its concept. Chan (2006) describes the 24 Seasons Drum and its rote-learning method in nurturing creativity in students. However, there is still a lack of research looking at a detailed training approach and transmission of the 24 Seasons Drum. Therefore, this article focuses on the transmission method of the 24 Seasons Drum by reporting on research carried out at Foon Yew High School, where the genre was founded. Discussion highlights its synthesized teaching method from a co-curricular activity that involves physical exercise and Chinese culture and music, and how this musical kinetic activity and its training approach lead to soft skill achievement such as team-building.

## Methodology

In this qualitative study, observation and interview were carried out to collect primary data. Observation took place at Foon Yew High School in Johor where the 24 Seasons Drum was founded by Tan Hooi Song and Tan Chai Puan. Weekly training sessions were observed for a period of two months in 2009 and revisited in 2014 to identify any changes in training method. Video recording was used to capture their training system. During the training session of the 24 Season Drum, 120 students and two trainers were involved.

Trainers were interviewed in 2009 and also 2014. Informants who were interviewed include the founder Tan Chai Puan, and trainers Ong Ee Wei, Ting Deng Siang and Hong Ye Yi. Semi-structured interview was employed in gathering information about the training system.

## Analysis and Discussion

24 Seasons Drum began when its founder was requested to deliver a performance for the Tionghua Association of Johor Bahru for its 9<sup>th</sup> Dance Festival (Chan, 2006). The teaching methods of the 24 Seasons Drum include basic theory in music, marching, stamina training, group practice and rote-learning. Nowadays, the 24 Seasons Drum is practised and performed by other troupes all over the world, adding creativity in choreography and drumming patterns. However, Ting (2014) states that it is very important that Foon Yew's troupe retains its original concept which the farmer's movement is the model behind its choreography, because as the founders of the 24 Seasons Drum it is important that they preserve the original philosophy. A typical training schedule at Foon Yew lasts for three hours divided into three main levels: teaching theory of music, physical exercise and drumming session (see Table 1).

The music theory class was held in a classroom where the students first sang their team song and the tutor marked down attendance. A general knowledge of Western music notation and theories was taught. Instead of Chinese cipher notation, Western notation was used. The music theory class lasted for forty-five minutes, the students then proceeding to the field for physical training that included warming up exercise and stamina training.

Table 1. Training Schedule of 24 Seasons Drums at Foon Yew High School.

Time	Activity
3.00pm	Singing the team song <i>Gu Dian Ciannian</i> Attendance report Theory of music
3.45pm	Warm-up exercise Stamina training: running, up and down stairs, sit-ups, push-ups, star-jumps.
4.30pm	Marching
5.00pm	Group division Drumming session
6.00pm	End of session

Physical exercise and training took up one hour and fifteen minutes of the three-hour session, which reflects its importance as part of the training to play the 24 Seasons Drums. Simple warm-up exercises were taught and after that students needed to complete eight laps of a 400 meters track and field. A stair-climbing exercise followed. While doing this, students were trained to run up and down stairs in a line, but there was an obligatory rule that they must wait for their team members who were left behind. Therefore, the nature of this training creates a sense of belonging and collaboration among team members. Other activities included push-ups, sit-ups, and star jumps. Achieving stamina, strength and agility is an important prerequisite for the 24 Seasons Drum. In addition, the following session of marching is also a compulsory activity in training unity, strength and discipline.

The drumming session and teaching lasted for an hour. The students were divided into three groups: advanced, average and beginners. The first group consisted of senior students at advanced level with experience in performance. These students practiced at the basketball court and focus on coordination between the striking rhythms and choreography. A team leader plays an important role in choreographing movement and coaching, including improving the students' technique in drumming. The second group was made up of students at a moderate level of skill. The assistant chief and senior are responsible for guiding the second group. Beginners belong to the third group, in which lower high school students are guided by one of the senior students.

Rote-learning is employed in teaching the 24 Seasons Drum. The teaching members found that this is an effective method of transmission. Students imitate and play the rhythm patterns demonstrated by the seniors and along the way they try to memorize



the rhythmic drumming pattern. They are not bound by a musical score, so they can fully concentrate on mastering techniques and specific skills.

It was evident during the observation period that the teaching of the 24 Seasons Drum consists of strategies in fostering relationships, teaching team members to take care of each other and strongly reflecting the importance of team-work, emphasizing success from a working team rather than any individual who can outrival another. A high demand on discipline in collaborative exercise such as the stairs routine, marching and drumming is effective as a team-building training model. Unlike the more sedentary nature of practising other musical instruments such as the piano, violin, or playing a drum set alone in either a standing or sitting position, playing the 24 Seasons Drum includes a high level of fitness due to executing fast choreographed movements that involve the whole body in action, along with commanding virtuosic technique in beating the drums in perfect synchronized rhythm with a team of twenty-four members.

## Conclusion

The 24 Seasons Drums and its training reveals the success of its founders Tan Hooi Song and Tan Chai Puan. The popularity of this drumming genre has increased since its inception in 1988. Its teaching method, involving rote-learning, physical exercise and teamwork, is perhaps the hook that has become the reason for its popularity, not only as a co-curriculum activity in a school setting, but also as a genre performed by professional performing arts groups. It was evident during the observation period that the teaching of the 24 Seasons Drum consists of strategies in fostering relationship among students, team-building, coordination of movement and rhythmic drum patterns, and stamina building. The training method of the 24 Seasons Drum reveals benefits in soft skills, physical exercise and music.

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# Technical and entrepreneurial training for horticultural production in Mexico

Sergio Roberto Marquez-Berber<sup>a</sup>, Cristina Torcuato-Calderón<sup>b</sup>, Jorge Aguilar-Avila<sup>a</sup>, Gustavo Almaguer-Vargas<sup>b</sup>, Alma Velia Ayala-Garay<sup>c</sup>, and Abdul Khalil Gardezi<sup>d</sup>

<sup>a</sup>Universidad Autónoma Chapingo. Km 38.5 Carretera México-Texcoco. C.P. 56230 Chapingo, Estado de México. MEXICO.

<sup>b</sup>Somacidich Agroideas,

<sup>c</sup>Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias,

<sup>d</sup>Colegio de Postgraduados.

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## Abstract

Technical and entrepreneurial training was provided for two groups of young adults to prepare them for commercial production of horticultural goods under greenhouse conditions. Most participants (90%) had only basic formal education and no experience in agriculture. Both teachings were done simultaneously. Thus, they learn how to produce based on market demands, and how to operate as a business. This educational experience resulted in a high satisfaction for the participants, and gave them the skills needed for commercial production because they were able to produce and market one harvest. Their main challenge is to develop an enterprise.

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**Keywords:** Adult education, Greenhouses, protected agriculture, agricultural policies,

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## 1. Introduction

Inequity is the main problem of Mexico. Its most regrettable outcome is poverty. CONEVAL (2013) reports in 2008 and 2010, 11.7 million of people in extreme poverty. However, the number of inhabitants with insufficient food access increased from 23.8 million (21.7% of national population) in 2008 to 28 million (24.9%) in 2010.

Poverty is widespread in rural areas. Chiapas is the state with the highest percentage of paupers (78.4%). It also has six of the ten municipalities with the greater rate of poor people. The states of Guerrero (67.9%), Oaxaca (67.2%), and Puebla (61%) are next in line (CONEVAL, 2012).

Several factors are contributing to the poverty concentration in rural regions. Most of their inhabitants are devoted to primary activities. They work part-time in a non-intensive way, with low or none value aggregation, and small productivity. Consequently, the rural average income is only 27% of the national one (SIAP, 2010), or 7% of the 2012 U.S.A. minimum wage.

An alternative to reduce poverty is self-employment with higher remuneration to promote arraignment in countryside communities, and the improvement of their way of life. Horticultural production under greenhouse conditions is a good option. It allows the production of several harvests per annum, with better yields, lower risks, best quality, and usually higher prices. It creates more jobs, with increased stability. It also uses water and input in a more efficient manner than open field cultivation (Velasco *et al.*, 2011).

Greenhouse agriculture is more complex, and more man dependent than conventional one. Thus, training is the best strategy to increase the success of this cultivation technique. Manrubio *et al.* (2007) found 65% of greenhouse production units with Mexican federal or state subsidies were unproductive. The main cause was insufficient training or technical assistance.

The Mexican federal government program “Young entrepreneurs” recognized such fact. It provided technical and business training to augment the achievement of its supported projects. It runs on two stages. In the first one denominated, “school project” such preparation is provided. The objective of this paper is to analyze the planning, development, and results of the technical and the entrepreneurial training for horticultural production, within the “Young Entrepreneurs” Program, in two communities at the state of Puebla, Mexico.

## 2. Materials And Methods

Two nearby communities were selected for this study. They are located in near contiguous municipalities in the southern part of the state of Puebla, Mexico. The region is denominated “Mixteca Poblana.” The first one was San Martín Tecuautitlán, Piaxtla

municipality. It is located at 18° 12' latitude North, and 98° 16' longitude West. Its altitude is 996 m above sea level (asl). The second one was San Pedro Yeloixtlahuaca, with the same name municipality. Its situation is 18° 07' latitude north, and 98° 06' longitude west. Its elevation is 996 m asl. The average temperature is 24.3° C. The mean maximum is 32.8° C, and the average minimum 15.8° C. The annual rainfall mean is 1,607 mm. It is concentrated from July to October. Only in those months, the precipitation is higher than the evaporation

Those communities were selected to be benefited for the “Young Entrepreneurs” Program of the Ministry of Agrarian Reform of the Mexican Federal Government, because they could constitute groups of young people (18-39 years old) willing to participate in productive projects. Under the supervision of the program’s personnel, they decided to be involved in horticultural production under greenhouse conditions. At San Martín Tecuautitlán, the cucumber crop was selected. In San Pedro Yeloixtlahuaca, tomato was chosen.

The funds for the technical and the entrepreneurial training, and the scholarships for the Younger were provided by Program mentioned above. It also provided subsidies to construct a 300 m<sup>2</sup> greenhouse, and for the basic equipment and input for one crop cycle in each community.

The projects were monitored from the initial diagnostic of the participants, until the final evaluation of the technical and the entrepreneurial training. Surveys were done to determine the opinion about the activities performed.

### 3. Results And Discussions

#### 3.1. Initial diagnostic

In order to increase the efficiency of the training, an initial diagnostic of the participants was conducted in the two groups. The occupation, the education, the knowledge about the crop to be installed, and about greenhouse agriculture, were questioned. Furthermore, their entrepreneurial experiences, and their expectations about the training were inquired.

Thirty people formed the San Martín Tecuautitlán group. Forty-five percent were women. Most of them had household occupations (70%). Fifteen percent were involved in construction. Only 10% were peasants. There were big differences in schooling, from people with no formal education, up to one with a bachelor degree. The majority did not know about greenhouse agriculture (60%), or about the cucumber crop (75%). No one worked in a formal business. Only 25% had entrepreneurial notions, and 30% concepts about marketing.

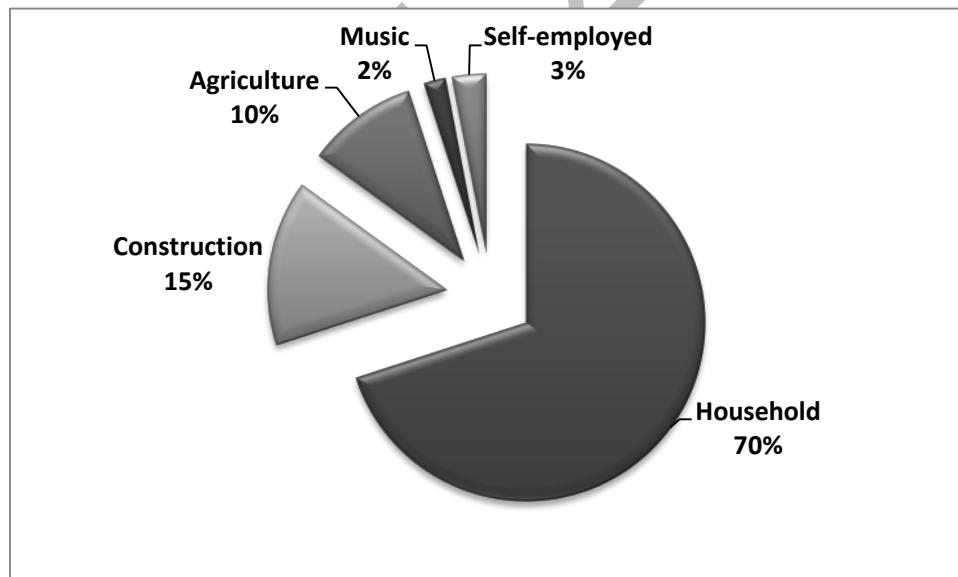


Figure 1. Occupations of the Martín Tecuautitlán group.

The group of San Pedro Yeloixtlahuaca had the same number of members (30). Sixty percent were women. Half had a household labors. Almost one-third were wage earners. One tenth was students, and a similar proportion was self-employed. For 60% greenhouse agriculture was unknown. However, 7% have been working on greenhouses. Only 40% had some knowledge about the tomato crop. One fifth have participated in an enterprise. Half had some marketing notions. All participants had some formal schooling. The students were getting a bachelor's degree.

Meteorological data from the 1971-2000 period. From the Mexican National Meteorological Service. Station located at Piaxtla, state of Puebla. <http://smn.cna.gob.mx/climatologia/normales/estacion/pue/NORMAL21063.TXT>

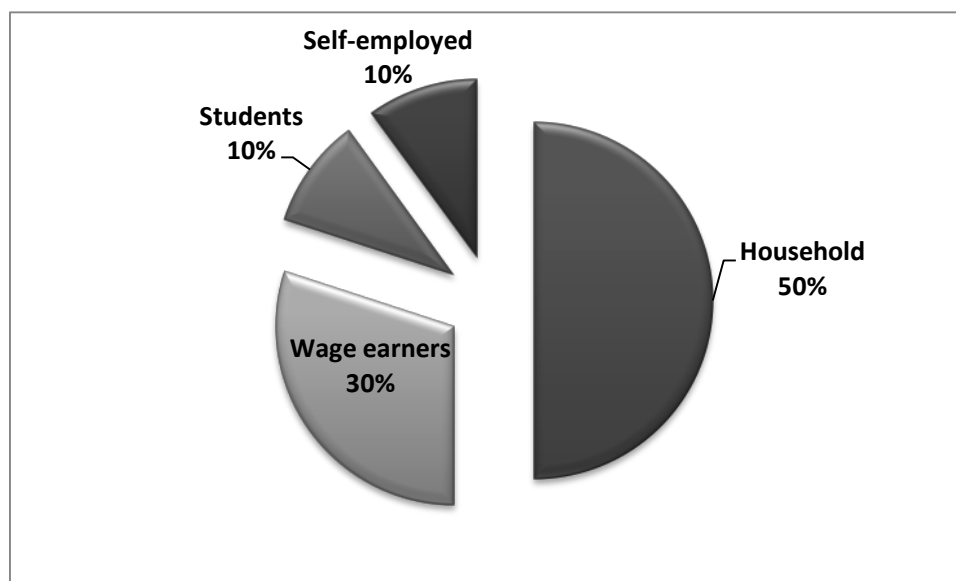


Figure 2. Occupations of the San Pedro Yeloixtlahuaca group.

### 3.2. Training development

Both groups hired their trainers based on an analysis of proposals submitted by professionals. The former Ministry of Agrarian Reform, the entity responsible of the “Young Entrepreneurs” Program, accredited those selected. The process involved review of academic records. A bachelor degree and training experience in a similar endeavor was a minimum requirement.

Due to the scarce knowledge about greenhouse agriculture and entrepreneurial aspects of most participants, the training was planned to start since the basic concepts of both areas. The horticultural production in soil under hydroponics was selected, because it had lower production costs and require fewer specialized skills. Therefore, it is easier to obtain and to market products with profits. The soil acts as a buffer. It helps to compensate for possible mistakes in nutrient solution formulations.

The technical training was provided jointly with the business education. This allowed focusing the production on market demands. Another objective was to teach them how to operate as an enterprise. The group’s members had productive or family-related activities during weekdays. Thus, the training was conducted in weekends. The participation of students of elementary and secondary schools, sons and daughters of the groups’ adherents, were encouraged to participate in the sessions. This helped some mothers of the San Martín Tecuautitlán group, with no schooling, to learn better. The children read them the manuals provided and collaborate to answer the exercises and homework.

The technical training was 30% classroom theory, and 70% practice in the in the field and greenhouse. The skills needed for commercial production were developed this way. The entrepreneurial classes were conducted as workshops in order make them more amenable. It also developed a business plan for the next phase.



Figure 3. Entrepreneurial training at San Pedro Yeloixtlahuaca, state of Puebla, Mexico.

In the technical training, the following subjects were taught:

- Soil identification and profiling
- Soil and water analysis
- Greenhouse construction and operation
- Soil tillage
- Bed preparation
- Greenhouse sanitation
- Planting and nursery care
- Mineral nutrition
- Tutoring
- Harvest and packaging

The entrepreneurial classes included:

- Emotions management and communication styles.
- Twelve skills for conflict resolution
- Norms and rules
- Team work
- Leadership and communication
- Marketing
- Business plan
- Organization manuals, and work organization
- Quality assurance, continuous improvement
- Management
- Book keeping
- Result's analysis

The training was conducted under a positive and enthusiastic environment with great participation of both groups. They have the hope to develop a business with the potential to provide them with remunerative jobs. An option seldom found in the region. Similar experiences have been developed in Mexico (Cuevas-Contreras)

The final evaluation showed high satisfaction among participants regarding the knowledge learned and instructor's performance. In a scale from 0 to 100, the average grade for the training was 91.2.

#### 4. Conclusions

The technical and entrepreneurial training provided to the members of the groups of San Martín Tecuautitlán, and San Pedro Yeloixtlahuaca, at the state of Puebla, Mexico, was planned and conducted based on their knowledge. It resulted in a high satisfaction of the participants, and gave them the skills needed for commercial production because they were able to produce and market one harvest. Although they have the basic knowledge, the major challenge is to develop it as an enterprise.

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# Tension release in piano playing: Teaching Alexander Technique to undergraduate piano majors

Fung Ying, Loo<sup>a</sup>, Gabriel Isaac Evens<sup>b</sup>, Mohd Nasir Hashim<sup>c</sup>, Fung Chiat, Loo<sup>d</sup>

<sup>abc</sup> Department of Music, Cultural Centre, University of Malaya, 50603 Kuala Lumpur, Malaysia

<sup>d</sup> Faculty of Human Ecology, Universiti Putra Malaysia, 43400, Selangor, Malaysia

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## Abstract

This article explores the effectiveness of Alexander Technique in reducing tension in piano playing. Much of the literature regarding the Alexander Technique tends to be guide books for various uses targeting actors, musicians, sportsmen and so forth. There are also a growing number of alternative medical research studies that examine the effectiveness of the Alexander Technique in reducing disability in Parkinson disease, improving postural equilibrium, and relieving back pain. However in the area of music performance, little empirical research has been carried out. In this study, fifteen undergraduate piano majors from a local university in Malaysia were recruited as research subjects. Four major principles of the Alexander Technique were employed in this test. Observation was carried out and a report of tension in certain body parts was recorded. The subjects went through fourteen week of lessons taught by an Alexander Technique instructor, and a survey was carried out. The results indicate a positive outcome that Alexander Technique may help pianists to reduce tension.

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*Keywords:* Alexander Technique, piano, relaxation, tension, performance

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## Introduction

The actor Frederick Matthias Alexander (1869-1955) discovered and created the Alexander Technique as a response to chronic hoarseness that could not be resolved by the medical field. Through years of self-observation, the actor developed a method to improve the use of self, which is known today as the Alexander Technique (Alcantara, 2013). Gelb (1996) expresses that defining the technique with words may be limited as Alexander Technique is an experience that involves liberation from the manipulation of fixed or faulty habits. Existing literature states that the Alexander Technique is not only useful to actors but can also be effective for musicians and athletes such as McEvenue (2001), Harer and Munden (2008), Leibowitz and Connington (2011). Though, after reviewing the studies in sportsmen, Frontera (2007) explains that “although there are theoretical benefits of this type of technique to athletes, there are no scientific studies on the effect of the Alexander Technique on athletic performance. Despite the lack of evidence, the technique continues to be used widely by performing artists, in particular” (p. 318). A broad definition of the Alexander Technique is as follows:

1. A technique that teaches how to use oneself more efficiently
2. A technique that teaches how to inhibit the habitual pattern of misuse (tension and contraction), and how to consciously redirect oneself toward a more beneficial use (expansion and flow)
3. A technique that teaches how to create space between stimulus and reaction so that a different and more beneficial choice can be made regarding the use of oneself (Alcantara, 2013).

These definitions imply a wide potential application of the Alexander Technique. For example, there is a growing number of research concerning its medical use such as Stallibrass (1997), Dennis (1999), Stallibrass, Sissons and Chalmers (2002), Ernst and Canter (2004), Stallibrass, Frank, and Wentworth (2005), Cacciatore, Horak and Henry (2005), Little, Lewith, and Webley *et al.* (2008), and Woodman, J. P., & Moore, (2012). Studies by Dennis (1999), Cacciatore *et al.* (2005) and Little *et al.* (2008) examine the Alexander Technique relating to postural equilibrium and reducing back pain. On the other hand, research by Stallibrass and Hampson (2001), Stallibrass *et al.* (2002) and Stallibrass, Frank, and Wentworth (2005) explored the effect of Alexander Technique in Parkinson patients. Though in a 2004 review, Ernst and Canter (2004) noted that not every test in Alexander Technique is proven effective in patients with Parkinson and back pain, while Woodman and Moore (2012) found that there is solid evidence that demonstrates the effectiveness of the Alexander Technique in relieving back pain but only moderate proof in reducing disability in Parkinson's patients. The researchers also assert that although there is early evidence stating potential in improving postural equilibrium for the elderly, back pain and respiratory system, evidence is not adequate for recommendations as an alternative medicine.

In terms of relaxation and tension release for musicians, Watson (2009) explains that all relaxation technique can help deal unconscious muscular tension. However, Berman (2002) points out the dilemma regarding the balance between the absence of physical effort and the need to execute movement. Literature reviews concerning relaxation techniques for the piano such as by Whiteside (1961), Leimer and Giesecking (1972), Bomberger (1991), Ortiz (1997), and Berman (2002) reveals that there is no straightforward approach to define passivity in activity (see Loo, 2010; Loo and Loo, 2011; Loo and Loo, 2012; and Loo and Loo, 2013). Loo and Loo (2011) suggest the application of *taiji yin* and *yang* principles in understanding the balance between tension and relaxation. However, there has been a lack of literature considering a quantitative approach in examining relaxation technique. After reviewing various relaxation technique and principles, this study examines the effect of Alexander Technique to fifteen undergraduate piano majors who reported tension in playing.

## Methods

The aim of this research is to test the effectiveness of Alexander Technique in reducing tension in piano playing. A pretest score reporting tension in certain body parts was collected before the first session, and after fourteen weeks of intervention, a posttest score was gathered and compared. Fifteen volunteer piano major undergraduate students were selected participants after a pretest score identified problems of tension. The pretest score was gathered using an evaluation instrument of eight items (fingers, hands, arms, wrists, shoulders, back, legs, and neck) where the participants identified where tension occurs using a five-point Likert scale (1 = Severely tensed; 2 = Tensed; 3 = Somewhat tensed; 4 = Mildly tensed; and 5 = Very mild tension). The participants then received an intervention of Alexander Technique training in a group class where each session lasted three hours. The lesson was conducted once per week by an AmSAT-certified Alexander Technique instructor (second author) and the participants went through a course of fourteen weeks. A one-to-one session of ten minutes was given to each participant while others observed.

A guide book from Gelb (1996) was used throughout the fourteen weeks intervention by the instructor. During the intervention, the participants were taught four major principles from the Alexander Technique: recognition of habit, inhibition, direction and primary control (Kleinman and Buckoke, 2013, p. 184):

- 1) Recognition of habit: The participants gained awareness of the force of habit that governs all of their actions. Specific attention was brought to the movements related to playing the piano.
- 2) Inhibition: After gaining some awareness of the habitual tension related to their movements, the participants were taught to inhibit faulty habits such as excessive tension so that they could ultimately move with more freedom.
- 3) Direction: After recognizing the force of habit and then learning how not to react, the participants were taught how to redirect themselves to effect a positive change in their use of self.
- 4) Primary Control: The participants discovered how the relationship between the head, neck and the back constitutes a primary control for the organization of whole body, and that if these parts were used poorly, there is a general instability throughout the whole body.

A posttest evaluation instrument was used after the participants completed fourteen weeks of intervention with the same items as in the pretest. A paired-sample *t* test was used to analyze the difference between the pre- and posttest score.

## Results

In the pretest score, the participants reported tension in their fingers, hands, arms, wrists, shoulders, back, legs and neck (see Table 1). In the posttest score (see Table 2), the participants reported a significant decrease in tension.

Table 1. Pretest score

Items	<i>N</i>	<i>Mean</i>	<i>SD</i>
Fingers	15	2.40	.986
Hands	15	2.53	1.060
Arms	15	2.53	.990
Wrists	15	2.87	1.302
Shoulders	15	2.00	1.195
Back	15	2.27	.799
Legs	15	3.53	1.060
Neck	15	3.07	1.163

Table 2. Posttest score

Items	N	Mean	SD
Fingers	15	3.67	.724
Hands	15	3.67	.617
Arms	15	3.87	.743
Wrists	15	3.73	.594
Shoulders	15	4.07	.884
Back	15	3.87	.640
Legs	15	3.67	.724
Neck	15	3.60	.828

The data in Table 1 shows that the mean score obtained during the pretest evaluation ( $M=2.6500$   $SD=.62714$ ) while Table 2 shows a higher score obtained after the intervention of the Alexander Technique for fourteen weeks in the posttest evaluation ( $M=3.7667$   $SD=.37460$ ). A paired  $t$ -test analysis was carried out to test if there is any significant difference between the score before and after the intervention of the Alexander Technique. Based on the results gathered in Table 3, there is a significant difference in tension that occurred in various body parts of the participants between the pre- and posttest ( $t=-5.738$ ,  $p=.000$ ).

Table 3. Results of paired  $t$ -test between pre and post test scores

Items	Mean	SD	$t$	$p$
Pretest	2.6500	.62714	-5.738	.000
Posttest	3.7667	.37460		

## Discussion and Conclusion

In summary, after a fourteen-week intervention of the Alexander Technique, the outcome reveals a positive effect in reducing tension in pianist. From the posttest score, we gather that there is a significant reduction in tension that was reported by the participants relative to their pretest survey. The results of this study highlight the potential of the Alexander Technique in aiding the relief of tension in piano playing. However, in future studies a higher number of participants should be recruited to give a more accurate quantifiable justification and stronger evidence in showing the effects of Alexander Technique. Further research could also be carried out in testing its long-term effect by performing a longitudinal study.

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# Tensions and dilemmas in teacher professional development

Aik-Ling TAN, Chew-Hung CHANG, Paul TENG

*National Institute of Education, 1 Nanyang Walk, Singapore 637616, Singapore*

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## Abstract

This paper presents the reasons why teachers engage in professional development as well as the tensions and dilemmas that arise from professional development. The voices of 14 teachers are heard through individual semi-structured interviews. The transcripts of the interviews were analysed using thematic coding to uncover the themes related to the tensions that teachers feel when they are faced with decisions pertaining to professional development matters. Three dilemmas surfaced from our analysis and in this paper, we present them in a dualistic manner to highlight the tensions that resulted from these dilemmas faced by the teachers. The first dilemma concerns the issue of needs that are served through engagement in professional development activities. Here we discuss whether professional development should serve the needs of individual teachers or whether it should serve organizational needs. We highlight the forms of professional development activities that teachers should engage in and how they often find themselves torn between the urge to attend professional development activities that they personally enjoy and those that their peers and school would like them to attend. The second dilemma is related to teachers' sense of responsibility to their pupils when they are engaged in professional development activities. The question that teachers commonly ask themselves before they decide on professional development activities is whether their students' learning will be affected in their absence. The last dilemma is related to the first and it deals with whether professional development activities should be made compulsory or whether it should be voluntary for teachers. Understanding the tensions and dilemmas of professional development as experienced by teachers allows the policy makers and professional developers to make better decisions so that the fidelity of professional development policies and programs can be enhanced.

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*Keywords:* Teacher Professional Development; Interview; Tensions

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## 1. Introduction

Teaching is nestled within a complex ecology of people, policies, systems, social practices and social norms. As part of the complex ecosystem of school and teaching, teachers have to grapple with expectations and demands that are made *of* them and *on* them by various stakeholders. Teachers are expected to teach the child, deliver the curriculum, understand the national policies, work with parents to help them understand their child as well as school, and design innovative practices to suit the ever changing social landscape. This list of demands that are made of a teacher is not exhaustive and often times, it is difficult to quantify what a teacher needs to do, or even just describing the range of tasks that a teacher needs to perform. These multiple and varied things that a teacher needs to be able to do suggests that teachers need to stay current in their practices and hence a need to constantly update and upgrade themselves. Teacher professional development (TPD) is thus an important aspect in the life of a teacher. As TPD is strongly coupled with the lives of teachers, it is inevitable that it is also entangled in the complexities of school, people, policies and practices. Research in the area of TPD has delved into areas in motivation of teachers to engage in professional development (Gorozidis & Papaioannou, 2013), ways to make professional development sustainable and meaningful (Tan, Lim, & Teng, 2012), teachers' satisfaction with professional development (Nir & Bogler, 2008), ways to design professional development in various domain areas (e.g., Hismanoglu, 2010; Loughran & Gunstone, 1997), and frameworks that support and enables us to understand teacher learning and professional development (e.g., Cochran-Smith & Lytle, 1999; Wenger, 1998). To understand the various aspects and issues related to TPD, research studies commonly use methods such as large scale questionnaires (see Gorozidis & Papaioannou, 2013), documentary analysis (Sato & Kleinsasser, 2004), video analysis of behavior during professional learning (Tan & Towndrow, 2009), action research (O'Sullivan, 2002) and interviews (Lepage, Boudreau, Maier, Robinson, & Cox, 2001). These methods are commonly applied to study TPD as the construct of TPD is one that requires the teacher to connect between his/her practice in the classroom and their learning experiences. As such, it is largely reflective in nature and hence the common methods used deploy retrospective recall of teachers' experiences. Similarly, in this paper, we interview teachers on their personal experiences with professional development activities and using their interview replies to answer two research questions — “What are reasons for teachers to engage in TPD?” and “What are the tensions and dilemmas that are faced by teachers when they make decisions related to involvement in professional development activities?”

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\* Corresponding author. Tel.: +65-6790 3828; fax: +65-68969414

E-mail address: aikling.tan@nie.edu.sg

The notion of tension and dilemma can be understood better when they are mapped onto what TPD encompasses, the purposes of TPD as well as the teachers' lives and roles. As such, in the next three sections, we discuss the definition of professional development, the purposes of professional development and the lives of teachers in relation to the tensions and dilemmas in teaching.

### *1.1. Defining teacher professional development*

The notion of TPD is diffused since it is a multifaceted construct with multiple definitions of what constitutes TPD. To add to the complexity, the scope of TPD is also wide. Generally, TPD falls under the overarching umbrella of in-service teacher education (Tan, 2014) and refers to the process of improving teachers' skills and competencies for producing stellar educational outcomes for students (Hassel, 1999). More specifically, TPD also includes the various aspects related to the practices of teachers — beliefs of teachers, identity of teachers, teachers' epistemologies (Hewson, 2007) and other aspects that pertain to the professional practice of teachers and teaching.

Theoretically, some argue that TPD should be a process (Loucks-Horsely, Love, Stiles, Mundry, & Hewson, 2003) while others view TPD from a product perspective and focus on what teachers can do as a result of attending TPD activities. These different perspectives of TPD have resulted in debates about what the end goal of TPD ought to be. As a result of these debates, tensions surrounding design and evaluation of TPD arise. How does one evaluate the effectiveness of TPD? Is teacher change the most significant measure or gains in students' scores? Amidst the diversity of views, most scholars agree that TPD needs to result in some form of improvement in the practice of teaching and ultimately advancement of students' learning. We argue here that the debates and tensions related to TPD do not merely occur at a theoretical level but have also cascaded to the level of teachers' experiences. As such, these theoretical debates and the resultant tensions form the motivations behind this paper as we examine the teachers' reflection of their TPD experiences.

### *1.2. Purposes of teacher professional development*

Education is a public enterprise in which the voices of many parties need to be heard. As tax dollars are often used to fund education, there is often pressure for accountability. Consequently, the resources channeled to TPD are also under close scrutiny by policy makers, parents, and schools. The purposes and impact of TPD hence need to be visible for the general population. A review by Desimone (2009) highlighted the components of meaningful and impactful TPD which ultimately result in improvement in students' performance. These five critical components are (1) the need for focus on content; (2) the opportunities presented for active learning; (3) coherence of the professional development program; (4) duration (minimum of 30 hours) of the program; and (5) opportunities for collective participation. Besides these five critical factors, research evidence also points to the need to incorporate structured, sustained follow-up activities to enhance the effectiveness of any professional development program.

The next important issue for any teacher professional learning program to address is the effect of the professional development program on students' learning. In other words, what is the evidence of change as a result of teacher professional development? Osborne, Simon, Christodoulou, and Howell-Richardson (2013) argued that currently, in educational research, the evidence of change is scant. Few studies to date are able to show causal, direct and convincing evidence of teacher professional development impacting and improving students' learning. This difficulty of obtaining direct evidence of change in students' learning is understandably so since learning in schools and teacher learning are two domains that are influenced and shaped by a multitude of interacting factors. While it may be possible to link the success of TPD to improvement in students' learning, it is nevertheless difficult to establish a causal relationship. As such, this presents a potential area where tensions might arise since teachers might be torn between their own development and the measurable change in students' learning.

### *1.3. Teachers' lives and roles in teaching*

Beliefs are deep seated ideas that result from one's experiences within a specific cultural and societal context. As such, it is difficult to change and often influences one's actions and decision. Pajares (1992) argued that teachers' beliefs are intrinsically rooted within their own experiences and cultural resources and hence are different from knowledge in terms of their potent affective nature. As such, teachers' beliefs have a powerful influence on their interpretation of things happening around them, on the decisions they make and on the eventual actions to be taken. Consequently, teachers' beliefs about their roles and responsibilities in their practice have impact on their participation in TPD activities. In light of the complexities of teachers' beliefs and practice, attention needs to be given to inspect the dialectical relationship between teachers' beliefs and assumption based on the context that they live in, their decision making and practices. As such, listening to teachers' lived experiences with TPD to understand the intricacies of their beliefs about their roles and how these perceptions shape and influence their decision making with regard to their professional practice is illuminating.

Similar to many economies, Singapore values teachers and the role they play in developing the workforce and the society for the future. Teachers are valued for their role to "Lead, Care, Inspire" students (Academy of Singapore Teachers [AST], n.d.).

Teachers are expected to play a key role in nurturing the children and to inspire the next generation of Singaporeans. They are also expected to maintain the trust and respect of parents and the community. Finally, as professionals, teachers in Singapore are “responsible for reflecting on our own conduct, developing our practice, and ensuring that we meet the standards of the profession.” (AST, n.d.). The value proposition with respect to TPD for a teacher in Singapore is therefore one that empowers individual teachers to develop themselves and to take ownership for the teaching profession. The interaction between societal expectation and personal beliefs potentially presents grounds for differing ideas and hence tensions. This paper will also explore how personal beliefs and societal expectations interact in TPD.

## 2. Research Method

This research is qualitative and interpretative in nature. We believe that the realities of social life are collectively formed by members in the community (fellow teachers, administrators, teacher educators, students, parents etc) and the artifacts from these interactions (ideas, knowledge and even physical artifacts) are products (Vygotsky, 1986) from these interactions. This stance is adopted because we believe that to understand how and why teachers make decisions related to their professional lives, we need to hear what they have to say. Teachers’ personal ideas about their professional development are developed through their lived experiences (popular media, home life, religious beliefs, exposure to different ideologies, interaction with peers etc) and as such are diverse and likely to differ. What teachers believe to be important for them to develop professionally may not be aligned with what researchers or policy makers think as important. So the important question to consider here is where teachers obtain their ideas from and what their beliefs and ideas are important to them. This sociocultural perspective shape and guide our decision on the means of data collection and analysis.

### 2.1. Research context

This research is carried out in Singapore where education is a highly prized and valued enterprise as can be seen by strong government support and generous funding for education. In Singapore, TPD is not a compulsory requirement for teachers. TPD is also not considered work duty and there are usually no monetary rewards in the form of salary increment for participating in TPD. Rather, teachers are encouraged to be reflective and are given autonomy for their own practices and professional development. Teachers in Singapore have an entitlement to professional development that is sponsored by the Ministry of Education and the area of professional development is largely aligned to one of the three career tracks of teachers. The three tracks are teaching track, specialist track and leadership track. There is a special unit set up by the Ministry of Education (MOE) to take care of TPD and this unit is the AST. The AST has experienced officers and master teachers who work closely with schools and teachers to take care of teachers’ growth through professional development. Such an autonomous culture for professional development of teachers can potentially be a test-bed for ideas as well as diversity for practices in TPD. It is in this culture of support for TPD that the research participants are selected.

The 14 participants in our research are full-time trained teachers teaching in Singapore schools. The participants consented to the interview after they were being approached by the research team upon recommendations by peers. Out of the 14 participants, there were six males and eight females. The participants are teachers from primary schools to junior colleges and they have teaching experiences ranging two years to 29 years. The wide range of grade levels and teaching experiences allows for a diversity of views to be heard. Table 1 summarises the profile of the participant teachers.

Table 1. Profile of teachers (all names used are pseudonyms)

Teacher	Gender	Years of Teaching	Subjects Taught	Grade level Taught
Mr H	M	5	Geography	Junior College
Mr AH	M	10	General Paper	Junior College
Ms AY	F	11	General Paper	Junior College
Mr XR	M	3.5	Geography	Secondary
Ms FE	F	26	Geography	Secondary
Mr N	M	8	Biology	Secondary
Ms KN	F	10.5	Biology	Secondary
Ms KK	F	29	English	Secondary
Mr JS	M	7.5	Physical Education	Primary

Ms F	F	1.5	Mathematics, Science and Music	Primary
Ms N	F	8	English and Mathematics	Primary
Ms P	F	7	English, Mathematics and Science	Primary
Ms V	F	1	English, Mathematics and Science	Primary
Mr K	M	12.5	Physical Education	Primary

## 2.2. Data collection and analysis

Interview data was transcribed and analyzed using the process of open coding and axial coding as originally suggested by Glaser and Strauss (as cited in Flick, 2006). Although the original intention of this coding was to generate grounded theory, our purpose here is to search for integrated themes among the research data so that we can understand (1) the concerns of teachers as they plan for TPD, and (2) the dilemmas that they faced when they are engaged in TPD.

For open coding, we will go through the entire data corpus to surface frequent ideas and stories that emerged in participants' responses. For axial coding, we looked into relationships among the frequent ideas and stories and later developed possible themes of how they make sense of evidence based on their stories. During this step, we will attempt to note integrated, coherent themes by categorizing and regrouping the themes and ideas several times. In this way, we attempted to re-examine the themes that we categorized in the previous coding to enhance the credibility of data thematisation.

Our objectives for generating insights from the data is to ensure that our interpretation is not perceived as a univocal truth of the data to be revealed or as a definitive conclusion to be reached, but rather as possible understandings to reopen new and generative instances of thinking about TPD under different contexts in different spaces. In other words, we aim at interpreting other possible discourses of TPD than simply describing their difficulties.

## 3. Results and Discussion

### 3.1. Teachers' ideas about TPD

In this section, we present teachers' ideas about TPD and the reasons why they engaged in TPD. These two aspects are important to help us understand where the tensions and dilemmas (which will be presented in the next section) arise. While all the participants serve in the Singapore school system, they differ slightly in what they think TPD should focus on. The participant teachers' ideas of TPD are generally visible and closely coupled with their school practices. When asked for their idea of TPD, all of them made some reference to improving themselves. The areas that they identified for improvement include (1) content knowledge in the discipline that they teach, (2) pedagogical skills, (3) teaching skills to enable them to better engage and motivate their pupils, and less commonly (4) different ways of doing things. It was interesting to note that they hardly made reference to notion such as developing teacher identity or notions such as increasing the professional image of teachers as part of TPD. One teacher (Mr H) sums up the diversity of perspective very well – *“Professional development is very broad, all encapsulating sort of idea.”*

Despite having diverse ideas about what TPD is, all the 14 teachers recognized the importance of TPD in their practices. Reasons cited for engaging in TPD include:

1. keeping their discipline knowledge current

*“Gaining new knowledge, skills, competencies, that is obviously the fundamental reason why teachers want to develop themselves.” (Mr H)*

*“skills obviously pedagogical skills, knowledge because the subject that I am teaching is a very dynamic so the information becomes obsolete, knowledge becomes obsolete very quickly, and hence really a lot of time is spent on, development in terms of the knowledge.” (Ms AY)*

2. staying abreast of the latest changes in educational landscape through networking

*“In schools, I really feel that we are in a in a tortoise shell. If I, if I can quote like that. I wouldn't know what's going on if I don't upgrade myself. I need to go out and talk to at least the other heads in my subject to know what's going on.” (Mr K)*

*“By going for professional development, you get to see and interact with people of the same interest, of the same, uh, of the same capability or the same industry and you get to learn from them and network and ultimately reflect where you stand in this area, where does the school stand where does the company stand in this competitive world.” (Mr J)*

*“The other is networking that I think. Finding out about how different institutions do different things, or do the same, do the same things differently and how you can actually apply that to your new learning and apply it to your school and do things differently” (Mr XR)*

3. role modelling life-long learning

*"to recognise that learning is a life-long thing, and as much as you are a role model for your students." (Ms F)*  
*"role model this thing as a, this thing, I mean this idea of a life-long learner. Because if we teachers stop learning, then, it seems hypocritical to go to tell our students that they need to learn, because we ourselves have stopped to learn." (Mr N)*

4. motivating themselves to stay passionate in teaching

*"Because I want to stay motivated. I want to make sure that when I leave this career I want to feel, I want to feel fulfilled, I want to feel my journey counts for something." (Ms N)*

5. fulfilling their responsibility of being professional

*"so I feel it is a responsibility as a professional teacher to participate in professionalizing activities. Whether it is training, whether it is studying, whether it is workshop, whether it is conferences, I think it is a responsibility." (Ms KK)*

*"my students will be shortchanged, and I don't think I've done enough for myself for the students and the school." (Mr K)*

### 3.2. Tensions and dilemmas

During the interviews with the participant teachers, it was evident that the teachers' experiences with TPD were not free from difficulty decision making. During the dialogue, teachers showed that they were cognizant of expectations by administrators, peers and students for them to develop professionally. Yet, they were also aware of what their personal capacity and interests are with regard to their professional practices and growth. We surfaced the notion of tensions and dilemmas as we noticed the high frequency (average of 38 times per interview with the highest frequency of 80 times usage) of use of speech tags such as "but". We argue here that the usage of "but" is indicative of the participants' attempts to justify their decisions/ideas with the knowledge that there are alternative views or expectations that they are unable to fulfil. We present the tensions and dilemmas that surfaced using a dualistic format to illustrate how dichotomous perspectives, when present can potentially be problematic.

**Individual needs versus organisational needs.** The question that demands an answer here is whether TPD should serve individual needs or the needs of the organisation. Theoretically, these two need not be antagonistic but a balance can be achieved. However, in reality, when these are not in sync, tensions or dilemmas arise. For example, if the school culture is to strongly encourage teachers to engage in TPD, and if a teacher is not willing to do so, then there will be a clash between individual needs and that of the organisation. Alternatively, if a teacher does not identify with a particular way of teaching and the school is embarking on a new curricular innovation using the specific framework, then a potential tension arises when TPD is set up. Another issue that is raised showed that teachers think about personal benefits when attending TPD and these personal benefits may or may not be aligned to the goals of the organisation.

*"...ton of bricks falling on my head because sometimes you are forced to go to a course which you think is ridiculous and useless but you have to go because your head or your principal or MOE says you must go. (Ms FE)"*

*"prevents teachers from attending TPD, could be.. there's a lack, probably be a lack of culture, lack of encouragement from the middle management for such teachers to attend TPD. Firstly, because middle management may not believe in these pedagogies. Secondly, there- there could be, high stake assessments involved, so in terms of the short term priorities is really to ensure that students are equipped with the skills and relevant contents to handle national examinations." (Mr XR)*

*"because we are very pragmatic, we have a value to things that we do. At this stage of your life, is it worth it to go for this, what value would it add to your promotion?" (Ms KK)*

*"whatever professional development that they are interested in may not benefit them. Some do look at promotions. So as long as it doesn't not help them in their promotions then they may not want to be engaged in that area of professional development. They rather spend time doing something that brings them gains in that way." (Ms P)*

Some teachers like to be empowered to decide *when* and *what* types professional development to attend. As such, administrators may need to consider taking into consideration teachers' preferences into account when designing TPD opportunities. What are some platforms that can be made available for teachers' needs and preferences to be made visible? Is there a comprehensive range of TPD activities that teachers can choose from? AST emphasises the concept of teacher ownership of learning as well as the responsibility to lead others in learning. Teachers may have interests that are unique and does not match all the TPD opportunities that are presented to them. As such, these teachers have to decide if they should engage in TPD simply

to fulfil their TPD requirement or if they should wait until the right opportunities come along. Ownership of learning comes with responsibility on the part of the teacher to also take organisational needs and students' interest into consideration. These interacting factors need to be aligned to ensure that tensions do not arise.

*"I only choose course that give me additional value, and differentiates me from other teachers. Something that is not so conventional." (Mr XR)*

**Responsibility to stay current versus being there for students' learning.** This dilemma is the most obvious one mentioned by all the teachers. They seemed to be constantly torn between developing (or not developing) themselves for the students. Their main concern is that being away from the classroom will have a negative impact on students' learning. Hence, the question raised here is whether a teacher should be taken out of classroom so that they can attend to their professional development. What is the balance to achieve between disruption to students' learning and teachers' professional development? Research is also not able to offer any solutions to this issue since it is difficult to establish the cause-and-effect relationship between the inputs of TPD and the resultant change in teachers (Nicol & Turner-Bisset, 2006). As such, it is often difficult to justify taking teachers away from classes to attend TPD since the evidence for effectiveness is often weak. The discussion of this dilemma ultimately points to the timing of TPD activities. However, the teachers in the interview also were not able to agree on when TPD will be ideal. Teachers cited tiredness after school hours or need to spend time with family members during school vacations as reasons for not having TPD activities during these times.

*"I'll look at time, as well as whether it fits into my schedule. There are many many courses and workshops which I am interested in but unfortunately it doesn't fit into my schedule, alright, because you know, you can't be away for too long and I don't want to miss too many classes otherwise, you know, you have problems with catching up with students." (Mr XR)*

*"Let's face it, a teacher cannot teach well if he or she is away from class." (Mr J)*

*"...but if you attend too many hours of training at the expense of your students, I think a teacher needs to draw the line somewhere." (Mr XR)*

**Compulsory professional development versus voluntary on need basis.** As presented earlier, TPD is non mandatory in Singapore although it is encouraged. There are views that TPD should be made compulsory so that teachers stay current and relevant to their profession. Others think that compulsory professional development enables teachers to have a greater awareness of the other fields of knowledge that might be helpful for teaching. Yet others think that the notion of licensing as a requirement for teaching re-certification would increase the competencies of teachers. The idea of compulsory professional development has far reaching implications of funding and time for TPD to take place. While some teachers impose on themselves to engage in TPD to ensure that they are current in their knowledge, others engage in TPD only if they can find time to do so. This results in a highly heterogeneous state where some teachers are excessively engaged in TPD while some never attempted to participate in any TPD actively.

*"So I feel it's a responsibility to professionalize. At different points of your career. It's not something where, should I do it, should I not do it, etc. I feel that I wouldn't be surprised a few years down the road where it is something where, this is your 3<sup>rd</sup> year, okay off you go. This is your 5<sup>th</sup> year, off you go. Because, information content knowledge, is already shifting and so fluid. We need to keep on engaging with it at different points to keep ourselves current. To keep ourselves credible." (Ms KK)*

*"But in Singapore, a 19 year old can go into a school and do relief teaching, which is an insult to our profession. Which means what? What is the message that they are sending? That anybody can come to a class to, to keep a class quiet, as long as we allow relief teachers to enter a classroom, to teach with no experience at all – just fresh from high school, we are not considered professional." (Ms FE)*

*"all the courses I go through, I realise that teaching is a very complex process, and you really need to have a lot of skills. And these skills cannot be acquired in one day. Like a one, two day course, you know." (Ms FE)*

#### 4.Implications of Study

Teaching is nestled within a complex ecology of people, policies, systems, social practices and social norms. As such, as teachers progress in their teaching profession, they need to be cognisant of the various factors that influence their actions and

decisions in the classroom. Consequently, the complexities of teaching are mapped onto teacher education and TPD. The noble task for developing a teacher professionally is also faced with tensions and dilemmas. In this paper, we presented five reasons for teachers engaging in TPD – (1) keeping discipline knowledge current, (2) staying abreast of the latest changes in educational landscape through networking with other like-minded teachers, (3) role modeling life-long learning, (4) motivating themselves to stay passionate in teaching, and (5) fulfilling the responsibility of being a professional. These reasons cited for engaging in professional development are both cognitive as well as affective. Teachers are well aware of areas that they need to develop and grow and at the same time are also aware that improvements in cognitive domain can potentially enhance their motivation and passion in their jobs. This is aligned to what Avalos (2011) defined in her review of professional development research in 10 years from 2000 to 2010 that professional development is a complex process that engages both cognitive as well as the emotional domain of teachers, both individually as well as collectively. Knowing that teachers can possibly be motivated through enhancing their practices through TPD, perhaps there ought to be more concerted effort in TPD activities to connect the learning to improving and applications in the classrooms. This way, teachers will not feel that the time and resources spent on TPD is wasted.

With reference to the second research question, we presented tensions and dilemmas in three inter-related areas of – (1) individual needs versus organizational needs, (2) responsibility to attend TPB versus being in school for students' learning, and (3) compulsory professional development versus voluntary professional development. These areas are flagged because of the “embedded or situated nature of TPD and development” (Avalos, 2011). Factors that affect TPD can occur within the school environment and culture and this is further mapped on to how educational systems and policies work. The dialectical toggle between individual growth and organization development, between the quest for individual uniqueness and being moulded to be “like a teacher”, between being an informed and absent teacher and a less informed and present teacher are all struggles that teachers face and experience as they make the seemingly simple decision of being engaged in officially planned TPD activities. Administrators and policy makers need to be aware of the struggles faced by teachers in TPD and be able to provide a platform for teachers to articulate their concerns and struggles without the fears of being judged.

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# Tevhid-i Tedrisat'tan günümüze

## Türkiye'de yüksek din eğitiminin kurumsallaşma süreci

Şeref GÖKÜŞ\*\*\*\*\*

*Akdeniz Üniversitesi Dumlupınar Bulvarı 07058 Kampus Antalya / TÜRKİYE*

### Abstract

The institutionalization of religious higher education in Turkey is a complex process that emerged rather late and was frequently disrupted. This paper deals with this process following its historic traces starting from the Law of Integration of Education unto now. In 1924 with announcement of the Law of Integration of Education, all madrasas were shut down and a brand new theology faculty was launched within the body of Darulfunun (the University). Like others previously, this was a new start but came with its own problems, created new unexpected and unresolved hurdles with several disruptions. The paper will try to make a comprehensive evaluation by covering the positive developments throughout the process, the underlying reasons for the delay or disruption of the process of institutionalization, how the problems faced were resolved, the significant people who contributed to the process and the present status of religious higher education.

**Keywords:** Religious higher education; the Law of the Integration of Education; Tanzimat; Darulfunun; institutionalization.

### Giriş

Yirminci yüzyılın sonlarına kadar Osmanlı İmparatorluğu'nda yapılan yüksek din eğitim-öğretimi sadece medreseler aracılığıyla yürütülüyordu. Fatih Sultan Mehmet ve Kanuni Sultan Süleyman dönemlerinde en şaşalı günlerini geçiren bu kurumlar, bu süreçten sonra, idari yapıları, ders programları, müderrisleri, öğrencileri ve fiziki özelliklerinde yaşanan bazı olumsuzluklar neticesinde yavaş yavaş gerilemeye ve eski önemlerini yitirmeye başladılar. Her ne kadar medreselerin bu kötü gidişatını durdurmak için III. Murat, III. Mehmed ve I. Ahmed dönemlerinde bazı ıslahat çalışmaları yapılmış olsa da, istenen olumlu sonuç bir türlü alınamadı. Neticesinde ise bu kurumlar hem bireylerin hem toplumun hem de devletin isteklerine cevap veremez bir hale gelmişlerdir (Bkz. Atay, 1983: 133-155).

Tanzimat'ın ilanıyla birlikte başlayan batılulaşma veyahut modernleşme hareketleri neticesinde eğitim-öğretimdeki geleneksel anlayış yavaş yavaş terk edildi. Bu dönemde medreselerin yanında modern eğitim-öğretim yapan yeni okullar açıldı. Açılan bu yeni okullarla birlikte medreseler, zamanla devletin adli ve idari elemanlarını yetiştiren bir eğitim-öğretimi kurumu olmaktan çıkarak, daha çok, din eğitim-öğretiminin icra edildiği bir yapıya dönüştü. Aslına bakılırsa bu durum bize, Tanzimat'la şekillenen bu yeni dönemde, eğitim-öğretim konusunda takip edilen iki genel yaklaşımın ipuçlarını da vermektedir. Bu yaklaşımlardan birincisi geleneksel olarak varlığını devam ettiren eğitim-öğretim kurumlarının ıslahı; ikincisi ise bu geleneksel yapı karşısında yeni eğitim-öğretim müesseselerinin tesis edilmesidir. Başlangıçta birbiri ile paralel bir şekilde devam eden bu bakış açıları kısa bir süre sonra bozulmuş; medreselerdeki ıslah çalışmaları gerilerken diğer okullardaki yenileşme faaliyetleri ise daha hızlı bir seyir izlemiştir. Nitekim II. Abdülhamit dönemine kadar medreselerle ilgili birkaç ufak ıslahat girişimi dışında başka herhangi ciddi bir çalışmanın yapılmadığını görmekteyiz (Zengin, 2002: 15-28; Bilgin-Selçuk, 1997: 7-11; Doğan, 1998: 410-431).

II. Abdülhamit'in tahta geçmesiyle birlikte, o ana kadar açılan Batı tarzındaki ilk ve orta dereceli okulların dışında, yeni bir yükseköğretim kurumunun teşkil edilmesi için ciddi girişimlerde bulunuldu. Bu girişimler neticesinde 1863 yılında ilk defa İstanbul'da eğitim-öğretim faaliyetine başlayan bu yeni üniversite (Darülfünun), yaşanan bazı olumsuzluklar nedeniyle, birkaç kez açılıp-kapandı. 1900 yılında tekrarlanan üçüncü denemede Darülfünun-ı Şahane ismiyle yeniden eğitim-öğretime başlayan üniversitede Ulûm-ı Âliye-i Diniye, Ulûm-ı Riyaziye ve Ulûm-ı Edebiye adı altında üç farklı şube bulunuyordu (Zengin, 2009: 53-167). Ulûm-ı Âliye-i Diniye şubesinin açılmasıyla birlikte medresede yapılan yüksek din eğitim-öğretimi, 1914 yılında hazırlanan Islâh-ı Medâris Nizamnâmesi'ne binaen kurulan Dârü'l-Hilâfeti'l Âliye Medresesi'nin teşkiline kadar, kısmen Darülfünun'un bünyesine geçti. Ancak bu yeni medresenin tesisiyle Darülfünun'daki Ulûm-ı Şer'iye (Ulûm-ı Âliye-i Diniye şubesinin yeni adı) şubesi eski fonksiyonunu icra edemediği için kapandı. Akabinde İstanbul Darülfünun'u için hazırlanan 1919 tarihli nizamnamede yüksek din eğitim-öğretimi ile ilgili herhangi bir şubeye yer verilmemiş ve böylece bu süreç Tevhid-i Tedrisat'ın ilanına kadar devam etmiştir (Buyrukçu, 2011: 88-94).

### 1. Tevhid-i Tedrisat Kanunu'nun İlanı ve Darülfünun İlahiyat Fakültesinin Kurulması

Tevhid-i Tedrisat Kanunu'nun ilan edilmesiyle birlikte Tanzimat Dönemi'nden itibaren başlayan ve II. Meşrutiyet

\*\*\*\*\* Akdeniz Üniversitesi İlahiyat Fakültesi/Antalya; Yrd. Doç. Dr.  
Corresponding author. Tel.: +90 242 310 6888; fax: +90 242 310 6889.  
E-mail address: serefgokus@akdeniz.edu.tr / serefm06@hotmail.com

Dönemi'nde de devam eden eğitimdeki bu karmaşa ortadan kaldırıldı. 3 Mart 1924 tarihli bu Kanunun ilk üç maddesine binaen bir yandan ülke sınırları içerisinde bulunan resmi ve özel bütün eğitim-öğretim kurumları Maarif Vekaleti'ne (Milli Eğitim Bakanlığı) bağlanıp tek çatı altında birleştirilirken diğer yandan birleştirilen bu kurumlara ait bütçeler üzerindeki yönetim ve denetim yetkisi de yine Maarif Vekaleti'nin (Milli Eğitim Bakanlığı) emrine bırakıldı. Aynı kanunun 4. maddesinde ise Maarif Vekaleti'ne (Milli Eğitim Bakanlığı) ülkenin ihtiyacı olan “yüksek diniyat mütehasşısı yetiştirmek üzere Darülfünun'da bir ilahiyat fakültesi tesis” (TBMM Zabıt Ceridesi, 1340: 26) etme yetkisi verilmiştir.

Bu yetkiden hareketle 21 Nisan 1924 tarihli ve 493 sayılı İstanbul Darülfünununun Şahsiyeti Hükmiyesi Hakkında Kanun'un birinci maddesi ile bu kanun hükümlerine binaen yayınlanan 7 İlkteşrin 1925 tarihli Darülfünun Talimatnamesi'nin birinci maddesinde Darülfünun'da kurulan beş fakülteden biri olarak ismi zikredilen İlahiyat Fakültesi 1924 yılının Nisan ayında üç yıl süreli olarak eğitim-öğretime başlamıştır (Ayhan, 1999: 41). Eğitim-öğretime yeni başlayan bu fakültedeki müfredat programı ise Tefsir ve Tefsir Tarihi, Hadis ve Hadis Tarihi, Fıkıh Tarihi, İctimaiyat, Ahlak, Dini-i İslam Tarihi, Arap Edebiyatı, Felsefe-i Din, Kelam Tarihi, İslam Feylesofları, Tasavvuf Tarihi, Felsefe Tarihi, İslam Bediiyatı, Halihazırda İslam Mezhepleri, Akvam-ı İslamiye Etnografyası, Türk Tarih-i Dinisi, Tarih-i Edyân (Zengin, 2011: 139-144) gibi derslerden oluşuyordu.

Darü'l-Hilafeti'l-Âliye medreselerinin yüksek kısımları ile Medresetü'l-Mütehassisin/Medrese-i Süleymaniye'de tahsil gören yaklaşık 400'e yakın talebe müfredat programı bu şekilde belirlenen yeni fakültenin bünyesine alındı. Ahmet Hamdi Akseki'ye göre alınan bu talebeler “Arapça ve âli tahsillerini bitirmiş, müsbet ilimleri, garp ve şark felsefelerini görmüş, garp dillerinden laakal birini okumuş gençlerdir.” (Akseki, 2001: 143). Bunun yanında Darülfünun İlahiyat Fakültesi'nde ders veren Mehmet Ali Ayni, İsmail Hakkı Baltacıoğlu, Şemsettin Günaltay, Fuat Köprülü, Babanzade Ahmet Naim, M. Şerefeddin Yaltkaya ve Yusuf Ziya Yörükân gibi öğretim elemanları da dönemin en tanınmış ilmi şahsiyetlerindendi.

Darülfünun ilahiyat fakültesinin kuruluş aşamasındaki bu olumlu şartlarının yanında; müfredat programının amacı, programdaki dersler ve bu derslerin içeriği, pedagojik formasyon derslerinin programda yer almaması, fakülte talebelerinin iaşeleri ve mezun olan öğrencilerin mesleki anlamda yeterli olup-olmadıkları vb. ile ilgili yaşanan bazı tartışmalardan dolayı fakültenin öğrenci sayısında kademe kademe bir düşüş yaşanmıştır. Tabi bunda batılı bir bilim adamı olan Albert Malche'nin İlahiyat Fakültesi hakkında hazırladığı olumsuz rapor ile dönemin siyasi iradesinin bu okullara olan negatif bakış açısının da katkısı olduğunu söylemek mümkündür (Doğan, 1999: 261-268). Yoksa dönemin aydınları tarafından sıkça dile getirilen Darülfünun İlahiyat Fakültesi'nin öğrenci yetersizliğinden dolayı kapandığını söylemek daha doğrusu kapanma nedenini sadece tek bir sebebe indirmek çok doğru bir yaklaşım değildir.

Bütün bu olumsuz gelişmelere binaen 1933 yılında yapılan üniversite reformuyla Darülfünun kapatılmış; yerine İstanbul Üniversitesi ihdas edilmiştir. 2252 sayılı kanunla kurulan bu yeni üniversitede doğrudan bir İlahiyat fakültesine yer verilmezken; onun yerine Edebiyat Fakültesinin Şarkiyat Enstitüsüne bağlı bir İslam Tetkikleri Enstitüsü tesis edilmiştir. Ancak bu enstitüye kayıt yaptırmak isteyen öğrencilere izin verilmemiştir. Çünkü Edebiyat Fakültesi meclisinin 1936 yılında aldığı bir karara göre İslam tetkikleri Enstitüsü bir bölüm olarak kabul edilmemiş; sadece araştırma yapılan bir enstitü olduğundan söz edilerek mevcut haliyle buraya herhangi bir öğrenci kaydının yapılamayacağına karar verilmiştir. Böylece Tevhid-i Tedrisat'la kurulan ve 9 yıl varlığını devam ettiren Darülfünun İlahiyat Fakültesi fiilen kapanmıştır (Bahçekapılı, 2012: 143; Aydın, 2000: 45-49; Çelik, 2013: 59-61). Aslına bakılırsa bu durum sadece yüksek din öğretiminde yaşanan olumsuz bir süreç değildir. Nitekim diğer örgün eğitim kurumlarından din derslerinin kaldırılması da, genel olarak, 1930 yılından itibaren uygulamaya konulmuştur.

## **2. 1940-1982 Yılları Arasında Yüksek Din Eğitimiyle İlgili Gelişmeler**

Yaşanan bu gelişmeler neticesinde hem bireysel hem toplumsal anlamda halkın din eğitim ihtiyacının giderilememesi hem de yeteri kadar din görevlisinin yetiştirilememesi 1940 yılından itibaren kademe kademe bu meselenin tekrar gündeme getirilmesine neden oldu. Tabi bunun yanında İkinci Dünya Savaşı ve akabinde ortaya çıkan fikir akımlarının Türk toplumu üzerindeki olumsuz etkilerini de bu nedenler arasında saymak gerekir. Hatta yaşanan bu süreçte Bilgi'nin (1980: 49) de dediği gibi “artık dinin elden gitmekte olduğuna hükmedilmiş, elde kalana gerçek ile hurafe ayırt edilmeksizin kuvvetle bağlanan bir devreye girilmiştir.”

Bu olumsuz devrenin neticesinde başlayan yeni tartışmalardaki sürecin ilk somut çalışması 15-21 Şubat 1943 tarihli “İkinci Maarif Şurası”nda alınan her kademedeki örgün eğitim kurumlarında yapılması gereken ahlak eğitimiyle ilgili kararlardır. Söz konusu kararların dayandığı ahlak ilkelerine baktığımızda okullardaki ahlak eğitiminin amacının kendi kültürünü tanıyan ama aynı zamanda gelişmiş toplumlardaki yüksek ahlaki değerlerin de farkında olan; kendine ve başka bireylere hürmet gösteren; onurlu ve şahsiyet sahibi insanlar yetiştirmek olduğu görülmektedir (Maarif Vekilliği, 1991: 104). Kanaatimizce Şura'da alınan bu kararlar din eğitiminin 1924 yılından itibaren devlet eliyle yürütülmesi düşüncesine tekrar bir geri dönüş isteğini yansıtmaları bakımından ayrı bir öneme sahiptir. Nitekim dört yıl sonra Türkiye Büyük Millet Meclisi'ndeki Aralık ayı toplantılarında din eğitim ve öğretimiyle ilgili milletvekilleri arasında çok ciddi tartışmalar yaşanmasını da bu düşüncenin en belirgin göstergesi olarak kabul etmek gerekir.

TBMM'nde cereyan eden bu tartışmaların yanında, Cumhuriyet Halk Partisi'nin 1947 yılında yaptığı 7. Kurultay toplantısında yer alan komisyon üyeleri tarafından din eğitim-öğretiminin geleceğinin nasıl olması gerektiği üzerinde de benzer tartışmalar yaşanmıştır. Kurultayda yer alan bazı parti delegeleri ile bazı milletvekilleri okullarda din eğitim ve öğretimine yer verilmesinin laiklik ilkesine aykırı olmadığını aksine mevcut durumun ve halkın din eğitim-öğretime ihtiyacının itiraz götüremeyecek derecede elzem bir konu olduğu üzerinde görüş belirtmişlerdir. Bu konuda olumlu görüş belirten ve kurultaydaki en uzun konuşmayı yapan kişi Hamdullah Suphi Tanrıöver'dir. Tanrıöver, konuşmasında konuyla ilgili hem tarihi hem hukuki hem de sosyal hususlara değinip birçok örneğe yer vererek açıklamalarını ilmi bir zemine oturtmaya gayret etmiştir. Cemil Sait Barlas, Behçet Kemal Çağlar ve Tahsin Banguoğlu ise din eğitim-öğretiminin gerekliliğini kabul etmelerine karşılık, bu eğitimin resmi

okullar yerine özel okullar aracılığıyla yerine getirilmesi ve okullarda yapılması istenilen din eğitim-öğretiminin laiklik ilkesini zedelememesi gerektiği hususlarında ise Tanrıöver'den ayrı bir görüşe sahiptirler. Ancak kurultaydaki delegeler ile milletvekillerinin büyük bir çoğunluğunun din eğitim ve öğretimi konusuna olumlu yaklaşımları neticesinde dönemin hükümetine, bu konulara ait, bazı tavsiyelerde bulunulduğunu görüyoruz. İlkokullarda din eğitim ve öğretimine yer verilmesi ve imam-hatip okullarının açılması gibi tavsiyelerin yanında bildirimizi de doğrudan ilgilendiren üniversitelerde İlahiyat Fakültelerinin yeniden kurulması da söz konusu kararlar arasında yer almaktadır (Ayhan, 1999: 91-111)

### **2.1. Ankara Üniversitesi İlahiyat Fakültesi**

Cumhuriyet Halk Partisi'nin 7. Kurultayında yüksek din eğitimiyle ilgili alınan bu tavsiye kararı ancak 1949 yılında uygulama imkanı bulabildi. Bu amaçla ilgili ilk resmi girişimi Van Milletvekili İbrahim Arvas (TBMM Tutanak Dergisi, 1948: 22-23) ile Konya Milletvekili Fatin Gökmen ve arkadaşlarının (TBMM Tutanak Dergisi, 1948: 3) yaptığı bilinmektedir. Nitekim bu milletvekilleri 14 Ocak ve 2 Şubat 1948'de TBMM'ne sundukları kanun tasarılarında "...üniversitede İlahiyat Fakültesinin/Yüksek Din Okullarının açılması..." için gerekli görüşmelerin yapılmasını istemektedirler. Milletvekillerinin ilgili kanun tasarıları meclise sunulduğu andan itibaren ciddi bir şekilde tartışıldı. Bu tartışmalar daha çok açılacak olan fakültenin hangi üniversiteye bağlı olacağı ile fakültenin isminin ne olması gerektiği üzerindedir. Söz konusu tartışmalarda fakültenin isminin "İslam İlahiyat Fakültesi" veya "Türk İslam İlahiyat Fakültesi" olması ile ya Ankara ya da İstanbul üniversitesi bünyesinde kurulması gerektiğine dair öneriler ortaya atıldı. Hatta bu tartışmalara dönemin Diyanet İşleri Başkanı Ahmed Hamdi Akseki de katılarak ilgili konulardaki görüşlerini beyan etti. Akseki'ye göre kurulacak yeni fakülte "İslam İlahiyat Fakültesi" olmalı ve fakültenin ders programları da buna göre dizayn edilmelidir (Ayhan, 1999: 211-213).

Üniversitede açılması düşünülen bu yeni fakülteyle ilgili Milletvekilleri ile Diyanet İşleri Başkanlığı'ndan gelen önerilere rağmen dönemin hükümetinden meclise gelen tasarı ve akabinde TBMM'nde kabul edilen kanunla Ankara Üniversitesi bünyesinde yeni bir İlahiyat Fakültesi kurulmuştur. Dönemin Başbakanı Şemsettin Günaltay tarafından Türkiye Büyük Millet Meclisi'ne sunulan Ankara Üniversitesi İlahiyat Fakültesi hakkındaki kanun tasarısının gerekçesi: "Din meselelerinin sağlam ve ilmi esaslara göre incelenmesini mümkün kılmak, mesleki bilgisi kuvvetli ve düşüncesinde ihatalı din adamlarının yetiştirilmesi için lüzumlu şartları sağlamak maksadıyla memleketimizde de garptaki örneklerine benzer bir İlahiyat fakültesinin kurulmasını kararlaştıran Ankara Üniversitesi Senatosu, bu fakültenin şimdilik geniş tutulmasında zaruret olmayan kadrolarını ilişik cetvelde görüldüğü şekilde tespit etmiştir..." (Koştaş, 1989: 8'den aynen alıntı) şeklindedir.

Ankara Üniversitesi Kuruluş Kadroları hakkındaki 5239 sayılı Kanuna ek Kanun olarak sunulan bu kanun TBMM tarafından 4 Haziran 1949 tarihinde kabul edildi (TBMM Tutanak Dergisi, 1949: 284). Mecliste kabul edilen bu kanuna binaen 21 Kasım 1949 tarihinde açılan Ankara Üniversitesi İlahiyat Fakültesi'nin 1949-1950 yılındaki ders programı Arapça, Farsça, Yabancı dil, Sosyoloji, Mantık ve İlimler Felsefesi, İslam Dini ve Mezhepleri Tarihi, İslam Sanatı Tarihi ve Mukayeseli Dinler Tarihi'nden ibaretti. Dört yıllık bir programla eğitim-öğretime başlayan fakültenin ders programında ikinci yıl Hadis Usulü, İslam'da İlimler Tarihi ve Din Psikolojisi derslerine yer verilirken Sosyoloji dersi ise programdan kaldırılmıştır. 1953-1954 yılında ders programlarında yeni bir düzenleme yapılan fakültede, 1972-1973 yılından itibaren beş yıllık bir fakülteye dönüştüğü için ilk üç yılında daha çok dil eğitimine önem verilirken; son iki yılda ise "Tefsir ve Hadis Bölümü" ile "Kelam ve İslam Felsefesi Bölümü" şeklinde bir alanda uzmanlaşmaya yönelik bir eğitim sistemi takip edilmiştir (Koştaş, 1999: 151-158).

Ders programları bu şekilde belirlenen fakültenin öğretim kadrosunu oluşturmak için Ankara Üniversitesi Rektörü Hikmet Birand başkanlığında hem İstanbul hem de Ankara'da bulunan bazı üniversitedeki hocalardan bir komisyon kuruldu. Hilmi Ziya Ülken, Mükrimin Halil Yinanç, Esad Arsebük ve Şinasi Altındağ'dan oluşan bu komisyon yaptığı çalışmalar neticesinde ilahiyat fakültesindeki yeni öğretim kadrosunu seçtiler. Yusuf Ziya Yörükân, Esad Arsebük, Hilmi Ömer Budda, Remzi Oğuz ve M. Tayyip Okiç gibi dönemin önemli ilim adamlarından oluşan bu yeni kadronun aynı zamanda İlahiyat Fakültesi'nin ilk kurucu öğretim üyeleri olarak da kabul edilmesi gerekir (Ayhan, 1999: 261-264).

### **2.2. Yüksek İslam Enstitüleri**

Ülkemizde yüksek din eğitime paralel olarak ilkokul ve ortaokullarda din derslerine yer verilmesi; akabinde imam-hatip okullarının açılması ve bu okullara yönelik toplumun ilgisinin çoğalması nedeniyle Ankara İlahiyat Fakültesi mezunları bu okullardaki öğretmen ihtiyacını karşılayamadılar. Bununla beraber halihazırda tek olan İlahiyat Fakültesi'ne sadece lise mezunu olan öğrenciler başvurabilirken imam-hatip okulu mezunu öğrenciler ise tercih yapamıyorlardı. Lise mezuniyeti sonrasında böylesi olumsuz bir durumun yaşanması mevcut İlahiyat Fakültesi dışında yeni bir yüksek din eğitimi kurumunun ortaya çıkmasına neden oldu. Neticede bu amaçla 1959-1960 yılında İstanbul'da ilk Yüksek İslam Enstitüsü açıldı. Öğrenim süresi dört yıl olan bu yeni fakülteye sadece imam-hatip okulu mezunu öğrenciler alınıyordu. 1961 tarihli "Yüksek İslam Enstitüleri Yönetmeliği"nde bu okulların açılış amacı: "Yüksek İslam Enstitüsü, İslam dininin esaslarına sadık kalarak müspet ilim ışığı altında İslam ilimlerini ve bunlara yardımcı ilimleri öğreterek İmam-hatip okullarıyla ilköğretim okulları ve diğer ortaöğretim müesseselerine öğretmen yetiştirmek ve aynı okullardaki din dersleri öğretmenlerinin mesleki gelişimlerine yardım etmek suretiyle Milli Eğitim Bakanlığı'na kurulmuş bir yüksek okuldur. Bu müessese Milli Eğitim Bakanlığı'nın ihtiyaçları dışında Diyanet İşleri teşkilatına müftü, vaiz vb din elemanları yetiştirmekle de vazifelidir" (Cebeci, 1996: 167'den aynen alıntı) şeklinde ifade edilmektedir.

Kuruluş amacı bu şekilde belirlenen Yüksek İslam Enstitüleri'nin kurumsallaşma süreci 1980 yılına kadar hızlı bir şekilde devam etmiştir. İstanbul Yüksek İslam Enstitüsü'nden sonra sırasıyla 1962-1963'de Konya'da, 1965-1966'da Kayseri'de, 1966-1967'de İzmir'de, 1969-1970'de Erzurum'da, 1975-1976'da Bursa'da, 1976-1977'de Samsun'da ve 1979-1980'de de Yozgat'ta olmak üzere toplamda sekiz Yüksek İslam Enstitüsü daha açılmıştır. Ancak bunlardan Yozgat Yüksek İslam Enstitüsü açıldıktan

kısa bir süre sonra kapanmıştır (Aydın, 2000: 106-107).

Yüksek İslam Enstitülerinin temel görevi mevcut örgün eğitim kurumlarının öğretmen ihtiyacını karşılamak olmasına rağmen; 1959 yılından 1972 yılına kadar takip edilen ders programlarında pedagojik formasyon dersleri yoktur. 1959-1960 öğretim yılından itibaren uygulamaya konulan ders programı 1972 yılında yürürlüğe giren yeni Yüksek İslam Enstitü Yönetmeliği çerçevesinde tekrar gözden geçirilmiş ve 1972-1973 öğretim yılından itibaren yeni ders programında eğitim psikolojisi, ruh sağlığı ve rehberlik, ölçme ve değerlendirme, eğitim sosyolojisi ve öğretim bilgisi gibi pedagojik formasyon derslerine yer verilmiştir. Yüksek İslam Enstitüleriyle ilgili 19.02.1979 tarihli ve 2021 sayılı Milli Eğitim Bakanlığı Tebliğler Dergisi'nde yayınlanarak yürürlüğe giren son ders programına göre öğrenciler ilk iki sınıfta ortak dersler alırken üç ve dördüncü sınıfta ise "Tefsir-Hadis", "Fıkıh-Kelam" ve "İslam Dini ve Esasları" bölümlerinden herhangi birini tercih edebiliyorlardı (Buyrukçu, 2007: 94-102; Bahçekapılı, 2012: 143-145).

### 2.3. Atatürk Üniversitesi İslami İlimler Fakültesi

Ankara İlahiyat Fakültesi ile Yüksek İslam Enstitüleri yanında, 1972 yılında, Erzurum'da kurulan bir diğer yüksek din eğitimi kurumu Atatürk Üniversitesi İslami İlimler Fakültesi'dir. 1971-1972 öğretim yılından itibaren öğrenci almaya başlayan bu fakülte daha önce kurulan İlahiyat ile Yüksek İslam Enstitülerinden farklı olarak hem imam-hatip hem de diğer liselerden mezun olan öğrencilerin okumasına imkan tanıyordu. Öğrenim süresi beş yıl olan fakültenin kuruluş amacı "İslami ilimlere ve Türk kültürüne vakıf ve bu alanlarda araştırma, inceleme yapabilecek elemanlar yetiştirmek ve bu alanda araştırmalar yapmaktır" şeklinde ifade edilmektedir. Belirlenen bu amaç doğrultusunda eğitim-öğretime başlayan fakültenin 1971-1972 yılındaki ders programı 1. ve 2. sınıflarda ortak bir eğitimi öngörürken; 3, 4 ve 5. sınıflarda ise "Tefsir ve Hadis", "Kelam ve İslam Felsefesi", "Fıkıh ve İslam Hukuku" ile "İslam Dili ve Edebiyatları" olmak üzere 4 farklı bölümden müteşekkildi. Ancak mevcut program bazı aksayan yönleri nedeniyle henüz mezun vermeden değiştirilmiştir. Akabinde ise 2.8.1975 tarihli ve 15314 sayılı Resmi Gazete'de yayınlanarak yürürlüğe giren ve 1975-1976 öğretim yılından itibaren uygulanan yeni ders programında ilk üç yılda ortak bir eğitim yapılırken 4 ve 5. sınıflarda ise daha önce dört olan bölüm sayısı "Tefsir ve Hadis" ile "Kelam ve İslam Felsefesi" bölümü şeklinde ikiye indirilmiştir.

Programlardaki aşırı yığılma, ders çeşidi ile fakültedeki bölümlerin sayısının çok olması ve derse giren öğretim elemanlarının program üzerindeki eleştirileri ile mezun öğrencilerin işe girme sürecinde yaşanan sıkıntılar nedeniyle İslami İlimler Fakültesi'ndeki program geliştirme süreci 1975 yılından sonra da devam etmiştir. Nihayetinde 3.11.1977 tarihli ve 16102 sayılı Resmi Gazete'de yayınlanarak yürürlüğe giren ve 1977-1978 öğretim yılından itibaren uygulanan yeni ders programında bütün öğrencilerin ortak ders görmesi hedeflenerek bölümleşme uygulaması tamamen ortadan kaldırılmıştır (Buyrukçu, 2007: 102-108).

### 3. 1982 Yılından Günümüze Kadar Yüksek Din Eğitiminde Yaşanan Gelişmeler

1980 ihtilalinden sonra ülkede bulunan bir çok kurumda olduğu gibi eğitim-öğretim alanında yer alan örgün ve yaygın din eğitim hizmetleri ile bu hizmeti veren kurumların mevcut durumlarıyla ilgili de yeni bir düzenlemeye gidildi. Bu yeni süreçte seminerler yapıldı; oluşturulan komisyonlar aracılığıyla raporlar hazırlandı. 23-25 Nisan 1981 yılında yapılan Türkiye 1. Din Eğitimi Semineri ve Ankara Üniversitesi İlahiyat Fakültesi Dekanı Hüseyin Atay'ın 1981'de dönemin Milli Güvenlik Konseyi'ne sunduğu rapor ile 6 Şubat 1981 yılında MEB Din Eğitimi Çalışma Grubu'nun hazırladığı rapor, kanaatimizce, bu çalışmaların olumlu bir seyir izlemesinde büyük bir katkıya sahiptir. Nitekim bu faaliyetler neticesinde 1981 tarihli ve 2547 sayılı kanun ile 20 Nisan 1982 tarihli ve 41 sayılı kanun hükmünde kararnameye binaen Erzurum Yüksek İslam Enstitüsü ile Atatürk Üniversitesi İslami İlimler Fakültesi birleştirilip İlahiyat Fakültesine dönüştürüldü. Yozgat Yüksek İslam Enstitüsü dışındaki diğer Yüksek İslam Enstitüleri de İlahiyat Fakültelerine çevrilerek bulundukları yerdeki üniversitelere bağlandı (Ayhan, 1999: 246-256; Aydın, 2000: 125-127; Cebeci, 1996: 167-168; Gökaçtı, 2005: 268-269; Altaş, 2002: 146-147).

1+4 yıl şeklinde öğretim veren yeni ilahiyat fakültelerine dönemin ÖSYM sınavından yeterli puan alan genel ve mesleki bütün lise mezunu öğrenciler başvuru yapma hakkına sahipti. Öğretim süresi ve fakülteye öğrenci kabulü bu şekilde belirlenen İlahiyatlarda bölümler ve bu bölümlerin altında anabilim dallarına bağlı yeni bir teşkilatlanmaya gidildi. Aslına bakılırsa bu durum öğrenciden ziyade fakültelerdeki öğretim elemanlarının idare ve sevkine yönelik bir uygulamadır. Yoksa öğrencilerin mezun olduklarında istihdam olacakları alanlara yönelik bir bölümleşme veya bilimsel araştırma ve inceleme verilerine dayalı bir yaklaşım tarzı yoktur. Bu bakış açısında aslolan yapılan tek bir eğitim-öğretim programıyla birden çok hedefe ulaşmaktır.

İlahiyat fakültelerinde oluşturulan bu yapı ilerleyen yıllarda kısmi değişikliklere uğramıştır. 1983-1984 öğretim yılında "Tefsir ve Hadis", "Felsefe ve Kelam" ile "İslam Medeniyeti ve Din Bilimleri" adı altında üç olan bölüm sayısı; 1992-1993 yılında yapılan yeni bir düzenlemeyle aynen korunmuş fakat ilgili bölümlerin isimleri "Temel İslam Bilimleri", Felsefe ve Din Bilimleri" ve "İslam Tarihi ve Sanatları" şeklinde değiştirilmiştir (Öcal, 1998: 256-257; Buyrukçu, 2007: 108-121; Aydın, 2000: 125-156; Cebeci, 1999: 233-235).

Bir yandan ilahiyat fakültelerindeki bölümleşme çalışmaları devam ederken diğer yandan ülkedeki ilahiyat fakültesi sayısında da ciddi bir artış yaşanıyordu. Nitekim 1997 yılına gelindiğinde, 1982'deki yeni düzenleme ile açılan sekiz ilahiyat fakültesine ek olarak, yeni 16 fakülte açılmıştır. Açılan bu 16 fakülte içerisinde Akdeniz Üniversitesi İlahiyat Fakültesi hariç diğerleri eğitim-öğretim faaliyetine hemen başlarken adı geçen fakülte ise ancak 2010 yılından itibaren eğitim-öğretime başlayabilmiştir. 1997 yılında toplamda 23 olan bu ilahiyat fakültelerinde öğrenim gören öğrencilerin % 60'ı alan bilgisi yani dini bilimler, % 30'u genel kültür, % 10'u ise pedagojik formasyon derslerini ortak bir şekilde okuyarak mezun oluyorlardı. Mezun öğrenciler ise hem Milli Eğitim Bakanlığı'ndaki örgün eğitim kurumlarında öğretmen olma hem de Diyanet İşleri Başkanlığı'na bağlı yaygın eğitim kurumlarında din görevliliği yapma hakkına sahipti.

1997 yılına kadar yüksek din eğitimi alanında yapılan nicelik ve niteliğe yönelik iyileştirme çalışmalarının sürdüğü bir esnada Yüksek Öğretim Kurulu aynı yıl aldığı bir kararla ülkedeki mevcut ilköğretim ve ortaöğretim alan öğretmenliğiyle ilgili yeni bir yapılanma süreci başlattı. Buna göre İlköğretim, ortaöğretim ve dengi okullardaki öğretmen yetiştirme modeline benzer bir uygulamanın mevcut ilahiyat fakültelerinde de yapılması kararlaştırıldı. Alınan bu karar üzerine YÖK tarafından dönemin ilahiyat fakültelerinden bazılarının dekanları ile öğretim üyelerinden oluşan 9 kişilik bir “İlahiyat Milli Komitesi” kuruldu. Kurulan bu komisyon yaptığı çalışmalar neticesinde bir rapor hazırlamış ve hazırladığı raporu YÖK’e sunmuştur (Bahçekapılı, 2012: 147-149; Aydın, 2000: 157-160; Cebeci, 1996: 180-184). Bunun üzerine YÖK aldığı 11.07.1997 tarihli ve 97.23.1660 sayılı kararıyla ilgili komisyon raporunu hayata geçirmiştir. Söz konusu karara göre;

- İlahiyat fakültelerindeki tek programlı yapı “İlahiyat Lisans Programı” ile “İlköğretim Din Kültürü ve Ahlak Bilgisi Öğretmenliği Programı” olmak üzere ikiye çıkarıldı. İlahiyat fakülteleriyle eğitim fakültelerinin aynı şehirde olduğu Ankara, Atatürk, Çukurova, Dicle, Dokuz Eylül, Erciyes, İstanbul, Marmara, Ondokuz Mayıs, Selçuk ve Uludağ üniversitelerine bağlı 11 ilahiyat fakültesinde bu yeni iki programa göre eğitim-öğretim yapılması planlandı. İlgili üniversitelerin dokuzunda bu planlama hemen hayata geçirilirken; İstanbul Üniversitesi İlahiyat Fakültesi ile Dicle Üniversitesi İlahiyat Fakültesi’nde “İlköğretim Din Kültürü ve Ahlak Bilgisi Öğretmenliği Programı”na geçiş sırasıyla 1999-2000 ve 2006-2007 öğretim yılında gerçekleşmiştir.
- Ortaöğretim din kültürü ve ahlak bilgisi dersi öğretmenleri ile imam-hatip lisesi meslek dersleri öğretmenleri Ankara Üniversitesi İlahiyat Fakültesi ve Ankara Üniversitesi Sosyal Bilimler Enstitüsü’nde ayrı ayrı açılan bir buçuk yıllık “Tezsiz Yüksek Lisans Programı”na göre yetiştirildi.
- Söz konusu programların faaliyete geçmesinden bir yıl sonra ilahiyat fakültelerindeki pedagojik formasyon sertifika programları tamamen kapatıldı (Bkz. 11.07.1997 tarihli ve 97.23.1660 sayılı YÖK Kararı).

1997 yılında alınan bu kararlar 1998-1999 öğretim yılından itibaren uygulamaya konuldu. Ancak bu düzenleme yapılmadan önce eski programa göre okula başlayan mevcut öğrencilerle birlikte 2001-2002 öğretim yılının sonuna kadar ilahiyat fakültelerinde eski ve iki yeni olmak üzere üç programa devam edildi. Tabi devam edilen bu iki yeni programın bazı avantajları olduğu gibi bazı dezavantajlı yönleri de ortaya çıktı. Şöyleki “İlahiyat Lisans Programı”nın öğretim süresi dört yıldır. Bu dört yıl içerisinde öğrencilerin pedagojik formasyon dersi alma hakları yoktu. Öğrenciler bu programdan mezun olup Milli Eğitim Bakanlığı’nda öğretmen olarak görev almak istediklerinde öncelikle merkezi bir sınava girip, sınavda başarılı olmaları ve akabinde Ankara’da açılan 1.5 yıllık pedagojik formasyon derslerine katılmaları gerekiyordu. Bu resmi prosedürleri tamamlayamayan öğrenciler ise istedikleri takdirde Diyanet İşleri Başkanlığı’nda istihdam ediliyorlardı. Ancak bu istihdam edilen öğrenciler temel islam bilimleri konusunda belirli bir bilgi birikimine sahip olmalarına rağmen insanların gelişim ve öğrenme özelliklerini tanıma ve ona uygun bir yaklaşım tarzı geliştirmede ise ciddi sıkıntılarla karşılaşılıyorlardı. Her ne kadar il ve ilçe müftülükleri tarafından hizmet içi eğitim faaliyetleriyle sözü edilen pedagojik formasyon eksiklikleri giderilmeye çalışılsa da istenilen olumlu sonucun tam olarak alındığını söylemek mümkün değildir.

Diğer bir program olan “İlköğretim Din Kültürü ve Ahlak Bilgisi Öğretmenliği”nin öğretim süresi de dört yıldır. Bu programdan mezun olan öğrenciler doğrudan ilköğretim din kültürü ve ahlak bilgisi öğretmenliği olabiliyorlardı. Bir başka ifadeyle öğrenci fakülteye başladığı ilk andan itibaren mezuniyet sonrası hangi görevi yapacağını biliyor ve ona göre bir hazırbulunuşluk seviyesi içinde bu programı tercih ediyordu. 26 Mayıs 2006 tarihinde YÖK’ün aldığı yeni bir kararla o tarihe kadar ilahiyat fakülteleri içerisinde bulunan bu program eğitim fakültelerinin bünyesine alındı. YÖK’e göre ülkemizdeki öğretmenlerin yetiştirildiği yegane müesseseler eğitim fakülteleridir ve söz konusu öğretmenlik dallarından ilahiyat fakülteleri hariç diğer 28’i bu fakültelerin içerisinde yer almaktadır. Bu ise hem öğretim birliği yasasının ruhuna hem de bütün öğretmenlerin belirli bir hedef ve amaca göre yetiştirilmesine uygun değildir. Görüldüğü üzere YÖK, yüksek din eğitimiyle ilgili-aynen önceki yıllarda olduğu gibi-yeterli alan araştırmalarına dayanmayan ve sadece 2005’de gerçekleştirilen bir kaç çalıştay ve kurultay ile 2006’da öğrenciler üzerinde yapılan bir araştırma raporuna dayanarak böyle bir karar almıştır. Ancak 2006-2007 öğretim yılından itibaren hayata geçirilen bu durum istenmeyen bazı olumsuz sonuçların ortaya çıkmasına neden olmuştur. Eğitim fakülteleri dekanları ile öğretim üyelerinden bazılarının bu değişikliğe çok sıcak bakmamaları; bu fakültelerin bünyesinde yer alan dersliklerin yetersizliği; ilgili bölüm öğrencilerinin ibadet mekanlarının bulunmaması; ilahiyat fakültesi öğretim üyeleri dışındaki diğer hocaların öğrencilere karşı mesafeli davranışları gibi benzer bir takım sorunlar YÖK’ün aldığı bu kararın çok da isabetli olmadığını açık bir şekilde göstermektedir (Bkz. Altaş, 2009: 908-919; Koç, 2003/2: 25-28).

YÖK’ün aldığı 2006 tarihli bu karar kurulduğu ilk andan itibaren öğretmenlik mesleğine aday elemanlar yetiştirmeyi temel amaçlarından biri olarak kabul eden ilahiyat fakültelerinin, bu hususta, işlevsiz kalmalarının da yegane sebebidir. İlerleyen yıllarda YÖK, “İlahiyat Lisans Programı”nı bitiren öğrencilerin alması gereken tezsiz yüksek lisans programının süresi ve içeriği hakkında bazı değişikliklerde bulunmuştur. Buna göre eğitim fakültelerine geçmeden önce adı “İlköğretim Din Kültürü ve Ahlak Bilgisi Öğretmenliği Programı” olan öğretmenlik alanının ismindeki “program” ibaresi 2010 yılında “bölümü” olarak değiştirilmiştir. Adı bu şekilde değiştirilen bölümün ders programında yine 2010 yılında yeni bir düzenleme yapılmış ve hazırlanan bu program 2010-2011 öğretim yılından itibaren uygulamaya geçirilmiştir.

İlköğretim Din Kültürü ve Ahlak Bilgisi Öğretmenliği Bölümü” hakkında YÖK genel kurulu 10 Mayıs 2012 tarihinde aldığı yeni bir kararla ilgili bölümün eğitim fakülteleri bünyesinden alınarak tekrar ilahiyat fakültelerine aktarılmasını sağladı. Aslına bakılırsa bu durum YÖK’ün 2006 yılında yaptığı yanlış düzenlemeden bir geri dönüş anlamına da gelmektedir. Çünkü bu girişimle ilahiyat fakülteleri tekrar ilköğretim okullarına din kültürü ve ahlak bilgisi öğretmenliği yetiştirmeye başlayarak eski mahiyetine kavuştu. Ancak YÖK genel kurulu 17 Nisan 2014 tarihinde DKAB Eğitimi Bölümü’nün 2014 yılından itibaren öğrenci almamasına ve bir bakıma ilgili bölümün fiilen kapatılmasına karar vermiştir.

## Sonuç

Darülfünun İlahiyat Fakültesi'nin kurulmasından günümüze kadar geçen uzun zaman diliminde ilahiyat fakülteleri hem kemmiyet hem de keyfiyet açısından bazı olumlu ve olumsuz süreçler geçirmiştir. Eski ve yeni yapılan çalışmaların geneline baktığımızda kemmiyete ait sorunların keyfiyete ait problemlere göre daha az bir mahiyette olduğu görülmektedir. He ne kadar bilim ve teknoloji alanındaki gelişmelerin eğitim-öğretime yansımalarından kaynaklanan niteliksel faaliyetler halihazırdaki mevcut durum üzerinde belirli bir iyileştirme sağlasa da yine ilahiyat fakültelerinde; müfredat programlarından ve bu program içerisinde yer alan derslerin sayısı ve kredi dağılımından; öğretim üyelerinden; öğrenci yapısından; öğretim teknolojileri ve materyal tasarımlarından; fakülte binalarındaki yetersizliklerden vb. kaynaklanan eksiklikler devam etmektedir.

1980'li yıllardan itibaren ülkemizdeki yüksek din eğitiminin kalitesinin artırılması için sempozyumlar, çalıştaylar, kurultaylar ile diğer bazı ulusal ve uluslararası bilimsel toplantılar yapılmaktadır. Yapılan bu toplantıların sonuçları ilahiyat fakülteleri mezunlarının istihdam alanı olan Milli Eğitim Bakanlığı ve Diyanet İşleri Başkanlığı ile koordineli bir şekilde ele alındığı gibi; eğitim-öğretim işiyle ilgilenmesi gereken diğer resmi bütün kurumlarla da paylaşılmaktadır. Tarihi sürece baktığımızda YÖK tarafından bu çalışmaların kısmen dikkate alındığı ancak büyük bir kısmının ise göz ardı edildiği bilinmektedir. Tabi bunda ülkedeki mevcut siyasi, sosyal, ekonomik ve kültürel bazı durumların etkili olduğunu da söylemek gereklidir. Bugün geldiğimiz noktada neredeyse her ilde bir ilahiyat fakültesinin açıldığı dikkate alınırsa sayısal anlamdaki bu ciddi büyümenin uygulamada ne gibi sıkıntılar doğuracağının hesabının da iyi yapılması gerekmektedir. 2013-2014 öğretim yılı itibarıyla ilahiyat fakültelerinden yaklaşık onaltı binin üzerinde bir öğrenci grubu mezun olacaktır. Mezun olan bu öğrencilerin nerede ve nasıl istihdam edileceğine dair önlemler alınmadığı takdirde, bir kaç yıl içinde, ilahiyacılarıdan oluşan bir işsizlik ordusunun Milli Eğitim Bakanlığı'nın ve ilgili diğer kurumların kapısına dayandıklarını görmek mümkündür. Kanaatimize göre yüksek din eğitimindeki bu istenmeyen hususların giderilmesi için tarihi süreç içerisinde yaşanan tecrübeler ile günümüzdeki gelişmeler her yönüyle ele alınmalı ve akabinde ortaya çıkacak yeni bakış açısına/yeni yol haritasına göre ilahiyat fakültelerinin kurumsallaşma sürecine kaldığı yerden devam edilmelidir.

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# The "Service" model of the competences of the municipal employee as the basis of vocational training: Russian experience

S.E. Martynova, O.G. Maslennikova

Tomsk State University, 36 Lenin Ave., Tomsk 634050, Russian Federation

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## Abstract

Competences of the municipal employee are considered in a context of the "service" concept of the public and municipal administration. The results of the sociological researches reflecting estimates and expectations are the basis for a model of the competences, connected with local authorities. In the article the technology and the results of the selection of the applicants for a reserve for the municipal positions are presented on the basis of the offered model of the competences also. From the point of view of the purposes of the vocational training the offered model of the competences can act as a basis for a formation of the curriculum.

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*Keywords:* post-industrial sociality, "service" model of the public management, municipal employees, competences, diagnostics, training.

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## 1. Introduction

Societal transformations of the post-industrial period motivated the emergence of a certain trend for the administrative and state reforms which have captured the countries of the different continents [2; 5; 13; 16, etc.], including Russia. In order to comprehend an essence of the administrative transformations and to project their further development, we will address to the characteristics of a post-industrial sociality.

So, during the post-industrial period knowledge, intelligence, creativity became the main productive forces. As a result the independent, active personality, capable to define and realize own vital strategy acts as the main subject of the social development. Such factor is in need to be guarded not only by the state, but also in a creation of the conditions for the realization of the personal potential. Therefore, the model of the public management is transformed from paternalistic into "service", considering authorities as the organizations for providing public services. The specified meanings «public service, public service-oriented organizations», including at a local level, are revealed in a set of scientific works [1; 4; 6; 9; 10; 14; 15, etc.] . Public service activities are normalized and measured due to the standardization and the regulation that removes subjectivism of the service quality in a servant's understanding.

The "service" concept logically causes new requirements to the civil and municipal servants. A new definition "public service motivation" has been appeared in the scientific literature [3; 8], taking into account the statement of "altruistic motives" for the sake of the society interests. From the positions of the competence-based approach we set the purpose to go further and to create the complete model of the competences of the municipal employee, corresponding to the "service" concept of public management. Practical application of this model is based on the diagnostics of the applicants' competences for involving them into the reserve of the leading municipal positions and the curriculum for the selected candidates is planned. The technology described in this article can be used not only for the solution of such task. We believe that the presented experience can be applied for the diagnostics of the key competences, and also for the development and correction of the students and employees' curriculum who already work at the bodies of the municipal management. The approach to the formation of the reserve of the municipal employees, based on the "service" model of the competences, in principle, will promote development of a new concept of the public management. And as this concept is focused as we have already mentioned, on the creation of the conditions for the realization of the potential of the society members, this model will promote also to the social development as a whole.

The done work preceding a formation of the model of the competences included carrying out the sociological research. Opinion of the citizens was put in the basis of the determination of the competences of the municipal employees. In particular, we used data of the sociological research of the population satisfaction about the activity of the local governments of the city districts and municipal areas. The research was conducted under the leadership of S.E. Martynova in Tomsk region in 2010. 18 city districts and municipal areas out of 20 were surveyed; the total amount of the selection came to over 10 thousand people. The selection is proportional to gender and age and territorial structure of the population (aged from 18 years), the error on each



area and the city district doesn't exceed 4% at a confidential probability 0,95. The method of the data collection was interviewing "face to face".

## 2. Main text

Satisfaction and dissatisfaction with the activity of the administrations and the heads of the municipalities were served as the most significant information for the formation of the model of the competences. So, the most important characteristics of the representatives of the bodies of the municipal management for citizens became: 1) orientation to the requirements of the society; 2) orientation to the achievement of the result; 2) empathy, responsiveness; 3) competence and responsibility. These characteristics noted by society, are agreed with the main principles of functioning the "service" model: orientation to the citizens, management by results.

The specified characteristics initiated the foundation to the formation of the model of the competences of the municipal employee. In the determination of the competences we share the point of view that those are abilities, the purposes, values, motives, knowledge, skills, the strong-willed and emotional qualities promoting effective professional activity and defining models of the behavior [7, page 298-299; 12, page 22]. Concerning a set of the elements in the model of the competences we adhere to the number which doesn't exceed 12 [11, page 171].

In order those competences could be revealed, we offered the dictionary of the competences (their definitions). The sense is in the basis of the definitions which is the most adequate to the public estimates and expectations. For example, the first competence is defined as follows: orientation to the requirements of the society is a psychological readiness acts disinterestedly for the use of others and to make a choice for the socially significant decision in case of the conflict of the personal and public interests (that is defined by society as "to work not for itself, and for people").

Additions to the offered set of the competences are caused by the following circumstances: productivity, increase in activity efficiency is connected, in our opinion, with cognitive and strong-willed characteristics of the personality. If the strong-willed component is presented rather expressive in the definitions, the cognitive component can be developed in several competences. So, productivity and efficiency of the work depend also on the professional knowledge. The person should have the corresponding motivation for getting and expanding it. Besides, the activity of the modern municipal employee is carried out under the conditions of the innovations as a new model of the public management is being implemented. In particular, organizational and process innovations are spoken about since they have a direct relation to the activities for providing municipal services: changes in the working procedures and the processes with the orientation to the service quality improvement are provided.

As a result it is expedient to include understanding of the features of the modern municipal management into the number of the necessary competences (understanding of the actual problems of the municipal management connected with the improvement of the quality of the municipal services, knowledge of the modern technologies as organizations of their presentation and direct rendering) and readiness for the development.

Thus, the main set of 6 competences (orientation to the requirements of the society, orientation to the achievement of a result, responsibility, empathy, understanding of the features of the modern municipal management and readiness for the development) in a context of the "service" public management can be considered as the basic model of the competences of the municipal employee. The variants of the model are related to the positions of a different level and a different profile of the activity. For example, for the heads, except the listed competences, managerial abilities and skills of the strategic thinking are important. In the process of the vocational training it is expedient to take into account options of the model for ensuring more individualized training. As a whole, the set of competences causes the list of educational disciplines and technologies.

Thus, it is advisable to conduct training of municipal employees noting the specified competences which are necessary in modern conditions of the professional activity and answer population expectations. Part of these competences is cognitive or active and can be developed in the course of the assimilation of knowledge and skills. But the major part has valuable, strong-willed, i.e. personal character and it is problematic to create such competences. Taking into consideration this circumstance in 2010-2012 for the selection of the applicants in a reserve of the administrative staff for the municipal positions it was recommended to pay more attention to the personal qualities. Therefore, those who possess such competences were selected. Their further training was generally directed to the development of the cognitive and activity competences.

The 4-score scale was used for a degree assessment of the competence intensity during the selection:

- 0 score - competence is absent;
- 1 score - it is expressed in a weak degree;
- 2 scores - it is expressed sufficiently;
- 3 scores – it is expressed in a superlative degree.

For example, the degree of the competence intensity "readiness for the development" can be estimated as follows:

- 0 score – the candidate doesn't show nor in the speech (declaratively and unconsciously (in the latter case - at the expense of keywords)), neither in the behavior of readiness to improve knowledge, skills, the active application of new technologies and tools in the activity; the person isn't capable to offer or perceive modern ways of a solution when performing estimated tasks;
- 1 score - the candidate shows in the speech readiness to improve knowledge, skills, an active application of new technologies and tools, but gives single examples of self-development of previous experience; the person isn't capable to realize estimated tasks for the solution even if it offers modern technologies;

- 2 scores - the candidate shows in the speech readiness for a continuous improvement of knowledge, skills, an active application of new technologies and tools; he can confirm such readiness with several examples from previous experience; he isn't capable to offer or perceive new ways of solving a problem when performing estimated tasks;

- 3 scores - the candidate often shows in the speech readiness for continuous improvement of knowledge, skills, an active application of new technologies and tools; he can easily confirm the use of various opportunities for increasing qualification level and regular tracking of the changes happening in the professional sphere with numerous examples from the previous experience; he is capable to prove reasonably an actual character of the estimated tasks and to perform them for the solution of the task fully when performing and offering modern technologies.

The opinions of the experts concerning competitors were generalized for each competence by a method of the definition of an arithmetic average of the value. Then the total integrated mark of the competitor multiplied by 100% was put down taking into account coefficients of ponderability. Based on the sufficient level of this or that competence which is equal to 2 points, the applicants who have gained 200 and more points were enlisted in a reserve.

The determination of the weighting coefficients was done by experts, but besides on the basis of the dominants in the public expectations. So, as a rule, foremost and with a huge percent of answers the estimates and the expectations were connected with a persistence of the heads, desire to work, existence of exact affairs appeared in the settlements, i.e., using the definition of the competences, with the orientation to the achievement of the result. The answers "disinterested, does everything for people, tries for people" were taken the leading places from the point of view of the positive estimates, and work "on itself", absence of the help to people were negatively estimated, on the contrary. These characteristics are reflected in the competence "orientation to the requirements of the society". The leading characteristics, as a rule, were among estimates "attentive to people, sympathetic, human, kind, careful" that found the reflection in the competence "empathy". Owing to such priorities in social expectations in the model of the competences these qualities received the biggest weighting coefficients. Besides, the purpose of the selection of the applicants in a staff reserve supported, as it was already mentioned, the great importance of the personal competences. As for training, the weight of competence caused number of the subject courses and the credits allocated on the formation of this or that competence.

Concerning methods of diagnostics of the competences it is possible to say the following: the priority was given to the activity methods (to performances, role-plays and business games, interview), capable to show behavior models.

The analysis of the documents (questionnaires) and the psychological testing had auxiliary character.

Each competence was diagnosed not less than with two methods. The experts estimated the competences of the applicants. Successful heads of the municipalities were among the experts, whose productivity allows them to act as competent appraisers. The high positive estimates of these heads received during sociological researches, allowed to assume, besides, that if there were a psychological projection; socially desirable installations would be projected.

It should be noted the openness of all process of the formation of a reserve: the publications in mass media and on the official sites of the municipalities about the announcements of the applicants; a possibility of the participation on the basis of a self-promotion, and not only by the recommendation of the municipal commission.

The selection of the applicants in a reserve for leading municipal positions on the basis of the specified technology, passed by the leadership of S.E. Martynova, became rather strong "filter". So, for example, only 12 people got standard number of points out of 50 applicants in a reserve at the positions of the heads of the settlements. The adequacy of the offered technology to public moods is confirmed by the results of the municipal elections. As a whole, those persons included in a reserve who have stood for elective offices, were chosen (heads of municipalities or deputies). At the same time, the applicants who haven't passed selection tests didn't receive also electoral preferences among the population.

And still other people have also vocational training: students, employees who already work in the bodies of the municipal management. In this case the problem of the formation of the personal competences remains actual. For the solution of this task it is possible to suggest the use of personal and activity methods as a training technology. We mean the involvement of the trainee into any kind of activity demanding the existence of the personal competences. For example, for empathy formation – the involvement into the projects aimed to help children's homes, the senior generation. For the formation of the contact establishment skill – the work as an interviewer when carrying out inquiries and so forth. The inclusion of such activity technologies changes significantly habitual ideas about the training and sets new tasks for a teacher. As a whole, in our opinion, the problem of the formation of the personal competences needs further detailed development.

### 3. Conclusions

We summed up the results of the said above as follows:

1. A new model of the "service" public management logically predetermines a number of competences of the municipal employee.

2. As a principle it is expedient to take those qualities of representatives of the bodies of the municipal management for the "service" model of the competences which are important for the population. The relations with public are especially actual for the municipal management which is "on a first line". It is possible to name such model of the competences "socially caused".

3. A set of 6 competences is possible to be considered as a basic model of the competences of the municipal employee in a context of the "service" public management: orientation to the requirements of the society, orientation to the achievement of the result, responsibility, empathy, understanding of the features of the modern municipal management and readiness for the

development.

4. The model of the competences plays a key role for the organization of the process of the vocational training of the municipal employees. In particular:

- a set of the competences predetermines the list of training courses which will allow to create or develop necessary qualities;
- a specific character of the competences which can have both professional, and personal character, cause the training technologies;
- a weighting coefficient of the competence predetermines "specific weight" of the academic subjects and the credits by the principle "the more competence weight, the more labour-intensiveness of its formation";
- a determination of the competences (their contents) cause the maintenance of the training courses and technology of training;
- the options of the model predetermine contents of the programs of the individualized training.

5. The most problem issue of the reflection of the competence model of the vocational training program is the possibility of the development of the personal competences.

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# The analysis of intercultural conflicts between students of tertiary education

Michaela Lukešová

*Department of Pedagogical Sciences, Faculty of Humanities, Tomas Bata University in Zlín, nám. T.G.Masaryka 1279, 760 01 Zlín, Czech republic*

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## Abstract

The study focuses on analysis of intercultural conflicts between students of tertiary education. The author focuses on the definition of intercultural conflicts as a consequence of interculturally incompetent behavior. Intercultural competences are important part of intercultural education and their development is very important to archive intercultural dialogue between people without intolerance and disrespect.

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*Keywords:* Intercultural conflict; intercultural competence; intercultural education;

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## 1. Main text

With globalization, the constant interactions between people, cultures and civilizations will increasingly become and the mobility and migration will create an intercultural society and the question of peaceful coexistence in the context of the cultures will be an ongoing challenge. Intercultural society is one in which there is a mutual meetings, cultural exchanges, cooperation and dialogue of people who are culturally different. This difference can be understood as an opportunity to enrich themselves, but can also be a potential source of conflict. Intercultural misunderstandings and conflicts arise because interculturally incompetent behavior during the dealing with people who are different. Intercultural conflicts are also the subject of our study. The theme is intercultural conflicts in the school environment, respectively at a university environment. Scientists, teachers, and students agree that the world around them changes both politically and economically, culturally, socially and technologically (Janebová, 2009). The population of students in higher education doubled<sup>+++++</sup> and it opens the way to increase their skills and qualification and thereby improve the labor market, but provides to tertiary education on the other hand, a new element of socio-cultural variability of students. Variability of students at Czech universities with different cultural backgrounds, values, personality, increases the probability of interpersonal conflicts. According to Crawford & Bodine (1996), many conflicts in the school environment arising from differences - ethnic, ethnicity, gender, class, physical and mental. Such conflicts are called intercultural conflicts, which may take the form of prejudice, discrimination and harassment. However, these conflicts must be viewed comprehensively, because their nature is not only prejudice and discrimination, but are also the result of the structure and relationship of inequality and privilege. Their occurrence should be seen as a very serious problem that affects the environment of the whole institution and thus must logically be reflected in the student performance. According to Vallaster (2005) the ways how people interpret their environment, how they think, feel and act, are often too divergent and creates barriers to the smooth cooperation. If people of different cultural backgrounds are more likely to achieve the objectives in different ways, the more this diversity can cause conflicts, which hampers the efficient development of a "shared understanding" (Vallaster, 2005). The impact of conflict on student achieve academic success - from the performance of a task to the work ethic - is undeniable and interests of teachers to teach students effective and non-violent methods of conflict resolution increases.

### 1.1. Theoretical background

The aim of this article is to present results of our research. Aim of the research was to analyze intercultural conflicts among university students, to analyze the occurrence of intercultural conflicts among students and find out how students are informed about intercultural conflicts, and the awareness about intercultural conflict. Intercultural conflict is defined as a perceived or actual discrepancy of cultural values, norms, customs, habits and traditions. Ting-Toomey & Oetzel (2001) define intercultural conflict as "emotional experience of frustration in conjunction with the perceived incompatibility of values, norms, goals, scarce resources, processes and / or outcomes between at least two people from different cultural communities in an interactive

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\* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .

E-mail address: lukesova@fhs.utb.cz

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situation." Intercultural Conflict arises from differences between the groups and their socio-cultural misunderstanding. We are often poorly informed about the differences between the various socio-cultural groups and their different behavior, which leads to mutual verbal and nonverbal misunderstandings. Some of the conflicts can begin trivial, because one side interprets the behavior of the other wrongly: I. Confirmation own position ("I got the truth"), II. Verbal abuse and devaluation on a personal level, III. Disallowing of communication, IV. Breakdown in communication and absence of willingness to further communication.

Intercultural conflicts usually occur between two or more opposing parties and we are engaged in conflicts more often because of the differences that exist between our environment and ourselves (Ting-Toomey, 2009). According to Bronfenbrenner (1979) relationships between organisms and their environment, studying social ecology and represents social-ecological framework and he categorize environmental influences to the four levels of the system: *micro* (face-to-face interaction in specific situations - interpersonal conflict), *mezo* (the relationship between different microsystems - organizational conflict), *exo* (forces within the higher social system - community conflicts), *macro* (cultural beliefs and values - international conflicts). Oetzel, Ting-Toomey & Rinderle (2006) they have inspired by the framework and implemented socio-ecological framework to the study of conflict. The framework emphasizes that the environment has several levels and contexts, and the relation of these coherence (eg. intercultural conflict) is complex. For understanding of the communication during the conflict in the whole context is this integrated framework necessary. Oetzel, Ting-Toomey & Rinderle (2006) present the four levels of social ecological model of conflict communication: I. Interpersonal, II. Organizational, III. Community, IV. International. During the specific communication always come into play two individuals whose identity is woven of belonging to different groups, from past experiences, the influence of the environment, personal characteristics, etc. (Janebová, 2009). Therefore, for the purposes of our research, we focus just on an interpersonal level, respectively on intercultural conflicts in interpersonal dimension (conflicts between two people) arising due to lack of understanding of different cultural, ethnic and religious values, different social class, or gender inequality, and most of these conflicts are the result of intolerance and ignorance of these differences, because of the intercultural incompetent behavior. According to Dědina & Odcházel (2007) intercultural conflicts arising from the lack of intercultural competence. Intercultural conflict arises from differences between the groups and their socio-cultural misunderstanding. Often we are not aware of the differences between the various socio-cultural groups and about their different behavior, which leads to mutual verbal and nonverbal misunderstanding. This occurs if the observed behavior is seen as a personality characteristic than the cultural character and vice versa. This leads to misinterpretation and misunderstanding. In most cases, this misunderstanding is basis for future reuse misunderstanding and following the creation of the stereotype. Ting-Toomey & Oetzel (2001) they see the source of intercultural conflict in different expectations in relation to appropriate or inappropriate behavior during conflict situations. If individuals from different cultures continue during the conflict in an inappropriate and ineffective behavior, misunderstandings can easily result in complex and polarized conflict. In such a polarized conflict, respect and trust are at risk and rapidly towards others distorted perceptions and prejudices may exhibit. Intercultural competence is the optimal integration of knowledge, mindfulness and communication skills during problem solving interactions appropriately, effectively and adaptively. The criteria of communication appropriateness, effectiveness and adaptability can be serve as evaluation criteria to determine whether a conflict of intercultural communication is perceived as competent or incompetent (Ting-Toomey, 2009).

### 1.2.Design of the research

In this part of the paper we will introduce research objectives, research sample, data collection methods and measurement properties.

#### Aim of the research

The primary objective of the research, which result from the relationships and connections between intercultural conflicts and intercultural incompetent behavior, was to determine whether students have experience with intercultural incompetent behavior. Intercultural incompetent behavior is based upon the definition of multicultural competence according to Bennett (2003) and Morgenšternová & Šulová (2007) see intercultural competence as the ability to communicate effectively and appropriately in different cultural contexts. This model of multicultural competence consists of a set *mindset* (cognitive variables), *skillset* (skills to behave appropriately) and *heartset* (affective variables).

#### Methods

The research sample was N=97 respondents, students studying at the university. The selection of the research sample was available. For data collection was used a questionnaire consisting of three parts, which examined students' awareness and knowledge about intercultural conflict, experiences of students with intercultural incompetent behavior at the universities and the nature of intercultural conflicts which the students experience and they are based on the socio-cultural differences.

The first part of the questionnaire was mainly informative and consisted of eight items in that examined students' awareness of intercultural conflicts, the perception of the seriousness of intercultural conflicts and personal experience with intercultural conflicts at universities.

Part of the questionnaire, investigating students' experiences with intercultural incompetent behavior, contained in a total 60 items and these items were divided into three sets according to Bennetts' (2003) model of intercultural competence and model of multicultural competence of Morgenšternová & Šulová (2007). For each item the respondent stated level of experience with

behavior on the Likert scale ranging from 1 - least apt, 5 - the most apt.

The nature of intercultural conflicts which students experience, analyzed part of the questionnaire, which contained a total of 9 items. Items of the questionnaire were created based on the definition of intercultural conflict according to Janebová (2010) intercultural conflicts arise due to misunderstanding of different cultural, ethnic and religious values, different social class, or gender inequality, and most of these conflicts are the result of intolerance and ignorance of these differences. The nature of intercultural conflict was examined in a area of national, ethnic, religious, gender conflicts, conflicts arising from intergenerational differences, conflicts arising because of different sexual orientations, different subcultural orientation, physical handicap or differences of social class.

### *1.3. Results of the research*

#### **Awareness of students about intercultural conflicts**

The first part of the questionnaire investigated students' awareness of intercultural conflicts. Due to the limited scale of article the graphically processed results are not presented. Awareness of intercultural conflicts without this phenomenon was defined by respondents ahead, have 19% of respondents, 51% of respondents weren't sure of what exactly this term means and 30% of respondents said that they have met with this term already. After presenting the definition of intercultural conflicts in the questionnaire answered by 37% of respondents that they knew what this term mean, 50% of respondents said they thought that this is the phenomenon, but were not sure and 13% did not know this term. It also offer interesting findings and the fact that 62% of respondents believe that they have no enough information about intercultural conflicts. As a fairly serious problem it sees 66% of respondents and 33% perceive intercultural conflicts, but rather a normal part of life.

Intercultural conflicts at universities 4% is considered as insignificant and unimportant matter, 46% of respondents considered as a normal part of school life, 40% is perceived as a relatively serious problem and 10% of respondents as a very serious problem.

On the question whether students think that this phenomenon occurs at Czech universities, 48% of students inclined to the positive responses, therefore, that the intercultural conflicts occur at Czech universities and 52% said, that they are not occurs at universities. A total of 21 students said they had already met with intercultural conflicts at their current high school and 76 students said that probably no, or not yet. All respondents evaluated their relationships at university as positive.

#### **Interculturally incompetent behavior**

Experience of students with interculturally incompetent behavior was analyzed on the base of model of Bennett (2003). According to this model we created a battery of questionnaire items investigating interculturally incompetent behavior at the cognitive, affective and behavioral level. Due to the limited scope of this article we present a graphical representation for those items for which more than 10% of respondents rated the experience of intercultural incompetent behavior on the scale level 5.

In the **cognitive dimension**, we achieved these results and graphical representation of the results can be seen in the figure number 1 Cognitive variable of intercultural competence - mindset. *Item No. 2 Lack of interest to approach a different way of thinking (to approach a foreign culture)*, 10% of respondents rated on a scale 1, ie. they meet with such behavior at least, 12% of respondents rated the experience on a scale 2, 42% decided to rate the experience on a scale 3, 26% on the scale 4 and 10% on the scale 5, and it means that they have experience with this behavior very often.

*Item No. 6 Maintaining a negative attitude towards socio-cultural groups*, 9% of respondents rated on a scale 1, so they encounter with such behavior at least, 19% of respondents rated the experience on a scale 2, 30% rated on a scale 3, 24% on the scale 4 and 16% on the scale 5, so they have an experience with the behavior very often.

*Item No. 7 The ignorance of minority groups in society (history, traditions, values and customs)*, 6% of respondents rated on a scale 1, 36% of respondents on a scale 3 and 19% of respondents said that with this phenomenon they have the most experience.

*Item No. 8 The tendency to compare myself with other individuals*, rated minimal experience with this behavior 4% of the respondents, 41% average experience, on the scale 4 rated experience 30% of respondents and 10% of the respondents meet with this behavior very often.

*Item No. 10 Lack of knowledge of foreign languages*, rated at the lowest scale 1 6% of the respondents, 21% of respondents on a scale 2, 32% of respondents indicated a moderate level of experience, and 26% rated the experience on a scale 4, and 15% of respondents encountered this phenomenon very often.

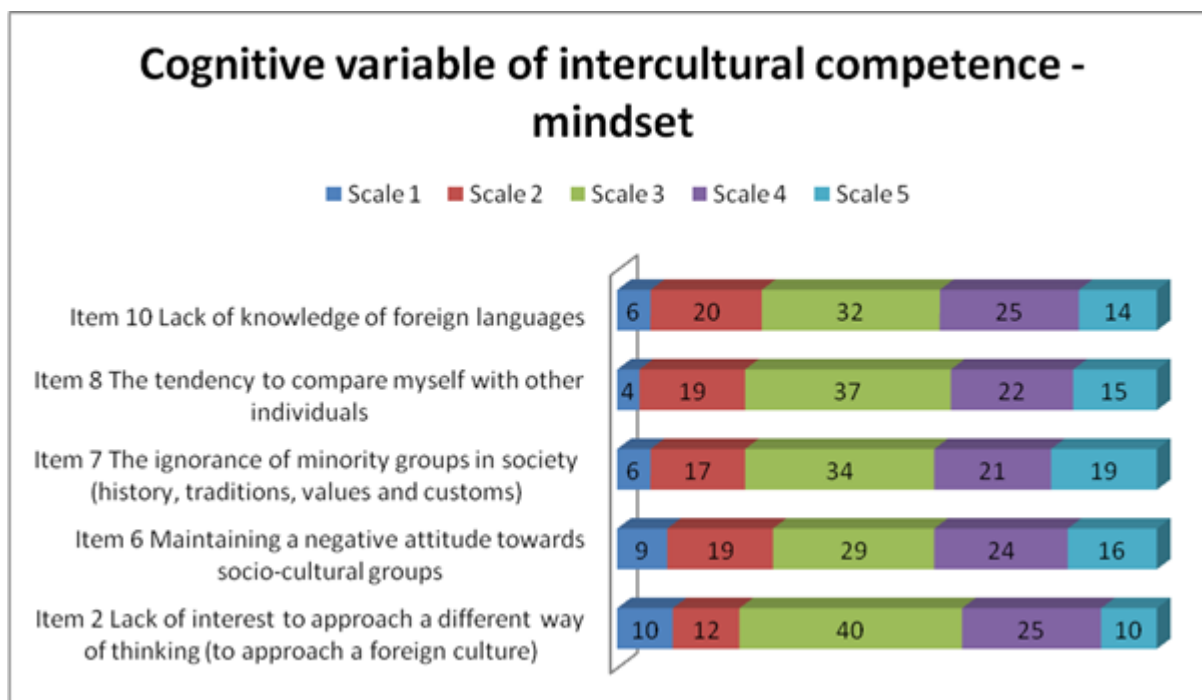


Fig. 1 Cognitive dimension of intercultural competence - mindset

In the **affective dimension** respondents rated these items as the most serious. *Item No. 4 Incorrect identification, perception and interpretation of emotions*, rated by 3% of respondents in the lowest scale 1, 19% of respondents on a scale 2, 36% of respondents rated the medium scale, 31% rated on a scale 4 and 11% of respondents said that this phenomenon they experience very often.

*Item No. 5 Misunderstanding of emotions*, have a minimum experience 5% of the respondents, 37% of respondents rated on the scale 3, so that is the middle position and 15% of respondents are with such a phenomenon frequently encountered.

*Item No. 6 Unawareness of interpersonal distance (remoteness) and close (too personal touch)*, 6% of respondents meets with this phenomenon at least, 30% of respondents were familiar with the behavior meets more frequently and reported ratings on a scale 2, the mean value, the scale 3 rated the behavior 26% of respondents, on the scale 4 rated 25% of students and very often meets with this behavior 13% of students.

*Item No. 7 disregard for the feelings of others*, is similar item to Item No. 5 and there we achieved almost identical results. Here it is clear that the affective dimension, respectively affective competencies, it is important to develop because is not enough to study in detail the history and attributes of a given culture, but also to develop cultural sensitivity. According Morgensternová & Šulová (2007) it means to learn how to correctly interpret emotions in a given culture, to be aware of the interpersonal distance and closeness in a given culture, or other specifics.

*Item No. 8 insulting people through humor and irony*, 9% of respondents rated on a scale 1, on a scale 2 rated 22%, the middle scale rated 33% of students, scale 4 rated 21% of students and inflammatory form experience has 15% respondents.

Score of the *Item No. 9 Accusation (based on hostility)* and *Item No. 14 Verbal abuse (devaluation on a personal level)* was very similar, as it can be seen in Figure number 2. Affective dimension of intercultural competence – heartset.

*Item No. 13 A misunderstanding and embarrassment* were rated at the lowest scale by 8% of the respondents, 20% of respondents rated on the scale 2, the mean value rated 33% of students, scale 4 rated 24% of students and 15% of the students experience the inflammatory form.

## Affective variable of intercultural competence - heartset

■ Scale 1 ■ Scale 2 ■ Scale 3 ■ Scale 4 ■ Scale 5

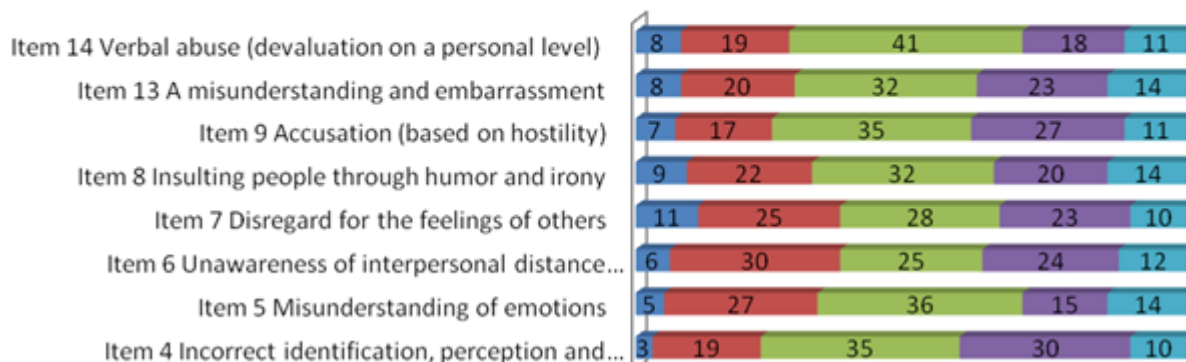


Fig. 2 Affective variable of intercultural competence – heartset

In the Figure number 3 **behavioral dimension** of intercultural competence – skillset, we can see, that it is clear that respondents identified the most experience that relates to inappropriate and ineffective communication. Probably because it is a behavior which is the most easily identifiable. According to Deardorff (2009) is behavioral dimension a desirable outcome of intercultural competence and on the basis of a model of intercultural competence, we also created a list of items to questionnaire which investigated the behavioral dimension of incompetent behavior.

Among the behaviors to which students have the most experience include:

*Item No.2 Absence of natural speech and sincerity of expression (speech inauthenticity), Item No. 3 Absence listening to each other (not to suspend their own ideas and not to make a conscious effort to understand the position of others), Item No. 4 Indifference towards an awareness and respect for formal rules, Item No. 5 Inadequate use of humor or irony, Item No. 7 Ignorance of conflict resolution strategies, Item No. 8 Ignoring and lack of interest of my person, Item No. 10 Reluctance to contribute to the development of the team and create an environment for efficient and secure communication, Item No. 11 Avoiding the different communication styles, depending on the purpose of communication and status of communicators, Item No. 13 unfair treatment, Item No. 15 Inability to save face (managing emotions), Item No. 16 Disrespect for traditions, traditional values (family, age, honor), Item No. 17 Ignoring the social hierarchy (loyalty, humility), Item No. 18 Ignoring the order in which the representatives speak, Item No. 22 The practice of discrimination and prejudice (this is different to others because of their membership of a particular group), Item No. 25 Conflict at metacommunication level (speculation on how it is said), Item No. 28 Insulting slurs or demeaning statements, Item No. 29 Ridicule or slander others, Item No. 32 Threats of physical violence and Item No. 33 Oral, telephonic or written threats.*



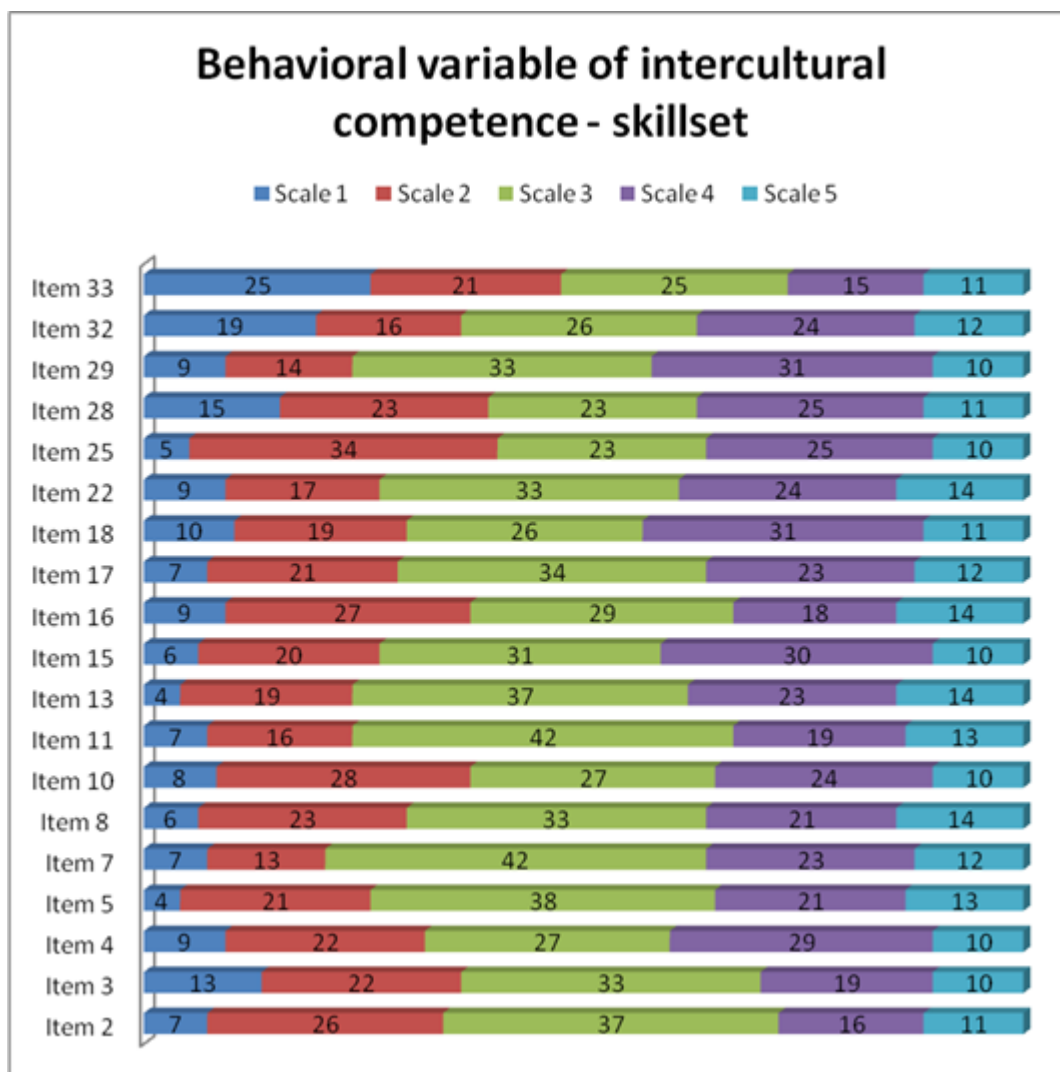


Fig. 3 Behavioral variable of intercultural competence – skillset

The final goal that we set was to find out the nature of the intercultural conflicts which the students experience. In the Figure number 4 Dimensions of intercultural conflicts we can see the frequency of responses by respondents on the scale 1 minimum occurring – to the scale 5 the most commonly occurring. The nature of intercultural conflicts was analyzed from the perspective of *international, religious and ethnic conflicts* which students experience, than we focused on *gender differences* and their impact on development of conflict, *intergenerational differences*. Nature of intercultural conflict was analyzed from the point of view of *different sexual orientation or belonging to a different subculture*. We did not forget the conflicts arising due to *differences in physical disability or a different social class*.

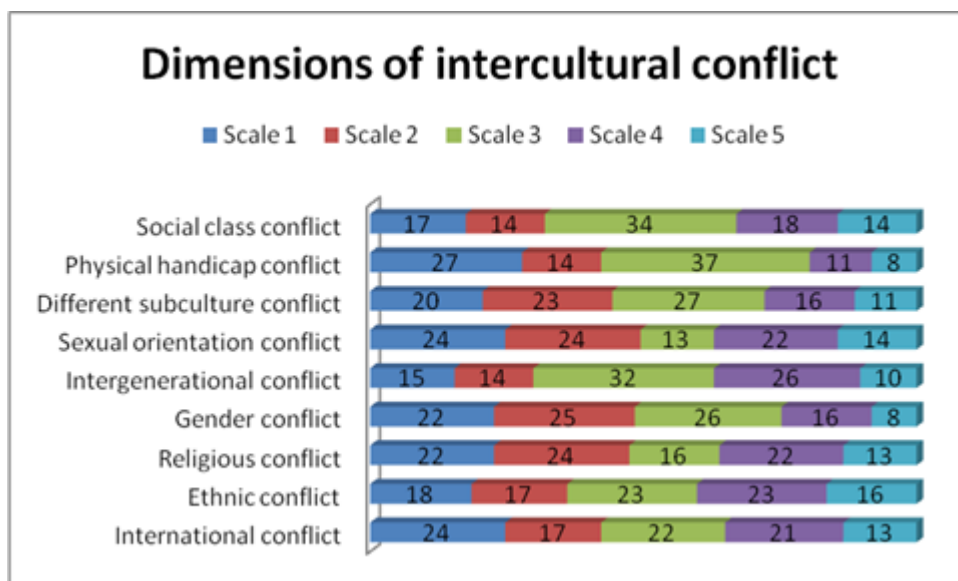


Fig. 4 Dimensions of intercultural conflict

## 2. Conclusion

In the context of the previously mentioned findings, we can say that students encounter interculturally incompetent behavior, especially in relation to the affective dimension of intercultural competence, and it is a lack of intercultural sensitivity, adaptability and empathy. The second major dimension of intercultural competence is behavioral competence, where most students met with the inability to communicate without communication noise and confusion, inauthenticity of expression and inefficient use of nonverbal communication. Finally, we should say that universities should therefore further strengthen and develop values that will develop intercultural dialogue among students through respectful and open communication regardless of their origin.

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# The analysis of pre-service teachers' beliefs about mathematical problem solving

Gunes Yavuz, Hatice Nur Erbay\*\*\*\*\*

*Istanbul University, Hasan Ali Yucel Education Faculty, Istanbul, Turkey*

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## Abstract

There are many extracurricular and classroom factors that should be considered in developing problem solving skills of students in teaching Mathematics. Students who acquired the ability of problem solving will not only be successful in their lessons but also will have skills to overcome problems that they will experience in their real lives. Problem solving includes the combination and coordination of various skills, beliefs, attitudes, intuitions, knowledge and previous acquisitions. For this reason, it has a key role in teaching mathematics. The purpose of this study is to analyze pre-service teachers' beliefs about mathematical problem solving in terms of various variables. For this purpose, the data was collected from 310 third-year students who are studying in teaching mathematics, classroom teaching and teaching science departments from two public universities in Istanbul. Belief Scale about Mathematical Problem Solving was used as a data collection instrument (Haciomeroglu, 2011). The data were analyzed by using statistical software. The correlation of some variable to pre-service teachers' belief about mathematical problem solving was analyzed.

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*Keywords:* problem solving, pre-service teachers, belief

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## Introduction

The social structure which is getting increasingly complex and technological developments, political, social and economical crises make an individual to encounter with constantly increasing problematic situations. Therefore, problem solving is an important issue which becomes the centre of attention in psychology for many years. Many concepts have been introduced about problem solving process in many studies. These concepts include a variety of features from traditional Gestalt approaches among different learning methods to recent computer simulations and mathematical models.

It was seen that while researchers such as Gagne and Skinner (1964; 1974) tended to analyze the previous lives of individuals as the most important variable in problem solving process, the other researchers such as Kohler and Maier (1925, 1970) advocated individuals' perception regarding the experienced situation as the most important factor in solving a problem.

A problem is defined as "a situation, quantitative or otherwise, that confronts an individual or group of individuals, that requires resolution, and for which the individual sees no apparent or obvious means or path to obtaining a solution" (Polya, 1962). The problem from a mathematical perspective is defined as "a situation where something is to be found or shown and the way to do this is not immediately obvious to the solver" (p.218, Grouws, 1996, cited in. Kayan & Cakiroglu, 2008). And mathematical problem solving is expressed as a situation which occurs from the experiences of the students (Schoenfeld, 1985). Problem for a mathematics teacher means an outstanding question which students have the necessary pre-information but which they do not know the ways and steps which will lead them to solution beforehand (Schoenfeld, 1989). From this perspective, problem solving means not only finding the solution of a mathematical problem but also confronting with new situations and finding flexible, useful and elegant solutions to these situations (Gail, 1996).

Gur and Korkmaz (2003) emphasize that posing and solving problems enable students both to gain experiences regarding how to express mathematical ideas in written or verbal and to discover mathematical situations. Students' skills to use problem solving strategies regarding mathematical problems are helpful to them for making correct choices for the situations that they encountered in their daily lives (Altun, 2008).

In recent years, it is seen that problem solving is considerably emphasized in studies for improving teaching primary mathematics programs both in Turkey and worldwide.

Mathematical beliefs are defined as value judgements which are composed of the past experiences of an individual (Raymond, 1997). These beliefs have an important place in teaching and learning process as they affect the perceptions of individuals (Pajares, 1992; Thompson, 1992). For instance, the beliefs of a teacher is effective in his/her immediate decisions when he/she needs to make a decision in a difficult situation that he/she faces during teaching and learning process (Abrosse, Clement, Philipp & Chauvot, 2004). Kloosterman and Stage (1992) points out the fact that mathematical beliefs of an individual

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\* Corresponding author. Tel: +90 553 463 3053  
E-mail address: [hatice.erbay@istanbul.edu.tr](mailto:hatice.erbay@istanbul.edu.tr)

effect learning and problem solving. Concordantly, the studies which analyze the beliefs about mathematics shows that students perceive problem solving as finding the correct answer and think that learning mathematics requires memorizing (Picker & Berry, 2000; Raymond, 1997; Schoenfeld, 1989; Thompson, 1984; Toluk Ucar, Piskin, Akkas & Tasci, 2010).

Hart (2002) analyzed the effects of mathematical prospective teachers' beliefs about teaching mathematics. The findings show that the beliefs of prospective teachers advance positively at the programs that they studied. Accordingly, Kayan & Cakiroglu (2008) analyzed the beliefs of prospective primary school mathematics teachers regarding mathematical problem solving. It was determined that prospective teachers had positive beliefs about problem solving. Besides, it was specified that prospective teachers had internalized traditional views such as the importance of routine calculation skills in teaching mathematics and the necessity of following the pre-specified steps in problem solving. The studies (Frykholm, 2003; Kayan & Cakiroglu, 2008; Lloyd & Wilson, 1998) show that the beliefs of prospective teachers about mathematical problem solving is an effective factor in organizing learning environments as a teacher and in the achievements of students. For this reason, determining the beliefs of prospective teachers will be informative about the practice of a future teacher (Kayan & Cakiroglu, 2008).

In this regard, the main purpose of this study is to analyze the beliefs of prospective teachers about problem solving. The beliefs are defined in terms of educational studies as basic assumptions, arguments and insights that an individual has in his/her mind and that he/she develops for the facts around him/her (Richardson, 1996). The beliefs of teachers; is an important factor affecting both the classroom environment that they created and the beliefs of students about mathematics (Ball, 1998; Grouws, 1996; Schoenfeld, 1992; Wilkins & Brand, 2004).

For this reason, analyzing the beliefs of prospective mathematics teachers and having an extensive understanding about them will enlighten teaching mathematics and the studies regarding improving students' learning and will contribute to the training studies which will be organized for teachers. The research subject in this study was worth investigating for the reasons stated above.

The purpose of this study is to analyze the beliefs of prospective teachers who are studying in teaching mathematics, classroom teaching and teaching science departments about problem solving. In this sense, the answers of the following sub-problems were searched:

1. How are the beliefs of prospective teachers about problem solving?
2. Do the beliefs of prospective teachers about problem solving vary according to universities that they study?
3. Do the beliefs of prospective teachers about problem solving vary according to their departments?
4. Do the beliefs of prospective teachers about problem solving vary according to the types of high schools that they graduated from?
5. Do the beliefs of prospective teachers about problem solving differ according to gender?

## Method

The descriptive survey model among qualitative research methods was used in this study. The descriptive survey is suitable for describing a case which exist in the past or present without influencing it (Karasar, 2003). Since the purpose of this study was to present the beliefs of students who are studying in teaching mathematics, classroom teaching and teaching science about mathematical problem solving, descriptive survey model was used.

**Study Group:** The sample of the study is composed of third-year prospective teachers who are studying in educational faculty, teaching mathematics, classroom teaching and teaching science and technology majors of two different universities in 2013-2014 academic years. The distribution of the sample group can be seen in Table 1.

**Table 1:** Study Group

Majors	1 <sup>st</sup> University		2 <sup>nd</sup> University		Total
	F	M	F	M	
Teaching Mathematics	50	6	32	5	93
Teaching Science and Tech.	44	6	43	7	100
Classroom Teaching	39	13	49	16	117
Total	133	25	124	28	310

**Data Collection Instruments:** Belief Scale about Mathematical Problem Solving was developed by Kloosterman and Stage (1992) and adopted to Turkish by Hacımeroglu (2011). This scale was developed for revealing the beliefs of students about mathematical problem solving. When the whole scale was analyzed, the Cronbach alpha internal consistence coefficient was

calculated as 0.768. The scale was consisted of 24 items and it was in five point likert type.

## Findings

In order to answer for the problem, teachers' average beliefs about problem solving was displayed in Table 2.

University	N	$\bar{X}$	SS	T	p
The First Univ.	158	81,00	5,91	1,09	0,27
The Second Univ.	152	81,72	5,75		

search for an first sub-prospective scores regarding

**Table 2:** Average Scores of Prospective Teachers' Beliefs about Mathematical Problem Solving

N	$\bar{X}$	SS
310	81	5,83

The beliefs of prospective teachers about mathematical problem solving were collected through a likert type form which was scored between 1 and 5 and consisted of 24 items. The total score differed between 24 and 120. The findings show that the level of beliefs of prospective teachers about problem solving is high ( $\bar{X}=81$ ).

The first item of the findings regarding the second sub-problem was displayed in Table 3.

**Table 3:** T-Test Results of Prospective Teachers' Belief Scores about Mathematical Problem Solving according to their Universities

As it can be seen from Table 3, there was not a significant difference between the beliefs of prospective teachers about mathematical problem solving according to their universities ( $p>0.05$ ). This finding showed that the beliefs of prospective teachers about mathematical problem solving were not affected by the university that they studied.

The average scores of the students were analyzed in order to understand whether or not the level of their beliefs about mathematical problem solving varied according to their majors and the findings obtained were given in Table 4.

**Table 4:** T-Test Results of Prospective Teachers' Belief Levels about Mathematical Problem Solving According to their Majors

Majors	N	$\bar{X}$	SS	F	P
Teaching Mathematics	93	83,26	4,89	7,79	0,00
Teaching Science and Tech.	100	80,19	5,63		
Classroom Teaching	117	80,82	6,34		
Total	310	81,35	5,83		

As it is seen in Table 4, there was a statistically significant difference between average belief scores of prospective teachers about mathematical problem solving as the average scores of teaching mathematics students were higher than teaching science and classroom teaching students ( $p<0.05$ ). The reason of this difference was because of the fact that the average belief scores of mathematics prospective teachers about mathematical problem solving were higher.

The other sub-problem was 'Do the beliefs of prospective teachers about problem solving vary according to the types of high schools that they graduated from?' The findings regarding this sub-problem are given in Table 5.

**Table 5:** F-Test Anova Results of Prospective Teachers regarding the Belief Levels about Mathematical Problem Solving according to the type of the high school

Type of High School	N	$\bar{X}$	SS	F	p
Anatolian High School	124	81,04	5,58	2,83	0,06
Teacher Training High School	81	82,65	5,83		

Gender	N	$\bar{X}$	SS	T	p
Female	257	81,55	5,6	1,34	0,18
Male	53	80,37	6,45		
Other high schools		105	80,72	6,03	
Total		310	81,35	5,83	

According to this finding, it can be said that the level of prospective teachers' beliefs about mathematical problem solving did not differ depending on the type of high school that they graduated ( $p>0.05$ ).

Whether or not the level of prospective teachers' beliefs about mathematical problem solving differed according to their gender is given in Table 6.

**Table 6:** T-test results of Prospective teachers' Belief Levels about mathematical Problem solving according to their Gender

According to Table 6, there was not a statistically significant difference between the average belief levels of prospective teachers about mathematical problem solving by their gender. ( $p>0.05$ )

## Conclusion, Discussion and Suggestions

The basic purpose of this research is to determine the beliefs of prospective teachers about mathematical problem solving in terms of various variables. Within the scope of this basic purpose, the following results have been obtained.

It can be said that the beliefs of Mathematics, Science and Classroom Teaching prospective teachers about mathematical problem solving is generally high. This finding of the study is supporting Kayan and Cakiroglu's (2008) study in which they stated that primary mathematics prospective teachers had positive opinions about problem solving.

It was concluded that beliefs of prospective teachers about mathematical problem solving did not differ according to their universities. The reason of this situation may be the fact that both universities are located in the same region. Different universities may not have an effect since students' environments do not differ in general terms. It is necessary to repeat this study with a broader sample to see whether or not different universities have an effect by selecting universities from different regions of Turkey.

When it was analyzed whether beliefs of prospective teachers about mathematical problem solving differed according to their majors or not, it was seen that the difference was in favour of students from teaching mathematics major. It can be said that the beliefs of mathematics prospective teachers about problem solving is higher than science and classroom teaching prospective teachers. The reason of this situation may be the fact that problem solving is occupationally vital for the mathematics prospective teachers. Besides, the university education of mathematics prospective teachers may have an effect on their problem solving skills.

The beliefs of prospective teachers about mathematical problem solving did not differ according to the type of high school that they were graduated from is another finding of the study. The reason of this may be the fact that educational faculties are mostly preferred by Anatolian High School or Teacher Training High school graduates. Since a few of the prospective teachers were graduated from science high schools, private high schools or vocational high schools, this number was not enough for creating a difference. In other words, it cannot be talked about any kind of difference since a homogenous sample could not be created according to high schools. By using purposeful sampling, it can be possible to understand whether this situation will create a difference or not.

The beliefs of prospective teachers about mathematical problem solving did not differ according to gender is the final finding of the study. Kayan (2007) concluded in his study which was carried out in five universities that the beliefs of primary mathematics prospective teachers about problem solving did not differ according to gender but Soy Turk (2011) concluded in his study about classroom teaching prospective teachers that the beliefs of prospective teachers about problem solving differed in favour of female students. When the literature was analyzed, it was stated that whether or not the beliefs of female and male students about problem solving differed according to gender might change according to sample group (Arli, Altunay & Yalcinkaya, 2011).

The following suggestions can be offered in accordance with the findings.

1. The beliefs of prospective teachers about problem solving can be searched with different and broader samples. The sample can be decided by considering different geographical regions.
2. Comprehensive studies can be carried out in which the beliefs of prospective teachers about mathematical solving can be evaluated in terms of gender.
3. More comprehensive studies can be carried out by considering other subject teachers.
4. Studies based on qualitative data about the beliefs of prospective teachers about mathematical problem solving can be carried out. In this regard, prospective teachers can be evaluated by considering separately each sub-factors of the 'Belief Scale about Mathematical Problem Solving' that was used in this study.

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\* Corresponding author. Tel: +90 553 463 3053

E-mail address: [hatice.erbay@istanbul.edu.tr](mailto:hatice.erbay@istanbul.edu.tr)



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For this reason, analyzing the beliefs of prospective mathematics teachers and having an extensive understanding about them will enlighten teaching mathematics and the studies regarding improving students' learning and will contribute to the training studies which will be organized for teachers. The research subject in this study was worth investigating for the reasons stated above.

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6. How are the beliefs of prospective teachers about problem solving?
7. Do the beliefs of prospective teachers about problem solving vary according to universities that they study?
8. Do the beliefs of prospective teachers about problem solving vary according to their departments?
9. Do the beliefs of prospective teachers about problem solving vary according to the types of high schools that they graduated from?
10. Do the beliefs of prospective teachers about problem solving differ according to gender?

## Method

The descriptive survey model among qualitative research methods was used in this study. The descriptive survey is suitable for describing a case which exist in the past or present without influencing it (Karasar, 2003). Since the purpose of this study was to present the beliefs of students who are studying in teaching mathematics, classroom teaching and teaching science about mathematical problem solving, descriptive survey model was used.

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## Findings

In order to search for an answer for the first sub-problem, prospective teachers' average scores regarding beliefs about problem solving was displayed in Table 2.

**Table 2:** Average Scores of Prospective Teachers' Beliefs about Mathematical Problem Solving

N	$\bar{X}$	SS
310	81	5,83

The beliefs of prospective teachers about mathematical problem solving were collected through a likert type form which was scored between 1 and 5 and consisted of 24 items. The total score differed between 24 and 120. The findings show that the level of beliefs of prospective teachers about problem solving is high ( $\bar{X}=81$ ).

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**Table 3:** T-Test Results of Prospective Teachers' Belief Scores about Mathematical Problem Solving according to their Universities

As it can be seen from Table 3, there was not a significant difference between the beliefs of prospective teachers about mathematical problem solving according to their universities ( $p>0.05$ ). This finding showed that the beliefs of prospective teachers about problem solving by the university were not affected that they studied. The average scores of the students were analyzed in order to understand whether or not the level of their beliefs about mathematical problem solving varied according to their majors and the findings obtained were given in Table 4.

University	N	$\bar{X}$	SS	T	p
The First Univ.	158	81,00	5,91	1,09	0,27
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The other sub-problem was 'Do the beliefs of prospective teachers about problem solving vary according to the types of high

schools that they graduated from?’ The findings regarding this sub-problem are given in Table 5.

**Table 5:** F-Test Anova Results of Prospective Teachers regarding the Belief Levels about Mathematical Problem Solving according to the type of the high school

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According to this finding, it can be said that the level of prospective teachers’ beliefs about mathematical problem solving did not differ depending on the type of high school that they graduated ( $p>0.05$ ).

Whether or not the level of prospective teachers’ beliefs about mathematical problem solving differed according to their gender is given in Table 6.

**Table 6:** T-test results of Prospective teachers’ Belief Levels about mathematical Problem solving according to their Gender

According to Table 6, there was not a statistically significant difference between the average belief levels of prospective teachers about problem solving by (p>0.05) their gender.

Gender	N	$\bar{X}$	SS	T	p
Female	257	81,55	5,6	1,34	0,18
Male	53	80,37	6,45		

## Conclusion, Suggestions

## Discussion and

The basic purpose of this research is to determine the beliefs of prospective teachers about mathematical problem solving in terms of various variables. Within the scope of this basic purpose, the following results have been obtained.

It can be said that the beliefs of Mathematics, Science and Classroom Teaching prospective teachers about mathematical problem solving is generally high. This finding of the study is supporting Kayan and Cakiroglu’s (2008) study in which they stated that primary mathematics prospective teachers had positive opinions about problem solving.

It was concluded that beliefs of prospective teachers about mathematical problem solving did not differ according to their universities. The reason of this situation may be the fact that both universities are located in the same region. Different universities may not have an effect since students’ environments do not differ in general terms. It is necessary to repeat this study with a broader sample to see whether or not different universities have an effect by selecting universities from different regions of Turkey.

When it was analyzed whether beliefs of prospective teachers about mathematical problem solving differed according to their majors or not, it was seen that the difference was in favour of students from teaching mathematics major. It can be said that the beliefs of mathematics prospective teachers about problem solving is higher than science and classroom teaching prospective teachers. The reason of this situation may be the fact that problem solving is occupationally vital for the mathematics prospective teachers. Besides, the university education of mathematics prospective teachers may have an effect on their problem solving skills.

The beliefs of prospective teachers about mathematical problem solving did not differ according to the type of high school that they were graduated from is another finding of the study. The reason of this may be the fact that educational faculties are mostly preferred by Anatolian High School or Teacher Training High school graduates. Since a few of the prospective teachers

were graduated from science high schools, private high schools or vocational high schools, this number was not enough for creating a difference. In other words, it cannot be talked about any kind of difference since a homogenous sample could not be created according to high schools. By using purposeful sampling, it can be possible to understand whether this situation will create a difference or not.

The beliefs of prospective teachers about mathematical problem solving did not differ according to gender is the final finding of the study. Kayan (2007) concluded in his study which was carried out in five universities that the beliefs of primary mathematics prospective teachers about problem solving did not differ according to gender but Soyuturk (2011) concluded in his study about classroom teaching prospective teachers that the beliefs of prospective teachers about problem solving differed in favour of female students. When the literature was analyzed, it was stated that whether or not the beliefs of female and male students about problem solving differed according to gender might change according to sample group (Arli, Altunay & Yalcinkaya, 2011).

The following suggestions can be offered in accordance with the findings.

5. The beliefs of prospective teachers about problem solving can be searched with different and broader samples. The sample can be decided by considering different geographical regions.
6. Comprehensive studies can be carried out in which the beliefs of prospective teachers about mathematical solving can be evaluated in terms of gender.
7. More comprehensive studies can be carried out by considering other subject teachers.
8. Studies based on qualitative data about the beliefs of prospective teachers about mathematical problem solving can be carried out. In this regard, prospective teachers can be evaluated by considering separately each sub-factors of the 'Belief Scale about Mathematical Problem Solving' that was used in this study.

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# The analysis of the problems posed by prospective mathematics teachers about 'ratio and proportion' subject

Sare ŞENGÜL<sup>a</sup>, Yasemin KATRANCI<sup>b</sup>\*\*\*\*\*

<sup>a</sup>Marmara University, Education Faculty Primary Department, İstanbul, Turkey

<sup>b</sup>Kocaeli University, Education Faculty Primary Department, Kocaeli 41380, Turkey

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## Abstract

Problem posing means either posing new problem situations in terms of given conditions or re-formulating an already written problem. In this study, the aim is to evaluate problems written by prospective mathematics teachers about ratio and proportion subjects in terms of criteria specified according to problem posing methods. According to this purpose, 'Problem Posing Form about Ratio and Proportion Subject' including questions for determining the tasks of free problem posing, semi-structured problem posing, structured problem posing and for determining which one is the most challenging problem posing task, was developed by the researchers. The data form was applied to 45 sophomore students who are studying in Kocaeli University, Teaching Primary School Mathematics department. The data collected throughout this study was evaluated by considering; *i) Problem text (language and expression), ii) The compatibility of the problem with the mathematical principles, iii) The type/structure of the problem and iv) The solvability of the problem.* In conclusion, it was concluded that prospective mathematics teachers posed clear and understandable problems which are compatible with the mathematical principles in the form of activity and which can be solved by students. The challenging sides of problem posing appeared as the hesitation on posing problems which are suitable to students' levels, the difficulty in remembering the subject clearly and not having sufficient information about problem posing.

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**Keywords:** Ratio, proportion, problem posing, analysing posed problems

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## 1. Introduction

Problem posing which is a special case of problem solving (Christou, Mousoulides, Pittalis, Pitta-Pantazi & Sriraman, 2005) is re-formulating a given problem or creating new problems in accordance with the given situation. Problem posing is cognitively a more difficult task than problem solving (Mestre, 2002) and it is accepted as problem finding or formulation (Dickerson, 1999). Problem posing can be practised before solving a given problem as well as while solving a problem or after problem solving (Lavy & Bershadsky, 2003). In this sense, when the previous research about this subject was analyzed, it was seen that there are various problem posing methods (Abu-Elwan, 2007; Dickerson, 1999; Grundmeier, 2003). They are methods such as; *i) free problem posing, ii) semi-structured problem posing, iii) structured problem posing* (Stoyanova, 2003) and *iv) What if ... What if not?* (Abu-Elwan, 2007).

*In free problem posing*, students are given a situation or a subject from daily life. Students generate problems by using them. (Akay, 2006). It is the case of asking students to pose problems about any subject without providing them any data, figure or problems (Ergün, 2010).

*In semi-structured problem posing*, an open-ended situation is given to students and students are asked to generate problems about this situation by using their own skills, knowledge and mathematical experiences (Akay, 2006). The semi-structured problem posing strategies are mathematical situations, posing open-ended problems and interpretation (Dickerson, 1999).

*In structured problem posing*, the matter is posing a new problem by changing the known (Akay, 2006). Students pose problems by considering the limitations determined by their teacher. For instance, the teacher can ask students to pose a problem including a mathematical concept such as multiplying decimals (Dickerson, 1999) or to only change the numbers in a given problem. "What if? ...What if not?" method is in the scope of structured problem posing method (Brown & Walter, 1993). In this study, prospective teachers were asked to pose problems about 'Ratio and Proportion' subject in compatible with all the methods other than the method of "What if? ...What if not?".

In order to improve students' problem posing skills, it is necessary to evaluate all the products obtained about the topic of problem posing (Ergün, 2010). In this sense, the evaluation in problem posing can be practiced in two ways. The first one is to evaluate students' problem posing skills, concept knowledge and proficiencies with the help of posed problems. And the second one is to evaluate problems and process (Silver & Cai, 2005).

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\*\*\*\*\* Corresponding author: Tel.: +90 (262) 303 2446

E-mail address: yasemin.katranCI@kocaeli.edu.tr

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Silver and Cai (1996) considered the following determined criteria in the evaluation of posed problems as; i) *the solvability of the problem*, ii) *problem text*, iii) *mathematical complexity* and iv) *the relationship between posed problems*. Albayrak, İpek and Işık (2006) evaluated the problems in their studies by considering the following criteria, i) *writing nothing*, ii) *using all the given material*, iii) *adding new materials* or iv) *the process of creating samples from the data*. Cai, Moyer, Wang, Hwang, Nie and Garber (2012) used rubrics for evaluating posed problems. Ergün (2010) paid attention to following criteria in the evaluation of problems; i) *the clarity of the problems*, ii) *the compliance of the problem with physics principles*, iii) *the structure of the problem*, iv) *the number of questions*, v) *the type of problem* and vi) *the solvability of the problem*. Grundmeier (2003) in the evaluation of problems considered the following criteria; i) *reasonableness and plausibility* ii) *whether the problem consists sufficient information or not* and iii) *the number of operations required for the solution*. Işık and Kar (2012) evaluated the problems in their studies according to criteria as stated by Silver and Cai (2005) “*quantity*” and “*originality*”.

The purpose of this research is to analyze problems posed by prospective teachers about the subject of “Ratio and Proportion”. In this sense, the aim is to evaluate problems posed by prospective teachers about the subject of “Ratio and Proportion” within the framework of criteria specified in accordance with problem posing methods. The answers of the following sub-problems were searched for this purpose.

1. How is the situation of prospective teachers about posing free problems about the subject of Ratio and Proportion?
2. How is the situation of prospective teachers about posing semi-structured problems about the subject of Ratio and Proportion?
3. How is the situation of prospective teachers about posing structured problems about the subject of Ratio and Proportion?
4. How is the general problem posing profile of prospective teachers?
5. Which is the most challenging problem posing method for prospective teachers? Why?

## 2. Method

### 2.1. Research Design

Qualitative research is a search for demonstrating perceptions and events in a holistic and realistic manner in natural environments and a qualitative process is followed (Yıldırım & Şimşek, 2008). In this sense, this study is a qualitative research which is aimed to demonstrate results of a particular situation and includes the analysis of the written worksheets. The document analysis involves the analysis of written documents about the case or cases which are intended to study (Yıldırım & Şimşek, 2008). In this study, data forms which were filled by prospective teachers were used as document.

### 2.2. Working Group

The work group of this study consisted of 45 prospective sophomore students who are studying in Kocaeli University, Teaching Primary School Mathematics. 40 of the prospective teachers are female (88,89%) and 5 (11,11%) of them are male.

### 2.3. Data Collection Tools and Collecting Data

The data of this study was collected by using “The Problem Posing about Ratio and Proportion Form” which was prepared by the researchers. This data form consisted of four sections. These sections are as in the following; i) *free problem posing and the task of solving posed problem*, ii) *semi-structured problem posing and the task of solving posed problem*, iii) *structured problem posing and the task of solving posed problem* and iv) *In which problem posing task did you have difficulties? Why?.* This form which was prepared by the researchers distributed to prospective teachers and prospective teachers were asked to fill in this form. Prospective teachers had one hour (60 minutes) to fill in this form.

### 2.4. Data Analysis

First of all, the researchers specified four criteria to evaluate the data obtained in this study. These are; i) Problem text (language and expression), ii) The compatibility of the problem with the mathematical principles, iii) The type/structure of the problem and iv) The solvability of the problem. When the data obtained was analyzed within the framework of this given criteria, it was appeared that the specified criteria needed to involve sub-dimensions. In this sense, sub-dimensions were added to the specified criteria by each two researchers separately. Later on these sub-dimensions were compared and an agreement on dimensions was reached.

This evaluation tool that the dimensions and sub-dimensions were determined by the researchers was given to two expert researchers other than the researchers of this study in the field of teaching mathematics for taking their opinions. The experts were asked to evaluate the compatibility of the dimensions for evaluation and the compatibility of the sub-dimensions to the dimensions as “applicable” and “not applicable”. After the evaluation results, the level of agreement between experts and researchers was calculated by using the formula “*Agreement Percentage = [Agreement / (Agreement + Disagreement)] x 100*” as stated by Miles and Huberman (1994). It was decided that the agreement percentage regarding the compatibility of each dimension for evaluation changed between 0,89 and 0,92 and the agreement percentage regarding the compatibility of the sub-dimensions to dimensions changed between 0,86 and 0,90.

Although the evaluation form took the form of a rubric, the evaluation criteria was not decided by considering the purpose of the study. In this sense, an evaluation form involving 4 dimensions and 3 sub-dimensions for each dimension was developed for evaluating the problems posed by prospective teachers. The data obtained was evaluated by using this evaluation form. The researchers and two experts from the field of teaching mathematics evaluated each problem separately and evaluation results were compared. The differences appeared were discussed and then an agreement was reached. In conclusion, the evaluation results as being related with each sub-dimension was presented on the basis of frequency (f) and percentage (%).

### 2.5. The Reliability and Validity of Study

The validity in qualitative research means observing the searched issues objectively as much as possible and as it is (Kirk & Miller, 1986). In order to present a holistic picture of the searched topic, the researcher should confirm the data and outcomes of the study through variation, participant confirmation and colleague confirmation (Yıldırım & Şimşek, 2008). In this regard, data of this study was analyzed by two experts in the field of teaching mathematics other than the researchers and the validity of the study was provided through colleague confirmation.

The qualitative research begins with the thought that realities constantly change according to individuals and to environments and repeating the same study with similar groups may not create the same results. In this regard, in order to provide reliability to qualitative research, the researcher should define the individuals who are the source of information clearly (Yıldırım & Şimşek, 2008). In this study, to get reliability, the study group defined in details.

In addition to that, the data obtained were frequently given in the study. Besides, the results of the evaluation were presented on the basis of frequency (f) and percentage (%). The purpose here is to increase the reliability of the data, to reduce bias and to provide a chance to make a comparison between the data. Besides, the data presented in numbers in order to have an opportunity to repeat this small scale study later on to reach a wider sample with tools such as surveys (Yıldırım & Şimşek, 2008).

### 3. Findings and Comments

Findings and comments regarding the first research problem which was specified as “How is the situation of prospective teachers about posing free problems about the subject of Ratio and Proportion?” are as in the following;

Table 1. The evaluation of the task of posing free problems

Evaluation Criteria		f	%
Problem Text (Language and Expression)	The text of the problem is not clear and understandable.	1	2,22
	The text of the problem is relatively clear and understandable.	10	22,22
	The text of the problem is clear and understandable.	34	75,56
The Compatibility of the Problem with the Mathematical Principles	The problem is not suitable to Mathematical Principles.	1	2,22
	The problem is relatively suitable to Mathematical Principles.	2	4,44
	The problem is suitable to Mathematical Principles.	42	93,33
The Type/Structure of the Problem	Exercise.	21	46,67
	Simple normal problem.	11	24,44
	Normal problem.	13	28,89
The Solvability of the Problem	The problem cannot be solved.	0	0
	Problem can be solved but it is erroneous.	1	2,22
	It can be solved.	44	97,78

When Table 1 is analyzed, it is seen that 34 of the posed problems (75,56%) have clear and understandable texts. It is determined that 42 (93,33%) problems are suitable to mathematical principles. 21 (46,47%) prospective teachers posed problems in exercise type, 11 (24,44%) prospective teacher in simple normal problem type and 13 (28,89%) prospective teachers in normal problem type. It is understood that all the posed problems are solvable. An example regarding the task of posing free problems stated below.

Ayşe Hanım elindeki 74 tane şekeri 4,5 ve 6 yaşlarındaki üç çocuğuna yaşları ile ters orantılı olarak paylaşmak istiyor. Buna göre çocukların her birinin kaç tane şeker aldığını bulunuz.

Mrs. Ayşe wants to share her 74 candies inversely proportional to 3 children aged between 4,5 and 6 years old. According to this, please find how many candies each child will get.

Fig. 1. Task of posing free problem of prospective teacher with number 29

Findings and comments regarding the second sub problem which was specified as “How is the situation of prospective teachers about posing semi-structured problems about the subject of Ratio and Proportion?” are as in the following;

Table 2. Evaluation of the task of posing semi-structured problems

Evaluation Criteria	f	%
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Problem Text (Language and Expression)	The text of the problem is not clear and understandable.	0	0
	The text of the problem is relatively clear and understandable.	6	13,33
	The text of the problem is clear and understandable.	39	86,67
The Compatibility of the Problem with the Mathematical Principles	The problem is not suitable to Mathematical Principles.	0	0
	The problem is relatively suitable to Mathematical Principles.	5	11,11
	The problem is suitable to Mathematical Principles.	40	88,89
The Type/Structure of the Problem	Exercise.	41	91,11
	Simple normal problem.	4	8,89
	Normal problem.	0	0
The Solvability of the Problem	The problem cannot be solved.	0	0
	Problem can be solved but it is erroneous.	0	0
	It can be solved.	45	100

When Table 2 is analyzed, it is seen that 39 (86,67%) of problems posed by prospective teachers have clear and understandable texts. In addition to that, it is seen that 40 (88,89%) problems are suitable to mathematical principles. It is determined that 41 (91,11%) problems out of 45 posed problems are in exercise type and 4 of them (8,89%) is in normal problem type. It is understood that all the posed problems are solvable. An example regarding the task of posing semi-structured problems stated below.

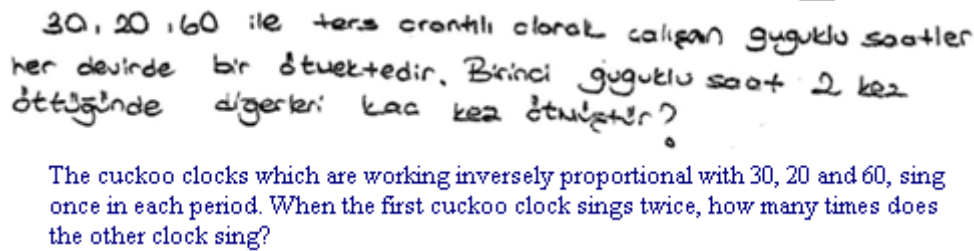


Fig. 2. Task of posing semi-structured problem of prospective teacher with number 7

Findings and comments regarding the third sub-problem which was specified as “How is the situation of prospective teachers about posing structured problems about the subject of Ratio and Proportion?” are as in the following:

Table 3. Evaluation of the task of posing structured problems

Evaluation Criteria		f	%
Problem Text (Language and Expression)	The text of the problem is not clear and understandable.	0	0
	The text of the problem is relatively clear and understandable.	6	13,33
	The text of the problem is clear and understandable.	39	86,67
The Compatibility of the Problem with the Mathematical Principles	The problem is not suitable to Mathematical Principles.	0	0
	The problem is relatively suitable to Mathematical Principles.	7	15,56
	The problem is suitable to Mathematical Principles.	38	84,44
The Type/Structure of the Problem	Exercise.	38	84,44
	Simple normal problem.	7	15,56
	Normal problem.	0	0
The Solvability of the Problem	The problem cannot be solved.	0	0
	Problem can be solved but it is erroneous.	0	0
	It can be solved	45	100

When Table 3 is analyzed, it is seen that the text of 39 (86,67%) posed problems are clear and understandable. It is determined that 38 (84,44%) problems are suitable to mathematical principles. It is appeared that 38 (84,44%) problems are in exercise type. It is understood that all the problems posed by prospective teachers regarding the task of posing structured problems are solvable. An example regarding the task of posing structured problems stated below.

Kaplumbağa saatte 10 km yol alıyor. Çita ise saatte 95 km yol alıyor. Buna göre Çitanın 10 saatte aldığı yolu kaplumbağa kaç saatte alır?

A turtle makes 10 km per hour. And a cheetah makes 95 km per hour. According to this, when a cheetah moves 10 hours, how many kilometers does a turtle make at this same 10 hours?

Fig. 3. Task of posing structured problem of prospective teacher with number 36

Findings and comments regarding the fourth sub-problem specified as “How is the general problem posing profile of prospective teachers?” are as in the following;

Table 4. Evaluation of the problem posing task

Evaluation Criteria		f	%
Problem Text (Language and Expression)	The text of the problem is not clear and understandable.	1	0,74
	The text of the problem is relatively clear and understandable.	22	16,29
	The text of the problem is clear and understandable.	112	82,96
The Compatibility of the Problem with the Mathematical Principles	The problem is not suitable to Mathematical Principles.	1	0,74
	The problem is relatively suitable to Mathematical Principles.	14	10,37
	The problem is suitable to Mathematical Principles.	120	88,89
The Type/Structure of the Problem	Exercise.	100	74,07
	Simple normal problem.	22	16,29
	Normal problem.	13	9,63
The Solvability of the Problem	The problem cannot be solved.	0	0
	Problem can be solved but it is erroneous.	1	0,74
	It can be solved	134	99,26

When table 4 is analyzed, it is determined that 112 (82,96%) of the problems out of 135 posed problems have clear and understandable texts and 120 (%88,89) of them are suitable to mathematical principles. It is seen that 100 (%74,07) of the posed problems are in exercise type and 134 (99,26%) of them can be solved.

When the data is evaluated about the last sub-problem specified as “Which is the most challenging problem posing method for prospective teachers? Why?”, it is seen that 12 (26,67%) of the prospective teachers stated that they did not have any difficulties in any of the methods. 16 (%35,56) prospective teachers stated that they had difficulties in posing free problems and 13 (28,89%) of them had in semi-structured problem posing and only 4 (%8,89) of them had difficulties in structured problem posing. As for the reason of the difficulties of the prospective teachers, they expressed that they had concerns about posing problems suitable to middle school level. In addition to that, they stated that since they did not remember the ratio and proportion subject clearly, they thought that they could not pose suitable problems. Besides, it is seen that they expressed that they were away from problem posing and such studies have not been conducted.

#### 4. Conclusion, Discussion and Implications

As a result of the analysis regarding the task of posing free problems, it is concluded that the texts of the problems posed by prospective teachers were clear and understandable. It is appeared that the posed problems were suitable to mathematical problems and all the problems were solvable. As a result of the data about the task of posing semi-structured and structured problems, it is appeared that the texts of the problems posed by prospective teachers were clear and understandable, suitable to mathematical principles, in the type of exercise and solvable problems

In general evaluation of the research findings, it is concluded that prospective teachers posed problems which have clear and understandable texts, suitable to mathematical principles and all the problems were solvable. In addition to that all the posed problems are in exercise type. As a result of posing problems in the type of exercise, it was determined that this result echoed with the research findings as problems posed by prospective teachers are predictable, simple and well-structured problems (Albayrak, İpek & Işık, 2006; Crespo, 2003; Crespo & Sinclair, 2008; Işık, Işık & Kar, 2011).

The researchers such as Fetterly (2010), Silver & Cai (2005) and Yuan & Sriraman (2010) express that posing different problems is related with creativity. Işık and Kar (2012) concluded in their studies that prospective classroom teachers posed limited number of different problems. They also indicated that this could be a sign for prospective teachers' lack of creativity and their ability to associate. In this sense, it can be said in this study that prospective teachers pose problems in exercise type because they do not have enough creativity skills and they do not have conceptually well-structured basic mathematical concepts.

It is concluded that prospective teachers mostly have difficulties in free problem posing. In the study, it was asked to pose a problem according to the sample in structured problem posing task and posing a problem according to a figure in semi-structured problem posing task. However, in free problem posing it is expected from prospective teachers to pose problems by using their

current mathematical knowledge and experiences. In this sense, the reasons of prospective teachers have difficulties in free problem posing task can be thought as there is no help or information. Besides, it is determined that as for the reason of having difficulties, prospective teachers expressed that they could not remember the subject clearly. Moreover, prospective teachers stated for the reasons of difficulty that they had concerns about posing problems suitable to middle school level. It is thought that this difficulty can be overcome by making more problem posing studies. It is seen that prospective teachers indicated another reason for having difficulties as they did not have enough information about problem posing. In conclusion, it is seen that the reasons of having difficulties are the fear of not posing problems suitable to level, not remembering the subject clearly and not having enough information about posing problem.

The findings of the study point out the fact that prospective teachers need to gain more experience on posing problems. In this sense, it is suggested that problem posing subject should be included in programs more in educational faculties. Together with this study, problem posing situations of prospective teachers in a single subject in mathematics was evaluated. Different subjects in mathematics should be analyzed with bigger samples. Moreover, it can be analyzed experimentally in terms of different variables (academic achievement, gender etc.) by determining on which subjects prospective teachers are successful.

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# The aspect of proficiency in the theoretical overview of pedagogical practice of nurses

Gunta Beta+++++ Anita Lidaka\*\*

*Rīga Stradiņš University Liepāja branch, Rinku street 24/26, Liepāja LV - 3405, Latvija\**

*Liepāja University, Liela street 14, Liepāja LV - 3401, Latvija\*\**

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## Abstract

The levels of the professional skills development create a hierarchy where each of the higher levels includes the lower one. The margins are heterogeneous with many entrances and exits that ensure integration of new experience and judgements. The professional development process can change the nurse's personal attitude and values that form a holistic understanding of the situation followed by the approach in the education of patients. Proficiency is one of the highest levels of professional development, when the working process is enriched by experience, feedback, and reflection.

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*Keywords:* nurse; proficiency; pedagogy; process, reflection

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## 1.Introduction

Patient education is Article 25 of the universal Declaration of Human Rights, and Article 4 of Patients' Rights Law - The right for information, the ethical principle of respect and a component of the nursing professional standard that prove the examples of good practice. The patient, with the exception of life-threatening situations, and when the relatives or contact persons are not available, receives educational information on expected handling, treatment and care processes, medication, and all that is followed by the agreement on the part of the patient to receive treatment, rehabilitation or prevention process.

Nursing practice, including pedagogy, includes personal, professional, tacit knowledge (Moule, Goodman, 2009), which results in a multi-faceted body of knowledge. Nursing knowledge is synthesized into formal, non-formal and informal education, professional experience, and as a result these are integrated into patient health preservation, improvement or stabilization of the condition, patient safety, and positive outcome. Practical medicine is impossible without application of comprehensive technology to specify and determine a diagnosis and monitor patients' health. However, by all means, in the context of each case communication, the dialogue with the individual patient, his relatives or patients are designed. Verbal communication, complemented by educational strategies and selected educational resources appropriate for each situation, is a big part of the anticipated positive result in raising the patient's awareness or the replenishment of providing mutual understanding of the health / sickness framework. To achieve the objectives of the theory and practice of effective collaboration in the process of patient education, adequate communication should be chosen (Ivarsson, Nilsson, 2009) the patient's age and general state of health should definitely be considered. Communication can be seen as patient education centre (Kraszewski, & McEwen, 2010), both in educating individual patients and groups of patients.

The verbal and non-verbal aspects are important in the process of patient education, because it will help to reinforce the confidence of patients, which is the background for further cooperation and formation of expectations. Patient education is a multifaceted theoretical and academic knowledge, oratory, debate and set of artistic attitudes, which should be focused on the development of positive cooperation and understanding of patients.

In nursing practice pedagogical skills are based on the acquisition of interdisciplinary science, basics of medicine, in addition to communication and general psychology, sociology and philosophy, learning by studying, the theory (epistemology), topical problem solving and updating, as well as identification of the appropriate methods (methodology) applicable to different practices and situational dimensions.

Integration of organization skills of the pedagogical process in interaction with patients / relatives / public certifies the range spectrum of nurses' cognitive, affective, and psychomotor development. Pedagogical skills necessary to ensure patients' understanding of the factors and aspects that can be a discovery for them are significant in "here and now" perspective, short or long time range, allowing the patient's individual personal judgment of the assumption and autonomy.

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\* Corresponding author. Tel.: +371 26739382; fax: +37163484635.

E-mail address: Gunta.Beta@rsu.lv

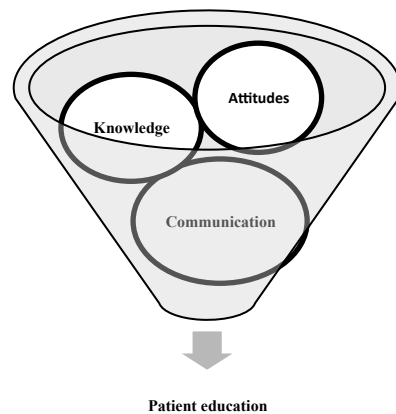


Fig.1. Components of the implementation of pedagogical paradigm

It is important to clarify the patient's existing knowledge base in the patient education process to be able to move step by step towards the goal, but at first the goal is to be identified. The patient's existing knowledge and personal values should be considered and respected. Variable standpoints are possible in the cooperation / educational process. Not only the patient's physical ability range should be taken into account, but also the cognitive level of the individual areas of the personality, typological characteristics of the individual, the horizon of the individual and the patient's personal competence. A possible agreement in the realization of the set of goals is desired, because if patients have confidence in their abilities, it will contribute to the motivation and will serve as confirmation of proper educational tactics.

Combinations of methods should often be applied in the education process; the choice depends on the individual's comprehension abilities. The type of the interaction level chosen by a nurse should preferably be in a horizontal plane. That will ensure a successful influence on the educational process and the quality of performance of the activities. Involvement of biased predictions should be avoided in the educational process. It is important to emphasize the focus on cognitive learning based on awareness creation and through abstract concepts, but through active reflexive dimension. Situation modelling application in the form of "what if ... "is possible.

Patient educational process is partly affected by both the nurses' personal qualities – her initiative, cooperation, organizational skills and cognitive skills. The skill set focused on the critical thinking process and based on diversified competencies when assessing personally and offering the patient to choose the most appropriate form of cooperation is the beginning of professional proficiency.

Members of the public and patients, not always accept possible behavioural changes that ensure health improvement and maintenance suggested by nurses unambiguously. Sometimes a long-term collaboration with a patient/a group to encourage members to further action, to help them understand and apply adequately the knowledge of health and/or disease awareness using a variety of pedagogical methods based on education, psychology, and nursing theory aspects, which are based on aspects of human needs.

On the part of patients/members of society motivation is viewed as important in the successful implementation of the educational process:

- internal- internal locus of control - personal interest in activities, choice, belonging, participation, wellbeing, understanding of health as a value;
- external - external locus of control, external evaluation, influence of social processes.

During the practice, the totality of practical skills is viewed in the context of professional responsibility, empathy, and respect for the patient/individual as an independent person. Pedagogical activities are developed by a nurse when gaining experience, supported by intuition or hidden knowledge (Davies, 1993), which helps to provide an individualized approach specific to the context of the case. Teaching tools, appropriate methods and timely application of those are essential for patients'/relatives' cognitive enhancement (Halse, Fonnes, & Christiansen 2013) and goal achievement. Educational process can be transformative (Mezirow, 1997) and integrative creating new views and insights, activities and motivations, or reconstructive - modifying existing assumptions, beliefs, health challenges, consciousness about health improvement as a value. Patient education includes critical approach and substantiation of activities.

Campbell C. (Campbel, 2013) states that adult motivation for information and education, primarily arises from the need and a specific case, noting that age may contribute to individual motivations. In same health care institutions patient education is planned, sequenced and shared by doctors and nurses. Quite frequent are the cases when, thinking that a patient's doctor or nurse will educate the patient, providing him/her with the necessary information, the patient education is not acquired from the persons

involved in this case. One can also face a risk-averse, fast, non-specific communication implementation model when implementing patient education and as a result, the patient/relatives receive only a part of information, resulted by an incomplete information transmission / reception which can lead to negative consequences.

Pedagogical skills could be promoted already during the formal study process in nursing education by providing a simulation of patient participation (Saaranen, T., et all. 2013), improving the understanding of kinaesthetic, visual, auditory, communicative processes and their application possibilities, practical awareness of communication and significance of the outcomes of patient education.

The set of teaching practice focused on proficiency is formed by the integration of humanistic (Maslow, 1943 Heylighen, 1992), cognitive (Vygotsky, 1978) and constructive (Dewey, 1930, 1938) (Strode, 2003) theories.

## 2.Aspects of nurses professional proficiency

Proficiency as a concept is applied to the assessment of professional skills in a wide spectrum of professional fields, like technology, language learning, piloting aircraft and others. It should be noted that the concept is used in everyday life relatively infrequently. A simplified view of proficiency shows it as good governance of professional knowledge, skills and competencies. Foreign language translations do not point out any differences.

For researchers in scientific studies that analyse nurses` professional development, generally two professional development stages are compulsory, namely – a competent employee (Khan, Ramachandran, 2012; Bartolone, 2008) and an expert (Rivers, 2003; Gobet, Chassy, 2008, Underwood 2013, Cromley, 2000). They are relatively frequent as a focus of research. On the other hand, proficiency as the main focus of research is relatively uncommon.

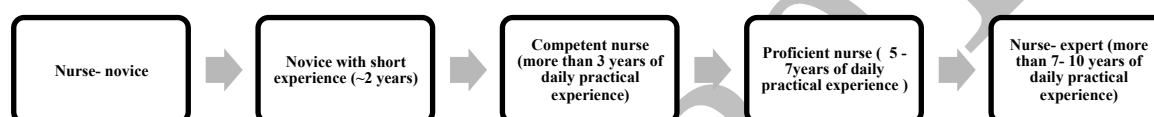


Fig.2. Five stages of professional development of nurses.

The source adapted from P. Benner „From Novice to Expert”: Excellence and Power in Clinical Nursing Practice, Commemorative Edition” (2001)

Nurses` professional progress from one stage to the next depends on the quality of the experience of the previous stage and manifests in the personal skills capacity that transforms into a personal professional type of tactics. The nurse treats each case as a discovery in spite of a variety of possible factors affecting the case in the solution of which pedagogical skills are integrated. Different authors have viewed professional development stages creating their own theoretical ideas and confirming previous findings.

Table 1. Definition of proficiency in the view of different authors

Author	Main scientific opinions
H.&St. Dreyfus model (1986) Benner P. (2001) Benner, P Tanner, Ch., Chesla C. (2009) Harper, 2009; Jasper, M. (2011)	Define the levels of professional development when everybody has equal opportunities to develop step by step from a novice level to a worker with experience, a competent employee, proficient, often called a professional, followed by expert until the professional worker becomes a generator of new ideas, a master.
Robinson-Walker , C. (2013) Khan, K & Ramachandran, S. (2012) Lester St.(2005) Fiddler, M. (2000)	Holistic, analytical approach, rational decisions in defining knowledge, skills and responsibilities are described in the proficiency phase: knowledge - a deep, broad understanding of the field of work, working standard - fully met and regularly integrated in action, autonomy - is able to take full responsibility for his/her actions (if necessary for others), overcoming difficulties - safe decision-making, may act in difficult situations, contextual, holistic conception – see's the "image" as a whole and the individual action, in its in a particular case is able to decide independently and act analytically from the experience and awareness of the situational perspective.

Professional skill levels form a hierarchy where each of the higher levels includes all lower levels. Professional development is based on conceptual understanding and practical integration of effective operation to perform the duties in educating patients at the highest possible quality. The operational process and its result may be affected by external (work organization) and internal factors (nurse`s/patient's personality traits, values and motivation to learn something new).

Table 2. Definition of proficiency in dictionaries

Dictionary	Definition
Pedagogical terms glossary (2000)	The skill, based on professional experience, as well as understanding in a particular area, to use one's knowledge and experience in concrete action in the range of issues.
Latvian language dictionary (2006)	Knowledge, skills (in an issue, an area).
Merriam-Webster Online dictionary	Synonyms of proficiency - masterful, qualified, skilful or in related words – competent, clever
English – Latvian language dictionary (2007)	Proficiency – skill (māka), know – how (prasme) Proficient – proficient (lietpratējs), expert (eksperts), skillfull (prasmīgs), conversant (with) lietprasmīgs, competent (kompetents)

The explanations of the word "proficiency" in the range of dictionaries have similar trends, revealing the essential features, attributes, relationships, but giving no clear-cut explanation of the word, which allows the use of different interpretations according to the application.

Professional proficiency has no linear progression of development, but a spiral nature which provides access to new ideas, experience, knowledge, transformative recognitions (Mezirow 1978, Elliott, 2010; Renigere, 2012). As a result, nurses' professional attitudes and values increase based on knowledge and experience, which opens up a wide vision, allows understanding of possible alternative actions or solution methods.

Table 3. Levels of competences, the way of development and study process from novice to expert  
Resource adapted from Fiddler, M. (2000) *Developing Adult learners Strategies for Teachers and Trainers*

Levels of competences	Way of development	Study process
<b>Novice:</b> can appreciate and adapt to a deviation from the basic laws and procedure descriptions	There is no difference between rules and the context in which the rules are applied	<b>10%</b> transformation of own action <b>90%</b> grasping
<b>Novice with experience:</b> can assess and adapt to important aspects of situations	Transition from dictated activities to actions dictated by the situation	<b>30%</b> transformation of own action <b>70%</b> grasping
<b>Practicing (competent):</b> can assess and adjust to deviations from the model	Transition from activities dictated by the situation to actions dictated by the general plan	<b>50%</b> transformation of own action <b>50%</b> grasping
<b>Professional (proficient):</b> can assess and adjust to deviations from the model	Transition from activities dictated by the general plan to actions dictated by intuition	<b>70%</b> transformation of own action <b>30%</b> grasping
<b>Expert:</b> can evaluate and focus on critical factors in a situation	Actions and situations are synonymous	<b>90%</b> transformation of own action <b>10%</b> grasping

In order to improve their knowledge in the process of professional development, it is important for nurses, when continuing their education in a formal and informal way to supplement their knowledge in the field of pedagogy which can develop nurses' professional proficiency.

### 3. Proficiency aspects of patient education

Authors Morasha E.M. and Moynagh V.D. (Morasha, & Moynagh, 1998) emphasize that proficiency is formed by general skills in interpersonal relationships and communication, analytical and conceptual thinking as well as three levels of professional knowledge: basic knowledge, working knowledge and in-depth knowledge, skills and experience, the set of which includes the ability to apply concepts, principles and techniques appropriate to the situation.

The concept of proficiency includes conceptual, content (Rowan, et. all. 2001), procedural and strategic knowledge. Notable are the knowledge and understanding adjusted to the individual case based on observation, intuition or hidden knowledge, as well as empathy, flexibility and responsiveness of nurses.

It is essential to know when and how to communicate with patients, when and how to educate, understand the right timing for the provision of information, for information replenishment, ensure the provision of repeatability of information, change of the selected information methods, change or postpone part of the educational process till later. This kind of ethical, pedagogical, psychological and communicative aspect is also essential to testify to nurses' professional and pedagogical proficiency.

While ensuring the pedagogical process in the system "nurse – patient", the internal and external amplifiers of the cooperation should be identified and assessed to provide patient-centred education based on the individual's level of comprehensive and efficient information transmission, reception and evaluation.

Understanding the nature and regularities of pedagogy the nurse can actualize the emphases to be observed through the process of education. Nurses must assess patients' cognitive level, cultural differences (Danielson, 2013), develop the ability to make decisions in accordance with the patient's cultural values (Bednarz, et all. 2010), because one solution does not fit all cases. Individualized approach is essential in order to build the patient's expectations and confidence in their own abilities, to develop

patient collaboration in health maintenance, improvement or disease prevention.

The model of the professional development nursing profession's has been adapted by a nurse - Professor P. Benner (Benner, 2001). She describes the level of proficiency of a nurse as the ability "to feel the clinical situations." Professional level of proficiency is a stage between a competent staff- member and an expert, when the adjustment processes of meta-cognitive and ethical knowledge, moral responsibility, professional activity, communication and intuition balance are activated. Intuition as one of the defining characteristics of the proficiency stage and empirical experience extend the nurse's spiritual and intellectual platform. It allows them to deviate from the theoretical ideas, to adopt a decision that is analytical, deliberate, and appropriate to the situation, to apply an appropriate teaching method, a way of collaboration and to predict how the situation is going to progress. Intuition as a phenomenon is difficult to measure (Gobet, Chassy, 2008), whereas the experience factors build an individual's professional self-efficiency can be considered in the light of the social cognitive career theory (Brown, et al 2000).

In the context of proficiency a major emphasis is to be put on the nurse's individual skills to strengthen her personal cognitive balance and tolerance (Haider, 1958; Malle, 2008). Cognitive consequences of balance (Gawronski, Strack, 2012) have an essential meaning in interpersonal communication to exclude the situation 'like – dislike'.

In theory, the term proficiency could be partly attributed to the term wisdom (Uhrenfeldt, Hall 2007; Strode, 2010). A proficient nurse, having identified the expected performance and having supported it by the objective to be achieved, does not forget to evaluate possible achievement indicators that point to the progress of the process or the possible obstacles that require consideration of the repetition, suspension or reformation of the process. A nurse demonstrating proficiency in pedagogy integrates a high degree of self-reflection (personal and professional) based on the analysis of experience and critical action, thus demonstrating an understanding of educational activities and internalisation.

#### 4. Reflection as a component of proficient activity –a constituent part of pedagogical skills

The analysis of proficiency structure, focusing on the education work of the patient, is based not only on comprehensive knowledge, but also on individual values, responsibility, sequential and logical process accompanied by an intellectual skill of reflection. Reflection is based on the assessment of the evidence (verbal, non-verbal), the interpretation of which in the cognitive sphere provides an alternative activity, understanding the context of future relations. "Analysis of personal reflection is a challenge to improve the professional and personal experience" (Marilyn, et. al 2011). Reflection, within the framework of proficient patient education, is an analytical process of a regular "positive routine" activity, feedback from participants and of the personal performance based on cognitive, structural knowledge. Using reflection before action, if the action is planned, during and after the action integrating numerous reflection types according to her experience and knowledge, a nurse develops her personal expertise. Reflection expertise in the analysis of the content of the pedagogical process, the feelings based on the feedback received provide the opportunities for the modelling of the activity during its process. R. Harris (Harris, 1993) describes the diversity of reflection: reflection on the possibilities – putting forward the aim, reflection in action and internalisation or a follow-up reflection.

4. Table Reflection types in the situational context of planned patient education  
Resource adapted according to Valli (Valli's five types of reflection, 1997; Grant, S, Van Sledright, A. Bruce, 2014)

<b>Theoretical reflection</b>	The nurse plans and analyzes future communicative or procedural action using educational methods corresponding to the case, based on declarative (what to do), procedural (how to do) and conceptual (why exactly this method or strategy of activity) reflection in the context of planned patient education
<b>Technical reflection</b>	Each educator/ teacher develops their reflections on the experience and understanding through critical disposition applying large-scale problem solving capabilities
<b>Reflection on if to act and how to act</b>	Thinking involves continuous assessment creating a balance between new and critical information
<b>Cognitive reflection</b>	Holistic assessment of the situation, seeing and stating the total view of the current case, including non-verbal attributes
<b>Narrative reflection</b>	Analysis of patient dialogue, story (voice timbre, content)
<b>Critical reflection</b>	The assessment of patient's level of knowledge and perception, epistemological understanding of the volume of patient's knowledge (what and how he/she knows), detailed analysis of the components of the case and intuitive predictions of the development of the situation
<b>Evaluation reflection</b>	The nurse assesses the patient's verbal and non-verbal responses during and after the educational process, and makes certain that the communication, activities and teaching methods correspond to the case, sees intuitively basing on considerable experience and practice, and feels and specifies the questions the patient has not asked about the situation. Reflecting on her own assumptions, she analyzes the success of the case and imperfections, in general the need to repeat what has been said or to apply another educational method. Procedural autonomy and socially responsible behaviour, changing the tactics and educational methods if necessary.
<b>Personal reflection</b>	Listening to their inner voice

In case of an unplanned patient education situation, there is no theoretical reflection. "Reflection promotes professional, personal development, critical thinking, as well as the results of practice" (Jasper, 2006). Researchers (Strode, 2010; Jarvis, 1992) point out that reflection promotes creativity in pedagogical practice. In the evaluation activity in the context of pedagogical



practice proficiency a nurse integrates circular reflection or the model (Driscoll, 2007) of structured reflection described by the authors Bulman and Schutz (Bulman & Schutz, 2008, 2013), depending on the amount of time of the educational episode.

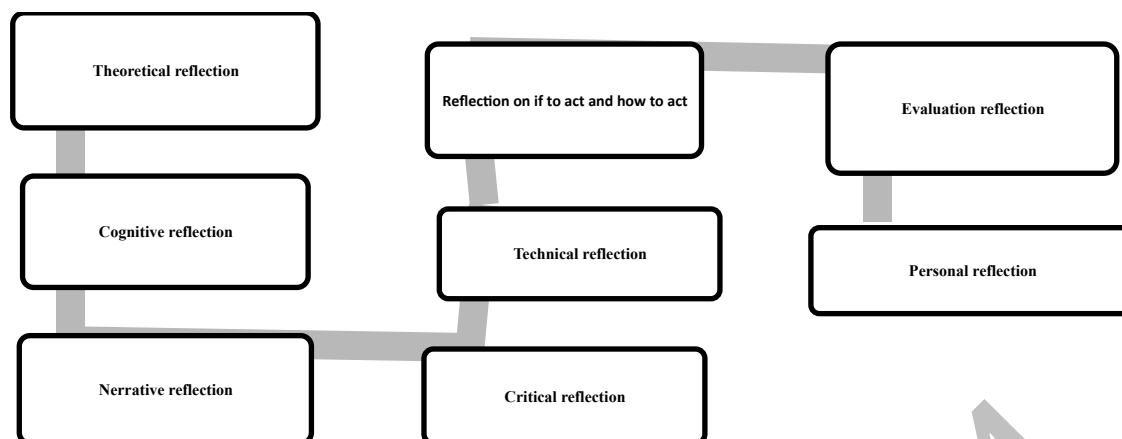


Fig.2. Schematic design of integrated reflection of the pedagogical aspect of proficiency

A nurse, whose professional skills meet the proficiency level, is able to apply different spectra of reflection with professional responsibility in order to optimize her activity, to reduce the patient's actual or potential cognitive dissonance. In the process of patient education synchronous or asynchronous communication is possible. Integration of reflections provides the analysis of the amount of patient understands (if the patient's condition permits) in connection with their feedback.

The professional development in the field of pedagogy in educating patients cannot develop in vacuum. The term – proficient is synonymous with high professionalism that is formed complementary by a high degree of nurses' competence development. Nurses' pedagogical proficiency is based on a set of competencies, which is supported by a wide range of regular activities in health maintenance, improvement or disease prevention, by continuous application of pedagogical skills, evidence-based learning in a formal, non-formal and informal way.

## Conclusions

In the course of Summarizing the theoretical material, as well as having conducted sub-analysis of the studies mentioned in the presentation, it can be concluded that professional proficiency is individually developed professional approach, where the activities focus on procedural, subjective, conceptual and meta-cognitive knowledge and integrate in experience and intuition.

Nurses' proficiency skills in the field of pedagogy promote the cognitive development of patients / relatives / public understanding of the current situation and prospects that can build motivation or reconstruct the system of values of the parties involved. Nurses can professionally position themselves as a knowledgeable health care team member, comprehensively transforming the knowledge necessary for patient /relatives/ public in to areas of health maintenance, improvement or disease prevention.

Carrying out the education of patients, apart from methodological knowledge of pedagogy verbal, non-verbal communication competencies and personal attitudes are crucial for nurses.

Diverse reflection competence is an inseparable component of proficiency when analysing the content of a planned and unplanned pedagogical process, perception and understanding, reactions of people involved in the verbal and non-verbal pedagogical process, that indicate the ability to mobilize for the perception of information, as well as perspective modelling of the potential educational process which promotes health maintenance, improvement or disease prevention.

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# The aspects of spatial cognitive mapping in persons with visual impairment

Hana Majerova\*

*Palacky University, Faculty of Education, Institute of Special Education Studies, Žitkovo náměstí 5, Olomouc 771 40, Czech Republic*

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## Abstract

Spatial mental mapping in an individual with visual impairment can be viewed from several perspectives, as in the case of a person regarded as a bio-psycho-socio-spiritual being. We speak of mental/cognitive mapping in terms of training spatial orientation and mobility on the one hand and psychology of persons with visual impairment, i.e. the process of development of a mental map, on the other hand. An important role is undoubtedly played by lower and higher compensatory functions. Hearing, touch, and partly also smell and taste are, together with mental processes, involved in perception of information, its processing and evaluation. Information perceived through sensorial channels is processed by means of mental processes. In the context of conscious processes, perception and imagination are integral parts of research on consciousness. The paper outlines the issue of spatial mental mapping in a person with visual impairment in the context of spatial orientation and mobility through a comparison of scientific literature and present research trends.

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*Keywords:* Person with visual impairment; Spatial orientation and mobility; Mental mapping.

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## 1. Introduction

In the first place, an individual with visual impairment is a human, a bio-psycho-socio-spiritual being. For such person, spatial orientation is considerably affected by visual impairment, external and internal aspects. At the same time, spatial mobility is dependent upon training lower and higher compensatory functions. For successful orientation, such person develops a spatial mental/cognitive map. In this sense, the mental mapping process and the form of the mental map have certain specifics. This paper outlines an analysis of scientific papers and contemporary research on the issue in terms of development of individuals with visual impairment. The paper is a theoretical basis of the issue of perception, which is addressed by the author in her dissertation. The possibilities of perception of the target group reach beyond current research and focus on new and quality-different perspectives, closely correlated with an ongoing project at the Faculty of Education, Palacky University, Olomouc (Ref. No. Pdf\_2014\_008).

## 2. Background for analysis of current research trends

According to Finková, Ludíková, Růžicková (2007) a person with visual impairment is any individual suffering an eye defect or disease that causes problems in ordinary life even after optimum correction. Vágnerová (2008) adds that an individual with visual impairment is a person who cannot perceive easily and precisely all visual information; this dimension of the outer world does not exist for such individual or is very limited. It should be noted that the outer world has many dimensions for a person with visual impairment. These dimensions are used to perceive and process information of various quality and quantity. According to the information theory this involves a comprehensive approach to an individual in the context of a bio-psycho-socio-spiritual information aspect. In special education of the visually impaired the information aspect is closely related to compensation. Compensation is understood as a substitute for decreased performance of an organ through increasing another one. Lower compensatory functions include hearing, touch, smell and taste; higher compensatory functions include memory, attention, thinking and imagination (Edelsberger, et al., 2000). This implies that the process of spatial mental mapping involves hearing, touch, smell and taste as well as memory, attention, thinking and imagination. Similarly, will and emotion significantly affect the way an individual uses information in the development of a mental map.

Apart from defining an individual with visual impairment from a holistic viewpoint and the concept of compensation, we should also comment on space, spatial orientation and mobility. Space can be defined as a phenomenon into which objects are inserted and certain boundaries are defined (Jesenský, 2007). In space an individual moves and performs daily routines. Successful orientation is subject to internal factors, the person, and external aspects, i.e. arrangements in traffic, public areas, buildings, etc. (Wiener, 1986). In English speaking countries, the concept of 'orientation and mobility' is, in an educational context, defined as learning concepts, abilities and techniques required for safe, efficient and elegant movement of a person with visual impairment in an environment, under various conditions and situations. At the same time, orientation is regarded an ability of an individual to

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\* Corresponding author. Tel.: +420737359263

E-mail address: H.Majerova@seznam.cz

use the different senses to understand the location in an environment in a certain moment (Jacobson, 1993). Mobility is then a set of movements that allow body relocation and work (Hartl, Hartlová, 2000). In case of an individual with visual impairment this leads to re-capacitation in all life spheres (Wiener, 1986). Finková, Ludíková, Růžičková (2007) specify the methods of training spatial orientation and mobility; this includes learning the components of spatial orientation and mobility, long stick technique and orientation analytical-synthetic activity. The main components include walking with a sighted guide, and safety postures, so-called finger trailing. The white stick walking technique requires the ability of basic grasp, pendulum, trailing and diagonal technique. The orientation analytical-synthetic activity involves work with points and signs of reference perceivable through senses. It should be noted that in this 'orientation analysis and synthesis' includes a certain theoretical basis for spatial mental mapping by persons with visual impairment.

Spatial mental mapping in an individual with a disrupted dimension of visual perception of the outer world is very specific. A simple diagram below (Fig. 1) implies that the process of development of mental maps includes the individual with visual impairment as a distinctive entity using lower compensatory mechanisms, with an own internal dimension and potential for higher compensatory functions. Movement in a space then involves the dimension of the external environment, physical world that surrounds the individual. The process of development of a mental map involves the interaction of the internal and external dimension, these levels can overlap.

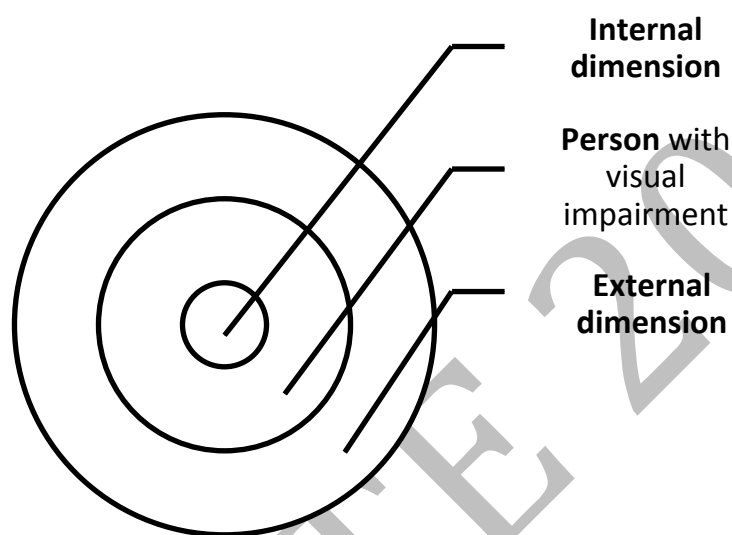


Fig. 1 Dimensions of mental mapping in spatial orientation in a person with visual impairment

The process of spatial mental mapping encompasses the perception and action space. The perception space is a subjective mental representation of the environment. Within such environment, each person chooses various stimuli (interest in various things, situations, orientation is subject to various environmental elements, various emotions are experienced, various memories created). The action space expresses representations currently considered by the person. The practice of spatial orientation and mobility further includes certain spatial stereotypes, which means that in most cases a human has a tendency to use routine habitual places. We speak of a certain space of activities, mental representations of an environment with specific and stereotyped way of using the space (modified according to [http://ucitele.sci.muni.cz/materialy/86\\_1.pdf](http://ucitele.sci.muni.cz/materialy/86_1.pdf)). This implies that special mental mapping in a person with visual impairment includes the external and internal dimension, perceived and action space.

It is obvious though that this is a process that can be divided into several logically following stages. This process of development of a mental map is based on information from the external environment perceived by the individual through the senses. This information is passed on to the brain for processing and development of an environmental representation. The process of spatial mental mapping is defined by the following four basic stages:

- Obtaining information through the senses.
- Selection and conscious processing.
- Storage in the form of spatial representation.
- Decision making, movement and orientation based on the stored representation ([http://ucitele.sci.muni.cz/materialy/86\\_1.pdf](http://ucitele.sci.muni.cz/materialy/86_1.pdf)).

Using the above in the context of our target group offers certain differences that can be summarized as follows in compliance with the methods of training spatial orientation and mobility in a person with visual impairment:

- Obtaining information through lower compensatory functions, or remaining vision.
- Use of higher compensatory functions in data selection and information processing.

- Storage of spatial representation with respect to differences in obtaining and processing information.
- Spatial orientation and mobility in an individual using spatial mental mapping.

The result of the process of mental mapping in the context of spatial orientation and mobility in a person with visual impairment is a mental map. The form of a mental map of an individual is subject to the level of development of lower and higher compensatory functions. In the context of the senses we anticipate some differences caused by disrupted visual perception. In terms of the higher compensatory functions the decisive aspect is the level of memory capabilities, attention and imagination (Majerová, 2014).

### **3. Theoretical assessment of possibilities of development of mental mapping in spatial orientation and mobility in a person with visual impairment**

#### *3.1 Selected trends in current research*

Research by Lahav and Moiduser (2011) was conducted at Tel Aviv University, Israel. The main objective of the research study was the development of haptic virtual environment for effective development of cognitive maps in individuals with visual impairment (supported by Microsoft and the Ministry of Education of Israel). Below are the published results of the study. In the development of mental maps an individual uses two main types of scanning strategies: route strategy and map strategy. The route strategy is based on linear spatial features, whereas the map strategy encompasses more perspectives of the target location. People with blindness tend to use the first strategy type although the perception of relevant spatial information through compensatory sensorial channels contributes to mental mapping of locations, which can improve the performance of these individuals in spatial orientation.

The authors correlate the issue of mental mapping with the following three areas: development of multi-sensory virtual environment (through which blind people can get familiarized the space); systematic study aimed at comprehensive activation of abilities in a blind person using the virtual environment; research of the benefits of this mapping for blind individuals with respect to the development of their touch.

In the study, the haptic virtual environment allowed an individual to actively learn to develop a mental spatial map through compensatory sensorial channels (compensatory functions). The true space in which the individual lives was simulated by means of a multi-sensory virtual environment. In the study the virtual environment included two operational modes: teacher mode and learning mode. The teacher mode was used to define the environmental characteristics (room size, type, objects and their characteristics, doors, windows, sound-differentiated surfaces such as wooden flooring, grass, etc.) The editor provided both haptic and sound response. The teacher mode involved operations for students as well as teachers. The user was allowed to go through the virtual environment using a feedback joystick, with tactile feedback being provided (as perceived through feet in an environment) by means of the joystick (texture, surface imitation), and auditory feedback (names of objects in an environment, sounds of windows, doors). The individual moved through the virtual environment using navigation that reacted to the individual being lost.

Based on the virtual environment the research focused on ways in which a blind individual can use an environment to construct cognitive maps and orientate in a real space. First the individual moved in a virtual environment according to instructions, then the person was supposed to move to a real space. The advantage of the virtual environment was a possibility to use repeated space (room) mapping, which provided the individual with sufficient information and varied feedback. Lahav and Moiduser (2011) assume that these virtual tools could become a sound support for the blind in the process of learning and understanding new phenomena of the real world. For more information on the research see the authors' text (<http://muse.tau.ac.il/publications/99.pdf>).

Although the world of technology is under constant development, we do not consider this trend the only way of development as far as special education is concerned. Special education of persons with visual impairment as a humanity field, despite a considerable technology influence, should not become a science of an artificial system. Special education is a science of a live system, not of an artificially developed one. We do not mean to exclude any technical devices from education, socialising, personality development promotion; however, care should be taken so that special education becomes a science of a human. Below are mentioned some ways of supporting the development of abilities of mental mapping in a person with visual impairment from a perspective other than information and communication.

#### *3.2 Mental training of higher compensatory functions*

In the context of spatial orientation a person with visual impairment must be capable of immediate concentration, evaluation and control of the actual spatial situation. Humans naturally use mental maps; however, it is assumed that the process of their development and application can be improved. In this respect we would like to highlight the importance of training the lower compensatory functions as well as the ability to concentrate, relax immediately and use all available information from the internal as well as external environment of the human body. Through various mental hygiene and visualisation based exercises the stimulation of higher compensatory functions can be supported, which in turn can be used to support the lower compensatory functions in practical situations. A key aspect is permanent and adequate encouragement of the nervous system. In her thesis, Majerová (2014) provides a list of practical recommendations in the form of training attention, imagination and memory. With a

reference to experiments described in scientific literature, Požár (2000) confirms that auditive attention in blind people is more differentiated and has a wider extent. These individuals are capable of fine differentiation and permanent concentration of attention. Nakonečný (1998) defines attention as a state of body activation that allows conscious adaptive reactions. It should be added that the training attention in a person with visual impairment requires external as well as internal stimuli. For immediate relaxation in a difficult spatial situation we can recommend the training of conscious attention through daily mental hygiene, e.g. in the form of breathing exercises, training of relaxation and meditation, training of concentration using an accumulation point (the term comes from yoga and refers to a point on which a person concentrates in line with conscious breathing), etc. Hypothetically speaking, regular performance of stimulation exercises has an influence on the central nervous system, improves attention, and secondarily allows more efficient development and use of mental maps in spatial orientation. Appropriate exercises support human development through own activity, not just technologies and computer systems that are widely used today.

In the context of imagination of a person with visual impairment, Lopúchová (2010) defines images as a higher degree of a sensory picture that reaches beyond a simple reproduction of sensory experience. Impaired or missing vision affects imagination, where the structure of visual perceptions consists of current visual perception and previous experience of an individual. As a result of impaired vision, visual perceptions differ. It should be noted that practical imagination training involves stimulation of this higher compensatory function, but can also be used to support the training of lower compensatory functions used in practical life.

Imagination improves throughout everyday activities performed by a person with visual impairment in line with compensatory functions by means of immediate experience. Accordingly, mental hygiene exercises can contribute to more effective use of imagination (mental maps). The application of images in autogenic training is familiar to almost all auxiliary professions. In practical concentration of attention, such person can add visualization in the form of mental involvement of a specific sense. A person blinded later learning the Braille can imagine e.g. clear perception of the Braille text as the person's fingers trailing on the paper and the individual perceives what is written. Similarly, such visualization can be applied in typhlography classes including reading of typhlographic maps, plans and their projections. Stimulation of a notion that an individual clearly recognizes typhlographic signs involves the skin-muscular system and touch; moreover it serves as positive stimulation for practical training as a motivation factor. Such everyday activity need not take more than a few minutes, during which the person performs a mental hygiene relaxing exercise and then involves visualization. It should be added that also the training of distinguishing sounds in spatial orientation should involve similar training (a person consciously recalls individual sounds that were distinguished in practical training, e.g. in a traffic situation). Accordingly, smell and taste images can be included, eventually all mentioned compensatory functions can be joined by the individual within a visualization exercise in a specific or model situation. Also, typhlographic training, i.e. work with typhlographic projections or own typhlographic work, contributes to better development of images. The same applies to a simulated virtual environment that combines an own individual activity and an information-communication tendency.

As far as memory is concerned, let us recapitulate the above mentioned process of developing a mental space map in a person with visual impairment with respect to memory mechanisms. The process is performed as follows: obtaining information through lower compensatory functions or remaining vision → application of higher compensatory functions in data selection and processing → storage of spatial presentation with respect to differences in data obtaining and processing → spatial orientation and mobility using mental space mapping. This process of using information and development of a mental map is specific in a person with visual impairment; however, it is not exempt from general biological and psychological principles. Therefore, generally promoted and existing approaches with minor modifications can be applied. For example Preiss and Křivohlavý (2009) defined a concept of 'Memory and cognitive function training' that can serve as a source for typhlopedia professionals. Lopúchová (2010) adds that especially acoustic verbal memory in persons with severe visual impairment softens as a result of increasing demands and improves in comparison with intact individuals. Memory and cognitive function training is thus an inseparable part of everyday life. By means of the above mentioned comparison of literature and practical exercises we have not used all opportunities in the area of supporting mental mapping. For the readers the text should become an inspiring source for further study and practice.

#### **4. Neuroscientific insight and results of theoretical analysis**

Information transfer in the nervous system is based upon synaptic and extrasynaptic transmission (glial cells communicate with neurons through ions in intercellular liquid). The processes generated by the brain in analysing an image or delivery of conscious statuses, etc. cannot be interpreted purely on the basis of neuronal or extraneuronal signal transmission. Quantum mechanics is a part of quantum physics but, contrary to Newton's mechanics, considers wave and probability character of particles that form mass described by energy, electric charge and spin. Each submicroscopic particle is of a dual nature, i.e. wave and corpuscular. At the same time, particles perform movement and take a position indefinite in space and time (non-locality). However, once they interact with the environment, the wavelength of the particle collapses. The collapse takes place at a single measurement moment and can influence an extensive area. Apart from the mentioned physical description of quantum phenomena, Dylevský (2009) adds that in the central nervous system quantum processes can take place in the intercellular space

bordered by cell membranes that are impermeable for a number of particles. The intercellular space presents an extensive communication channel that allows quantum particle transmission to any place of the system without particles moving between the places.

This is possible in quantum physics due to the mentioned collapse in the intercellular space (decoherence of particle wave function). This intercellular space is bordered by cell membranes with high ohmic resistance. The key aspect is that quantum phenomena take place at the scale of atoms, ions and all (some) small molecules. The central nervous system uses particularly calcium ions for intercellular communication but also electrons freely bound in ionized groups or smaller molecules of proteins and lipids, neurotransmitters and neuromodulators (peptides). Quantum changes take place incessantly in the brain structure, new connections emerge and those relevant to the system status are selected. It is likely that quantum connections transmit relatively simple information. Quantum principles of information transfer are still under research. According to the quantum theory, in the central system everything should be linked with everything. In human practice however, short-term connections are developed first, some of which might become long-term. The issue of reality of quantum images are associated with the period of brain development in fetuses and children. The activity of a child's nervous system is influenced by apheresis, i.e. dominance of information supply along with function and memory trend. At the beginning there is no trend in a child's brain – it only reacts to the current offer, gradually a continuity of functions is developed. This aspect of a child's brain rather corresponds to the quantum model, an adult's brain to the Newton's model (Dylevský, 2009).

Mensky (2010) further mentions quantum mechanisms in a close association with the research of consciousness (states other than full consciousness such as sleep, trans, meditation). A change in consciousness is a process of super-cognition; in respect to consciousness we refer to super-consciousness. Some of the phenomena associated with consciousness are linked with religion, oriental philosophies, parapsychology, esoteric doctrine. The author emphasises that the quantum concept links with the theory of consciousness similar to super-intuition phenomena, i.e. direct vision of truth. It should be noted that quantum mechanisms and consciousness were analysed in the past (Carl Jung, Roger Penrose). Gradually, efficient mathematic measuring tools were developed. The so-called Many-Worlds interpretation of quantum mechanics/Everett's interpretation could play an important role in the associations between quantum mechanisms and consciousness. This area undisputedly concerns neuroscience as well as quantum physics, which makes it a multidisciplinary topic (Panov, 2013).

In the context of the above it should be noted that a person with visual impairment cannot be excluded from the application of the quantum theory in terms of functionality of the nervous system. A significant aspect is the relation between quantum mechanisms and consciousness, as is the hypothesis of particle transmission into any place of the system without particles moving between these places, where in such system, in simple terms, everything is connected with everything. From this perspective, influencing the central nervous system in an active way embodies a new dimension. Adequate stimulation can support the development of those parts of the brain of a person with visual impairment with partial or none involvement. Attention should also be paid to the aspect of brain plasticity noted by Kulišťák (2011).

## 5. Conclusion

Targeted training of spatial mental mapping in an individual with visual impairment has theoretical as well as practical reasons. At the same time, this issue is related to the neuroscientific as well as special education dimension. The training of spatial orientation and mobility in persons with visual impairment is characterized by comprehensive methodology; however, spatial cognitive mapping has not been presented as a separate area in the Czech Republic. For this reason we would like to emphasise the definition of spatial mental mapping as an integral and distinctive area within the concept of training spatial orientation in a person with visual impairment.

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# The assessment of drawings of 5 grade students in the state or private schools, according to the different variables

Pesent Dogan

Marmara University, Atatürk Faculty of Education, 34722, Istanbul, Turkey

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## Abstract

Art education is a field of education which is given importance and regularly conducted throughout the contemporary and civilized world. At present, in the education of students of different age groups in every civilized country, capability development studies are conducted as drawing studies and it is an important subject. It is known that visual art education in public and private schools in our country will have a significant influence on the careers of students in their future lives.

The objective of this study was to evaluate the creative ideas of 5th graders who had visual art lessons using the same programs in public and private schools in 2013 – 2014 academic year and the evaluation was performed according to different variables.

This study was performed on 20 students from public schools and on 20 students from private schools and their studies in art education classes were evaluated with respect to their use of materials, techniques, themes and creative approaches, and the results were interpreted by means of qualitative research.

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**Keywords:** Visual Arts Education; Creative Thinking; Teaching Methods

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## Introduction

Contemporary and civilized countries in the world, have attached importance to the art education throughout their histories. Arts have taken part in the curriculums with scientific publications, conferences and courses.

Making the topic of culture is an importance factor for governments in order to show that they are advanced. Therefore, it has been an important decision to attach importance to art and culture in the education in the republic period. Visual courses of art education, without any doubt, will affect our students in the future when they have their jobs.

This is an important discipline in the cultural and scientific aspects that, there is no difference between the curriculum of painting lessons in state schools and private schools. When the cultural future of the country is taken into consideration, in order to keep the skills and achievements of generations and to maintain the equality of opportunity, it should be kept in mind that, the curriculum of state and private schools should be same and this policy should be continued.

Exhibitions, conferences, concerts, painting, music, drama lessons, activities of press are important events that organize the development of countries. If the painting, music, literature and science lessons are good from the beginning of the primary education, these events gain importance. Children, give messages about themselves, talk to us, with the works they do through painting, music, writing and drama. Children think multidimensional, have high self-esteem, have a sense of aesthetic, and become creative, civilized individuals. (Striker, 2005)

A child, at age of 11 and 5<sup>th</sup> grade and have normal skills, may not be able to use the scientific and technical concepts like perspective, light, shadow, volume in arts and science. As it is known, perspective is not taught at this age level because it has no place in the curriculum as a technical knowledge. But, if the teacher recognizes a special skill in the students about that he/she can help the students to enrich it. Besides, it is useful that, to give special attention to the students who have a special skill about painting.

It can be useful that, the teachers make work students about the topics, objects that are easier and building a lot of visual contact, in order to maintain the love and curiosity of students in painting if they have. Also, teachers should make five graders who are 11 years old, work relax, and keep the charm of painting lessons, with encouragement.

In addition, the concentration span increase and the actions become more independent. At this stage, friend relations start to gain a lot of importance (Pektuna Keskin, 2012).

Children at these ages, create their art with a tendency to reality. Children construct a relation between colors and objects, on

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\* Corresponding author: Tel.: +90-532-663-1988.

E-mail address: present@marmara.edu.tr

the other hand teachers try to give information about colors. May be the best way is, to mature the relation of color and the children, with leaving them on their own (Kehnemuyi, 1992).

Researches on children at this stage show that, children are interested in details and they have less and less tendency about showing their paintings. They do not choose the colors randomly, instead, they start to choose colors in more realistic ways. (Yavuzer, 1992).

Therefore, teachers should work on to encourage the students to reflect their imagination to their arts. Improving students' imagination and hand skills can enable students to paint more successfully. In order to do that, student – teacher ratio should be low.

Drawing the fairy tales that children listen to from the early ages at home, is another important factor in the aspect of improving the imagination. It should be kept in mind that, cinema, the technical scenes of TV in today's world enrich the imagination of children and shadow plays like Karagoz – Hacivat in the past, enriched the imagination of children.

In addition, giving colored examples from the history of arts and mythology lessons, since mythology lessons stimulate the creative thinking, will be useful to enrich the imagination (Gurtuna, 2005).

## Method and Exemplification

This study has been made in a state school named Gazi Mustafa Kemal Pasa Secondary Education School and a private school Ahmet Yesevi in the 2013 – 2014 academic year, with five grade students who are 11 years old and take painting course, by using qualitative research methods related to different variables and assessing them.

20 students participated in the study. Free and colored drawings of participated students were analyzed in the study.

## Means of Data Collection

Works of five grade students who are 11 years old are taken as a basis and data were collected, assessed with qualitative research method and final report were prepared

## Evaluation Criteria

Table 1. Use of Material

Use of Material	Number of Students who use the materials – State School	Number of Students who use the materials – Private School
Pastel	15	2
Water Color	-	-
Dry Paint	4	6
Ink	-	-
Magic Marker	-	2
Mixed Material	1	10

About the criteria: In the use of material, the state school and the private school are different. For example; in the state school pastel use rate was %75 (15 students), in the private school that rate was %10 (2 students). If we take into consideration that, physical conditions are not enough and the number of students is higher in the state schools, students can paint with pastel more easily. Dry paint usage rate was, %20 (4 students) in the state school and %30 (6 students) in the private school. In the private school, magic marker use rate was %10 (2 students). In the use of mixed material, the rate of state school was only %5 (1 student), while in the private school the rate was %50 (10 students). It can be related to the more space and painting ateliers in the private school, and this creates better opportunities for students.

Table 2. Technique

Technique	Number of Students who use the technique – State School	Number of Students who use the technique – Private School
Pastel Technique	15	3
Water Color Technique	-	1

Collage	-	-
Dry Paint Technique	4	9
Scraping Technique	-	-
Pressing Technique	-	-
Lavi Technique	-	-
Mixed Technique	1	7

In the use of techniques, pastel technique usage rate; in the state school, it was %75 (15 students) and in the private school, it was %15 (3 students). Water color technique usage rate; it was %5 (1 student) in the private school, it was not used in the state school. Dry paint technique usage rate; in the state school, it was %20 (4 students), in the private school, it was %45 (9 students), mixed technique usage rate; in the state school, it was %5 (1 student), in the private school, it was %35 (7 students)

Generally pastel technique, was the most popular one; %45 (18 students). Dry paint technique was the second; %32.5 (13 students). Mixed technique rate was; %20 (8 students) and the last one was water color technique just %2.5 (1 student). Collage, scraping and pressing techniques were not used by any student. Maybe the reason for that, these techniques are relatively harder.

Table 3. Organization (Composition)

Organization (Composition)	State School Students		Private School Students	
	Yes	No	Yes	No
Using of Space	13	7	20	-
Proportion among objects	5	15	17	3
Using the whole paper	14	6	15	5
Using of figures	17	3	19	1
Written expression	8	12	17	3
Depth perception	4	16	10	10

#### Organization (Composition):

Using of Space in the state school and in the private school respectively: %65 (13 students) and %100 (20 students).

Proportion between objects in the state school and in the private school respectively: %25 (5 students) and %85 (17 students).

Using the whole paper in the state school and in the private school respectively: %70 (14 students) and %75 (15 students).

Using of figures in the state school and in the private school respectively: %85 (17 students) and %95 (19 students)

Written expression in the state school and in the private school respectively: %40 (8 students) and %85 (17 students).

Depth perception in the state school and in the private school respectively: %20 (4 students) and %50 (10 students)

Private school students achieved higher rates in all parts of the composition branches. It can be said that, opportunities like the ateliers in the private school, the concern of teachers, the transfer of information and the caution, skills of the students may have been the reasons.

Table 4. Use of Colors

Use of Colors	State School Students		Private School Students	
	Yes	No	Yes	No
Student used the real colors of objects	17	3	19	1

Use of colors: Private school students used the real colors of objects with the rate of %95 (19 students) and the state school students used %85 (17 students).

The skills and imagination powers of the students in both schools who painted the objects with unreal colors can be investigated.

Table 5. Creative Approach

Creative Approach	State School Students		Private School Students	
	Yes	No	Yes	No
Using of different perspectives	4	16	14	6
Using the colors in a free way	7	13	11	9
Diversion in the movements of figures	8	12	15	5
Details in the objects and figures	6	14	17	3

#### Creative Approach:

Using of different perspectives; in the private school: %70 (14 students), in the state school: %20 (4 students)

Using the colors in a free way; in the private school: %55 (11 students), in the state school: %35 (7 students)

Diversion in the movements of figures; in the private school: %75 (15 students), in the state school: %40 (8 students)

Details in the objects and figures; in the private school: %85 (17 students), in the state school: %30 (6 students)

In the criteria of creative approach, state school students could not reach %50 rate, the highest rate was %40 (diversion in the movements of figures). On the other hand, private school students passed %50 rate in all criteria.

#### Data Analysis

In the study, the topics that 5 grade students try to express, were assessed.

In the analysis and assessment of drawings, qualitative research methods were used. Understanding the drawings and making comments on them is an inseparable part of the qualitative research. Qualitative research is not a research that we degrade the data into numbers, yet numbers can be used in the qualitative research.

But numbers may not be sufficient, to assess the drawings of students, comment on them and show the difference between composition and thought. In order to make the final report descriptive, the qualitative research methods should be used (Glesne, 2012).

In the study, drawings of 5 grade students (40 students overall), were analyzed. There were 5 main topics and groups of topics related to them. These topics were proportionated with the number of participants.

#### Results and Implications

The differences between 40 students at five grade and go to a state and a private school in the 2013 – 2014 term, analyzed with different variables and qualitative method, are below:

In the aspect of classification of the topics there were obvious differences between the drawings of private and state school students. Private school students showed different numbers in the topics like using of materials, techniques, composition, using of colors, creative thinking.

In the state school, the numbers of the materials and techniques were limited, on the other hand in the private school, students used a variety of materials and techniques, with the help of financial possibilities.

These diversions enabled them to use the parameters that help the expression in composition. Private school students were more successful, in the organization on the drawing paper, space perception in the composition, depth perception, proportion among objects, using the whole paper, using of figures, written expressions, explaining the topic of the drawing and composing it with their imagination.

It was realized that, students in different school but go under the same curriculum, were different in the aspects of creative approach and using of colors.

In this study, the power of art education in self – expression, ateliers, providing of materials, visiting more museums and exhibitions, the lesser number of students in private schools and the relation between teachers and students, are thought to be effective.

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# The assessment of learning: from competence to new evaluation

M. Calenda<sup>a</sup>, R. Tammaro<sup>b</sup>

<sup>a</sup>University of Salerno, via Giovanni Paolo II, Fisciano (SA) 84084, Italy

<sup>b</sup>University of Salerno, via Giovanni Paolo II, Fisciano (SA) 84084, Italy

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## Abstract

When we talk about learning assessment, we refer to something extremely complex, then we usually reduce it to two main polarities: the result and the process of learning, the former referring to the learner's achievements, the latter to the process by which the achievements have been attained. In this work, we take up the concept of competence as the concept around which to organize the formative process, the key-word for the project and the evaluation, the standard direction for the didactic action. Without going into the merits of learning theories, relating to educational psychology, whose analysis is not within the sphere of this contribution, we will restrict our work to the analysis of the relation among the new learning paradigm, the concept of competence, developed in accordance with this paradigm and the process concerning the assessment.

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## 1. Introduction

When we talk about learning assessment, we refer to something very complex which we usually reduce to two polarities: the result and the process of learning, the former referring to the learner's achievements, the latter to the process by which they are attained. Evaluating the formative product means to judge on the results of teaching and learning integrated process, whose effects can be controlled by considering the subject's specific performances. Teaching is a process whose aim is the attainment of the planned objectives, organized for guiding and developing learners' knowledge processes. These processes can concern both knowledge acquisition and the attainment of particular levels of ability and competence. The teaching results are, in this terms, the learners' performances by which we can infer the kind of abilities and competences achieved; to verify the performances is a fundamental moment as well as an essential step in scholastic and educational contexts, to check up the achievements of the programmed teaching in terms of abilities and competences acquired by learners.

The assessment is the complexity synthesis process and its aim is the comprehension of the variety and qualitative diversity of educational process, interpreting them by the light of singly and collectively assigned values and meanings (Notti, 2010).

In this work we take up the concept of competence as the one around which to organize the formative process, the key-word for project and assessment, the standard direction for didactic action.

Without going into the merits of learning theories relating to educational psychology, whose analysis is not within the sphere of the present contribution, we will restrict our work to the analysis of the relation existing among the new learning paradigm, the concept of competence developed in accordance with this paradigm and the process concerning the assessment.

## 2. Body

Pellerey defines competence as the ability to deal with a task or a group of tasks, by orchestrating one's internal resources, cognitive, affective and volitional, and using coherently and creatively the external ones (Pellerey, 2004). This definition is the final point of the evolutionary process that the concept of competence has encountered in the course of time, a process begun with the identification of competence with the measurable and observable behavior, up to the present conception of competence as complex and articulated learning, closely connected to an action context.

We are going to try to synthetize the main points of this evolution, briefly retracing the steps which, from the behaviorism and the tylerian programme, have led to the affirmation of CSSC learning new paradigm (de Corte, 2010), at present prevailing in the

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\* Corresponding author. Tel.: +0-039-089-96-2621.

E-mail address: rtammaro@unisa.it

field of educational psychology. Borrowing the expression which has affirmed itself worldwide, we can synthesize this paradigm by the term CSSC learning, to indicate its peculiarities: constructive, self-regulated, situated and collaborative.

Tyler (1949) singles out four principles to be followed in the construction of formative curriculum:

- the clear definition of the objectives to be achieved;
- the selection of formative experiences;
- the sequential organization of individuated formative experience;
- the objectives achievement assessment.

Beginnings from the tylerian programme, a movement starts in the English speaking world around the sixties, a movement particularly careful about the competences actually attained at the end of a formative process. In the range of this paradigm, the stress is laid on the precision with which to define the objectives in terms of observable and measurable behaviors at the end of a formative process. The following interpretations of this trend in the formative field, and we can quote authors like Mager, Tyler's disciple, Bloom, Briggs, Gagnè, have led to associate and use them as synonyms, the term competence with behavior, meaning by competence.

The behavior that the subject is able to put into action as regards a particular range of actions and in particular conditions the competences attained are assessed thanks to the observable behavior, stressing the performances and the analysis of the task connected with them. In these terms, competences prove to be similar to procedures obtainable through programmed forms of teaching. This kind of conception feels evidently the behaviorist mark and has carried on its explanatory effectiveness in regard to the concept of competence also in the following decades. In the sixties and the seventies, in the wake of the preceding consideration, some methodological structures come out such as learning by mastery, standards assessment, minimum competence assessment, the formation based on competences.

These different approaches present some common aspects, which can be synthesized in the following points:

- focus on the results to attain and not on the process;
- centrality of the context in order to single out the competences to develop;
- the expected results in terms of observable competences;
- the assessment is expressed in judgments on specific performances.

The subject's behavior as an element characterizing the competence is an aspect considered also at present in the approach by competence; nevertheless, thanks to the development of some tendencies in educational psychology, as the constructivism, more careful about the learning processes, when we talk about competence, we consider as central the subject's interior aspects as well as the external ones. the cognitive approach, for example, departing from the typical behaviorist concept which affirms the preminence of manifest behaviors, shifts the attention onto subject's internal processes (Pellerey, 2010).

The new learning paradigm starts from this point and develops in parallel with the socio-constructivist thesis, maintaining that learning can be defined: constructive, self-regulated, situated and collaborative. In particular, it defines itself as a reconstruction of what the subject already disposes (knowledge, skills, patterns of thought, etc.) therefore representing the definitive overcoming of the subject/object opposition, generant of two opposed views in the past. The objectivist view, centred on external reality and based on a learning concept as the subject's adaptation to the external reality, and the subjectivist view, centred on internal reality, based on the learning conception as evolution of subject's mental structures.

Therefore, stressing the relational nature of knowledge, constructivism cancels the subject/object antinomy (Castoldi, 2012). The subject plays an active role in the knowledge construction process ( self-regulated learning) because he directs his own learning process, thanks to metacognition, which allows him to conduct and monitor the workings of knowledge acquisition, and puts into relation the different learning dimensions: cognitive, affective, volitional (Pellerey, 2006). The learning is situated, that is anchored to the social context which the subject acts within and with which he sets up relations, and it is collaborative since it is generated from personal interactive process in social context as well as on the basis of the appropriation of the socially built knowledge (Mason, 1996). The cognitive process, therefore, is one of active meaning construction.

We have stated that the first definition of competence, recalling a behaviorist view, identified competence with a behaviour observable by the subject. When this view has developed in a socio-constructivist way, the concept of competence has progressively changed from three points of view, or evolutionary directions (Castoldi, 2009): from simple to complex, from external to internal, from abstract to situated.

The first direction refers to the fact that competence is by now largely conceived as integration of resources already in subjects possession not only as regards the sole cognitive dimension, but including also socio-emotional, motivational, meta-cognitive and volitional elements; secondly, we assist to the shifting from the external to the internal, that is the recognition of the centrality of the subject's interior dimension and the ways by which he performs a given task, rather than considering only the external aspect, the measurable behaviour. Finally, competence is compared to the ability of performing a task in a context and in specific operative conditions; in this term competence expresses itself in making use of one's knowledge, in order to attain an objective. In short, the definition of competence collects the different meanings implied in a perspective of construction and socio- cultural learning. Relating to the concept of competence, a heated debate has developed in the last twenty years, producing a variety of approaches and interpretations with remarkable effects on the perspective of educational and scholastic system.

We have witnessed a progressive shift of attention from acquired abilities to the abilities related to the integrate knowledge to perform complex tasks both external and internal to school. In accordance with an epistemological approach, modelled on

socioconstructivism, the competence construction has become central in educative field determining an important rethinking of teaching-learning process and remarkable changes related both the didactic praxis and the assessment methods used by teachers. The overcoming of a static concept of knowledge is being put into practice in favour of a new view which allows the subject to adapt to changeable conditions of social and working life, through the knowledge (Castoldi, 2011). States that the assumption of the competence construction as the barycenter of formative action, allows to retrieve an holistic and integrated view of the learning process, orientated to stress the importance of transferring knowledge in real contexts. Nevertheless, we must not forget that one of the main presuppositions of the competence is the knowledge construction, regarding the fact that the competent subject must dispose of a large and consolidated totality of acquisitions and dispositions, of a rich knowledge of which he can make use to solve problems and perform tasks appropriately.

Recalling Pellerey's definition, from the opening of this work, we remember that one of the most significant aspects of competence is the activation of the subject's own resources, with the utilization of context resources and the referring to a precise task. In the exercise of his competence, the subject has recourse to a multiplicity of resources, of which Le Boterf (2010) gives the following tripartition:

- to know how to act;
- to want to act;
- to be able to act.

A person is put in a position of being able to exercise competence if she/he knows how to act to tackle a task, but also if she/he is in the condition to be willing to display the necessary efforts required by the situation and when the context permits and legitimized his possibility of action (Maccario, 2012). At the basis of competence formation we necessarily consider the whole of the subject's external and internal resources, meaning by the latter, for example, the socio-relational and organizative aspect present in the context, where he has. Among the subject's internal resources, we can include motivation (conative dimension), metacognition and the different dimension implied in learning process (cognitive dimension): the abilities and the dispositions to action. To promote such a complex learning as competence, it is indispensable that learners acquire a basis of knowledge, in primis the knowledge which, in order to form a sound basis of knowing how to act must be organized in a steady and potentially available manner.

One of the main tasks of school is therefore to promote into learners the acquisition of knowledge, considered as the result of a learner's personal construction which the subject elaborates as a synthesis of external stimula and codified knowledge. According to a classic definition, knowledges can be: declarative, procedural and conditional. The first are factual and refer to phenomena, events, names, meanings; they can be organized as mere information or concepts and recall to "know that". The second make it possible to act, they refer to "how to make", that is to the algorithms to follow to perform a task and recall "to know how"; the conditional or contextual knowledges describe the conditions of utilization of declarative and procedural knowledges (Marzano, 2013).

In order to favour the acquisition of declarative knowledges, teachers can use specific strategies aiming to give meaning, organize and fix what the subject has learned. Primarily, students should be made capable to make previsions recalling the preceding experiences and linking the new knowledges to them; secondly the students should be capable to organize the declarative knowledges, recognizing the main elements of a subject and its possible connections with other subjects. Finally, in order to activate them, it is necessary that the students are able to memorize consciously the declarative knowledges. To construct the meaning of declarative knowledges and organize them coherently, are process which help learners's comprehension and memorization.

Procedural knowledges recall the Piaget concept of pattern; unlike declarative knowledges, in this kind of knowledges, the emphasis is on the dimension more closely connected to the concrete. Ness of action, since they are based on the acquisition of procedural sequences which, once obtained, allow the subject to solve situations more or less among them similar. Competence can be defined as the activation of complex patterns, therefore to favour the acquisition and the consolidation of patterns into learners, becomes a crucial objective in order to attain competence. Nevertheless, it comes in useful to make it clear that the pattern, as an invariable structure of an operation or an action, does not oblige to repeat identically.

On the contrary, it allows, through minor arrangements, to face a variety of situations which recall the pattern. It is almost a scheme, from which we depart to consider the specificity of each situation (Perrenoud, 2003). Therefore, from a didactic point of view, it is important not only to encourage learners' acquisition of schemes, but also the capability to enrich, adjust and integrate them pertinently, depending on the different conditions of use, in order to guarantee the operative efficacy of the patterns themselves.

The general sequence which describes the procedural knowledge acquisition process, provides the three following passages: the action patterns construction, the adjustment in the field, the internalization by practice (Marzano, Pickering & Coll., 2009). The starting point is given from a pattern thought guiding the practical activity; in other words, the procedural knowledges acquisition presupposes the existence of a starting model which can be given by the explication of a process, by the account of other people's learning experiences. Afterwards, the learner tests the pattern on the field, putting into action and eventually personalizing the learned model: in other terms, the learner knows whether and how to act to make a changes or adjustments.

The last phase of a procedural knowledge learning consists in the pattern internalization, which, sometimes, can become a real automatism, that is the immediate and unreflected utilization of the learned knowledge. The competence acquisition is based not

only on consolidate patrimony of declarative and procedural knowledges, but also on deeper learnings which allow the subject to make changes on his own knowledges, going beyond the simple reproduction of what he has learned. In other terms, the didactic action, whose aim is the competence development must be directed to the achievement on the learners' side of higher abilities and skills, indispensable to the autonomous handling of own's knowledge richness.

Recalling a classification proposed by Gilbert Paquette, Maccario (2012) presents the main abilities categories which, together with the knowledges form the foundations of competence and are implied in its application. The four skills (abilities) categories individuated are: reception, reproduction, production and self-management, subdivided in turn into one or more levels and applicable integrally to the cognitive, psychomotor, affective and social domain, according to the different nature of stimuli or reactions. The abilities levels referred to the four categories and applicable both to cognitive domain and the psychomotor, affective and social domain, are the following:

- perception skill: to pay attention, to integrate;
- reproduction skill: to specify, to transpose, to apply;
- production skill: to analyze, to adjust, to synthesize;
- self-management skill: to assess, to self-control oneself.

The perception skills are subdivided into two levels: paying attention and integrate. The former indicates a subject's response to external stimuli (interest), the latter presupposes a memory retrieval of information connected to the indications coming from the outside; in this way we can memorize new data and information associating them to our own contents. The reproduction skills denote procedures which the subject already knows, through which he can recall knowledge; for example he can specify concepts through exemplification or discrimination, he can redefine his knowledges through new definitions or apply knowledge models to new situations.

The production skills present a higher level of complexity, since they generate new knowledges and new models. For example, in regard to analysis, we have the breaking up of an acquired model, increasing or eliminating some components, for the evaluation of its functionality or its explanatory power. The synthesis does not need an existing model, since it emerges from the capability of constructing new knowledges beginning from partial cognitive elements. The self-management skill involves metacognition and the capability to regulate own's behavior. The assessment is an operation by which the subject expresses a judgement about a knowledge or a pattern, on the basis of a criterion (utility, pertinence, efficacy, functionality).

The auto-control skill recalls the capability of acting on oneself, to attain a given objective, for example: to acquire new knowledges, to develop an interest about social themes, to adjust to unforeseen circumstances. The acquisition of competence as a formative objective presents a remarkable complexity in regard to the other concepts with which the scholastic tradition has traditionally identified the formative targets in terms of knowledges and abilities. The main differences observable in a performance which involves only the subject's knowledges and abilities, in regard to the performances which presuppose the attainment of levels of competence, are traceable to three general aspects. Firstly, the knowledges and the abilities form a learning at the subject's disposal, a static repertoire, whereas competence recalls a learning which must activate itself, directed to perform a task, a learning into action. The second aspect to be considered concerns the fact that the competence marks the passage from a parcelled out view, in which the evaluation of knowledges has as an object, the possession of knowledges/abilities, to an holistic view of learning which considers globally the various constitutive elements. Finally, competence is situated in the context in which the action takes place, therefore learning is contextualized, unlike the knowledges and abilities which recall an abstract learning.

A series of evaluation views, drawing new guidelines and aiming to indicate a new assessment, has spread since the eighties, bringing into discussion the traditional scholastic evaluation procedures. Recalling the thesis at the basis of socioconstructivist learning conception (social dimension of learning, leading role of learners also into the assessment procedures, reference to evaluation tasks connected to real life situation), Castoldi (2009, 2012) synthesizes into some reflections the main criticism addressed to the traditional assessment:

1. The first criticism is about the kind of performances required by evaluative procedures (structured tests) they are prevalently marked by memorization and mechanical application of contents. In particular, criticism concerns the fact that this kind of evaluation risks to condition the teaching processes, inevitably planned in structure and contents in congruence with the specific requests coming from the utilized evaluation procedures.

2. Consequently, the ascertainment of learnings concerns the simplest and the most elementary cognitive processes, whose attainment is verified through structured instruments and therefore, the formative processes turn out to be directed to the accumulation of inert knowledges. This reciprocal conditioning of formative processes and evaluative processes favours the acquisition of competences disengaged from concrete living situations, significant only into the scholastic context.

3. In accordance with learning strategies focusing prevalently on the relation between learner and learning, rather than on the social and collaborative learnings construction, we tend to privilege the utilization of individual tests.

4. Such evaluation has not any orientative-promotional function and simply tends to classify students on the basis of their performances, diminishing their active role and so risking to contribute to take responsibility away from them.

As regards the debate on competences assessment, Castoldi (2009), Pellerey (2010), Maccario (2012), Trinchero (2012), Marzano (2013), and others stress the necessity to introduce a new and articulate approach which takes into account the polymorphous nature of competence, the numerous dimensions to be activated. The tendency in progress is that of aiming to



an authentic evaluation based on complex tests directed to learnings assessment in terms of competence, that is instruments by which to propose challenging situations complexity and novelty problems, which request for their solution an integration-activation of subject's external and internal resources.

An articulate approach, which considers differentiated assessment instruments, is required: for the evaluation of the expected competence and for the verification of necessary and essential learnings which are its components. In order to be able to distinguish all the shadows of competence concept's meaning, the co-presence of an observable part and a hidden one within it, it is necessary the adoption of a multi-level evaluation pattern, to guarantee a multiplicity of points of view. In this regard, Marzano (2013) recall the trifocal view, proposed by Pellerey, through which to observe the learners' competence development. In detail, the three angles of observation are the objective dimension, the subjective dimension, the intersubjective dimension.

The objective dimension draws on the necessity to point out measurably the subject's behaviour relating to the task performance and to the specific action field, the evidence observable in this case are traceable to the knowledges and abilities that the competence performance requires. The subjective dimension refers to the meanings that the learner gives to his learning experience, to his own adaption in performing the task, to decision-making processes as well as motivational and interpretative activated by the subject to perform adequately the task. In the intersubjective dimension we consider the complex system of social expectations towards the subject's capability to perform successfully a task or bring positively activities in the end. In this respect, teachers, learners, families and other representatives of professional world or social community are all involved, since they take part in formative and evaluative dynamics. The devices which meet better these needs and are able to reassemble as a whole the specificity of the different considered dimension are: the assessment index and the portfolio.

The competence, therefore, is not a mere whole of abilities and knowledges, but, as Trinchero (2012) states, it is a process in which the subject's resources are activated in order to produce effective responses to a contingent problem-situation, its evaluation must refer to:

- A) the possessed resources, in terms of personal knowledges, abilities and skills as well as social and methodological;
- B) to the patterns by which the subject interprets specific problematic situations;
- C) to the strategie with he uses in tackling them;
- D) to the ways he reflects upon his interpretations and strategies.

These aspects suggested by Trinchero allow us to indicate dimension on which we can place indicators referred to performance, to the subject's proceeding in facing a problem-situation. Through these elements, we can delineate, according to higher or lower degree of competence, profiles going from the beginner to the expert, passing through several intermediate profiles. Nevertheless, the evaluation must be centred on the way they interact when the learner manages to "act into a situation", thanks to the structured whole of his knowledges.

Synthesizing these statements, Wiggins affirms that: "It is a question of ascertaining what the student can do with what he knows not what he knows". Obviously, this is based on the awareness that the need to evaluate on various levels and using numerous instruments depends not only on the composite nature and structure of competence, but it must consider the main duty of school, consisting in encouraging the learners' personal growth and in preparing them to face tasks and problems connected to real life events.

### 3. Conclusion

The formulation of competence distinguishes itself from other conceptions that the scholastic culture has traditionally identified as learning targets, that is knowledges and abilities; we have tried, therefore, to synthesize the main implications of this concept, by indicating the results of teaching-learning processes.

From the point of view of evaluation, beginning from the eighties, some tendencies which criticized traditional assessments have spread, accusing them of an excessive focusing on the learning product. Beginning from this criticism, a new concept of evaluation has developed in the direction of an authentic evaluation. Synthetical expression of the different concepts of new cultural direction in the evaluation field: *alternative assessment* (Worthen et al, 1999), *authentic assessment* (Wiggins, 1991), *performance assessment* (Airasian, 1994), *dynamic assessment* (Brown et al, 1992).

The educational assessment must be based on authentic and significant tasks and must be able to provide feed back for the individuals involved in the assessment process, in primis teachers and pupils. The new assessment philosophy revolves around some key concepts (Castoldi, 2012) which are: significance, authenticity proceeding, responsibility, promotionality, recurrence, dynamism, globality, multifariousness. Inspired by these ideas, assessment procedures in scholastic field, are centred on significant performances relating to the learning goals whose attainment can be verified through tasks which offer the learners concrete and real situations. This kind of evaluation tends to catch the proceeding between product and processes, performance and its generative form, and to involve the learner into the different assessment phases, encouraging her/his participation through active forms of auto-assessment. In this view, formative process and assessment process turn out to be closely connected, and above all in continuous recurrent dialogue, the integration of the two phases is based on the promotional function that the evaluation action develops in order to attain the results foreseen by formative process.

The assessment process in its dynamism refers to the various cognitive and extra cognitive dimensions involved into learning processes and it aims to the recognizing of each single learner's potentialities. In accordance with the complex nature of competence, the assessment presupposes the integration coming from a multiplicity of sources, in order to distinguish the multifariousness of aspects at work in a multidimensional process as the assessment process is. Teachers can accept these challenges in view of a reshaping of evaluation modalities. An interesting proposal consists in diffusing in scholastic culture the so-called authentic tasks aiming to ascertain the possession of knowledges and skills but also learners' capability to activate and integrate their learnings to give an effective response to the problems they meet. Recalling the trifocal view to evaluate competence which includes the subjective, objective and intersubjective dimension, the authentic tasks find their place in objective dimension, the one which recalls the observable evidences and implies the learner's behaviours recording (empirical view).

The reality tasks required to the subject are part of a repertoire of performances analysis instruments aiming to describe entirely the learning experience, since they take into consideration both what the pupil has learned and how he has attained that learning level. The main challenge consists in managing to stimulate through these instruments a kind of performance which requires the learner's activation of cognitive and socio-emotional complex strategies, to be able to utilize properly his learning, and in which all the components of competence, such as knowledges, abilities, action dispositions, are recognizable.

A substantial difference between authentic assessment and traditional assessment is in the tendency to investigate the measurement of the learner's capability to solve concrete problems by using his learning and give a meaning to everyday life problems (Comoglio, 2004).

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treated politics and political parties as fully the artificial field, we have to accept the existence of going hand in hand between their political stance and related social reality. Our basic aim in our declaration that starts from this acceptance is to analyze these parties' views toward education in a sample of three political parties' election declaration in 2011 elections and the socio-political reality that these views reflect. Our work towards this goal is discussed in discourse analysis methods and tried to be established a relationship of text context taking into account the parties' discourse on education at the micro level and the socio-political situation that the parties try to identify or reflect at the macro level. Related discourses have excess of meaning that is in excess of social context with dimensions to manipulate the masses idealized as abusive and discourses from the reality that the actual reality of a moving hand in hand in the methodological process are tried to solve in three main thematic categories related to the value of education, gain, trained human representations. In this categorization process, starting from a preliminary reading of texts political parties defined education as a process of building identity and human breeding that have certain gains and values in the context of specific social and universal values and within this framework it is based on the observation that education has adopted a subject for policies.

## 1. Education in the Election Declarations of JDP, RPP, and NMP

Table 1 Value, Gains and trained Human Representations featured in Party Politics

	REPRESENTATIONS OF VALUE	REPRESENTATIONS OF GAIN	REPRESENTATION OF EDUCATED PEOPLE
JDP	Modernity, equality, universality, innovation, self-reliance, competition, cooperation, dialogue, empathy, sharing, knowledge, science.	Critical and creative thinking, sharing and communication, a universal understanding and thinking, reasoning, practice the learned items, self, thought and business confidence, use of technology, recognition of Turkey, establish a dialogue, new ideas, openness to new ideas, seeing differences as wealth, diligence and productivity, be conscious, open and a pioneer.	An individual with critical and creative thinking, open to sharing and communication, a powerful sense of art and aesthetic, capable of universal insights and thought, open to new ideas, seeing differences as richness, adopting work and production as a virtue.
RPP	Equality of opportunity, universality, secularism, democracy, nation, rights, freedom, respect, ethics, innovation, openness, science.	Adopt democratic and secular values and the principles of Atatürk, treat with respect to human rights and freedoms, reading comprehension, use time effectively, body protection, others understand the feelings of others, healthy communication, thinking and express ideas freely, having social responsibility and ethical values, making scientific research freely, leadership.	Citizens connected to Atatürk's principles and revolutions, adopted democratic and secular values, respecting human rights and freedoms in line with the overall objectives of Turkish national education that will be revised.
NMP	Modernity, democracy, equality of opportunity, innovation, national-spiritual, Turkishness, Islam, morality, belief, competition, knowledge, and science.	To assimilate national-spiritual and cultural values, be democratic, protect and develop national identity, selection, planning and programming, ability of analysis and synthesis, critical and creative thinking, perception and problem solving,	The generation having pride and consciousness for being a membership of Turkish nation, assimilated with spiritual and cultural values, with improved thinking, perception and problem-solving skills, open to new developments, with a sense of responsibility and high social awareness, inclined to

		responsibility, feeling sensitivity, producing of science-technology-solutions, learning innovations, leadership for social development , entrepreneurship.	production of science and technology, entrepreneurial, democratic, cultured and faithful.
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### 1.1 JDP: Individualist Education

JDP sees education as an activity that can be equipped for the country's human resources to compete with the contemporary world to cultivate a strong community and in JDP's election declaration, outstanding value representatives can be listed as modernity, equality, universality, innovation, self-reliance, competition, cooperation, dialogue, empathy, sharing, knowledge, and science. According to JDP, education that will be made within the framework of these value representations will enable skills and abilities for the target audience such as critical and creative thinking, sharing and communication, a universal understanding and thinking, reasoning, practice the learned items, confidence of self, business, and thought, use of technology, recognition of Turkey, establish a dialogue, openness to new ideas, seeing differences as wealth, diligence and productivity, be conscious, open and a pioneer. In the framework of these gains and the related education policies, individuals will be trained that can think critically and creatively, open to sharing and communication, have sense of a powerful art and aesthetic, have universal insights and thought, be open to new ideas, see differences as richness, see work and production as a virtue. (Election declaration of JDP).

In general terms it can be said that individualistic values and achievements occupy a central place in view of the JDP's education. If noted it can be seen that the values and gains listed above include personal autonomy and emphasis of self-realization without reducing individual to any social category or any collective identity and in the identification of individuals who are thought to be cultivated through education it can be also noted that identity is based on individual skills and achievements.

In fact, as its traditional structure Turkish society is individualistic rather than collectivistic. After the establishment of the Republic, a Durkheimian conceptualization of society was fully made. In this conception, the society is a moral asset. Society is a symbolic form that will determine the individual's moral obligations. In this form, the individual is reduced to a community or a nation (Sarıbay, 2001; Sunay, 1974). However, especially from 1980 onwards in Turkey, a new mentality and within this mentality individualism has begun to stand out within the framework of global and internal dynamics such as neo-liberal policies and postmodernity affecting Turkey (Kahraman, 2002). Capitalism that emphasizes on the autonomy of the consumer exceedingly and increases individuality (Sarıbay, 1994), and the developments in the field of civil society and human rights have led to the emergence of individuality along with the neo-liberal and post-modern wind in Turkey today. Being an individual, being himself, being for himself, has affected everyone at various levels. The congregations of traditional social forms, that the individual has joined with the system of values and sense of self-transcending and seen himself as a part of a exalted collectivity, are replaced by a new philosophy of life that starts gradually in individuals and ends up in them again (Bostancı, 1994). Although individualism shapes with the effect of global dynamics and processes and internal dynamics and processes show itself in an interaction of a complex and unexpected style, the number of individuals that find themselves independent of over purpose and find the ability to determine where they stand in life within the framework of his own subjectivity, being free of the guidance of any system, ideology or policy in Turkey are gradually increasing. The individual identity corresponding to this increase appears where inclusive narratives lost (Türkmen, 1999).

It is understood that JDP's basic education policy and education approach are formed in a reflecting plane or descriptive of social situations where inclusive narratives are lost. Especially in the election declaration there is an expression that fits this framework: "We gave up rote learning and implemented an understanding of learning that teaches." In the end, the founding staff came from a political Islamist tradition, being criticized for doing religion-based politics, and defined itself as "conservative democrat" but, avoidance of party's inclusive and traditional identity definitions is significant as far as it reflects the concerned social status. However, considering the social station in particular to JDP is controversial whether it is a local variation or strategic on behalf of an adapt to the environment or a conjectural in the sense of an organization.

### 1.2. RPP: Nationalist Education

The RPP considering education as a process in which a citizen is educated within the frame of Atatürk principles, secularism, democracy regards equal opportunities, universality, secularism, democracy, nation, right, freedom, respect, ethics, innovation, legibility, science, etc. as indispensable morals. The RPP promises adoption of Atatürk principles and democratic-secular morals by means of education, to be respectful to personal rights and freedoms, reading comprehension, using time effectively, protecting his body, feeling empathy, providing health communication, freedom of speech, having social responsibility and ethics morals, doing scientific researches freely, developing abilities and capabilities such as leadership. According to the RPP, the main purpose of education to be revised is to educate citizens in parallel with Atatürk principles and revolutions by adopting

democratic and secular morals and showing respect to personal rights and freedoms (RPP Election Bulletin, 2011).

The general analysis of the RPP's election return shows that the education policy of the RPP is determined by an ideological concept, nationalism. Nationalism emphasizes "individuals' relation with a series symbols and faiths including collectivism between members of a political order" (Giddens, 2008). It can be said that some concepts like national, secular and citizenship which are not mentioned in other parties' discourses are regarded as basic education morals of the RPP and the discourses of the party about education including some morals and gains consider individual identity as political category, a citizen who is a member of nation state. A citizen means simply a member of a political community in Latin and Greek. For instance, according to J.J. Rousseau, distinctive character of being a citizen is to exist as a part of the whole ; thus, its value depends on community (Saribay, 1994). School and education are significant ideological devices to determine citizen identity in the education policy of the RPP. Actually, in general terms, school is a place where individuals are educated according to the the basic principles of nation-state ideology; thus, they are included to the system gradually. This is the main reason of strict historical relation between the development of school as a mass institution which provides opportunity for individuals to become socialized and is not limited to specialized formations or culture of elites and national formation. Althusser was right about his definition of "ideological devices of state"; according to him, in bourgeois societies, the origin of dominant ideology changes from family-church pair to family-school pair ( Balibar and Wallestein, 2000).

Nation-state as a historical-sociologic category, emerging after French Revolution, is one of the significant devices of nationalism (Saribay,1998). According to Gellner, " nationalism is not a product of nations, but it is a concept by which nations emerge." (Gellner, 1992). There are a lot of discussions about how nation-state model is successful; however, the main ideological device of this aim is education. Education based Republic ideology aims to change Islam community to citizens of Republic (Kahraman, 2002). Education and school try to teach the basic principles of regime and educate individuals regarded as ideal in the history of Turkey ( Güngör, 1996).

The RPP which is the founder party of Republic and the representative of official ideology determines its education policy in parallel with the principles of the regime. However, general purposes of Turkish national education will be revised with reference to the discourses of the RPP. It can be said that changes are inevitable at this point. Authoritative and tough modernist aspects of Republic, the position of a citizen who has responsibilities more than rights, the effects of globalization, post modernity and neo-liberal policies, the process in which nation-states are in a crisis in literature of social sciences are main reasons of this change. The discourse of the RPP emphasizing that education process of a citizen must be in parallel with Atatürk principles, secularism and democracy (RPP Election Bulletin, 2011) means also 90 years education aim of official ideology has not be reached to a satisfactory level or official ideology is insufficient in political socialization by means of education.

### *1.3. NMP: Nationalist Education*

The NMP regards education as a process of educating generations who have national-moral, scientific and universal morals and the party suggests an education model based on some morals such as modernity, democracy, equal opportunities, innovation, national-moral, Turkishness, Islam, morality, faith, competition, knowledge, science,etc. Thus, some abilities and capabilities such as adoption of national-moral and cultural values, being democrat, protecting and developing national identity, to be able to make selection, planning, programming- analysis and synthesis, thinking critically and creatively, perception and solving problems, feeling responsibility and sensibility, science – technology - producing solutions , learning innovations, leadership for social developments, entrepreneurship will be gained by means of this policy. According to the NMP, the main purpose of education policy is to educate generations who are proud of being Turkish, adopt moral and cultural values, have ability to think, sense and solve problems, are open to innovations, have a sense of responsibility and social responsibilities, are inclined to science and technology productions, are entrepreneur, democrat, cultured and faithful (NMP Election Bulletin, 2011).

The general analysis of the election return of the NMP shows that the education policy of the NMP is based on nationalism and morality. Turk, Islam, nation, moral, cultural concepts which are not mentioned in other parties' discourses are regarded as basic morals of the education policy of the NMP. It can be said that common history and cultural-moral characteristics are significant factors for the education process of individuals in education policy of the NMP. An individual is valuable and significant if he is proud of being a part of Turkish identity.

Nationalism including conservative and rightist approaches, culture and custom has developed as well as nationalism including leftist and secular approaches. Turkish rightist nationalism especially emphasize the concept "national" including religious-moral and cultural values contrary to nationalism including leftist and secular approaches. According to this way of thinking, primary and secondary culture identities of citizens are supposed to be Turkish and Islam (Aktay & Kızılkaya & Osmanoğlu & Dilek & Yurdakul, 2010). The main aim of nationalist approach of this way of thinking is national culture union and political association (Güngör, 1996). Education policy of the NMP is based on two concepts, Turkishness and Islam, accepted in society as cultural identities; from this point of view, aim of national culture and political association are possible to be accomplished.

Religious discourses of rightist nationalist custom of the NMP, whose grassroots are inclined to religious effects, have been more apparent since especially 1970s (Çalık, 1995). The NMP considers society as historical, cultural, religious and linguistic community as stated in discourses and election return of the party. Education of history, culture, religion and language are emphasized in the election return of the NMP. In this respect, nation is not a case, but it is a process which can be understood in production-reproduction dialectic. The basis of this process is education, as a basic ideological device. According to the discourses of the NMP, education is a process of educating generations not individuals. Ideal of educating generations reminds of

the search for educating generations by Islamists and rightists in the past of Turkey. The concept, generation, indicates an ideal generation, faithful to the origin of Turkey.

## 2. Conclusion

The basic common item in the education policies of three parties we chose as sample is to educate individuals that have outstanding values in the number 1739 of Turkish National Education Basic Law ([http://mevzuat.meb.gov.tr/html/temkanun\\_1/temelkanun\\_1.html](http://mevzuat.meb.gov.tr/html/temkanun_1/temelkanun_1.html), 20.05.2014) and perform tasks and objectives intended in this law. For all three parties, education is a tool and adopting the desired values and gain to children is an objective. What is to be basically made through education is a social engineering by the government (for further information about this aspect of the education in Turkey, look Kaya, 2011). In these engineering attempts almost any solution of the problem from poverty to social integration can be seen to be sought in education. From this point of it can be understood that education in Turkey and hence knowledge that is instrumentalized for the community engineering by political hand will continue to be one of the fundamental problems of education. At this point, the risk or danger combined to it should be an adapt of the truth according to a fiction whatever the starting point of this rather than teaching the truth or what it should be. Another common point of education policies of the parties is that they take into account contemporary social and international values and processes. With this common point, JDP is willing to train individuals for the society, RPP citizens for nation-state and NMP generation for the nation. On this plane, we could actually argue that different sizes of three parties' education policy are released across "locality" and "universality". Traditions that come from within the party and in particular in recent years considering education policies in parallel of the discourse that we will raise a religious generation, the absence of policies and rhetoric about religious education in JDP'S election declaration is remarkable. Based on this fact, the education policy of JDP in the election declaration is conjunctural and strategic rather than a local variation, and to the extent that it takes into account the current social situation it is realist at the level of rhetoric. The education policies of RPP and specially NMP that attract attention with recommendations on the training of national-religious and spirituality can be said ideological.

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# The behavioral signs in bringing up Phemon (Mon spirits)

Auranuch Inta<sup>a</sup>, Prajak Saisang<sup>b</sup>, Kamon Kanguson<sup>c</sup>, Suttichai Yongsuk<sup>d</sup>

<sup>a</sup>Ph.D. in candidate Folklore program, Naresuan University, Phitsanulok, 65000, Thailand

<sup>b</sup>Assoc.Prof. Dr., Naresuan University, Phitsanulok, 65000, Thailand

<sup>c</sup>Assoc.Prof., Naresuan University, Phitsanulok, 65000, Thailand, <sup>d</sup>Assoc.Prof., Naresuan University, Phitsanulok, 65000, Thailand

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## Abstract

There are a lot of processes in bringing up Phemon, Ban Pudsas, Putsa Sub-district, Thailand. Some Processes have the same purposes with different practices. This is for communicating meaning of being serene and destroying away bad luck. The destroying, stopping, releasing, and driving bad luck away are a complete process for getting rid of bad luck. The bad luck in bringing up Phemon, Baan Pudsas is to get rid of bad luck and illness of the people in the family. This is the reason for every ritual of bringing up Phemon. The processes in practices are washing the banana trees, walking across the bridge, extinguishing candle from a piece of cloth, breaking up coconuts, ordaining women, setting free the chicken and stealing the cow.

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This article, as a part of my thesis entitled “Bringing up Phemon: In folklore knowledge” which is also a part of a Ph.D. curriculum in the field of folklore knowledge”, Naresuan University aims to study the ceremony of how to bring up Phemon at Baan Pudsas, Amphoe Muang, Nakhon Ratchasima Province. It is found that some steps of bringing up Phemon (Mon Spirits) shows the sign of behaviors in common. However, there is difference of shown behaviors. In order to let the readers know steps of bringing up Phemon (Mon Spirits). The data will be shown as follows:

### Steps of bringing up Phemon (Mon Spirits)

There are two days for bringing up Phemon at Pudsas district. The first day will prepare the ceremony hall. Men are normally responsible for the hall. The hall preparation ceremony will be responsible by men, relatives and neighbors. Preparation of various sweets for the tomorrow ceremony will belong to women. The second day will be a bringing up Phemon ceremony including collecting the belonging after the end of ceremony. Thus, this day is called “the real day”

There are many steps of bringing up Phemon in the real day. Passing steps or mixing the ceremony is not allowed. Each step is very vital for the whole ceremony because it is considered as a part of bringing up Phemon ceremony from the traditional heritage. Thus, I, as a researcher, would like to explain the step of bringing up Phemon at Baan Pudsas as follows:

After preparing various things for joining the bringing up Phemon ceremony, it is time for gamelan and medium to play Phemon songs. Before the beginning of the ceremony, when the gamelan and medium consider the proper time for the ceremony, they will ask the host for the show. Steps of Phemon ceremony are as follows:

#### 1. Steps of paying respect to gamelan teachers

This step is considered the most vital part of the ceremony. Before the ceremony, the head of gamelan band who is considered the oldest of the group will lead a group of musicians to pay respect to their teachers. This ceremony will consist of six flower cones, twenty four baht money, one white cloth, and a bottle of white liquor. Only white flowers will be allowed for the ceremony. It doesn't matter for the kind of flowers.

#### 2. Steps of inviting the ghost

For this ceremony, the old relatives will lead the ceremony because they are considered the oldest in the family. They will lead their descendants of the patients to invite the ghost of ancestors for joining the Phemon ceremony resulting in wellness of their descendants. The majority of the place for inviting ghosts will be shrines of ancestors' bone remains which may be put



on the top or under the house or in each part of the house. According to my observation as a researcher, some houses do not provide a shrine of bone remains in the same house of the dead people. Thus, during the ceremony, some outdoor places in the house will be used. The parade process will start from the big ceremony hall which is built up for that day ceremony. One joss stick will be lit inviting ghosts to join the today ceremony. There is no specific chanting, or rules. Normally, the old people will say “invite the ghost of all ancestors to eat descendants food which is well prepared as mentioned ahead”. While telling ghosts, there will be a spread of rice around the area. Korat language calls this ceremony “khuad”.

### 3. Steps of paying respect to teachers

The medium at Baan Pudsa will be women. Normally, there are only two mediums. However, everything depends on the host. The host may have more mediums than two to hasten the ceremony if he can support this expenditure. The ceremony finishes sooner or later depending on arriving of ancestors. After appearance of the ancestors, other ceremony will begin. Before communicating to the spirit, the medium has to pay respect to their teachers. This ceremony consists of a bowl with six cones, a bottle of white liquor, a white cloth, and a sum of money. The sum of money depends on the contract between the medium and the host. It is assumed as a total wage. After paying respect to teachers, one medium will be dressed up as a man by wearing Sarong with a white cloth on his waist and one cloth surrounding his head. The second medium is dressed up as a woman by wearing loincloth with a white cloth on the waist and one cloth surrounding the head. After that, both mediums hang the clothes turning their face to gamelan band and moving their heads down to the barrier stick to pay respect to their teachers and sacred things. At this stage, it is the end of paying respect to teachers ceremony.

### 4. Steps of communicating to the ghost

After the medium's paying respect to the teachers, the medium starts the ceremony by catching the clothes and swinging the clothes as a circle. It is sometimes found that the medium let their body swing along the hanged clothes. It is up to how powerful the spirit is. The ghost will be considered strong if it has much power. The medium lets the clothes free if he is haunted. Mentors or relatives will ask the ghost's status. The ghost will answer. After that, the ghost will choose clothes in basket. The clothes for women will be chosen if the ghost is a woman. At the same way, the clothes for men will be chosen if the ghost is a man. Moreover, each ghost or soul may show a so clear specific characteristic that their off springs can guess the status of the ghost.

After finishing the dress, the ghost will greet and bless descendants, especially the sick host by laying the white clothes with white flower on the top, touching the head of the sick and relatives and splitting water from the bamboo box and the top of Yitho tree. After that the gift (rice is prepared in the cup) will be given. The ghost will catch about one or three seeds or more than that, but only single letter will be chosen. The rice will be put in the hand of the sick and relatives. The rice given by the ghost will be put together in a bowl. After the ceremony, the bowl will be put on the top of the bedroom. In the morning, the rice has to be cooked to make a merit.

### 5. Steps of washing banana head

For washing banana head ceremony, the rice which is put in the bag when the sick's relatives promise that he or she will bringing up Phemon when he or she is fine will be cooked as popped rice. The rice is put in the tray for joining the ceremony of washing banana head. While washing the banana head, the washer will use their hands to clean up the banana. Moreover, while washing, the washer has to bless the patient to be healthy, pay respect again and moves back so that the others will wash the banana head.

After the end of washing the banana head ceremony, the leader will separate the banana into five parts, and cut leaf sheaf of banana tree. It is made of seven bridges. Relatives of the sick will be dressed up with the clothes prepared in the tray. Within the tray, there is a sword, and a candle. Those who want to dress up have to wash the hand of banana cutter. The banana

cutter has to wash the hand of clothes wearer. The cloth for the lower part is Sarong tied the waist with the loincloth. The upper part will hold the neck with the white cloth. At the end of wearing cloth, the right hand holds the sword at the right shoulder. The left hand of the cloth wearer holds the basket made from the banana cover, and walks to the banana head washing ceremony.

#### 6. Steps of crossing the bridge to blow out the candle

At this stage, the person who wants to blow out the candle walks to the leaf sheaf of banana tree as a bridge of seven steps, breaks them, and walks continuously to the big ceremony hall. Within the hall, the sword, and basket have to be put on the cloth which is laid with areca betel leaves, cigarette, and popped rice. The candle will be picked up and the ghost will be asked to bless the sick. After that, the areca betel leaves will be thrown out of the cloth. The five candles on the five trays of worshipping must be blown out. The cloth will be collected quickly. The candle will be lit and put in the rice bowl for putting in the empty basket for carrying water. After that, it will be hung at the top of the tree from the offering hall. At the same time, those who cross the bridge have to hold the hung cloth in order to make a risk if all ghosts of ancestors join the ceremony. The rest of the ghost will haunt the medium if some ghosts of ancestors do not come. The leader will hold the cloth pretending to row the boat around four directions on condition that each direction has to be rowed three times, and sits down to pay respect to gamelan brand which is considered the highest teacher in the ceremony. The core of five banana stalk will be cut to make minced smart fish and given to people who join the ceremony as a risk making. Making a risk depends on the taste of food. If the food tastes delicious, it is assumed that paying respect to Phemon is very successful. The sick will be recovered and healthy soon. In contrast, if the food tastes bad, it can be assumed that there is something wrong for the ceremony.

#### 7. Steps of eating the pig head

After blowing out the candle, next is a step of eating the pig head. Two mediums dress up as twin ghosts and come to eat the pig head in the big ceremony hall. At this stage, the mentor of two mediums will carry the twin ghosts held to the crossbeam under the roof to the big ceremony hall which is at the west. They will be laid on the tray prepared. The wrapped clothes will be unwrapped. In side, there will be two pieces of areca betel leaves. Both mediums have to eat each piece. Their mentors will use the white cloth to prevent being seen while the two mediums are eating the areca betel leaves. Next is a dressing up. The first medium will be dressed up as a man by wearing Sarong with his waist tied by the white cloth and one sword in his hand. The second medium will be dressed up as a woman by wearing Phasin and one Huahook stick in her hand. They walk to the ceremony hall. Their mentors cut the pig head into pieces. The man medium eats first. At the time of eating the pig head, the white cloth will be hung at the back of the medium so that nobody can see them. While the first one is eating the pig head, the second one will knock the stick in the ceremony hall in front of the gamelan brand. Moreover, the mentor also help knock the stick. When the two mediums finish eating the pig head, the mentors will separate the pig head and put them in Kratong (floating basket) for the other ghosts at the triangle area. After that, both of mediums carry banana and coconut in the tray on the offering shelf, dance according to the system of gamelan in order to pay respect to the ghost, and walk out to dance around the cow. One of the mediums will throw away the coconut behind the back without glancing. At the same, the mentor will hold the stick to hit the coconut into pieces when the coconut drops to the floor with the belief that destroying the coconut into pieces is like getting rid of bad things. After that, both of mediums will put the rest of banana and coconut into the old place and change their clothes. Next will be a step of calling morale and making a risk.

#### 8. Steps of calling morale and making a risk

Calling morale is also a very vital step for the recovery of the patient. The medium will walk around the patient's house followed by the patient's relatives. They will call morale of the patient. No litany or official chants are used during the morale call. Only local morale especially Korat dialect will be used. For example, come the morale...the patient's name. You have to come home no matter what happens to you. At the same time, the patient's relatives will use the word showing the

characteristics of the patient by saying “the morale of mum, sister or Mrs....please come back to live with relatives. At the end of calling morale, the medium will look sick. He does not have any energy to walk. The relatives of the patient will carry the medium to the big ceremony hall. The medium will sit in front of the big bowl of water in the center of the ceremony hall. After that, the medium will pray for the success of calling the morale of the patient. Later, the areca palm will be put into the water in order to make a risk whether calling the morale will be successful by observing the upside down or turn up of the number of the areca palm. There are seven pieces of the areca palm. If all seven pieces of the areca palm are upside down or turn up, it is considered as a failure of calling the morale. In contrast, if two pieces of the areca palm are upside down or two pieces of the areca palm turn up, it is considered as a success of calling the morale. After calling the morale, the bowl will be wrapped by the cloth supporting the bowl. Next, the relatives will give the bowl to the patient and keep it on the head of the bedroom for three days. Within three days, the patient has to drink water in the bowl resulting in a quick recovery.

#### 9. Steps of becoming a nun

The medium will wear the white clothes by assuming that he becomes a nun. Then, the nun will carry the basket. The first basket is filled with the bullet made of round sticky rice which is used to shoot the arrow. The second one is filled with the bottle of water. The medium will carry the basket, walks out of the ceremony hall, stands in front of the hall, and shoots the arrow into various directions with the bullets made from sticky rice. This shooting is considered as shooting bad things out of the body. After that, the medium will extinguish the fire in the stove with the water. The people will upside down the stove, and pour the water at all of the posts of the ceremony. The equipment will be kept in the big ceremony hall.

#### 10. Steps of letting the chicken free

For this ceremony, the medium will carry the house chicken prepared by the host, dance according to the rhythm of gamelan brand, and throw away the chicken in the west. After that, the pike, knife, and sword will be thrown away following letting the chicken free. At the same time, relatives or neighbors of the patient will try to prevent the chicken to run into the house or run back to the same way.

#### 11. Steps of stealing the cow

This ceremony will happen after letting the chicken free. One man pretending to be a theft tries to drag the cow out of the area of the house. It is believed that stealing the cow is like taking bad things out of the house. Next is a step of dancing groups. The descendants and relatives will join the dancing group by holding the tied clothes and dance around the clothes from the left until the gamelan brand finishes the song. At the end of dancing, everybody including two mediums have to be prostrate to the gamelan teachers. This is the last step of bringing up Phemon. At the end of bringing up Phemon, everybody has to have food together. Moreover, the host will pack rice, food, various dessert, and give them to those who join the ceremony. Keeping things used in the ceremony in the house is not allowed. Something bad will happen to everybody in the house or relatives if keeping some things used in the ceremony in the house. The ceremony hall has to be demolished within that day. The wood for making the hall will be brought to the temple or used by someone. But, it is not allowed to keep in the house because it is considered to be wrong to the ghost, thus something bad will happen. The hole of the pole has to be paved as usual in order to bring to the conclusion that bringing up Phemon has been completed. In conclusion, the ceremony of bringing up Phemon at Baan Pudsa has many factors of management including complicated steps. It is a belief of bringing up the ghost which is passed from ancestors to the present generation. The majority of job management depends on the old people as knowledgeable. Thus, it is a stage of showing importance, and respect to the old people who are intelligent.

Bringing up Phemon consists of many steps of ceremony. According to my analysis, it is found that some systems have the same purposes with different practices. It gives meaning to clean, to get rid of, to blow out, to drive away, and to take out which is considered to destroy bad things. Bad things in the meaning of bringing up Phemon at Baan Pudsa is sickness which

happens to everybody in the family. Data related to this story are analyzed as follows:

### 1. The ceremony of washing the banana head



**Picture 1** This ceremony implies to wash bad things. Thus, washing the banana head refers to washing the sickness of the patients.

### 2. Crossing the bridge and blowing out the candle



**Picture 2** shows how to step on the bridge to the big ceremony hall in order to blow out the candle. At this stage, breaking the bridge of leaf sheaf of banana tree refers to blocking bad things from returning. Throwing five groups of areca betel leaves out of the clothes refers to getting rid of all bad things. Blowing out the candles in the five trays of offering refers to stopping all bad things.

### 3. Pounding the coconut into pieces



**Picture 3** shows how to pound the coconut into pieces

Pounding the coconut into pieces refers to destroying so that there is no former pattern. The complete coconut comes to the end. This symbol refers to destroying bad things (sickness).

### 4. Becoming a nun



**Picture 4** steps of becoming a nun    **Picture 5** blowing out the stove

At this stage, there is a symbol of driving out in the form of shooting weapons. Another symbol is blowing out the stove. This implies that bringing up Phemon comes to end. The stove will not be used any more. Thus, blowing out refers to the end of sickness or bad things. Pouring the water to every pole of the ceremony is to demolish the ceremony hall. Demolishing refers to the end of sickness and bad things.

### **5. Ceremony of letting the chicken free**

According to this ceremony, the medium will carry the chicken prepared by the host, dance according to the rhythm of gamelan, and throw away the chicken in the west. The others will also throw away weapons such as pike, knife, sword, and Huahood wood. At the same time, relatives of the patient have to prevent the chicken to run back to the same way. This refers to throwing away bad things.



**Picture 6** the ceremony of letting the chicken free    **Picture 7** the medium is Letting the chicken free

### **6. Ceremony of stealing the cow**

This ceremony will happen after letting the chicken free. One man pretending to be a theft tries to drag the cow out of the area of the house. It is believed that stealing the cow is like taking bad things out of the house and the patient.

To sum up, bringing Phemon at Baan Pudsa consists of steps showing the symbol in the form of behavior of the same story with different systems of behavior. The behavior shown in each step of the ceremony shows many ways of how to solve the problems or how to make things better. There are many visions of the same story. They are ready to do everything to change bad things to be good things. It can conclude that bringing up Phemon at Baan Pudsa reflects the dimension of society, and culture of folklore to cooperate in solving the problem of health of people in the local area by the help of belief from the ancestors.

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# The best practice in teaching process by using managerial simulation games

Jindra Peterková<sup>a</sup>, Zuzana Wozniaková<sup>b</sup>

<sup>a</sup>VSB-Technical University of Ostrava, Ostrava 701 21, Czech Republic

<sup>b</sup>VSB-Technical University of Ostrava, Ostrava 701 21, Czech Republic

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## Abstract

For business students at universities managerial simulation game is an effective tool supporting development of students' knowledge competencies. Simulation games provide a feedback between realized students' activities and results. In contrast with passive didactical techniques students reach an overview of an impact of realized changes in certain parameters that influence the whole market in the short period of time. Simulation games support system, interdisciplinary and strategic way of thinking. Aim of the paper is to point out contribution of selected simulation games in teaching process at the university.

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*Keywords:* Managerial simulation game; education; teaching process; benefits

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## 1. Introduction

Managerial simulation game used for simulation of economic processes is an effective didactical technique. Using managerial simulation game is useful for business students of the third grade of bachelor study program and of the first grade of master degree study program at the universities. By using these games students are able to understand enterprise running and also have the possibility to collate existing theoretical findings thanks to experiential education. Systems thinking, interdisciplinary diagnostic and strategic thinking is developed in the case of master program students.

This paper points out the most significant benefits of simulation games using in teaching process at the university. There will be described the main steps of simulation games implementation used at the Faculty of Economics at VSB – Technical university of Ostrava (Czech Republic). The benefits come out of students' questionnaire. The most important results from the questionnaire are showed in graphs.

## 2. Benefits managerial simulation games in teaching process

Managerial simulation game (Mildeová, 2007), (Aldrich, 2009) simulates economic phenomena and conditions (settled parameters of decision), that must be considered by the student while managing virtual firm. Through managerial simulation game students experiment with an economic model which represents selected part of real economic system (it consists of selected relations, links between the elements). Simulation experiments (Tuleja, 2007), (Častorál, 2008) enable to confront and subsequently to combine results and to find a new variants of solutions. Simulation game does not substitute practical activities in the field of decision making. But it enables to acquire knowledge from the basic dependence among economic values and to reach skills of professional character (Powell, 2009).

Contemporary in the Czech Republic managerial simulation games are used in teaching process at the universities as well as in educational companies. Used managerial games can be divided into two groups:

- Managerial games that can be implemented (e.g. MARKETPLACE, JA TITAN, CELEMI etc.) without any adjustment (after installing in computer) implemented
- Managerial games that are the product of a particular institution (school, consulting or educational firm) after buying certain software (VENSIM)

Both groups of managerial games have own specifics by which they differ especially in decision parameters (levels of decision), in graphic possibilities (using graphs in decision making processes), in chosen product commodity, in price etc.

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\* Corresponding author. Tel.: +420 59732 2162; fax: 596 110 026.

E-mail address: zuzana.wozniakova@vsb.cz

During managerial simulation game knowledge competency is ensured by team experience sharing, see Fig. 1.

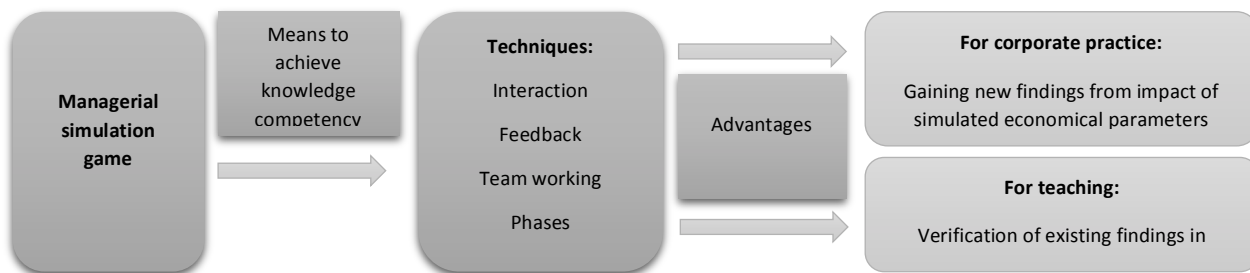


Fig. 1 Benefits of managerial simulation game

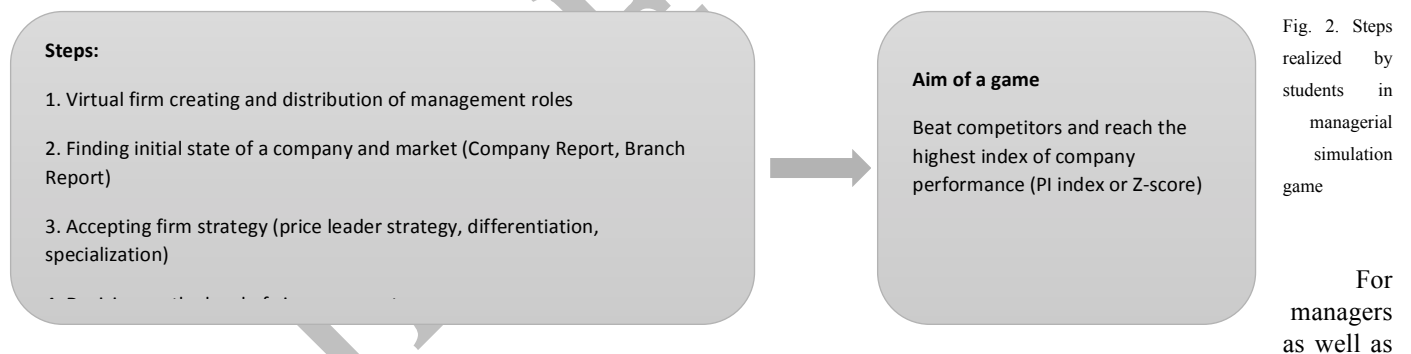
Source: Peterková, J., & Němčík, P. Managerial Simulation Game as a means of Development of Managers' Comp. Knowledge. Center for inVestigations into Information Systems (online). 2010, vol. 7, no. 1. Available from <http://www.cvis.cz/eng/hlavni.php?stranka=novinky/clanek.php&id=63>. ISSN 1214-9489.

### 2.1. Teaching process with managerial simulation game

Teacher (moderator) plays an important role in teaching process. He provides theoretical background in the sense of introduction of contemporary market situation in particular simulation game. He points out which parameters play the most important role in relation to the final results. The main steps in particular rounds including necessary calculation are worked out in the form of methodological instructions and located in LMS – Moodle.

At the same time teacher leads timing of a game and settles time of ending the round. One round is finished in the time of submitting economic parameters in simulation game. After finishing a round teacher (moderator) evaluates the teams according to determined criteria and comments results of each firm regarding PI index and revenues from the beginning of the game.

Despite existing specifics in managerial simulation games there can be described general steps in teaching process including goals. The basis of the game is creating virtual firms including identification of roles in students' teams, while particular virtual firms form one sector (competing firms). During firm existence students team decides price, production, marketing, capital investment, research and development, charity or some other parameters in simulated economy situation (recession, growth etc.). After each round the teacher discusses the list with team ranking. Company Report and Branch Report are basis for decision making. Managerial teams aim is to manage virtual firm in the way they beat competitors and overcome in profit, sales and market share. The firm with the highest index is the best one. Fig. 2 shows steps realized in managerial simulation game.



for the business students' computer simulations are an effective mean of teaching supporting holistic approach to problem solving.

### 2.2. Evaluation of the benefits of simulation games by using questionnaire survey

Evaluation of the benefits of computer simulations was realized by using questionnaire. This anonymous electronic questionnaire was used in 2010 (115 students) and 2011 (150 students). Participating students worked with simulation JA TITAN. The survey enabled to determine benefits of managerial simulation games for further study and future occupation.

Most of interviewed students in 2010 (63 %) and in 2011 (62 %) considered the game to be favored and useful for further study by the fact that the game enabled understanding relations among simulated economic values (answers examples: simulation enabled to verify market functioning, team work, competing among students teams etc.) see Fig. 3.

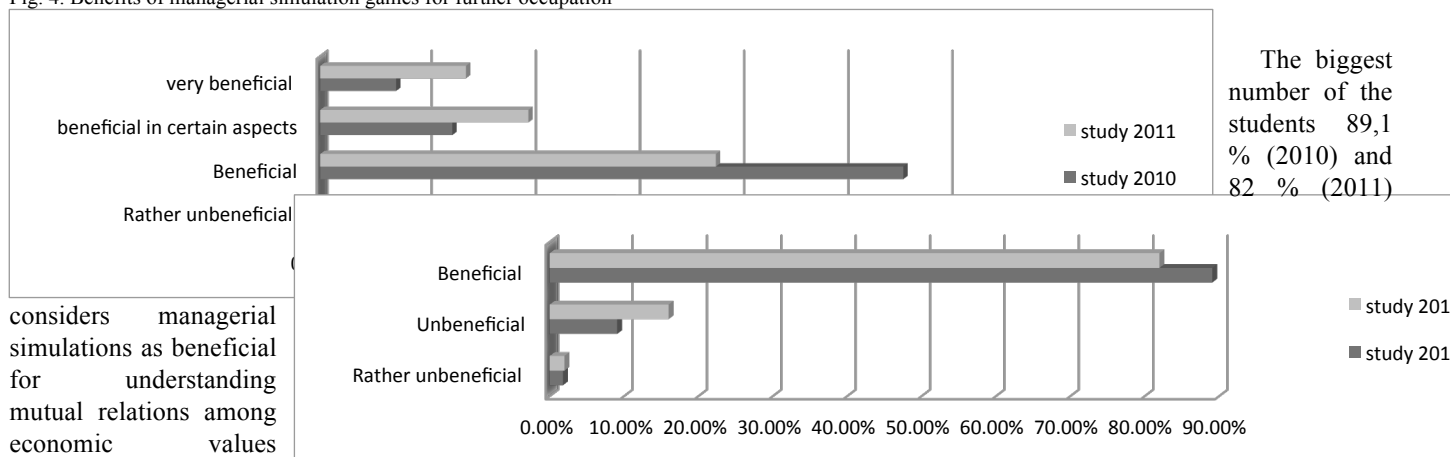




for further study

At the same time 56 % of students (2010) and 38 % of students (2011) regarded managerial simulation game beneficial for future occupation (examples of answers: opportunity to develop myself, not only to accept theoretical knowledge, perfect tool for managing real firm etc.), see Fig. 4.

Fig. 4. Benefits of managerial simulation games for further occupation



(answer examples: simulations helped me to understand company investment, to get practical skills in managerial decision making, complex approach to problems, connection of management, microeconomics, calculations etc.), see Fig. 5.

Fig. 6. Team work usefulness

Simulation game taught some students to communicate in a team and to enforce their decision. Students mostly preferred 2 – 3 member teams.

Realized questionnaire showed that students mostly consider managerial simulation games as beneficial for further study and also occupation. These simulations enable to know economic rules of market by using game.

### 3.Steps realized by the students in managerial simulation game JA TITAN and MARKET HERO 2

Two simulation games are used in teaching process at the Faculty of economics (VSB – Technical university of Ostrava). In simulation game JA TITAN companies produce generators and in simulation game MARKET HERO 2 students run their companies in the field of informational technology. The main aim of the game JA TITAN is to introduce impact of price changes, marketing, research and development and capital investments on final results of the firms. On the other hand simulation game MARKET HERO 2 shows what it means to run a business in the sphere of information technology.

#### 3.1. Playing managerial simulation game JA TITAN and its steps

This game is also based on team working. Each team must have at least two members. Before the game starts students create virtual firm choose management and roles. Firms produce generators and try to reach company balance, to beat competitors in the sense of amount of profit, sales and market shares.

Each game can be played by 8 virtual firms. These firms at the same time form generators market and offer the same product. During virtual firm running students team make many decisions (pricing, quantity of production, marketing expenditures, capital investments, research and development and charity, see Fig. 7.



Fig. 7. Simulation game JA TITAN

### 3.2. Playing managerial simulation game MARKET HERO 2 and its steps

Students form virtual firms, choose their names and get acquainted with the basic characteristics of IT branch. Firstly students recognize number of competitors and possibilities of decision making such as company fixed costs, available loans, distribution channels, form of advertising, way of forecasting etc.

Secondly students chose products or services that will represent their company portfolio. Managers must chose inputs (space, factory, machinery), employees, required skills, advertising of concrete products (e.g. banner advertising, advertisement in regional newspapers) for each type of product or service, see Fig. 8.

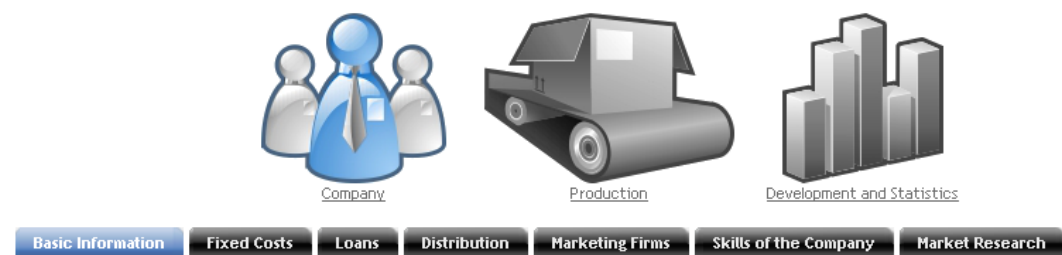


Fig. 8. Menu for decisions

After this part students settle concrete parameters of firm running including price calculation. This game is organized in several rounds and each round lasts three months. The whole game contain five years of company existence.

Once a round is finished, students can get the results in the form of balance sheet, sales report and income statement.

Reached results can be compared with the results from competitors realizing their activities in IT branch. Students can use Z-score. Companies with score higher than 2,9 have a good chance to survive at least next two years.

## 4. Conclusion

Simulation games represent ideal way of verifying and getting knowledge by using game. Teaching process is active and provides important feedback between students' activities and their results.

This paper contains the basic steps when playing simulation games JA TITAN and MARKET HERO 2, teaching process including role of teacher. The aim of the students' teams is to beat the competition and to reach the best economic results by using PI index and Z-score.

Realized questionnaire survey showed that students that have already used simulation games during their study at the university consider it to be beneficial both for their future study and also future occupation. Simulation games enable to understand relationship among economic values. Member of the students' teams also exercise their communicational skills. Survey also determined the main effects of using managerial simulation games:

- Visualization of strategic decisions realized by students
- Students' motivation support
- Complex overview of running business
- Usability of simulation game for practice

According to our findings we recommend using managerial simulation games in teaching process at the university especially for business students.

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# The change from parent education to parent involvement in Korea

Hajeong Lee\*

*BK 21 Plus Eco-Edu Systm Research Team, Department of Early Childhood Education, Pusan National University, South Korea*

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## Abstract

In the study of early childhood education, the relationship of teachers and parents is continuously discussed by the reason the connection of them helps children development. The range of the relationship includes diverse level. In the case of Korea, for example, when the parents take part in the activities that intended to network with teachers, the word of “Parent Education” was usually used in the kindergarten and daycare center, which expressed that parents are objects for education. However, recently the word of “Parent/Family Involvement” is widely started to use, which includes the meaning that parents stand equality with teacher.

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*Keywords:* parent education; parent involvement

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## 1. Introduction

The purpose of this study is to examine research trend and reality on parent education and parent involvement in South Korea. What having close relationship between parents and teacher has positive effect on young children’s development and learning is being accepted as a natural fact in early childhood education area. What close relationship with family needs to be premised for young children’s growth and development in early childhood education area in South Korea has ever been emphasized already in many prior researches. Even in a report that OECD surveyed on the early childhood education and the child-care policy targeting 12 countries, the close interrelation between family and institution is being stressed. It is reporting which effort each country is making for this.

It was emerged the necessity that parents and teachers have cooperative relationship with an equal footing under the name dubbed “parent participation” with entering the 1990s from the viewpoint as saying of needing to educate by having parents as the subject of education under the name called “parent education” from the 1960s in South Korea. Many kindergartens and child care centers have developed the activity related to parents until now while using terminologies called “parent education” and “parent participation” or “family participation.” Accordingly, this study aims to suggest a new sight on parent participation as its improvement after analyzing the tendency of being changed into parent participation from parent education and after examining the reality of parent education and parent participation of being enforced now.

## 2. Needs for the relationship between parents and teachers

OECD that researches the education and care system in 12 countries reported that the close connection with teachers and parents is to enhance learning and experience of children. They show the types of relationship between institutes and parents; Marginal engagement, Formal engagement, Informal-organised engagement, Participatory engagement, Managerial engagement (Na & Jang, 2002). These types of relationship show the distance to be made by teachers and parents. These also mean many countries have a variety of parent involvement, and each country implements their activities according to their situation.

## 3. Tendency of Parent Education/Involvement in Korea

### 3.1 Tendency of parent education

The educational dictionary in South Korea defines parent education as education to purpose of helping parents have the connection to kindergarten, teaching development of children and curriculum to improve educational effect (Educational research institute in Seoul national university, 1994). Kim (2006) said that parent education is a word to emphasize comprehensive meanings of doing activity to teach parents. Kim and others (2012) stated that parent education is for parents to expand

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\* Corresponding author. Tel.: +81-51-510-7742; fax: +81-51-512-9939.  
E-mail address: hajeong.lee.kr@gmail.com

understanding and knowledge on developing and rearing children, to develop skills to care about them effectively by themselves, and to do a variety of activities to support adapting skills in reality. These studies show us parent education is offering information and knowledge on rearing children to them, and to make them do educational activities to perform their role.

Starting the Head Start program in America in 1960s, this program stressed parents need to participate in a variety of activity in kindergarten directly or indirectly, and have studies connected with parents education improved. Especially in Korea, parents are recognized that they need to know how they take care of their children. Most kindergartens suggest educational course for parents, because teachers think parents can't provide family environment properly, and have difficulties having desirable parenting attitude.

### *3.2 Tendency of parent involvement*

In 1990s, the word in terms of parent education in kindergartens changed to parent involvement. In Korea studies, parent involvement is defined as the activity for parents to make close collaboration to understand children in a correct way, to get high efficiency by participating in learning activities for children directly, and to intervene in educational field by taking the various roles such as decision-makers, supporters, assistants etc. This definition stressed direct involvement by parents. Park and others (2012) indicated that parents and teachers need to have equal partnership, interact each other, and get skills and activities where they can join program with children, decision-making in kindergarten.

In Korea Studies, the need for parent education or involvement has been taken as the necessary exists for teachers and parents. Teachers who plan and carry out activities with parents think that parent involvement is important for children to enhance children development. They also think that parents show changes to get positive interest and active attitude through the activities (Ahn, 2004; Jo & Bae, 2009). However, teachers indicated pressure because they have to set the activities for parents. Im (2010) reported that most parents could understand about their children and change their attitude in a positive way after they participate in parent involvement program.

## **4.The reality of parent education and involvement in South Korea**

The object of parent involvement in South Korea is to provide information about kindergarten program. As parents visited their kindergarten and joined the activities with children, they can understand the situation of children, teachers and institution. The activities with parents start with parent education and parent involvement. Because they set the time to start, the place to open, and the object and contents for parents to do when many kindergartens plans the activities that parents take part in, parents involvement are required to do activities uniformly and limitedly in their boundaries that teachers already set. The next activities for parents are the examples to show the reality of the parent education and involvement that the South Korean kindergartens carry out.

### *4.1.Lecture*

These activities are held in twice a year, the beginning of the semester because the object of lecture is to explain how teachers take care of their children in program, and to provide information on development of children. The lecture is carried out by the director or professional instructor, and the content of the lecture is determined by teachers and director. To hear the lecture parents converge on time and place.

### *4.2.Parent involvement activity*

Teachers invite parents to do special activities with children that teachers plan, prepare and practice activities. These activities also have a tendency to carry out only once a semester because these make teachers feel stressful. Because they lead parents act in their way they want in a special day when they set to do activities, parents show the similar activities and they also are eager to make same results whether parents want to do or not.

### *4.3.Joining the special event*

Because the kindergartens seek the participation of parents in every event such as sports day or concert. Parents participate in the event to see how their children grow not to help teachers or institute for making better event. Parents is not participants but observers

## 5. Discussion

As examined so far, the activity related to parents of being carried out at kindergarten in South Korea is being progressed with a method of being mixed parent education and parent participation. These activities aim at young children's physical, mental and cognitive development, but are those of being included even a burden of teachers and parents along with it. Thus, the activeness of parents' participation rate or the teachers' stress is also expressed in executing it realistically. Also, there are many cases of aiming at kindergarten's delivering knowledge to parents. Thus, there is even a case of being recognized as "event for show" that an institution introduces a program, rather than understanding about child care, and as a single event rather than being continuous. A doubt is created about which experience on earth the parents will be able to have through parent education and parent participation, which resulted in being recognized as this event. Also, more effort seems to be likely needed for which the parents worry about young children's development together with teachers with truly having equal partnership with teachers. Especially in modern society of South Korea, it is the real situation of being grown parents, who appeal for child-rearing stress, or parents, who are much concerned about how they will rear child. These parents are encountering countless materials of appearing on internet for obtaining its solution.

However, it is the real situation that the data in the extensive collection are throwing parent into more confusion. Trying to think a role of parent participation with considering the child-rearing state in this modern society, the necessity is being proposed that teachers will recognize parents as the existence of proceeding with promoting young children's better development and as the existence of proceeding with sharing even a joy and solving even a worry together while raising children together, rather than recognizing them as the passive existence of needing to be educated. Considering that parents are in a situation of needing to begin the first child care in the state of having no experience of facing a child before especially in modern society, the institutions like kindergarten and child care center, which are being in charge of child care, are thought to be likely needed even a role of leading in the future so that parents can proceed with being grown into true parents.

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## Method

We worked with a questionnaire comprising 30 items, the answers being given using the five point Lickert scale ranging from 1 – perfectly satisfied to 2 – utterly dissatisfied. The sample comprised parents of upper high school students, whom we asked to state their sex and age plus the sex and age of their child. The total number of respondents was 176 (73 males and 103 females) and the research concerned 22 high schools in the region of Hradec Králové, Czech Republic. The parents were aged 30-57, while their children were aged 10-15 (there were 87 boys and 89 girls). The number of participating parents being relatively small, we involved a comparatively large number of schools so that the data would not be an evaluation of the same features of one of a small group of schools. There were never more than 10 parents – respondents from one school.

## Results

We performed factor analysis which rendered the following common variables (Varimax rotation, critical value /0,40/, Cronbach's  $\alpha = 0,81$ ):

The results give the total number of answers “completely satisfied” and “satisfied” expressed as percentage.

*Factor 1 – education, evaluation, knowledge and skills, social relationships*

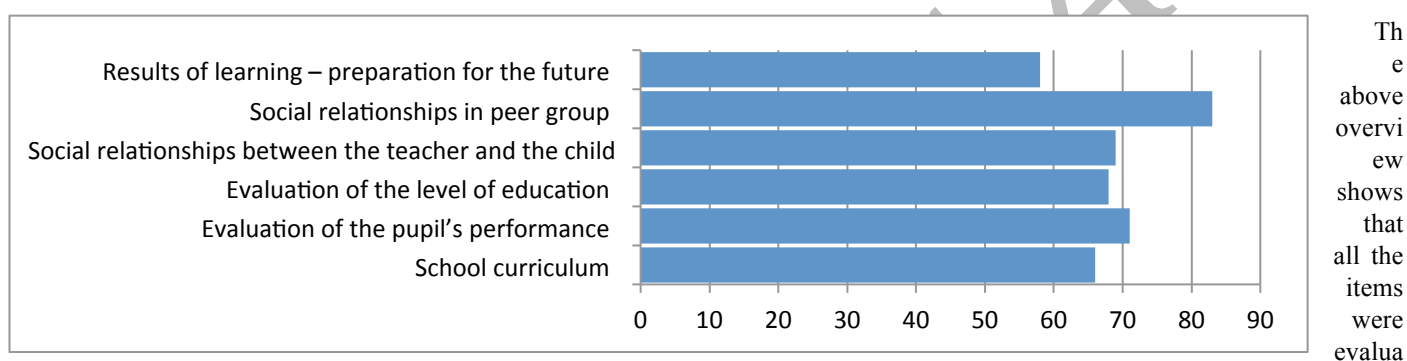


Fig. 5 Factor 1: items in percentage (N=176)

ted positively by the majority of respondents. A surprising finding is the high degree of satisfaction of students with the relationships in their peer group as perceived by their parents. The item which received the lowest evaluation was the preparation for future studies and occupation. This finding might lead to better self-reflexion in the area of educational activities of the selected schools. The overall results seem positive, nevertheless, it is clear that the school will have to take the needs of contemporary society into account even more than before and adjust the curriculum accordingly.

*Factor 2 – education welfare officers, information for parents, secondary activities:*

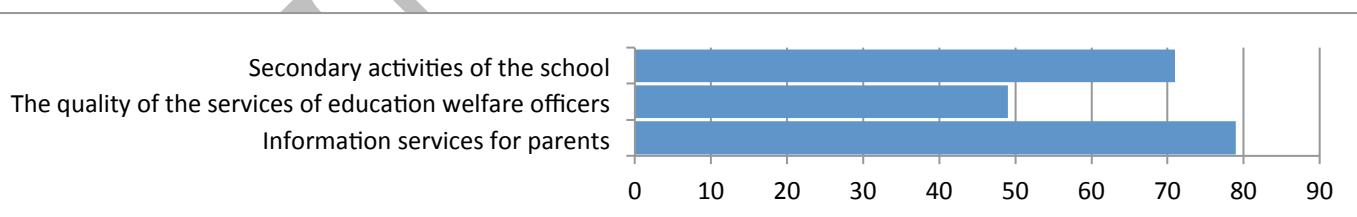


Fig. 6 Factor 2 - items in percentage (N=176)

Being aware that teachers who work as education welfare officers often lack the right qualifications, we assume that this lack is the main reason why the score of the item concerning career masters suggests that a little less than one half of parents are satisfied with the service. Moreover, many teachers are not given sufficient professional training needed for the solution of the increasing number of educational problems and working with the parents. We were pleased by the fact that almost 80 % of parents feel to be well informed about the education of their children as well as the high percentage of parents satisfied with secondary activities of the school. Our schools have made a big step forward in this respect. The role of education welfare officers is often connected solely with the elimination of negative phenomena, while the ability to provide advice is failing. Both



students and parents do not trust the officer enough to consult him on a difficulty; they even often lack precise information about his/her competence.

*Factor 3 – material equipment, psycho-hygienic conditions:*

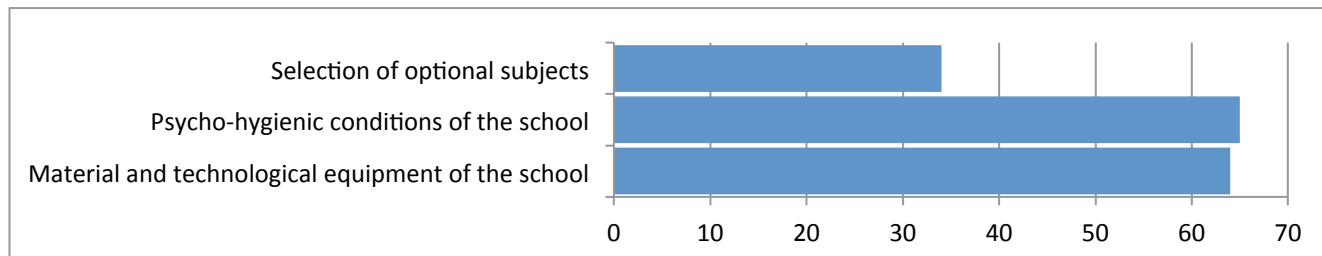


Fig. 7 Factor 3 - items in percentage (N=176)

One of the important factors of the education of an individual is the environment. In the case of schools, environment equals the building and equipment, decorations etc., however, other very important factors also include management, cooperation and climate of the school. Parents evaluated the material and psycho-hygienic conditions of the school relatively positively. The above items show that the satisfaction is lowest in the area of optional subjects. The parents' requirements in this area are perfectly justified. Contemporary society does not demand mere knowledge but also developed personalities with the desire to reach the best possible results. This is consistent with the finding of Haviger (2011) that personality and cognitive characteristics influence performance, such as in mathematics. Optional subjects above the framework of the so-called school subjects could bring a considerable contribution to the development of such individuals. It is evident that schools face limitations connected with the staff and financial matters, nevertheless, we must not close our eyes to this. The knowledge of the parents' wish for a larger and more diverse offer of optional subjects has to be taken into account and we have to attempt to change the current situation.

As for the overall evaluation of the school, 62 % of parents expressed their satisfaction with the good quality of the education process in the school which their children attend. This number appears relatively favourable, still, our future goal will be to focus more on the communication with parents and offer them closer cooperation with the school.

Analysing the obtained data further, we carried out the T-test, seeking the answers to more research questions.

1. Is there any connection between the age of the parent and the answers given in the questionnaire?  
No connection between the above items was identified.
  - Is there any connection between the sex of the parent and the answers given in the questionnaire?
  - Mothers feel to be better informed than fathers, mothers have greater awareness of the child's satisfaction at school (they know more about school him/her).
2. Is there any connection between the age of the child and the answers given in the questionnaire?
  - The older the child, the lower evaluation rating of the level of education given by the parents.
  - The older the child, the less satisfaction with the assessment of his/her performance on the part of the parent.

The above results suggest that parents of older students believe that their children are not educated and assessed well. It is necessary that the school should endeavour to maintain frequent and quality communication with all the parents of the students and that the teachers should offer more explanations, clarifications and justifications. This may prevent uncertainty and conflicts.

Is there any connection between the sex of the child and the answers given in the questionnaire?

- A considerably greater number of parents of girls believe that the school well prepares their children for the future.

Is there any connection between the school grades of the child and the answers given in the questionnaire?

- The lower grades, the less satisfaction with education, the student is not assessed well and the parents think that their child is not well prepared for further studies.

The fact that parents of children with lower grades regard the education and assessment as dissatisfactory is not surprising. Again, it is necessary to lead a constructive dialogue with the parent, to cultivate communication in general, reinforcing the

climate of trust and sympathy and seeking mutual understanding (Lašek, Loudová, 2013). The teacher should be able to present convincing arguments and suggest acceptable solutions.

The schools which enabled us to carry our research out were informed of the results, although (as mentioned previously) the sample of respondents from each school was small. Still, we considered it useful to inform the selected schools of the results.

## Conclusion

A young person leaving high school should be relatively well prepared to enter the society, whose requirements in the areas of education, social contact, independence and responsibility are more demanding compared with the past (Clark, & Starr, 1991). The objective of our research was to find out about the quality of the school's influence on the student in the eyes of the students' parents. It was not focused on the evaluation of specific knowledge and skills of the students but on the overall quality of the school. The school is a significant education phenomenon and the results of our study suggest that a relatively high percentage of parents evaluate the school of their children positively. The school and the family have a common goal: a harmonious development of the child's personality. The school acts as a kind of education service, while the parents are involved in the decision making concerning the way of education of their children. The attitude of the family towards education influences the position of this value in the child's value system (Chandra, & Sharma, 1996, p. 127). Parents and teachers are equal partners, however, the cultivation of this partnership requires a great deal of effort.

In accordance with (Epstein, Van Hooris, 2010, Pena, 2008), who formulated the principles of the relationship between the school and the family, calling it a sphere of overlapping influences, we propose the following practical recommendations based on our research.

Inform the parents of the school results of their children.

Clarify and justify what happens in the school.

Participation of parents as a form of support for teachers and the school.

Involve the parents in the matters of the curriculum and decision making.

Two-way communication between the teachers and the parents.

Counselling for parents, offering advice on the matters of home preparation.

Being a professional institution, the school should create and develop an exemplary and stimulating environment for the development of young people. Students regard their teachers as providers of social support (Křivohlavý, 2002) and trust them; therefore it is necessary to strive for a continuous improvement of the work with the student. This is a vital part of the never ending professional development of every teacher. Everyday work should involve a focus on the search for hidden potential and further possibilities of enhancing cooperation (Burešová, Havigerová, & Šimíková, 2012). All this necessitates mutual agreement between the participants of school life, so that school can be a place which makes students and teachers feel well and the parents satisfied.

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# The comparison of collocation use by Turkish and Asian learners of English: the case of TCSE corpus and icnale corpus

Elif Tokdemir Demirel<sup>a</sup>, Semin Kazazoğlu<sup>b</sup>

<sup>a</sup>Karadeniz Technical University, Department of English Language and Literature, 61080, Trabzon, Turkey

<sup>b</sup>Karadeniz Technical University, Department of English Language Teaching, 61033, Trabzon, Turkey

## Abstract

This purpose of this study is to compare the use of collocations by Turkish learners of English and Asian learners of English. Two spoken learner corpora, namely the TC-SLE corpus (Turkish Corpus of Spoken Learner English) and ICNALE corpus (International Corpus Network of Asian Learners of English) are used in order to make comparisons. The TC-SLE consists of Turkish learners' spoken English in the form of classroom language, monologues and language used during group work and has been compiled by the researcher. The comparisons are based on the frequency counts of collocations, types of collocations commonly used by the two different groups of learners and the types of inaccuracies done by the two different groups of learners. Based on the comparisons, the study investigates whether first language background has an important effect on the use of collocations and whether different groups of learners have similar problems in the use of English collocations. It was inferred that collocation use is among the most problematic aspects of spoken English for language learners and that factors not limited to but including first language significantly affect the use of collocations.

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*Keywords:* corpus linguistics, learner corpora, spoken corpus

## 1. Introduction

Collocations are defined as “The occurrence of two or more words within a short space of each other in a text” (Sinclair, 1991, p. 170). The accurate use of collocations carry importance for spoken language since they make speech more fluent and native-like. Therefore, mastery of collocations is an important aspect of spoken proficiency. Cowie (1981) distinguishes four types of combinations: free combinations (e.g. drink tea), restricted collocations (e.g. perform a task) and figurative idioms (e.g. do a U-turn).

Learner speech which lacks collocation use and other aspects common in native speech usually sounds “blunt, unnatural or monotonous” (Shirato & Stapleton, 2007). As language learners are not fully capable of using the target language culturally, socially, and situationally appropriate ways (Fung & Carter, 2007). It is also commonly accepted in the Turkish EFL context that there is lack of proficiency and fluency in speaking skills of learners. One reason for this lack of proficiency is that pragmatic sides of a language are always disregarded in pedagogic settings. There is a need for more thorough investigation of learner speech in Turkey which makes use of current technology and innovations in research. One of the approaches which provide opportunities over traditional research methodologies is corpus linguistics. In Turkey currently, a spoken corpus of learner English, which would provide a valuable resource for research into spoken performances of Turkish EFL learners, does not exist.

Spoken corpora studies, however are not very recent in other countries. For example, starting in the mid- 1970s, spoken language corpora came into existence in increasing quantity and variety (Leech, 2000).

Considering that it is an important first step to compile a spoken corpus of Turkish EFL learners, for the current study a corpus of EFL learner English was compiled. The purpose of this study is to compare the use of collocations by Turkish learners of English and Asian learners of English. Two spoken learner corpora, namely the TC-SLE corpus (Turkish Corpus of Spoken Learner English) and ICNALE corpus (International Corpus Network of Asian Learners of English) are used in order to make comparisons. Based on the comparisons, the study investigates whether first language background has an important effect on the use of collocations and whether different groups of learners have similar problems in the use of English collocations.

A corpus can be defined as a large, systematic and structured collection of natural texts in an electronic database (Biber, Conrad & Reppen, 1998). A corpus is comprised with written texts and transcribed speech samples, and they are core elements for linguistic analysis (Kennedy, 1998). The design, size and the nature of a corpus are influenced by the purpose for compiling it. Leech (1991) suggests that a corpus is generally designed for a particular representative function and that he defined corpus linguistics as the study of language and a method of linguistic analysis which relies heavily on the use of computerized texts of authentic language.

Compilation of a corpus for language research and using corpus linguistics methods for analyzing language provides several benefits over other traditional forms of language analysis. With the use of corpus linguistics methods it is possible to analyze complex association between samples of language use and to store huge database of language; furthermore, it provides reliable and unchanging analyses. Corpus linguistics also allows researchers to make empirical studies in many areas of linguistics such as, lexicography, sociolinguistics, studies of style and educational linguistics (Biber, Conrad & Reppen, 1998).

First generation corpora included The Brown Corpus (approximately 1,014,300 words), The Lancaster- Oslo/Bergen(LOB) Corpus (one- million words) and The London- Lund Corpus(LLC) (500,000 words of spoken British English). Other types of corpora compiled for studying spoken English include Lancaster/ IBM Spoken English Corpus (SEC) (52,600 words of spoken standard British English), Corpus of Spoken American English (CSAE) ( up to one million words) and Wellington Corpus of Spoken New Zeland English (one million words).

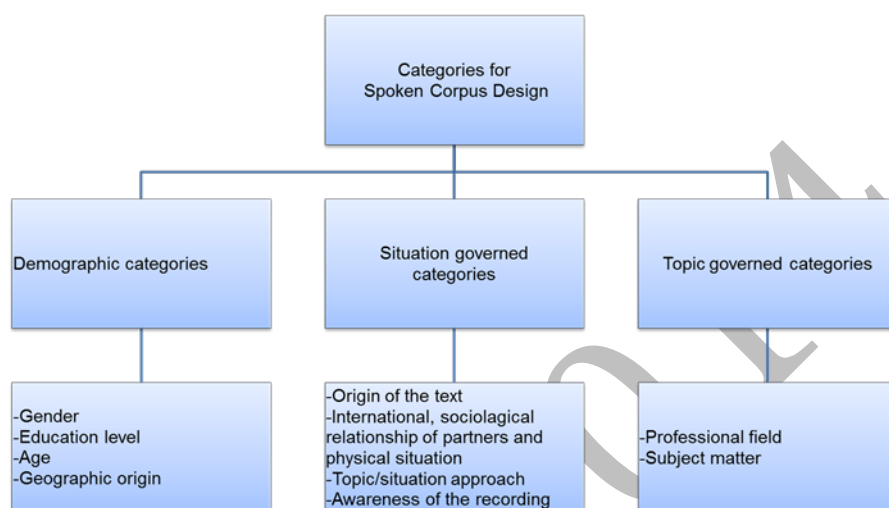


Figure 1. Design criteria for spoken corpora

Until mid- 1990s, the most widely known spoken corpus was LLC (London-Lund Corpus) with half million words. In his article “Spoken Corpora Design”, Čermák (2009) suggested basic design criteria for spoken corpora. His design consisting of three types of categories which also has a number of parameters is illustrated in Figure 1 above.

Linguistics studies using a spoken corpus have investigated various research questions such as the factors creating individual differences in the utterances of native and non- native speakers (e.g. Fuller, 2003; Fung and Carter, 2007; Aijmer, 2011) or regional differences in informal speech. (e.g. Torgersen, Gabrielatos, Hoffman and Fox, 2010). Authentic data provided by a carefully compiled spoken corpus provides important insights into the speech of native and non-native speakers since spoken language is different from written language and is more difficult and time-consuming to capture.

## 2. Methods

### 2.1. Corpus Compilation

The corpus compiled for the present study consists of, 58 spoken learner speech samples on two subjects chosen from among the IELTS spoken test subjects. The students whose voices were recorded were preparatory class students at the English Language and Literature department of a public university in Turkey. Their English level is between intermediate and advanced level. The corpus was compiled with the help of a digital voice recorder. Each student’s recording was made he/she wanted to talk about, was allotted some time to take notes and prepare themselves for the talk. When he/she was ready, the student was instructed to talk about their selected subject for 2 minutes. After the recordings were made, they were transcribed and coded for spoken discourse issues such as hesitations and false starts and given an identification number. The topics given to the students were one of the following:

Talk about a memorable childhood experience of yours

Talk about a big public event that you have attended

The Turkish Corpus was labeled TC-SLE (Turkish Corpus of Spoken learner English). This corpus consists of approximately 1500 words at present but work on compiling is ongoing. In order to make comparisons between Turkish EFL learners and other groups of learners and native speakers, two corpora which were available online were selected as comparison corpora. For learner comparisons the ICNALE corpus (Ishikawa, 2010) was selected. In order to make the ICNALE and TC-SLE comparable, a section of the ICNALE was randomly selected for the study. The size of the selected section is 1533 words and consists of a blend of Asian learners: Japanese, Indonesian, Chinese. Similar to the TC-SLE corpus, the ICNALE corpus selected consists of 2 minute short recorded and transcribed talks. In order to make comparisons with native-speaker speech the spoken

section of the BNC (British national Corpus) was used. Table 1 provides information on the corpora used in the study.

Table 1. Description of the corpora used in the study

	TC-SLE	ICNALE	BNC
<b>Corpus size (words)</b>	1500	1533	100.000.000
<b>content</b>	2-minute recorded EFL learner speech samples	2-minute recorded EFL learner speech samples	Spoken native speaker English from various contexts
<b>reference</b>	Demirel (2014), Karadeniz Technical University, Turkey	Ishikawa (2010), Kobe University, Japan	Brigham Young University (1980)

## 2.2. Data Analysis

For the analysis of the corpus data for TC-SLE corpus and the ICNALE corpus, AntConc concordance program was used. The steps of the data analysis is listed below:

- Step 1: Most frequently used words in the following categories were chosen from the TC-SLE by using AntConc 3.2.4.w concordancing program (Anthony, 2011). Figure 2 shows the lists of most frequently used words in three part of speech categories of nouns, adjectives and verbs.



Figure 2. Most frequent nouns, adjectives and verbs in the TC-SLE Corpus

- Step 2: Collocations of the words in the three word categories were found in the three corpora: TC-SLE, ICNALE and BNC
- Step 3: The collocations and their MI (Mutual Information) values through BNC and AntConc and compared across the three corpora. The MI value is a measure of collocational strength. The higher the MI score, the stronger the link is between two items. An MI score of 3.0 or higher to be taken as evidence that two items are collocates. The closer to 0 the MI score gets, the more likely it is that the two items co-occur by chance. A negative MI score indicates that the two items tend to shun each other. The MI scores were recorded for the analyzed collocations to see whether there are differences between the three corpora in terms of collocational strength.
- Step 4: The similarities and differences of the collocations were explored.

## 3. Results and Discussion

The purpose of the study was to compare the collocations of the most frequent nouns, adjectives and verbs across three corpora; TC-SLE (the main non-native EFL corpus), the ICNALE (the EFL corpus for comparison) and the BNC (the native-speaker corpus for comparison) to see whether there is a variation in collocation use between non-native EFL learners and native speakers.

As a result of the analyses differences were observed between the preferred collocates by learners and native speakers. For Example, for the selected ten most frequent verbs, a total of 57 collocates were found. Out of theses 57 collocates, 23 collocations were preferred only by native speakers and the remaining 24 were preferred by either only Turkish learners or by only Asian learners and sometimes by both. Table 2 shows the preferences for collocations with the past tense verbs went, started

and attended.

Table 2. Preferences for verb collocations

Native speaker preferences	Asian learner preferences	Turkish learner preferences
went into	went to	went to
went out	went into	
went down		
went back		
went round		
first started	started to	started to
started talking	I started	I started
started laughing		
people attended	I attended	I attended
attended by		
apparently attended		
attended conference		
members attended		

Secondly it was observed that the collocations showed more similarity between the two groups of learners than they did between learners and native speakers. For example, if we look at the collocates of “good” in the adjectives category. We can see that three words come out as preferred collocations of good in the EFL learner corpora, whereas they are not among the preferred collocates by native speakers.

Table 3. MI score comparison of collocates of “good” across three corpora

	MI scores		
	TC-SLE	ICNALE	BNC
adjectives	4,14	6,65	0
a good	1,15	2,15	0
good and	3,82	7,27	0
good for	0	-2	0
good relations	0	0	4,9
good actor	0	0	3,85
good afternoon	0	0	3,56
awfully good	0	0	5,47
good boy	0	0	

As can be seen in Table 3, collocates with strong MI values for both EFL groups do not show up as strong collocates in the native speaker corpus. This is an indication of the fact that EFL learners do not have enough competence regarding commonly used collocations in native speaker speech and tend to use free combinations of words instead of preferred chunks of speech which make speech more native-like and fluent. Figure 3 also illustrates that there is similarity between EFL groups and difference between the native speaker group and the EFL groups in terms of collocation use.

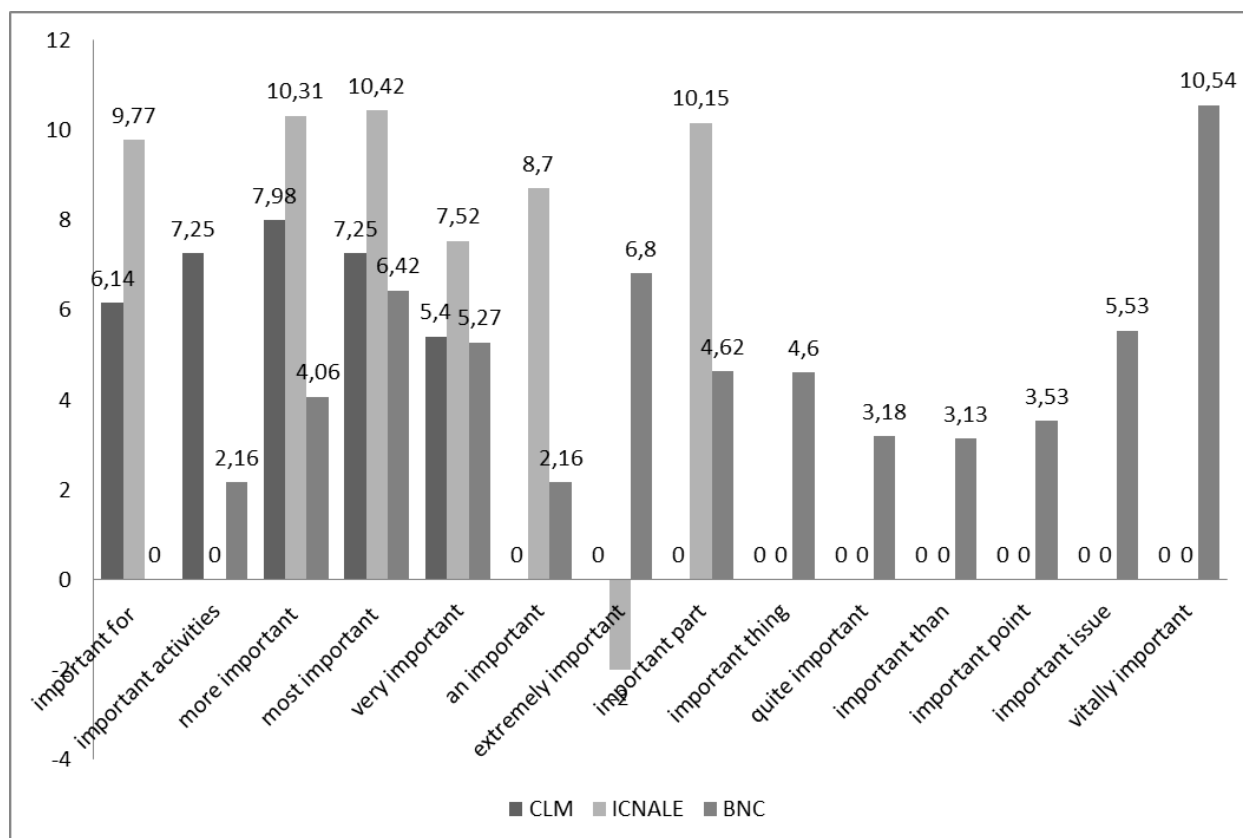


Figure 3. Comparison of collocates of adjective 'important' between the three corpora.

Another important finding is about the formation of collocates by EFL learners. The collocates preferred by learners are formed by usually core words such as articles, common prepositions or connectors. However, collocations formed with these words did not show up as strong collocates in the native speaker corpus. This result is in harmony with earlier findings by other researchers such as Altenberg & Granger (2001) and De Cock, Granger, Leech, & McEnery (1998). Similarly, Hasselgren (1994) argued that infelicitous collocations resulted from overdependence on the familiar—that is, structures that learners learned early, used widely, and with which they felt comfortable. She referred to these as "lexical teddy bears."

#### 4. Conclusions

Three main findings were reached as a result of the study. Firstly, it was found that preferences for collocates of the most common words show variation across native speakers and EFL learners. That is, EFL learners use vocabulary differently compared to other EFL learner groups and native speakers. This could mean that collocation use is problematic for learners regardless of their country of origin and that Turkish learners and Asian learners display similar use of collocations in spoken production when compared to native speakers. Secondly, it was seen that most of the variation in collocation use is existent between native speakers and EFL learners but not between the two groups of EFL learners.

Upon finding similar problems with advanced learners Laufer and Waldman (2011) suggest awareness raising activities for the use of collocations. For example supplementing communicative, task-based teaching with preplanned Focus on Form or Focus on Forms activities. With the current availability of online resources and user-friendly interfaces of corpora, teachers can also incorporate the exploration of corpora for collocations into their teaching. In order to get accustomed with the correct use of collocations, learners should be given more opportunities to explore native-speaker language through the use of online corpora. A hands on Data Driven Learning Approach (Johns, 2002) to teaching vocabulary should be followed in order to raise students' awareness of collocations and also to enrich their repertoire of vocabulary.

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# The concept of establishing a Syariah Supervisory Committee in Malaysian hospitals

Muhammad Adib Samsudin<sup>a\*\*\*\*\*</sup>, Mohd Izhar Ariff Mohd Kashim<sup>a</sup>, Mohammad Zaini Yahaya<sup>a</sup>, Ahmad Munawar Ismail<sup>a</sup>, Rozida Mohd Khalid<sup>a</sup>, Hayatullah Lalulddin<sup>b</sup>, Irwan Mohd Sobri<sup>c</sup>, Syed Azhar bin Syed Sulaiman<sup>d</sup>

<sup>a</sup>*Faculty of Islamic Studies, The National University of Malaysia (UKM), 43600 Bangi Selangor, Malaysia*

<sup>b</sup>*Faculty of Economics and Management Sciences, International Islamic University Malaysia (IIUM), Malaysia*

<sup>c</sup>*Faculty of Shari'ah and Law, University of Islamic Sciences Malaysia (USIM), Malaysia*

<sup>d</sup>*Centre for Study of Science of Pharmacy, University of Science Malaysia (USM), Malaysia*

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## Abstract

A review of the literature has shown that several aspects of hospital management in Malaysia do not comply with Islamic laws, for example, the choice of drugs and medical personnel-patient relationship of different gender. These two important issues need to be addressed wisely and discreetly in order to preserve Malaysia's status as an Islamic country. The first issue, regarding the choice of drugs, means that at times there is confusion and doubt on the halal status of certain drugs. For example, the allergy drug Red Tab Claritin and Ultratab Tablet Benadryl were reported to contain by-products that were of porcine and bovine origin. The second issue, which is the mu'amalah between a medical personnel and patient of conflicting gender, arises especially in cases of expecting mothers. Most were uncomfortable when male doctors handled the delivery process. These two issues have been a concern for Muslims and the reason why Muslim religious scholars (ulamas) have stressed the importance of consuming halal drugs (if available), and to be aware of boundaries between genders including the medical personnel-patient relationship. Thus, for the benefit of Muslims, who are the majority in Malaysia, this conceptual article will debate the rationale of establishing a syariah supervisory committee in Malaysian hospitals, especially dealing with modern biotechnology products. This paper will also look at some models that oversee the ethics of pharmaceutical management and medical personnel-patient relationships that are related with the proposed establishment of a syariah supervisory committee.

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*Keywords:* hospital; halal; syariah committee; Islamic law; biotechnology

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## 1. Introduction

Establishing a syariah committee in Malaysian Hospitals is one idea that has emerged in the course of adhering to two aspects of hospital operations according to the al-Qur'an and the hadiths. These aspects refer to the choice of medication and the medical personnel-patient relationship. The adherence to these two aspects is related to the establishing of a syariah committee because it was found that the financial institutions in Malaysia had adhered to the laws of the syarak after the syariah advisory committee began monitoring them. In addition, it would improve the implementation of Islamic teachings in a country that has proclaimed Islam as the federal religion.

## 2. The Significance Of Establishing The Syariah Supervisory Committee In Malaysian Hospitals

The literature review has shown that there are issues related to hospitals in Malaysia that need the establishing of a syariah committee. This committee needs to play a pivoting role in two matters, namely the issue of choosing medicines and the medical personal-patients relationship, especially in cases of conflicting genders (v Rispler-Chaim, 1989). From the aspect of choosing medicines or pharmaceutical products, there are suspicions on the halal-haram status of the medicines. For example, the medication for allergies such as Red Tab Claritin and Allergy Ultratab Tablet Benedryl, which have their origins from porcine and non-halal bovine (Syed Azhar, 2013). So too the anti-fungal drug Clotimazol, which is primarily sourced from porcine by-products (ibid). According to Professor Dr. Syed Azhar Syed Sulaiman (2013), the use of medication in hospitals is not only limited to oral medication but also various other forms of administering medication in different dosages. The use of vaccines for numerous diseases is based on its production from enzymes or protein by-products of porcine origin. Intravenous medicine of

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\* Corresponding author. Tel.: +0-19-239-7478; fax: +603-89213153.

E-mail address: adib@ukm.edu.my

various forms, especially insulin, which is often used in hospitals, is also a product manufactured from materials that are of a non-halal origin. Dr. Syed (2013), who is the Dean of the Pharmacology Faculty in University Science Malaysia, also added that 'vehicles' used in aerosol medicines might be produced from various materials that are not only suspicious but almost half of them have been indicated as non-halal but nevertheless still widely used in hospitals. From another perspective, although the active ingredients of some medicines are halal but the binding materials, the 'vehicles' and the dissolving or lubricating agents might not be produced according to halal protocols.

Hence, with the existence of the syariah supervisory committee that will focus on the halal aspect, the syariah concept will help put the national health system on a better threshold. Besides that, it would also be capable of assisting the enhancement of halal product services in the health field. The MS2424, which has been produced in this country, is capable of becoming the catalyst in the production of halal pharmaceutical products that would attract the interest of Muslims and other religions that lay importance on hygienic aspects in the manufacture of medicines. Besides the issue of medicines, the medical personnel-patient relationship also needs syariah supervision. This is because earlier studies have found complaints from female patients, especially in the delivery room. Some of them were not comfortable when male doctors handled the delivery (Anon., 2011). Forums on the internet have affirmed this phenomenon as one complaint from a member of the forum had stated that a trainee doctor was purposely asked by a specialist to place a urinal for a woman who was about to deliver (Anon., 2012). Hence, such a dishonourable act should not have occurred because the duty of placing the urinal could have been done by a female doctor or a nurse. Muslim scholars have iterated that female doctors must handle matters pertaining to gynaecology and obstetrics of Muslim women even though the woman is a non-Muslim, except during emergencies ('Atiyyah Saqr, 2002). Although doctors are bound by medical ethics under the Malaysian Medical Council, hence the enforcement of the halal-haram protocol is beyond their jurisdiction. Therefore, it is proper to establish the Syariah Supervisory Committee in hospitals to ensure that syarak in this context is implemented.

### **3. Definition Of The Syariah Supervisory Committee**

In a financial context, the syariah supervisory committee would mean (Husin Shahatah- date of reference unknown) supervision, research and analysis on all work, behaviour and ethical practices of an individual, group, institution or even units that adhere to the syariat of Islam. In other words, all the elements and monitoring activities are used to ensure the practice of a financial system based on the Islamic syariat (Hichem Hamza 2013; Mustafa Omar Mohammad & Syahidawati Shahwan 2013). Hence, the syariah committee in Islamic banking is a group of individuals comprising experts in Islamic law and economy that would be responsible for monitoring and supervising the implementation of Islamic law associated with the economy, thus ensuring its practise in financial institutions (Abdul Halim El-Muhammady 2012 & Mohd Nasran Mohamad et. al 2008).

Therefore, based on the definition above, a suitable definition for the syariah supervisory committee in hospitals would be a group of individuals comprising experts in Islamic law and a group of medical specialists responsible for monitoring and supervising the implementation of Islamic law associated with medical practices so that it is adhered to and practiced in hospitals.

### **4. The Justification For Establishing The Syariah Supervisory Committee**

Establishing the syariah supervisory committee does not conflict with the syarak as stated in the verse of the al-Qur'an, meaning "And let there be [arising] from you a nation inviting to [all that is] good, enjoining what is right and forbidding what is wrong, and those will be the successful" (al-Imran 3:104)

Referring to the verse above, Allah SWT had asked upon his followers to do good and abstain from travesties. This demand was not meant only for individuals but collectively to the whole Islamic community. This shows that establishing a committee that would monitor and supervise the adherence to the syarak in hospitals fulfils the context of the verse.

### **5. The Role Of The Syariah Supervisory Committee**

The syariah supervisory committee found in financial institutions has important roles to play. Among them are (Jamal al-Din 'Atiyyah 1413H; Nurhastuty Wardhany & Shaista Arshad 2012):

- a) To guide and monitor all activities in Islamic financial institutions in order to identify the rate of incorporating Islamic law that does not conflict with the common law of the country.

- b) To expose corruption, misguided ideas and opinions and to evaluate and reproof institutions in order to abstain from matters that transgress the syarak.
- c) To adduce Islamic alternatives for all forms of mu'amalah in Islamic financial institutions and reconfigure the investment system in accordance to the syarak.
- d) To support financial institutions, its staff and customers in their commitment towards the syariat Islam in all transactions and dealings by providing knowledge regarding the legal principles in the Islamic financial system.
- e) To have continuous supervision, auditing and solutions that guarantees the implementation of financial transactions in line with Islamic law.

Hence, in a hospital context, the suggested roles of the syariah supervisory committee are also similar, such as:

- a. To guide and supervise activities regarding the administration of the hospital especially in aspects pertaining to choice of medicines and the medical personnel-patient relationship so as not to conflict with the syarak.
- b. To expose corruption, misguided ideas or opinions and to evaluate and reproof the hospital in order to abstain from matters that transgress the syarak.
- c. To support the hospital, its staff and clients in their commitment towards the syariat Islam in all transactions and dealings by providing knowledge regarding Islamic medical procedures.
- d. To have continuous supervision, auditing and solutions that guarantees the implementation of hospital operations are in line with Islamic law

## 6. The Structure Of The Syariah Supervisory Committee

In Malaysia, the Malaysian Central Bank has set several minimal conditions that need to be fulfilled by financial institutions when establishing a syariah supervisory committee (Anon., n.d). For example, in regards to the appointment of committee members, at least three qualified members need to be appointed. The qualifications are determined based on the expertise, skills and experience in the field of principles of Islamic jurisprudence (usul fiqh) or Islamic jurisprudence related to mu'amalat.

In the context of the hospital, the researcher suggests the same method. The members of the syariah supervisory committee comprise a minimum of three persons who possess the expertise in the field of study such as principles of Islamic jurisprudence (usul fiqh), current principles of Islamic jurisprudence and being a medical doctor. This is because the medical issues encompass ethics and the use of biotechnology products that need the consensus of the syarak from time to time.

## 7. Conclusion

Islam is a divine deliverance intended to safeguard the global wellbeing of humans. The commands of Allah SWT, whether in the form of instructions or forbiddance, are to fulfil this intention. Therefore, every step and action that brings forth human bliss should be given due consideration and support.

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# The decentralization of education at Paranaguá county

## Brazil (1985-2011)

Mary Sylvia Miguel Falcão\*\*\*\*\*

UNESPAR–Universidade Estadual do Paraná, Campus de Paranaguá. Rua Comendador Correa Junior, Número 117 - Centro, Paranaguá  
8320\*\*\*\*\* 3-560, Brasil

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### Abstract

This paper aims to analyze the decentralization of at Paranaguá county in the time window 1985 to 2011, triggered by Paraná government. Changes in this county have been inquired based on enrollment and the number of teachers at each teaching systems. For that research, were taken in consideration the studies of Arelaro (1999); Camargo, (1997) those allege the countytization tendency as the strategy for deregulation of State and Gouveia(et-at2003; Santos(2003) demonstrate the impact of those decentralizations measures at educational finances in Paranaguá. Results points the countytization made an impact at the basic education of Paranaguá county.

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*Keywords:* Education; Decentralization; Basic Education

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### 1. Introduction

The goal that set this study In motion, was to analyze the process of educational decentralization established in the state of Paraná-Brazil specifically at Paranaguá county between 1985 to 2011, therefore sought for the quotation of enrollment at Elementary Schools, observing the variations in teacher transitions at Elementary School to the municipal network, diagnosing the procedures of what is called countytization of education, especially of the first four years of that level of education. A readback of those data was made with the political project of the government established in the State and their implications in municipal government in what concerns educational quotation in comparative data retrieval about the development in the municipal and state educational flux. In order to achieve the propose goal was noticed an increase on educational demand ,caused by the universalization of elementary education in one hand, and by the deregulation of the Stateon the other, keeping in sight the lack of an effective collaboration polity as proposed in 211° article in the CF of 1988. The theoretical l basis used in this analysis consider publication of researches such as Lisete Arelaro (1999), Rubens Barbosa Gouvêa (1997) stating that the municipal tendency as an strategy of State deregulation, others like Andréa Barbosa Gouvêa and Ângelo Ricardo de Souza (2004) and Jussara Maria Tavares Puglielli Santos (2003), demonstrates the impact of the decentralizing measures in the education finances of Paraná state. This being, this is an analytic research that resorts database from the Paranaense Institute of Researches and Economic development-Ipardes. The result indicates that the decentralization process unchained at Paranaguá county, lead this federal entity to put up to most of Elementary education educational finances.

### 2. The educational decentralization in the State of Paraná: Some remarks

In the state of Paraná the countytization process of the education went as an administrative-financer process, led only by the state's administration that resulted in the decrease of public expenses. (Gouvêa; Souza, 2004)

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\* E-mail address: mary.falcao@unespar.edu.br

\*\*\*\*\* This term refers to the act of transferring the responsibility to finance and manage education from the union plan to the county one.

Even thou Brazil lived

In the early 90's many decentralization processes following the already strong educational countytization trend, those processes were, undoubtedly, very rich. They were developing intergovernmental discussion forums, that, even thou they were slow and hard to manage, they did point out to a further level of negotiation. Thus, the most notorious examples for this process were in the Rio Grande do Sul state (Winckler, 1996) and Paraná state (Raggio, 1996), that, already in 1995, saw the need for the implementation of a per capita cost for the enrollment that have been moved from a governmental level to another. (RODRIGUEZ, 2001, P. 46)

According to Jussara Maria Tavares Puglielli Santos (2003) the education countytization in the state of Paraná wasn't determined by the implement of the Basic Education Development and Maintenance and Magister Appreciation Fund (Fundef), contrary to other Brazilian cities (Pinto, 2007).

According to Santos (2003), the decentralization in the state of Paraná was effectuated from 1990. What is more, the author states, the first initiatives regarding the responsibility transfer of the education to the county, in Paraná, date back to the 60's.

As the literature regarding the subject states, there are three main moments in the countytization process of Paraná: The first, associated to the reconstruction and constitution of the Brazilian educational state system, consequence of the national education reform laws (1961 and 1971); the second, developed associated to the national project (1975-1981) and regional, with international funding, focused in rural education and the third, beginning with the student cost national studies that, with the tributary changes set by the 1988 Constitution, went on working as parameters for the Paraná's model that lasted from 1990 to 1997. (Santos, 2003, p. 257-279. My Highlights)

Santos (2003, p. 257-259) points that the first moment in the countytization process answers "to the educational system adjusts to the legal determinations from the decentralization orientation". On the other hand, in the second one "we watch the inductive action both from the federal and state administration through actions aimed to stimulate agricultural activities in a state where, until then, predominated activities from the primary sector." (Santos, 2003, p. 257-279)

However, states the doctor, the third moment begins in the second government of the Brazilian Democratic Movement Party (PSDB) post dictatorship from 1987 to 1990 and, in the third government of the same party, the process gets intensified from 1991 to 1994. Santos (2003) indicates that it was only in the third moment that the countytization was based on the technical rationality witch dominated the administrative-financer logic.

The main reasons to justify this affirmative, according to the author, were given by at least two main reasons, which are: "The increasingly deficit configuration of the state's administration accounts, that even reaches a deficit of 35% in the year of 1989, according to data from IPARDES (1992, p. 64) and the potential increase over the city's income due to tributary changes in the 1988 Constitution". (Santos, 2003, p. 257-279)

The countytization process proposed by the State's management found a strong opposition from the organized civil society compromised with the public school's defense. That is, considering, firstly, that the second administration of the PSDB in the Country was pressured by the growing deficit in the public accounts witch led, by its time, to the flattening of the teacher's salary, as well as the maintenance and support of the Basic Alphabetization Cycle targeted to reduce the retention rates on the primary levels. "In other words, the possibilities to define and implement effective and universal pedagogic actions were compromised by the precarious conditions of public funding." (Santos, 2003, p. 257-279)

Those things enabled a strike in the 1990's showing, as the author says, the collapse of the state's educational system as, in one way the resources diminished, and in the other the registration number increased. According to Santo's (2003) analyses, "the conflicting relations between educational professionals and the state's government were a main factor in the exclusion of those professionals from the process of defining the countytization program implanted from 1991." Also, representative entities which resisted to the decay of public education were dragged away from the process too, alongside with city which were considered "partners". From there on the political educational management concerns only the governmental sphere. Which would the motives leading the state to take those attitudes be? According to Santos (2003):

There would be many reasons, probably. Firstly, one might have to consider that the conflictive relations between educational professionals and state's administration had already configured itself very harshly since the 1988 strike and, from there on, only deteriorated, culminating with a 90 days strike in 1990. That means, the political onus was already absolutely and hopelessly configured and, despite that, the party had assured its victory for one more election in the year of 1990. Without a doubt, that victory played a major role in applying a measure that, as it would be proven later on, would represent, as a fact, expenses reductions for the state's management. (SANTOS, 2003, p. 257-279)

In the research made by the Ipardes in 1996, entitled “Avaliação do impacto da municipalização do Ensino Fundamental no estado do Paraná”, that intended to fulfill the demands from the treaties between the state of Paraná and the World Bank (WB), it is clarifying as far as the means by which the state's enrollment were transferred to the cities in Paraná is concerned. As the research showed

The union transferred to the cities the educational onus without giving the proper support, demanding, moreover, the adoption of a new theoretical-methodic proposal: The Basic Alphabetization Cycle. That proposal presents, in the state's school's scope, difficulties in its implement that are not yet solved, and that shouldn't have been ignored when the proposal was first made, as part of the countytization policy, to the city's education network. (p. 88) With a bigger urbanization of the scholar network, the cities would inherit all the problems regarding that network, such as the pressure for more spaces at schools and the lack of classrooms and decent space for the Basic Alphabetization Cycle, as the consequent lack of resources to fulfill future demands. (p. 89) the adoption of the CBA became a vulnerable choice as the union did not have to, effectively, supply the right amount of pedagogic orientation to the cities that took the educational partnership, and also excluded most teachers from theirs improvement courses. There is a clear sign that the state does not have a clear proposition to support the cities by capacitating the city's teachers. (IPARDES, 1996, p. 92)

As we can see in the educational context of Paraná, the choice for the countytization did not come alongside with the financing project as in many other cities in Brazil, (ARERALO, 2005) it targeted the private interests in Brazil and also instrumentalized educational policies in the state's level. Even thou may cities have shown a great deal of resistance to those policies (GOUVÊA; SOUZA, 2004), in the city of Paranaguá, main target of the study, we couldn't find leads that pointed to that resistance.

### 3. The city of Paranaguá: the educational decentralization induced

The city of Paranaguá was created by the Law number 5, in 29 of July of 1648, and was installed at that exact moment. Today's city of Paranaguá was dismembered from the state of São Paulo. It is the state's oldest city. It is settled in the coastal region, 86km from the capital. Has a population of 142,452 inhabitants (IBGE, 2010). Has an urbanization tax of 96.49%. Its illiteracy tax is of 3.88%. (IPARDES, 2011)

Considering the educational numbers of 2012, the city presented the enrollment tax shown in the chart 1 below:

Chart 1: Enrollment in Paranaguá's education network - 2012

Administrative Networks	Nursery	Pre-School	Elementary	High shool	University
Federal	-	-	-	291	176
State	-	-	10.965	6.833	449
City	940	1.991	10.625	-	-
Private	656	860	3.830		
Total	1596	2.851	25.420		

Source: MEC/INEP

The data points out an equal division regarding the educational services given by the state and the city as far as basic education is concerned, revealing the universality of that level of education when comparing with the chart 1. On the other hand, when looking at chart 1, one can conclude that the main absorption capability resides in child's education following the national trend. (PINTO, 2007)



### 3.1 The educational countytization in the city of Paranaguá

When talking about the countytization in the city of Paranaguá, we can point out that it receives the full impact of that project, still under the management of Álvaro Dias (1987-1991). The analysis of the decentralization policy in the state of Paraná allows us, alongside with Gouvêa and Souza (2004), to assert that it wasn't a consequence of the financial induction created by the Fundef.

In the years of 1987 to 1991, which referred to the management of Álvaro Dias, we can notice that, according to the chart 2, there was a growing number in the schools vacancies in the city's education.

The data analyzed corroborate with the analysis created by Gouvêa and Souza (2004), which affirms that even before the implement of the Fundef in the state of Paraná there was a reduction of the vacancies for the basic education, generated by the reduction in hiring for that level of teaching. This fact obligated the city's network to raise the vacancy offer in that level of education. As we can see in the following charts and graphics:

Chart 2 Enrollments 1985-2011 – County of Paranaguá-PR Brazil

Year	1985	1986	1987	1988	1989	1990	Source: Ipardes (1985-2011)
Enrollment at elementary school -state network	11.776	12.290	12.311	12.549	12.021	12.257	
Enrollment at elementary school - municipal network	5.980	6.248	6.242	6.522	7.319	7.384	
Year	1991	1992	1993	1995	1996	1997	
Enrollment at elementary school -state network	12.396	12.751	12.654	12.077	11.922	11.442	
Enrollment at elementary school - municipal network	7.917	8.624	10.482	10.405	11.421	10.469	
Year	1998	1999	2000	2001	2002	2003	
Enrollment at elementary school -state network	11.193	12.140	10.951	10.859	10.928	10.306	
Enrollment at elementary school - municipal network	10.825	10.112	10.980	11.072	11.561	11.837	
Year	2004	2005	2006	2007	2008	2009	
Enrollment at elementary school -state network	9.913	9.985	10.501	11.285	11.680	11.213	
Enrollment at elementary school - municipal network	11.953	11.882	11.586	11.734	11.863	12.601	
Year	2010	2011					
Enrollment at elementary school -state network	11.037	11.216					
Enrollment at elementary school - municipal network	10.790	10.293					

Source: Ipardes (1985-2011)

As for the number of vacancies per education network, the graphic suggests that the city started to offer a very big number after a very short period of time. This data helps in understanding that the countytization established though the transfer of early level of education vacancies got faster through the transfer of enrollment and teachers to the city's network, that is, following that logic the city was held responsible for all the enrollment in the early levels of basic education, fact that can be observed also in what regards the number of schools per educational network.

Chart 3 Teacher's numbers in the state and city network in Paranaguá - 1985-2011

Year	1985	1990	1993	1995	1998	2000	2011
Teachers at elementary school - State network	394	505	507	534	499	429	457
Teachers at elementary school - municipal network	334	421	499	471	413	467	523

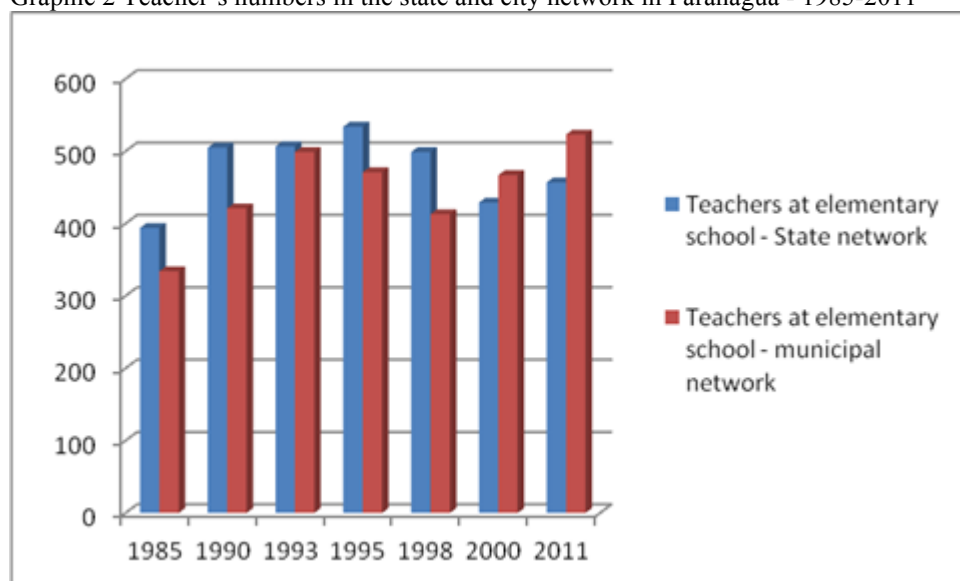
Source: Iparides (1985-2011)

In the chart 3 we can see a remarkable increase in the teacher transfer to the city's network. It gets especially visible in the years of 1990 to 1995. Those years can be considered as the most critical moment as far as educational professional transfers from state to city education system. This represents the consolidation of the contizatilization in Paranaguá.

This trend can also be seen in the following graphic

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Graphic 2 Teacher's numbers in the state and city network in Paranaguá - 1985-2011



Source: Iparides (1985-2011)

We can notice that, as it has been discussed, the number of teachers from the basic education also was raised in the city, following the vacancy trend, which strengthens the thesis defending that the decentralization was induced by the center of the union, to the cities below.

#### 4. Final Thoughts

Analyzing the data presented regarding the city's demand for the earliest levels of basic education, we can state that the decentralization promoted by the state of Paraná resulted in many impacts to the service in itself, and also the funding of basic and intermediate education. This data, in one way, shows that the resources aren't enough to answer the demand and, in another way, shows the lack of investments of other spheres in basic education. In the state of Paraná the cities applied money values above the minimum. That reveals that the cities do not receive any kind of complement from the Union, or even from the state to invest in the educational levels under its responsibility, clearly undermining the Article 211 of the Federal Constitution which refers to the collaborative system. It was also noticeable that the number of city schools revealed the countyalization trend. Another relevant data is that there was no registry of spending with educational material in the analyzed period. That way, it's important to point out that according to Santos (2003) the decentralization process in the state was a rational measure that compromised the educational quality, once you consider that the cities are the weaker bonds in the federative pact settled in the 1990s. Despite the data presented do not show more in this way, we can, when looking at the enrollment chart of the city, the decentralization of the education followed the macroeconomic logic that was settled in Brazil since the 1990s. Looking at the big picture, it's important to remember that if the union doesn't give more concern to funding education, the local picture will probably get a lot worst very quickly.

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# The design of a framework for cooperative learning through web utilizing data mining technique to group learners

Pensri Amornsirlaphachai<sup>\*</sup>

*Department of Computer Education, Faculty of Science and Technology, Nakhonratchasima Rajabhat University, Thailand*

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## Abstract

The purpose of this research is to design of a framework for cooperative learning through web utilizing data mining technique to group learners. The research and development methodology is employed in this study; however simply the framework design phase is presented here. The design phase composes of 5 steps as follows: 1) Studying and analyzing the related principles and theories, 2) Studying the context of learning environments, 3) Designing a framework for cooperative learning through web using data mining technique to group learners, 4) Assessing the framework by six experts and 5) Improving the framework. Many theories and principles are employed in this research; for instance, data mining technique, constructivist theory and the principle of media symbol system. Two results are revealed as follows. Firstly, the learning model consists 5 components that are (1) forecasting and grouping module, (2) cooperative learning community, (3) expert community, (4) learning resources and (5) quiz module. Secondly, the results of the evaluation from 6 experts are expressed that the framework comply with computer science principles and learning theories and the experts accept to the usability of the framework in a high level at 71.15 percents overall. To summarize, the framework can be employed to design and develop a learning model appropriately.

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Keywords: data mining, cooperative learning, constructivist

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## 1. Introduction

Nowadays, many educators believe that learners can construct their own knowledge (Slavin, R. E., Learvey, M., et al., 1986, Mayer, R. E., 1996a, Atherton, J. S., 2013, Amornsirlaphachai, P. and Deepring, K., 2012) that corresponds to Thai National Education Act 1999 and Thai National Economic and Social Development Act 2012-2016 stating that all learners are able to learn and develop themselves and the education system must promote lifelong learning by exploiting internet technology and human society. These notions conform to constructivist theory (Vygotsky, L. S., 1962, Spiro, R. J.; Feltovich, P. J.; et al., 1991). However in the real world, most of learning environments still concentrate on knowledge transmission instead of knowledge construction. Thus the researcher would like to take advantage from online social network and information technology to enhance learners' competency according to the concept of the current educators and Thai National Education Act as well as Thai National Economic and Social Development Act.

Today, cooperative learning is always used to develop learners; however instructors frequently group learners randomly or let learners organize groups by themselves. Often, instructors group weak and stronger learners together by using their judgment; nevertheless instructors' ideas may be incorrect because learners have different kinds of intelligences (Gardner, H., 1999) thus; learners with high GPA may have some weakness in some subjects. For this reason, if academic performance level of learners in each subject can be predicted before teaching, the cooperative learning will be more effective. From this reason, we will use a data mining technique to forecast the academic performance level since this technique has accuracy of prediction. The academic performance level will be used to group learners automatically according to the cooperative learning principle (Slavin, R., 1996, Stevens, R. J. and Slavin, R. E., 1995). This assists learners in constructing their own knowledge by dint of social mechanism that corresponds to Social Constructivist (Vygotsky, L. S., 1962). Besides learner interaction, tools to communicate with instructors are provided and learning resources are presented as a conceptual model to show a relationship between cause and reason of learning content to help learners comprehend the content easier (Mayer, R. E., 1996b).

## 2. The Purposes of Research

Two main purposes of this study are as follows.

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<sup>\*</sup> Asst.Prof.Dr.Pensri Amornsirlaphachai. Tel.: +668-6100-3876  
E-mail address: kokkoy@hotmail.com

- 2.1 To design of a framework for cooperative learning through web utilizing data mining technique to group learners.
- 2.2 To evaluate the framework.

### **3. The Scope of Research**

The scope of research described here consists of the target group, the scope of content and the research variable as the following details.

#### *3.1 Target group*

The target group used in designing the framework comprises 6 experts in 3 facets that are (1) learning content, (2) design based on theories and (3) media and technology.

#### *3.2 Scope of Content*

The content utilized in this research is a part of the computer programming subject at Nakhonratchasima Rajabhat University, Thailand. The topics of the content are variable and control structures.

#### *3.3 Research variable*

The research variable studied in this study is a framework for cooperative learning through web utilizing data mining technique to group learners.

### **4. The Research Instruments**

- 4.1 The opinionnaire of learning environment and instructional context in the course of computer programming is used to study the opinion of lecturers and learners. The questions in the opinionnaire are open-ended questions.
- 4.2 The record form of document analysis comprising of 4 aspects of principles and theories that are (1) data mining technique, (2) psychology of learning, (3) science of teaching and (4) principles of media and technology.
- 4.3 The assessment forms to confirm quality and usability of the designed framework. The assessment form to confirm the quality of the framework is created by utilizing the principle of assessment in learning environment and web-based learning (Khan et al., 1997). Open-ended questions are employed in this form. For the evaluation form to confirm the usability of the framework, the percentage of suitability of the usability must be specified for each questions.

### **5. Data Collection and Analysis**

The data are collected and analyzed as follows.

- 5.1 The learning environment and instructional context is analyzed by summarizing interpretation.
- 5.2 The review of literatures are collected and analyzed by describing and summarizing interpretation. The result from document analysis is used to design the framework.
- 5.3 The designed framework is evaluated by the experts. Three facets of assessment are (1) learning content, (2) design based on theories and principles and (3) media and technology. For the usability of the model, the average of percentage is calculated for the proper of the usability. The result is analyzed by summarizing interpretation.

### **6. Results**

The results of the research in the phase of designing a framework for cooperative learning through web utilizing data mining technique to group learners are as follows.

#### *6.1 The framework for cooperative learning*

The framework for cooperative learning through web using data mining technique to group learners based on several major principles and theories composes of five components that are (1) forecasting and grouping module, (2) cooperative learning community, (3) expert community, (4) learning resources and (5) quiz module as shown in Figure 1.

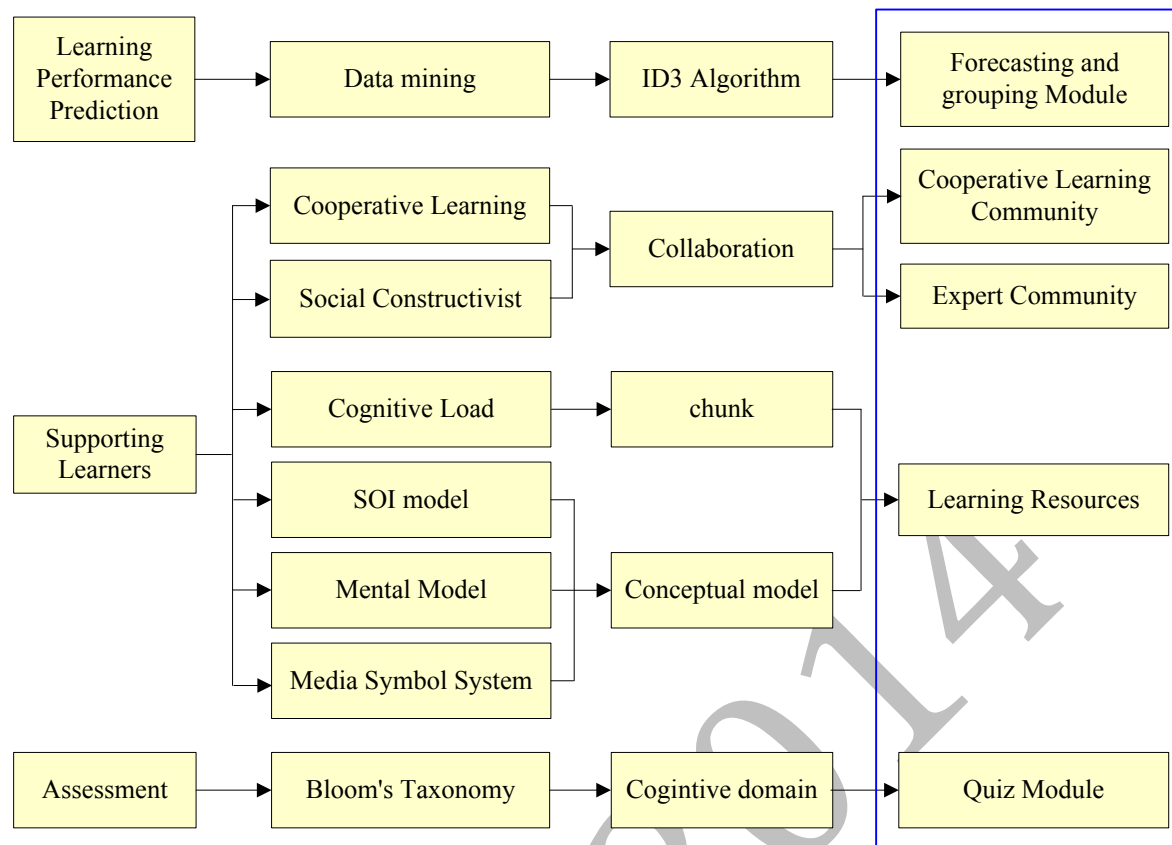


Fig. 1. Learning model framework

From Figure 1, five components in the framework which are the elements of the cooperative learning model have details as follows.

### 1. Forecasting and Grouping module

The prediction of learners' academic performance level in Forecasting and Grouping module is calculated by utilizing ID3 algorithm (Ross Quinlan, 1979), an algorithm in data mining technique, since this algorithm is appropriate for discrete value and the academic performance level can be classified as excellent, good, fair and poor. After forecasting academic performance level, this module will suggest how to group learners; nevertheless instructors can group learners based on the result of the prediction by themselves as well.

### 2. Cooperative Learning Community

Cooperative Learning Community consists of two genres of community that are social network and face-to-face meeting. The social network includes both synchronous and asynchronous communications (Amornsinlaphachai, P., Inpress). Learners of each group in the community comprise weak learners and strong learners predicted by data mining technique. Grouping Learners is based on cooperative learning principles (Slavin, R. E., Learvey, M., et al., 1986, Slavin, R., 1996).

### 3. Expert Community

Similar to Cooperative Learning Community, Expert Community composes of two types of community that are social network and face-to-face meeting. The social network includes both online and offline communications. Thus learners can communicate with instructors through online social networks such as face-book or twitter; besides they can leave messages to one another on a web-board as well.

### 4. Learning Resources

The design of Learning Resources is based on various theories and principles. The elements in the resources are rooted in the design principles of multimedia presentation media symbol system and cognitive load (Sweller, J. and Chandler, P., 1991). The

contents in the resources are selected, organized and integrated (Mayer, R. E., 1996b) to create mental representation (Frederiksen, J., White, B., et al., 1999) since information processing using audio, visual and animation can get more effectiveness than information processing by lecturing.

## 5. Quiz Module

Questions in Quiz module are classified according to the learning level of Bloom's Taxonomy theory. In Bloom's Taxonomy theory (Bloom, B. A., 1956), there are 3 facets of learning behavior that are cognitive domain, affective domain and psychomotor domain; however only cognitive domain will be evaluated by using Quiz module.

## 6.2. The results

The results of evaluating the framework by six experts are exposed as follows. Firstly, the algorithm used to anticipate academic performance level is suitable for data. Secondly, the framework complies with learning principles and theories employed as the foundation for designing the framework. Thirdly, the principles used as the fundamental of synthesizing the framework indicate the appropriateness of media utilizing; moreover the internet technology used in the framework is desirable, renowned and up-to-date. Finally, the learning content is essential for education in the computer field; thus the content is worthwhile to research to enhance learners' competency because computer programming courses are difficult for ungrounded learners; furthermore the content is general standard; hence this study can be used widely. The experts accept the usability of the framework in a high level at 71.15 %. To conclude, designing a learning model based on this framework is practicable and there is high feasibility to improve learners' competency by using the model derived from the framework.

## 7. Summary and Concluding Remarks

The design of the framework is bases on several theories and principles such as data mining technique, multiple intelligence, Bloom's Taxonomy, social constructivist, cooperative learning, cognitive load, mental model, SOI and media symbol system. The framework composes of five elements that are forecasting and grouping module, cooperative learning community, expert community, learning resources and quiz module. The results derived from experts' assessment are revealed that the algorithm used to foresee academic performance level is proper and the framework conforms to learning principles and theories. Moreover the media and technology used in the framework is in vogue and the learning content is worthy to study; furthermore the usability of the framework is accepted in a high level.

For the further work, a learning model based on the framework will be designed and developed. The developed model will be assessed by experts for internal validation (Deejring, K. and Chaijaroen, S., 2012). For external validation, the model will be tested with learners studying in a computer field at NakhonRatchasima Rajabhat University, Thailand (Deejring, K., Inpress). In addition, the developed model will be tested with learners of other institutes to insist upon the generalization of application.

## Acknowledgements

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# The determination of the environmental attitudes of secondary education students

Esin Atav<sup>a</sup>, Bahattin Deniz Altunoğlu<sup>b</sup>, Suzan Sönmez<sup>c</sup>

<sup>a</sup>Assoc. Prof. Dr. Hacettepe University, Faculty of Education, Ankara, 0653, Turkey

<sup>b</sup>Assist. Prof. Dr. Kastamonu University, Faculty of Education, Kastamonu, 37100, Turkey

<sup>c</sup>Doctoral Student Hacettepe University Institute of Educational Sciences, Ankara, 0653, Turkey

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## Abstract

Environmental pollution, which has risen rapidly due to increased production resulting from developments in science and technology, threatens all living beings and natural living spaces at the present time. It is emphasized that people's life styles and approach on environment are responsible for such disruption in the environment. Environmentally-conscious individuals displaying responsible behaviors should be cultivated in order to reduce dangers arising from environmental problems. In this regard, the present study attempted to determine the environmental attitudes of students. The study involved 1003 secondary education students. The New Ecological Paradigm (NEP) Scale was used for determining environmental attitudes. It was found out that the attitudes of students were closer to eco-centric perspective than anthropocentric perspective.

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*Keywords:* secondary school students, new ecological paradigm, environmental education, attitudes

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## 1. Introduction

It was realized in the late twentieth century that some widely-accepted rooted values, attitudes, and beliefs were the source of ecological problems. There are psychological, sociological, economic, and technological factors that give shape to the consumption behaviors and life styles of people (i.e. their manners of using the nature for meeting their needs). Values, attitudes, confidence and beliefs felt or adopted in regard to wealth, continuous development, and technological and scientific achievements (i.e. dominant social paradigm) have been described as the reason for little awareness of environmental problems (Dunlap and Van Liere 1978; Catton and Dunlap 1980; Trobe and Acott 2000). There is a shift from the dominant social paradigm, which is influential on defining the relationship between human and nature, to a more eco-centric paradigm in the individual or social interpretation of the nature within the system of all these values, beliefs, and attitudes (Dunlap and Van Liere 1978; Albrecht, Bultena, Hoiberg and Nowak 1982).

One of the scales developed for determining environmental approach is the New Ecological Paradigm Scale developed by Dunlap and Van Liere. Dunlap and Van Liere (1978) put forward the new ecological paradigm against the dominant social paradigm, which they defined as 'anti-ecological', and developed the above-mentioned scale in order to determine the degree to what such new paradigm was accepted. It was accepted to be a one-dimensional scale composed of 12 items. On the other hand, Furman (1998) described the dimensions of the same scale as 'balance of nature', 'limits of growth', and 'human over nature', and Taşkın (2009), similarly, put forward a three-factor structure for the scale ('steady-state economy', 'human exemptionalism paradigm', and 'limits of growth and balance of nature'). In the course of time, The New Ecological Paradigm Scale was revised to involve the change in environmental problems. Since global environmental problems came to the forefront more, two more dimensions were added to the original scale theoretically, thereby leading to a 15-item new form.

The degree to what such change of paradigm is achieved (determined in the Western communities) in the Turkish society should be investigated. This is because; vigorous efforts for growth, industrialization, and enrichment in Turkey, which is a developing country, may cause ignoring environmental problems. This study focused on investigating the degree to what secondary education students accepted the new eco-centric paradigm. In this regard, the primary goal of the study was to determine the environmental attitudes of secondary education students and to predict the degree to what the change in environmental approach, whose effect is felt throughout the entire world, was reflected in students. The secondary purpose of the study was to examine the factor structure of The New Ecological Paradigm Scale used as a one-dimensional scale.

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\* Corresponding author. Tel.: +90-312-297-8620; fax: +0-000-000-0000.

E-mail address: esins@hacettepe.edu.tr

## 2. Method

### 2.1. Study group

The study group consisted of 1003 students from all grades of secondary education. These students lived in Ankara, and their average age was 16. 55% of these students were male. While 57% of the students attended a vocational high school, the rest of them received education in an Anatolian high school. The students participated in the study on a voluntary basis. The study was carried out in the 2013-14 academic year.

### 2.2. Measurement and analysis

The 15-item revised form of the New Ecological Paradigm Scale was used as a measurement tool in the current study. The degree to what the new ecological paradigm was accepted was evaluated based on the percentage distribution of the answers given to each item and the average score. In addition, the Cronbach's alpha internal consistency coefficient of the scale was calculated.

The items were rated as follows; 1: I strongly disagree, 2: I don't agree, 3: I am unsure, 4: I agree 5: I definitely agree. While the items of odd numbers in the scale included opinions in favor of the new ecological paradigm (NEP), the items of even numbers involved those in favor of the dominant social paradigm (DSP). Thus, the above-mentioned rating was reversed for all statistical procedures except for percentage calculation in the items of even numbers.

## 3. Findings

Table 1 presents the evaluations of the participants regarding each item based on percentage (%) distribution and averages.

Table 1. Percentage and mean distribution of the NEP scale items

Items-Do you agree or disagree that	SD	D	U	A	SA	M
1. We are approaching the limit of the number of people the earth can support	12.0	14.1	29.8	22.8	21.3	3.28
2. Humans have the right to modify the natural environment to suit their needs	39.0	19.8	15.9	14.1	11.2	3.62
3. When humans interfere with nature, it often produces disastrous consequences	8.6	7.6	16.7	30.3	36.8	3.79
4. Human ingenuity will insure that we do NOT make the earth unlivable	29.2	17.6	24.2	15.0	14.0	3.33
5. Humans are severely abusing the environment	8.7	8.0	16.0	26.1	41.3	3.83
6. The earth has plenty of natural resources if we just learn how to develop them	7.5	8.0	17.4	32.8	34.3	2.22
7. Plants and animals have as much right as humans to exist	6.7	5.6	12.8	19.6	55.3	4.11
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	14.3	17.7	31.7	20.9	15.4	2.95
9. Despite our special abilities, humans are still subject to the laws of nature	10.2	11.5	28.6	27.0	22.7	3.41
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated	28.9	20.3	20.8	16.7	13.3	3.35
11. The earth is like a spaceship with very limited room and resources	13.3	14.1	33.3	21.9	17.4	3.16
12. Humans were meant to rule over the rest of nature	30.7	18.4	22.3	16.6	12.0	3.39
13. The balance of nature is very delicate and easily upset	8.8	10.8	20.1	25.6	34.7	3.67
14. Humans will eventually learn enough about how nature works to be able to	11.9	16.3	27.4	26.4	18.0	2.77

control it

15. If things continue on their present course, we will soon experience a major ecological catastrophe	7.1	5.6	18.0	25.4	43.9	3.93
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Cronbach's Alpha: 0.60						3.38
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SD: Strongly disagree, D: Disagree, U: Unsure, A: Agree SA: Strongly agree

The average score of the students participating in the study regarding their level of accepting the new ecological paradigm was found to be 3.38.

According to the table 1, the evaluation of many items contained 'unsure' by over 25%. Most of the items involving 'unsure' answers were those about the dominant social paradigm standing against the new ecological paradigm.

*Anti-exemptionalism*: It is one of the theoretical sub-dimensions covering the items 9, 4, and 14 of the New Ecological Paradigm Scale. It is based on the idea that the people who accept the New Ecological Paradigm are supposed to reject that human being is exempt from nature and the laws of nature. In the present study, the averages of the items included in this sub-dimension varied between 2.77 and 3.40, and most of the answers in this matter contained indecisiveness.

*Anti-anthropocentrism*: It is the theoretical sub-dimension involving the view that nature exists for meeting the needs of human beings in the first place (items 2 and 12) as well as the view rejecting it (item 7). In the present study, the most accepted item was found to be 'plants and animals have as much right as humans to exist' (M= 4.11). According to the examination of the student answers to the items 2 and 12, although more than half of the students delivered opinions against anthropocentrism, anthropocentrism was supported by 25% in the item 2, and by 28% in the item 12.

*Limits to growth*: The New Ecological Paradigm suggests that growth and development have a limit, which is based on the limitedness of the resources in the world. In line with this view, the item 1 puts an emphasis on population increase, and the item 11 highlights the limitedness of resources via an analogy likening the world to a spaceship. The item 6, which is based on this theoretical background, stands as a negative item suggesting that the world has plenty of resources. 30% and 33% of the participants said 'unsure' for the item 1 and the item 11 respectively. On the other hand, while almost half of the students agreed that population increase was about to exceed the capacity of the world, fewer students agreed with the world-spaceship analogy based on limited resources. In parallel with that, 68% of the students agreed, 'the earth has plenty of natural resources if we just learn how to develop them'.

*Balance of nature*: NEP claims the existence of a balance that can be disrupted by human beings. The items 3, 13, and 8 of the scale are about the theoretical sub-dimension of balance of nature. While 67% of the students agreed with the item 3 suggesting, 'When humans interfere with nature, it often produces disastrous consequences', 60% of the students agreed with the item 13 stating, 'The balance of nature is very delicate and easily upset'. On the other hand, while 32% of the students rejected, 'The balance of nature is strong enough to cope with the impacts of modern industrial nations' (a dominant social paradigm perspective), a considerable number of the students (30%) were unsure about it.

*Eco-crisis*: NEP argues that human intervention in nature may lead to negative results at a disaster level that might be described as an eco-crisis. The items 5, 10, and 15 of the scale are about the theoretical background of eco-crisis. 41% of the students strongly agreed with the item 5, 'Humans are severely abusing the environment' while 26% of the students agreed with it. 48% of the students rejected the idea, 'The so-called 'ecological crisis' facing humankind has been greatly exaggerated'. Likewise, 44% of the students strongly agreed with the item 15, 'If things continue on their present course, we will soon experience a major ecological catastrophe' while 25% of them agreed with it.

### 3. 1. Dimensionality of NEP-scale

Although the revised New Ecological Paradigm Scale was designed to be a five-dimensional scale, Dunlap et al (2000) stated that it might be considered one-dimensional as it had a high Cronbach's alpha value and a strong item total correlation. However, no high Cronbach's alpha value and no strong item total correlation were obtained in the present study conducted on Turkish population. Thus, the data set obtained from the scale was analyzed via the principal component analysis factor extraction method, and a Varimax rotation was applied. Through the analysis, a four-factor structure which explained 54% of the variance and where eigen values varied between 3.30 and 1.08 was obtained. However, the items were not distributed among the factors in accordance with the theoretical structure, and only one item was included in the fourth factor. Therefore, the scale was

considered to have a two-factor structure (one factor comprising of items in favor of NEP and one factor composed of items in favor of DSP against NEP). To determine the distribution of the items among factors, exploratory factor analysis was repeated to produce a two-factor structure. The two-factor structure explained 40% of the variance. The eigen values varied between 3.30 and 2.72. Table 2 shows the factor loadings and distribution of the items.

Table 2. The Factor Loading Distribution of the Items of the New Ecological Paradigm Scale

Items	NEP	DSP
7. Plants and animals have as much right as humans to exist	<b>0.720</b>	0.069
15. If things continue on their present course, we will soon experience a major ecological catastrophe	<b>0.697</b>	0.079
3. When humans interfere with nature, it often produces disastrous consequences	<b>0.678</b>	0.003
13. The balance of nature is very delicate and easily upset	<b>0.613</b>	-0.043
5. Humans are severely abusing the environment	<b>0.572</b>	0.081
1. We are approaching the limit of the number of people the earth can support	<b>0.569</b>	-0.053
9. Despite our special abilities, humans are still subject to the laws of nature	<b>0.530</b>	-0.259
2. Humans have the right to modify the natural environment to suit their needs	0.032	<b>0.701</b>
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated	0.063	<b>0.698</b>
12. Humans were meant to rule over the rest of nature	0.125	<b>0.689</b>
4. Human ingenuity will insure that we do NOT make the earth unlivable	0.085	<b>0.682</b>
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	-0.183	<b>0.611</b>
14. Humans will eventually learn enough about how nature works to be able to control it	-0.170	<b>0.546</b>
Cronbach's Alpha:		0.75
M:		3.72
		0.74
		3.25

Since the loadings of the items 6 and 11 were not found to be as expected in the first exploratory factor analysis, both of these items were removed. Then the exploratory factor analysis was repeated, and it was seen that the items of odd numbers in the scale were distributed to support the new ecological paradigm while the items of the even numbers were distributed to support DSP against NEP. It was found out that the Cronbach's alpha values of two sub-scales (NEP and DSP) were higher than the internal consistency coefficients obtained in the one-dimension structure of the scale.

#### 4. Discussion and Conclusion

This study aimed at determining the environmental attitudes of the students within the framework of the new ecological paradigm. To this end, the students' levels of agreeing with each item were evaluated based on percentages and average scores through the theoretical sub-dimensions of The New Ecological Paradigm (NEP) scale. It was determined that more than half of the students agreed with the items in favor of the new ecological paradigm. Especially the average scores related to the items included in the dimension of the new ecological paradigm (NEP) determined through factor analysis demonstrated that the students agreed with such items in favor of nature. On the other hand, the items in favor of the dominant social paradigm (DSP) were neither accepted nor rejected by the students. In other words, there was indecisiveness about the dominant social paradigm among the students. Similarly, Erdogan (2009) carried out a study on university students by using The New Ecological Paradigm (NEP) Scale, and found out that while the new ecological paradigm items were supported, the dominant social paradigm (DSP) items were rejected. Thapa (2001) reported similar results, too.

The item 6 of the scale (The earth has plenty of natural resources if we just learn how to develop them) was the most-accepted item in favor of the dominant social paradigm. It was removed from the scale as it was found not to have the requested factor loading during factor analysis. Similarly, Taskin (2009) removed the item 6 from factor analysis. Erdogan (2009) argued that the

items 1, 6, and 11 were not determinative for Turkish culture, and thus suggested revising or removing them. In this study, the items 11 and 6 were removed because they did not have appropriate factor loadings. Although the dimensionality (i.e. one-dimension or two-dimension) of The New Ecological Paradigm Scale seems to be controversial, it is accepted, based on a high internal consistency coefficient and a strong item total correlation, that all items express a particular attitude system (Dunlap et al. 2000). However, the results of the present study and Erdogan (2009) make it difficult to consider the scale a one-dimensional scale because it does not yield high internal consistency coefficient in the case of samples from the Turkish society and some items are problematic. Therefore, it is thought that the scale should have a two-dimensional structure (dimensions named New Ecological Paradigm and Dominant Social Paradigm). In this way, two sub-scales having much stronger internal consistency coefficients may provide a more accurate measurement of the perspective (i.e. new ecological paradigm or dominant social paradigm) to which environmental attitudes are closer.

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# The development of an activity-based learning model using educational mobile application to enhance discipline of elementary school students

Sasitorn Lijanporn<sup>a</sup>, Jintavee Khlaisang<sup>b\*</sup>

<sup>ab</sup> Department of Educational Technology and Communications, Faculty of Education,  
Chulalongkorn University, Bangkok 10330, Thailand

## Abstract

The purpose of this research is to develop the activity-based learning model using educational mobile application to enhance discipline of elementary school students. The model was developed based on the review of literature and the experts' interview. Then, it was tested by 30 elementary school students, followed by the approval from the experts. Data analysis indicated that there was statistical difference between pre and post test scores at .05 level of significant. The results of this study showed that the model should consist of five components along with the four steps as detailed in the article.

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**Keywords:** Educational Application, Activity-Based Learning, Discipline

## 1. Introduction

A study of the moral problems of children and youth need to be revised and developed rapidly. Research has found promoting moral effective. Case Study of Children and Youth Department of Religious Affairs Ministry of Culture Thailand. Search found that before and after the development of moral discipline, with an average minimum. The teaching and instilling moral past, especially in the elementary grades is unsuccessful, as the lectures that focus on rote learning make to the students was not interested in boring lessons. The moral teaching methods a successful, should be used activities was proposed by Jitradab (1987), so that the moral content easy to understand and the students participate in the learning process. Activity-Based Learning is a practical experience method to learners for students analyze and learn from the activity (Learning by doing). In addition, Activity-Based Learning can also be

\* Corresponding author. Tel.: +662-218-2644 ; fax: +662-218-2644  
E-mail address: jintavee.m@chula.ac.th

integrated with the use of Mobile devices with an educational application in Mobile devices are learning that stimulates the students to analyze. In applications consist of Learning Object (LO) and Animation Cartoon. Learning Object (LO) helps learners understand and have the opportunity to choose and decide the sequence of presentation of content and promotes the learning (IPST, 2010). Animation Cartoon can explain complex and difficult to understand so much easier, stimulate the interest of the learners to become more moral lesson, and can be used as an explanation or teaching activities (Laowansiri, 1989).

A study of the problems and related research found, using an educational application consist of Learning Object (LO) and Animation Cartoon are suitable to be used with Activity-Based Learning, using Mobile devices are the tools used in the activities promote to students to practice real action. The researchers are interested in development of an activity-based learning model using educational mobile application to enhance discipline of elementary school students

## 2. Methodology

This research is divided into 3 phases which are (1) Develop an activity-based learning model using educational mobile application to enhance discipline of elementary school students, (2) Try out an activity-based learning model using educational mobile application to enhance discipline of elementary school students, and (3) Propose activity-based learning model using educational mobile application to enhance discipline of elementary school students.

*2.1 Phase 1: Develop an activity-based learning model using educational mobile application to enhance discipline of elementary school students.*

The study in this phase includes the study of theories and research on the Activity-Based Learning (ABL), Educational Mobile Application, Discipline, to be used as guidelines in determining learning processes and components of the model. The model will be designed after the reviewing of document, then an interview will be conducted to get an opinion towards the model from eight experts.

## 2.2 Phase 2: Try out an activity-based learning model using educational mobile application to enhance discipline of elementary school students.

The subjects in model experiment were 30 students from the elementary school students. The research instruments consisted of educational application, and a lesson plan. The data gathering instruments consisted of disciplinary situation test, behavioral self-assessment forms, an observation form, and student's satisfaction towards the model test questionnaire. The data were analyzed using mean, standard deviation, and t-test dependent.

## 2.3 Phase 3: Propose activity-based learning model using educational mobile application to enhance discipline of elementary school students

In this phase is the result of a study of the use of the model, then improve and proposed will be conducted to get the certification of the model from five experts.

## 3. Results

### 3.1 Phase 1: Results of the develop an activity-based learning model using educational mobile application to enhance discipline of elementary school students.

From the study on the related document, it was found that the Activity-Based Learning (ABL) has four main activities (Warotamawit, 1987; Kammanee, 2002; Maneengam, 2004; NCSALL, 2006; Lakshmi, 2007; Lualamai, 2009) and the experts were asked to criticize Activity-Based Learning (ABL) learning process to use for the model. The results indicated that the learning process of the model consisted of four steps as follows:

- 1) *Motivation and experience*: Stimulate the interest of the learners before the lesson by watching Animation Cartoon
- 2) *Knowledge and practice*: The students study from Learning Objects (LO) and work together as organized activities.
- 3) *Feedback*: The students analyze situations and things incurred while attending the activities and present their work from a mobile device.
- 4) *Evaluation*: The students do behavioral self-assessment forms after the learning activities.

From the study on the related document and opinion of the expert, found that the component of the model consisted of five components as follow:

- 1) *Instructional media for educational mobile application*: Teaching materials are presented in the form of Animation Cartoon and Learning Objects (LO) to educate and stimulate the interest of the learners.
- 2) *Learning activities*: The learning activities provide students the practical using of mobile devices as a tool for the activity and presentation of group work.
- 3) *Communications*: The discussion between learners and the group activities together. The communication between the learners has two forms: (1) Synchronous Discussions and (2) Asynchronous Discussions using mobile devices as a tool for the activity.
- 4) *Mobile devices*: Used to support the teaching learning activities, communications, and evaluation.
- 5) *Evaluation*: An evaluation by the students after the learning activities using behavioral self-assessment forms and evaluation by the instructor during the learning activities using observation form.

### 3.2 Phase 2: Results to try out an activity-based learning model using educational mobile application to enhance discipline of elementary school students.

The discipline of elementary school students scores of the data were analyzed using mean, standard deviation, and t-test dependent, were summarized in Table 1.

**Table 1:** The discipline of elementary school students scores of the data were analyzed using mean, standard deviation, and t-test dependent.

The discipline of elementary	scores	Mean ( $\bar{X}$ )	standard deviation (S.D.)	t	Sig.
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school students scores					
Pre-test	20	15.80	1.648	11.799	000.*
Post-test	20	18.63	1.217		

\*\* p < .05

From Table 1, the experimental result indicated that the subjects had disciplinary post-test mean scores higher than pre-test mean scores at .05 level of significance.

### 3.3 Phase 3: Results to Propose activity-based learning model using educational mobile application to enhance discipline of elementary school students

The evaluation scores of the proposed and certified model from five experts, were summarized in table 2.

**Table 2:** Experts' evaluation scores of the proposed and certified model

	Mean ( $\bar{X}$ )	Interpretation
<b>Introduction</b>		
1. Principle and Reason	4.60	Most Suitable
2. Objectives of the model of learning	4.80	Most Suitable
<b>Model and Description</b>		
3. The diagram shows the model of learning	4.40	Very Suitable
4. Components the model of learning		
4.1 Instructional media for educational mobile application	4.40	Very Suitable
4.2 Learning activities	4.60	Most Suitable
4.3 Communications	4.40	Very Suitable
4.4 Mobile devices	4.60	Most Suitable
4.5 Evaluation	4.60	Most Suitable
5. Learning process the model of learning		
5.1 Motivation and experience	4.60	Most Suitable
5.2 Knowledge and practice	4.80	Most Suitable
5.3 Feedback	4.60	Most Suitable
5.4 Evaluation	4.60	Most Suitable
6. The model of learning are suitable for adoption to enhance discipline of elementary school students.	4.40	Very Suitable
7. Overview the model of learning are suitable for adoption to practice in real life situations.	4.60	Most Suitable
<b>Total</b>	<b>4.57</b>	<b>Most Suitable</b>

Note: 4.5 - 5.0 = Most Suitable, 3.5 - 4.49 = Very Suitable, 2.5 - 3.49 = Suitable, 1.5 - 2.49 = Less Suitable, 1.0 - 1.49 = Not Suitable

From Table 2, the proposed and certified model from five experts score was at a "Most Suitable" level, which indicated that most of the experts strongly agreed with using educational mobile application and Activity-Based Learning to enhance discipline of elementary school students, and the experts believed this proposed model can be used in a real context. The illustration of the proposed model is shown in Appendix A.

### Acknowledgements

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## Appendix A. The Illustration of the proposed model



### Components the model of learning

-  Instructional media for educational mobile application
-  Learning activities
-  Communications
-  Mobile devices
-  Evaluation

### Activities and Tools

-  Animation Cartoon
-  Learning Objects (LO)
-  Practice
-  Present their work from a mobile device
-  Synchronous Discussions
-  Asynchronous Discussions
-  Behavioral self-assessment forms
-  Observation form
-  Mobile device

# The development of an augmented reality game-based learning environment

Ching Hui Chen<sup>a</sup>, Chia-Huei Ho<sup>b</sup>, Jau-Bi Lin<sup>c</sup>

<sup>a</sup>Department of Computer and Communication Engineering, Ming Chuan University, Taiwan

<sup>b</sup>Department of Business Administration, Ming Chuan University, Taiwan

<sup>c</sup>Department of Information Management, Ming Chuan University, Taiwan

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## Abstract

An increasing number of applications that use virtual reality technology have appeared in the classroom recently. Augmented reality (AR) uses humanized and interactive operations to allow students to learn from a total immersion experience. The market for keyboard- and mouse-based gaming is gradually being replaced by real-time interactive and sensory games. The application of AR technology can be seen in a variety of areas such as news, travel, sports, and commercials in which tangible and exciting experiences occur. Educators and technical developers are beginning to exploit the capabilities of AR technologies to enable new forms of learning in various fields. AR uses virtual objects that simulate a real environment and, if it can integrate image recognition and detection technology, its influence in gaming and education could be powerful. This study develops an AR system and tries to determine its advantage and drawbacks.

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*Keywords:* Game-based Learning, Interactive Technology, Augmented Reality in Education

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## Introduction

In recent years, digital learning has focused mainly on building teaching and learning platforms and on providing support for employing and integrating learning systems. Many learning environments have attempted to integrate content and technology, to build appropriate learning content, and to provide collaborative, interactive, and communicative learning activities to enhance learner creativity and learning effectiveness.

\* Corresponding author. Tel.: Tel.:+0000000000

E-mail address: achen@mail.mcu.edu.tw

Augmented reality (AR) provides the opportunity for users to interact with computer-generated content from the real world. The application of AR technology can be seen in a variety of areas, such as news, travel, sports, and commercials, in which tangible and exciting experiences are created. Educators and technical developers also exploit the capabilities of AR technologies to enable new forms of learning in various subjects (Dunser & Hornecker, 2007; Kondo, 2006; Liu, et al, 2007).

Malone & Lepper (1987) demonstrated that games can increase motivation and are therefore an essential feature of the lives of children and teenagers. Many educators include games in learning settings and have transferred learner involvement and energy from games to educational activities. Through instructional games, learners develop higher-order cognitive skills (Sandford & Williamson, 2005).

This study constructed an AR game-based learning system for elementary science education. The learning content concerns the marine life food chain. The purpose of the study is to examine the effectiveness of the system to facilitate learning motivation, teamwork skills, and learning achievement.

## Learning System

This study used ARToolKit, Visual Studio C<sup>++</sup>, 3D Max, and Adobe Illustrator to develop the learning system and content. The interface of the learning system was presented as a book containing two game pages, specifically a fishing page and a food-chain page. Learners need to complete the tasks in the first page before proceeding to the next page. The setup of the system is displayed in Figure 1.



Fig. 1. The learning system

### Markers and Models

The game contains four types of interactive markers: status, bait, switch, and select. The “status” marker identifies the current action. The “bait” marker displays the ocean species. The “switch” marker works with the “bait” marker to display various kinds of baits in a certain area. Finally, the “select” maker is used to select a fish. Figure 2 shows five food chain markers which require learners to put the correct sequence, and four location markers that were used to calculate the position of each marker in the AR matrix. Table 1 displays system markers and their related models.

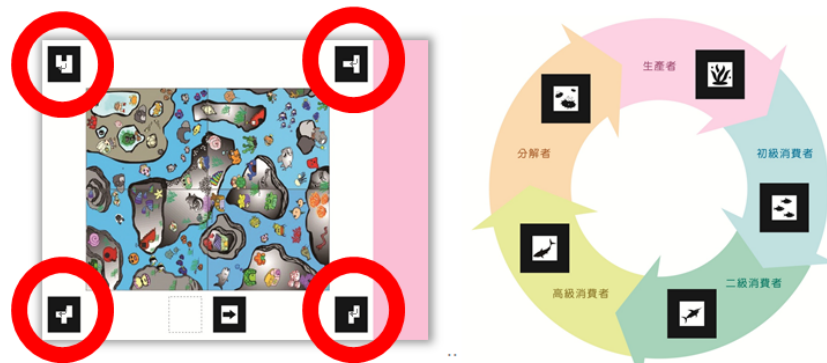
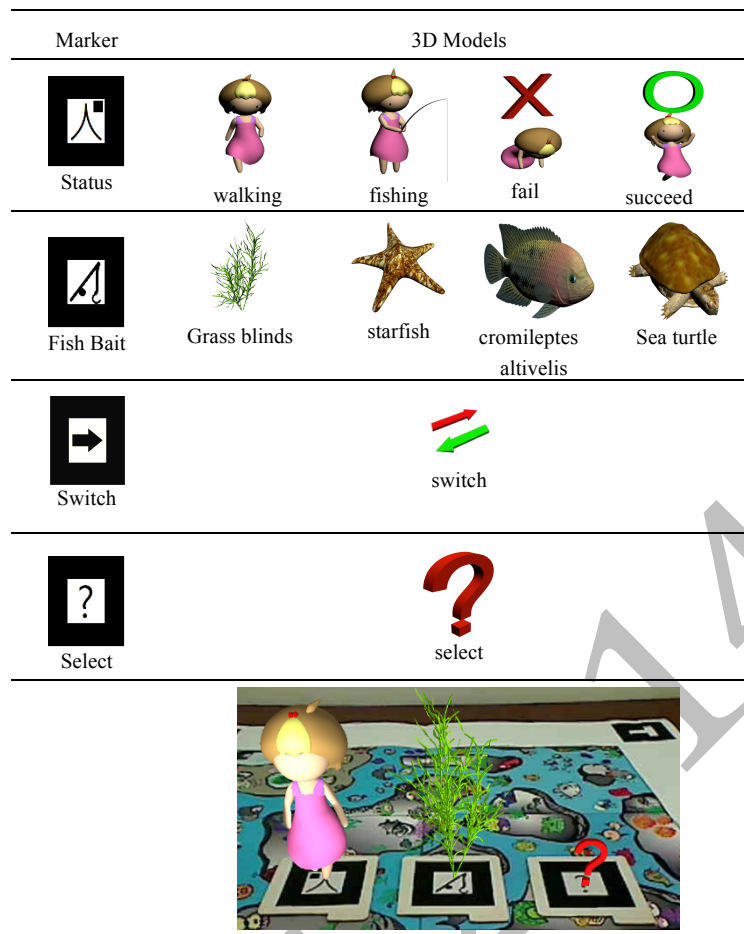


Fig. 2. Location and food chain makers

Table 1. Interactive markers and models



### Game procedures and system interface

The purpose of the game is for learners to explore fishing areas to find appropriate baits for certain fish, and to collect enough ocean species to form as many food chains as possible. The fishing page has six fishing areas; each one contains several ocean species from the food-chain categories including the manufacturer, primary consumer, secondary consumer, and tertiary consumer. The information of each ocean species will be presented when learners use the correct markers.

In the beginning of the game, the system provides four ocean species as the basic baits will appear in the upper left corner of the screen. When learners put the “bait” marker in the dotted area at the bottom of the fishing page, the information related to that bait will present at the bottom of the screen, and the “switch” marker serves as a menu button to swab among baits. Learners can place the “status” marker in any spot on the fishing page, if the marker is not on the fishing area, the system displays the “walking” model; if the marker is in the correct location, the system shows the “fishing” model and all the fish in that area. To find the facts of a fish, the learner need to place the “select” marker near that fish model; and information of that fish will then appear at the top of the screen.

Learners must place a “bait” marker near the “status” marker to capture a certain fish. If the bait is correct, the system will show the “succeed” model; otherwise it displays the “fail” model. If a fish belongs to the lower level of the food chain, the system will add it to the bait database. The process by which a food chain is formed is similar to catching a fish. Learners must place the correct bait marker in the right level of the food chain. The system interface can be seen in Figure 3.



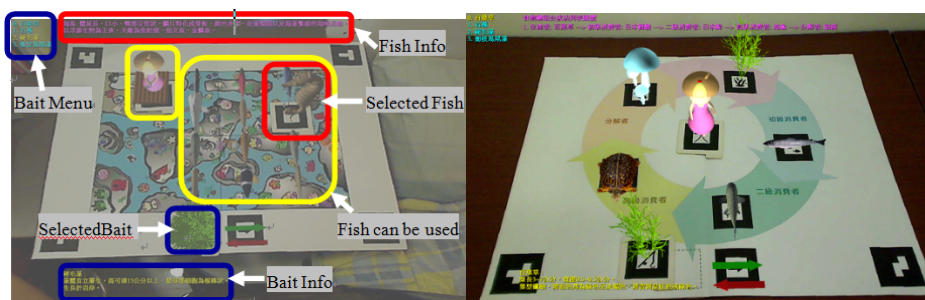


Fig. 3. Game interface

## System Evaluation

### *Evaluation of interface and functions*

Ten college students participated in five consecutive pilot tests, wherein pairs of students worked together to evaluate the interface and functions of the gaming system. For each pilot test, the researcher asked the pair to fill out a questionnaire, discussed with them regarding their responses, and revised the interface and functions of the system before the next pair of students was tested.

### *Evaluation of system usability and stability*

After the pilot study, the system was modified based on suggestions from the students. Ten students then participated in the second phase of the program evaluation, with two members forming each group. A short questionnaire and interview were conducted after the activity. The students provided positive feedback about the system and various suggestions to improve the game-play.

## Conclusion

This paper focused on the design and use of technology of an AR game-based learning system. The system is nearly finished. The results of the pilot system evaluation revealed that students are considerably interested in the system. However, despite the expressed satisfaction of participants, the system interface and learning activities need to be modified before a complete evaluation of the system is conducted.

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# The development of college instructors' technological pedagogical and content knowledge

Nimer Baya'a<sup>a</sup>, Wajeeh Daher<sup>a,b</sup>

<sup>a</sup>Al-Qasemi Academic College of Education, P.O. Box 124, Baqa, 30100, Israel

<sup>b</sup>An-Najah National University, P.O. Box 7, Nablus, Palestine

## Abstract

The ministry of education is launching an overall project to implement the use of ICT in the Israeli higher education institutes, as well as in the elementary through high schools. In the 2011-2012 academic year. Al-Qasemi Academic College of Education was chosen to receive support from the ministry of education to participate in this project. The project goals are to facilitate the ICT integration into teaching on all its aspects; i.e. facilities and instructors. The goal of the research was to accompany the implementation of the college plan and intervention, especially the steps which the college carried out regarding the instructors' preparation and support, with a research that primarily examines the development of the instructors' TPACK (technological, pedagogical, and content knowledge) and its various components, in addition to the instructors' attitudes toward computers and instructors' ICT proficiency. For this purpose we translated to Arabic and modified existing questionnaires developed by the MOFET institute and by previous researches.

The findings of the research indicate that instructors and pedagogical supervisors in Al-Qasemi Academic College of Education had relatively high positive attitudes toward computers before the college intervention. These attitudes did not change significantly after the intervention. The instructors' ICT proficiency improved significantly after the college intervention especially as a result of three components of this intervention: ICT center support, participation in workshop and availability of assistants. The TPACK level of the instructors and the pedagogical supervisors, improved after the college intervention. Another major change occurred in the number of pedagogical initiatives that involve special use of ICT in teaching proposed by the pedagogical supervisors, going up from only one before the college plan to at least six initiatives this year. Moreover, the number of WBLE (web based learning environments) constructed by the pedagogical supervisors and presenting ICT based learning units that they developed by themselves or with their students in the practical training increased from only two at the beginning of the college intervention to over thirty toward the end.

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**Keywords:** TPACK; teachers' knowledge; college instructors; ICT in teaching; ICT in learning; TAC; teachers' attitudes

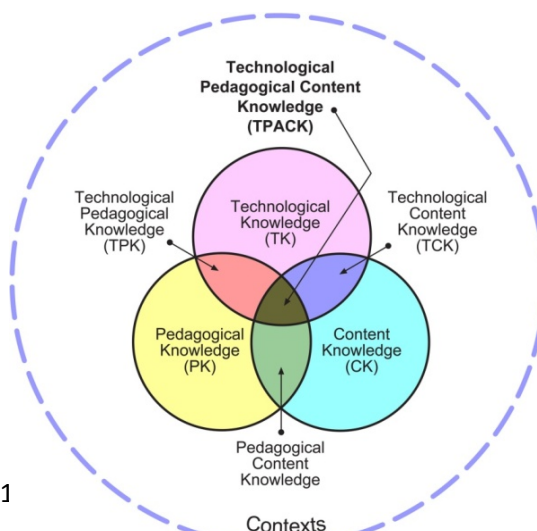
## 1. Introduction

### 1.1 TPACK

Shulman (1986, 1987) suggested the PCK (pedagogical content knowledge) model to represent the interaction of two types of teachers' knowledge: content knowledge and pedagogical knowledge. He proposed considering this interaction in order to understand teachers' expertise in teaching a subject matter. Various researchers (for example Koehler and Mishra, 2009; Niess et al., 2009), built on Shulman's PCK to describe the interaction of teachers' understanding of educational technologies with their PCK to produce effective teaching with technology. Specifically they talked about the technological pedagogical and content knowledge of teachers (TPACK), where the TPACK model is presented in the three and knowledge, the TPK

In this paper, we will describe the development of the Al-Qasemi Academic College of Education, as a result of the initiative to influence the educational processes in the college more ICT elements.

"The TPACK framework articulates the role of technology process of teaching and learning in a truly integrated manner"



TPACK of college's to include

in the (Abbitt,

2011, p. 283). Generally speaking, TPACK is the knowledge of how to integrate technology in teaching the subject matter. This knowledge also includes the appropriation between a specific technological tool and the teaching of a specific topic in the subject matter and being aware of the difference between using various technological tools in teaching a specific topic in the subject matter. Further, this knowledge means being aware of students' problems of the subject matter that could be overcome by using specific technological tools. On the other side, it means the awareness of students' problems of the subject matter that could result from using specific technological tools, in addition to how to overcome these problems (Koehler & Mishra, 2008).

Niess (2005) mentions the following themes, adapted from Grossman's four components of PCK, as components of TPACK, when talking about mathematics as a subject matter: (1) An overarching conception about the purposes for incorporating technology in teaching mathematics; (2) Knowledge of students' understandings, thinking, and learning of mathematics with technology; (3) Knowledge of curriculum and curricular materials that integrate technology in learning and teaching mathematics; and (4) Knowledge of instructional strategies and representations for teaching and learning mathematics with technologies. These themes could be incorporated easily as themes of TPACK related to any other subject matter.

### *1.2 Instructors' attitudes toward computers*

Al-Zaidiyeen, Mei and Fook (2010) surveyed the various definitions of 'attitudes' as used by previous researchers, for example, Allport (1935) defined the attitude construct as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p.810). Fishbein (1967) defined attitude as "a learned predisposition to respond to an object or class of objects in a consistently favorable or unfavorable way" (p. 477). Other researchers (for example Zan & Di Martino, 2007) defined attitude in a simpler way: as a positive or negative emotional reaction toward a specific situation. These definitions show the possible influence of attitudes on behavior in general and instructors' behavior in particular. Thus researchers have been paying attention to this influence for decades, especially in the last two decades when the computer and ICT started to emerge as a possible tool for the improvement of teaching and learning.

Researchers' effort in verifying the relation between the instructors' attitudes toward computers and ICT and their use of these tools showed that instructors' attitudes toward the use of ICT in teaching and learning have major influence on the success and meaningful use of the computer and ICT in their teaching (Albirini, 2006; Al-Zaidiyeen, Mei & Fook, 2010; Baylor & Ritchie, 2002). Albirini (2006), for example, considers teachers' attitudes a major predictor of their use of new technologies in educational settings, while Al-Zaidiyeen, Mei and Fook (2010) say that teachers' attitudes toward ICT can play an important role in their acceptance and actual use of ICT tools.

In our research too, attention was given to instructors' attitude toward computers and ICT use, together with the development of their TPACK and ICT proficiency, as a consequence of participating in workshops and of the administrative emphasis on the use of ICT in teaching. Here we used teacher's attitude toward computers' questionnaire (TAC) because it implies teachers' attitudes toward the use of ICT in teaching and their intentions to do so (Baya'a & Daher, 2013). We were also interested in instructors' proficiency level in ICT as an indicator of their intention to use ICT in their teaching as the proficiency variable is reported to affect teachers' readiness to use the ICT in their teaching (Granger, Morbey, Owston & Wideman, 2002; *ibid*).

Regarding the instructor's type of work, it is expected that pedagogical supervisors would be more attendant to ICT use in schools than discipline lecturers. The goals for that are: (1) Pedagogic supervisors prepare the pre-service teachers as teachers in schools and not as regular students, (2) they are aware of the ministry of education intent and requirement to make ICT use a daily scene in the classrooms, so will probably work toward achieving this goal as teachers' educators.

## **2. Research rationale and goals**

The main research goal is to examine the consequences of implementing a college plan to advance the use of ICT in college instructors' teaching. So the research will concentrate on examining the development of college instructors' attitudes toward computers, the instructors' ICT proficiency and the instructors' TPACK, as a result of implementing the college plan. This study will enrich the research on college instructors' attitudes toward the ICT and on college instructors' TPACK. What distinguishes this study is its examination of the relationship of the implementation of a college plan, which includes: college policy, college infrastructure, ICT technical and pedagogical support, participation in workshops and the availability of assistants, with college instructors' TPACK development, their ICT proficiency and attitudes toward ICT.

The results of the study are expected to guide college instructors, researchers, college administrators, and professional development consultants regarding college instructors' professional development in ICT use, and regarding how to motivate college instructors to actually use ICT in their teaching.



### 3. The research questions

The main research question is: How the college intervention (college policy, college infrastructure, ICT center support, participation in workshop, and availability of assistants) will affect the instructors' attitudes toward computers, the instructors' ICT proficiency and the instructors' TPACK level? Three sub-questions are derived, as follows:

1. Will the college intervention improve the instructors' attitudes toward computers?
2. Will the college intervention improve the instructors' ICT proficiency?
3. Will the college intervention improve the instructors' TPACK level?

### 4. Research context, participants and procedure

Al-Qasemi Academic College of Education has set a three years plan to get college instructors ready to grasp and apply 21st century skills into their teaching processes. These instructors are expected to be ready, in three years, to lead the college into the 21st century education where ICT use becomes an integral part of the teaching and learning environment. This plan was approved and partially budgeted by the department of education.

Since the early years of the third millennium the college has been trying to implement modern technologies in the learning/teaching processes. Successful experiences and projects were reached and implemented, but did not extend to become a standard and a norm in the college teaching environment. Recently, about 10% of the college instructors constructed and used courses sites and integrated ICT in their teaching processes. This rate did not change since three years, in which there was a feeling of status quo regarding integrating ICT in education. The approved plan for preparing the college for the 21st century education opens an opportunity to boost up the expected change.

The college technological infrastructure was developed and improved continuously in the last decade; computers, projectors, internet access in most of the classrooms, college web sites, and LMS (Learning Management System) were acquired and installed in the college campus. In addition, an ICT center was established to provide technical and pedagogical support to assure proper use of the available technologies.

In order to implement the new plan, the college deployed intervention steps which included:

1. College policy: since the first year of implementing the plan, the college's administration required all instructors to enhance the use of ICT in their teaching, and college administrators stated this policy in all official meetings and occasions.
2. College infrastructure: special budget was directed toward improving the college technological infrastructure; all classes were equipped with appropriate and updated hardware and software (at least, a computer connected to over-head projector) and put up a wireless internet platform to provide fast and efficient communication from any point in the college campus.
3. ICT center support: to develop the instructors professionally in the field of using ICT in teaching, the college expanded the ICT center support staff in order to provide wider group and individual support in technical and pedagogical issues.
4. Participation in workshop: the ICT center arranged several workshops for the instructors and the pedagogical supervisors in the college. All the instructors and pedagogical supervisors who worked more than one third position (approximately 115 all together) were invited to participate in one of these workshops through the three academic years of implementing the college plan. 17 pedagogical supervisors and 13 instructors participated in two separate workshops in the college in the first year, while 6 pedagogical supervisors and 7 instructors participated together in the same workshop in the following year. 11 pedagogical supervisors of the 17 who participated in the first year introductory workshop participated also in an advanced workshop in the second year. In the introductory workshop the focus was on introducing the instructors to the various possibilities of using ICT in education and presenting examples of such uses, while in the advanced workshop the focus was on assisting the pedagogical supervisors in developing learning materials from various technological pedagogical models. In this workshop they developed ICT based lessons, constructed web-based learning environments (WBLE) (see the description of WBLE for example in Baya'a, Mia'ari & Baya'a, 2009), presenting in these environments ICT based learning units that they developed by themselves or with their students in the practical training. In total we had approximately 40 participants in the introductory workshops and 11 in the advanced one. These participants were the sample of our research. It is important to note that the college continues to offer these workshops for the instructors and pedagogical supervisors.
5. The availability of assistants: in addition to acting as role model for their students in using ICT in teaching, as any other instructor in the college, pedagogical supervisors are also required to train their students in implementing the use of ICT through the practical training in schools. They also are expected to help their students develop teaching materials that involve various ICT pedagogical models that suit their content field; that is developing their TPACK level. Therefore, special intervention was directed to the pedagogical supervisors, where each one of them, who participates in a workshop, gets from the ICT center an escort of a professional assistant in the field of web-based learning environments.

The current research followed the implementation of the plan and the college intervention through the first two years, including the administration of questionnaires to measure the advancement of the TPACK levels and attitudes toward computers of the instructors who participate in the workshops, as well as their ICT proficiency. Only 19 of the 40 participants in the

introductory workshops completed the questionnaires twice (at the beginning and the end of the workshop) and 4 out of the 11 participants in the advanced one. Therefore, we concentrated our data analysis on the paired sample of the 19 participants of the introductory workshop.

## 5. Research instruments

The research instruments include three questionnaires as follows:

1. Technological, Pedagogical, and Content Knowledge (TPACK) – revised questionnaire: Different questionnaire were used in previous researches to assess teachers' TPACK. Abbitt (2011) provides an overview of instruments and methods for TPACK-based evaluation of pre-service teacher preparation experiences. The current research's questionnaire was constructed on the basis of the TPACK assessment instrument for pre-service teachers developed by Schmidt & others (2009). The first administration was before participation in the workshop and the second administration was at the end of the workshop.
2. Teachers' Attitudes toward Computer (TAC, v. 6.1) questionnaire: This questionnaire was tested by Christen and Knezek (2009) who concluded that the TAC (v. 6.1) is a well-validated and reliable instrument for teachers' self-appraisal of their attitudes toward computers. The TAC questionnaire was administered twice for the same participants and at the same time of administering the TPACK questionnaire.
3. The Use of ICT in Colleges of Education – Questionnaire for Teachers of Teachers (UICT): This questionnaire was developed by The MOFET Institute to follow the professional development of instructors in colleges of education including ICT proficiency. The appropriate part of the questionnaire, regarding the ICT proficiency, was administered twice for the same participants and at the same time of administering the TPACK questionnaire.

### 5.1 Statistical exams

The questionnaires were translated for the first time to Arabic language before administering them to the instructors. The questionnaires underwent validity and reliability exam.

Face validity: The Arabic translations of the questionnaires were given to a group of instructors who were required to examine if the questionnaires' statements are understandable to the reader. Some items of the questionnaires were restated to clarify their ambiguity.

Content validity: The questionnaires were given to a group of experts (three college instructors) who were required to examine whether the questionnaires' items cover the full domain of the different educational constructs and whether they cover constructs other than the appropriate ones. As a result of the experts' remarks, the TPACK questionnaire was modified.

The questionnaires' reliability: The scores of the instructors in both questionnaires: TAC and TPACK, as well as their various components (categories), before the workshop and after it, were examined for internal reliability using Cronbach alphas. The results show high Cronbach alphas (all above 0.85) indicating adequate internal reliability for the questionnaires and their various components. These results were expected due to the extensive use of these questionnaires in the literature.

Data processing: Research questions 1-3 were analyzed using paired-samples t-Tests to determine if there were significant differences between scores of instructors in the various questionnaires before and after the workshop. Cohen's d was also used to compute effect sizes to assess the practical significance of results.

## 6. Results

The analysis of the data was conducted according to the research questions taking in consideration the independent and dependent variables of each question. We should note that the independent variable of questions 1-3 is the college intervention which includes five components (college policy, college infrastructure, ICT center support, participation in workshop and the availability of assistants) was presented in the tables as having two values: before the workshop and after the workshop, to indicate the period that these factors were active and could have influenced the dependent variables values regarding the instructors. A ranking of the effect of these components as affecting factors as perceived by the instructors themselves was also carried out showing the participation in workshop as the leading factor. This ranking is also presented in this section. The sample size was 19 counting the instructors who completed and submitted all the questionnaires before and after the workshop. In some cases the size was smaller if some instructors did not complete one of the questionnaires. The following tables present the results of the research analysis.

Research question 1: will the college intervention improve the instructors' attitudes toward computers?

Table 1

*Descriptive Data and Results of Paired-Samples t-Test for Instructors' TAC Level by Participation in Workshop (n=19)*

Outcome	Before Workshop		After Workshop		<i>t</i>	<i>d</i>
	M	SD	M	SD		
TAC	4.08	0.23	4.09	0.33	0.15	0.04
Interest	4.78	0.41	4.48	0.51	2.32*	0.65
Comfort	4.50	0.46	4.58	0.48	1.00	0.17
Accommodation	4.83	0.34	4.89	0.32	0.76	0.19
Interaction	3.99	0.53	3.96	0.70	0.30	0.06
Concern	2.79	0.48	2.80	0.63	0.05	0.02
Utility	4.38	0.50	4.36	0.49	0.26	0.06
Absorption	3.52	0.49	3.77	0.57	2.44*	0.46
Significance	4.43	0.46	4.48	0.52	0.35	0.09
Perception	5.49	0.78	5.61	0.95	0.47	0.14

As displayed in Table 1, the results show that the paired-samples t-Test for the instructors' TAC level differs before the workshop and after the workshop for interest and absorption. T-Test found significant setback in the instructors' interest category in the TAC questionnaire after participation in workshop. On the other hand, significant gain was found in the instructors' absorption category in the TAC questionnaire after participation in workshop). Moderately large negative effect size of 0.65 (Cohen, 1969) was derived for interest and average positive effect size of 0.46 was derived for absorption.

Research question 2: will the college intervention improve the instructors' ICT proficiency?

Table 2

*Descriptive Data and Results of Paired-Samples t-Test for Instructors' ICT proficiency level by Participation in Workshop (n=19)*

Outcome	Before Workshop		After Workshop		<i>t</i>	<i>d</i>
	M	SD	M	SD		
Score of table 1 in UICT	2.85	0.51	3.39	0.40	3.76***	1.19

As displayed in Table 2, the results show that the paired-samples t-Test for the instructors' ICT proficiency level differs before the workshop and after the workshop. T-Test found significant gain in the instructors' ICT proficiency level after participation in workshop. Very large positive effect size of 1.19 was derived for the instructors' ICT proficiency level.

Research question 3: Will the college intervention improve the instructors' TPACK level?

Table 3

*Descriptive Data and Results of Paired-Samples t-Test for Instructors' TPACK Level by Participation in Workshop (n=17)*

Outcome	Before Workshop		After Workshop		<i>t</i>	<i>d</i>
	M	SD	M	SD		
TPACK	3.88	0.45	4.21	0.28	3.82**	0.90
TK	3.52	0.70	3.79	0.46	1.73	0.46
PK	4.18	0.41	4.46	0.44	2.34*	0.65
PCK	4.39	0.56	4.63	0.56	1.48	0.42
TCK	3.82	0.82	4.16	0.62	1.87	0.46
TPK	3.94	0.51	4.37	0.50	3.05**	0.85

TPCK	3.91	0.65	4.39	0.54	3.85**	0.81
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As displayed in Table 3, the results show that the paired-samples t-Test for the instructors' TPACK level differs before and after the workshop. T-Tests found significant gains in the instructors' TPACK level after participation in workshop. Moderately large positive effect size of 0.65 was derived for PK and larger positive effect sizes of 0.9, 0.85 and 0.81 were derived for TPACK, TPK and TPCCK respectively.

### 6.1 Ranking of the college intervention components

The college intervention included five components: college policy, college infrastructure, ICT center support, participation in workshop and the availability of assistants. At the end of each workshop, the instructors were asked about the change in their perceptions, attitudes, abilities and behavior regarding the integration of ICT in teaching. Those who indicated positive change were asked to rank the components of the college intervention, as affecting factors of the change, from the most effective factor to the least effective one. The results concluded the following ranking of the factors, where the first one is the most effective: (1) Participating in the workshop, (2) the ICT center support, (3) college policy, (4) advancement in college technological infrastructure, and (5) the availability of assistants.

### 6.2 Outcomes of the college intervention

Before the beginning of the implementation of the college plan, only a hand full of instructors and pedagogical supervisors (less than 10% of the college staff) constructed and used courses sites and integrated ICT in their teaching processes. Only two WBLE (using Google sites platform) were constructed before the college intervention, while at the end of the second year of the college plan implementation, over thirty WBLE were constructed including ICT based lessons, units and learning materials that were designed and developed collaboratively by pedagogical supervisors and their students in the frame of the practical training. In addition a notable increase was apparent in the number of courses sites based on the Moodle platform that were developed and used by most of the instructors and pedagogical supervisors. These sites were used by the instructors to manage their courses including the use of ICT based teaching materials that would improve their teaching in the courses.

Another noticeable outcome of the college intervention was the number of pedagogical initiatives that involve special use of ICT in teaching in the college proposed by the pedagogical supervisors to the educational research center in the college. At least six initiatives were proposed this year as opposite to only one in the last year. These initiatives are directed to enriching the WBLE with special use of ICT in advancing the teaching methods in the training schools and/or encouraging higher order cognitive skills using ICT based learning/teaching materials among the pupils in these schools. All these initiatives intent to involve the college students and the training teachers in the development process, therefore the implementation of these initiatives would also advance the integration of ICT in the training schools. It is important to note that these initiatives come from various departments, such as: English language, Arabic language, Islam Studies, Science and Mathematics.

## 7. Discussion

The main research question was: How will the college intervention (college policy, college infrastructure, ICT center support, participation in workshop, and availability of assistants) affect the instructors' attitudes toward computers, the instructors' ICT proficiency and the instructors' TPACK level? The results of the research indicate several significant effects of the college intervention, which mainly pointed out improvement in the instructors' perceptions, abilities and behavior regarding the integration of ICT in teaching.

### 7.1 Instructors' attitudes toward computers

One of the main results of this research shows that no significant improvement was detected in the instructors' attitudes toward computers as an outcome of the college intervention. The main score of the TAC before the workshop ( $M=4.08$ ) almost did not change after the workshop ( $M=4.09$ ). But, in both cases the attitudes were very favourable toward computers. Even though, when looking at the subscales of the TAC we identify two significant changes: one negative change in interest and one positive change in absorption. Also in the case of the negative change in interest, both averages ( $M=4.78$ ,  $M=4.48$ ) were very high indicating great interest in computers. This interest could have dropped down after experiencing the work with computers during the period of the workshops, probably because the instructors did not have much experience working with computers before the workshop and were interested to experience it. After experiencing the work with computers, their willingness to work with computer dropped down a little bit because they were exposed to this instrument and experienced actual work with it, so their interest to do this experience lessened (like learning about the computer or how to use it). As for the positive change in absorption, the instructors expressed positive feeling toward the involvement in the computer world before the workshop. During the workshop they had the chance to be actually involved and improve their knowledge in computers. This might have improved their

absorption of computers, for example improved their ability to solve problems related to the use of the computer in general or in the classroom; which encouraged them to insist to solve these problems, even if they were hard ones. This influence of teachers' experience in technology on their ability to solve technological problems is mentioned in DeLuca (1991) who says that prior technological knowledge and knowledge seeking (in our case improved as a result of participating in the workshop) help overcome technological problems in the classroom. Moreover, Baya'a and Daher (2013) found that the participating teachers have generally positive perceptions of their competence in technology. Further, they have positive attitudes toward their self-esteem in the presence of technology.

### 7.2 *Instructors' ICT proficiency*

An important result of this research is the high significant improvement in the instructors' ICT proficiency ( $M=2.85$ ,  $M=3.39$ ) as a consequent of the college intervention. Three major intervention components: ICT center support, participation in workshop, and availability of assistants, were responsible for this objective. In more detail, the assistants accompanied the instructors in the workshops and had regular weekly meetings with them to direct them in using technology in preparing their lessons. This made the instructors feel confident to construct ICT based teaching and learning materials, which improved significantly their ICT proficiency. This means that the college instructors need specific training, accompanied by assistants, to improve their ICT proficiency. This need of training for teachers to improve their ICT skills and readiness to integrate ICT in their teachers was suggested by past researches, for example by Muir-Herzig (2004).

### 7.3 *Instructors' TPACK level*

As a result of the college intervention, the TPACK level of the instructors was significantly improved (from  $M=3.88$  to  $M=4.21$ ). This indicates that the intervention was successful in making the participating instructors improve their use of ICT in teaching their pre-service teachers who are the future teachers. This improvement would result probably in the pre-service teachers implementing ICT use in their practical training. This means that the college is stepping forward in applying 21st century skills into the teaching and learning processes, and as a result, in preparing its pre-service teachers for the 21st century education.

Looking at the average scores of each type of knowledge resulting from the intersection of two or three of the domains: technology, pedagogy and content, we see significant improvement in PK, TPK and TPCK. This could have happened because in the workshops, the instructors were not only exposed to ways of enriching existing pedagogies with exciting multimedia and required to implement them in their disciplines, but they were also introduced to new pedagogies that evolved recently in the era of modern technology.

The non-significant change in the TK score might seem contradicting the significant improvement of the instructors' computer proficiency mentioned earlier. In fact there is no contradiction because the computer proficiency, as measured in table 1 in UICT, refers to the instructors' actual use of technological tools, while, TK is involved with technology knowledge in general.

Regarding the pedagogical content knowledge, the instructors expressed high level of agreement with the PCK statements before the intervention, because they considered themselves experts in the pedagogy of their disciplines. This agreement increased after the intervention, but not enough to be significant. As for the technology content knowledge, the instructors started with above average agreement with TCK statements, where this agreement also improved after the intervention, but not significantly. This could have happened because the instructors were prepared for integrating technology in their teaching and not as a method to solve problems in the content.

It could be said that teachers' different experiences in the workshop improved their knowledge in types of knowledge related to their preparation in the workshop; i.e. pedagogic types of knowledge. Here too, experience through workshop preparation, including supporting instructors with assistants, helped teachers improve their knowledge in related domains, in our case PK, PCK and TPACK. It seems that teaming instructors with assistants led to teaching improvement, the same way as teachers' teaming leads to such improvement (Fulton & Britton, 2011).

It is important to mention that the advanced workshop which included 11 pedagogical supervisors out of the 17 who participated in the introductory workshop, had in it also department chairs. These chairs constructed in the advanced workshop WBLE rich with ICT based lessons and used these sites as a model for other instructors in the department encouraging them to construct their own WBLE. This act inspired several instructors and pedagogical supervisors to do so and resulted in the construction of over thirty WBLE as opposed to only two before the workshops. Another major change occurred in the number of pedagogical initiatives that involve special use of ICT in teaching proposed by the pedagogical supervisors, going up from only one before the college plan to at least six initiatives this year.

## 8. **Conclusions and recommendations**

The instructors and pedagogical supervisors in this study had relatively high positive attitudes toward computers before the college intervention. These attitudes did not change significantly after the intervention. The instructors' ICT proficiency improved

significantly after the college intervention especially as a result of three components of this intervention: ICT center support, participation in workshop and availability of assistants.

The TPACK level of the instructors, especially the pedagogical supervisors, was improved after the college intervention. The introduction of new pedagogies that evolved in the era of modern technology in the workshops affected positively the instructors' pedagogical knowledge in general, their technology based pedagogy and the adaptation of these technologies and pedagogies to the disciplines. This improvement and the previously mentioned ones would get the college instructors ready to apply 21st century skills into their teaching processes, and consequently would move the college further toward the 21st century education.

Our experience of this research leads us to recommend the following intervention components for colleges desiring to improve the ICT use in teaching among their instructors: (1) Providing appropriate workshops for their instructors: introductory and advanced ones, which expose them to modern pedagogies based on modern technologies. In addition, giving the instructors the chance to develop by themselves teaching materials for their disciplines using these pedagogies and technologies; (2) Enhancing the activity of the ICT center in the college, especially providing expert support for the instructors in the field of ICT tools and their use in teaching; (3) Establishing a clear support policy for ICT integration in teaching, where this policy includes involving the administrators, especially the department chairs, in this process; (4) Upgrading the college technological infrastructure and keeping it up-to-date; and (5) Providing escort of professional assistant in the field of web-based learning environments for each pedagogical supervisor. Of course it would be better if this assistant comes from the same discipline as the pedagogical supervisor.

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# The discourse in Mrs. Dalloway by Virginia Woolf and foreign language teaching: the decline of language learner anxiety by the usage of hedges, particular modals and adverbs as in the usage of these structures in Mrs. Dalloway for a specific purpose

Suna Akalin<sup>a</sup>

*Assistant Professor, University of Ataturk/Turkey*

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## Abstract

An already established way, of which frame is limited by the consensus particular to a specific society or rules activated by the way of thinking of that society, is preferably conducted to achieve a demanded goal instead of applying to possible other ways. Fluidity of languages enables novelists, playwrights, poets, politicians as well as ordinary men to apply to some distinct ways to inject appropriate notions or to explain a tenet to a great mass rather than incline to the ways, which have been known to others. This study draws a parallel between the language Virginia Woolf utilizes in her work Mrs. Dalloway for the purpose of clarifying feminist opinion system and the language used in foreign language classrooms to reduce learner anxiety. Woolf prefers implying her interpretation of the place of women in society with the help of hedges, modals and adverbs rather than explaining it directly. Thanks to the infinite statements in and the flexibility of English Language, Woolf characterizes feminist concept by unresolved and continuous alternations contrary to certain statements used by men. It is known that in the Suggestopedia Method, role-play as a technique of teaching is benefitted to reduce learner anxiety. As Woolf employs hedges, specific models and adverbs in Mrs. Dalloway to explain certain thoughts indirectly, the same structures may be applied to foreign language teaching. For the learners of foreign language in secondary schools, usage of hedges, modals and adverbs indicating that the speaker is not concise in his accounts might lessen the anxiety of learners. In this paper, Woolf's Mrs. Dalloway has been analyzed from the aspect of its discourse, through which Woolf tries to teach women thought system to the audience, under the spectacle of the probability of reducing language learning anxiety by the usage of specific structures which signify possibility such as 'could', 'might', 'as far as I know', 'perhaps', 'nearly', 'about' and etc. as in Mrs. Dalloway. The main purpose of this study is to clarify that the usage of these structures mentioned above help reduce foreign language learner anxiety.

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*Keywords:* Foreign Language Anxiety, Hedges, Functional Morphemes, Parts of Speech, Foreign Language Teaching Discourse, Feminist Discourse, Mrs. Dalloway, Virginia Woolf.

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## Introduction

An already established way, of which frame is limited by the consensus particular to a specific society or rules activated by the way of thinking of that society, is preferably conducted to achieve a demanded goal instead of applying to possible other ways. Actually, this preference must have been eliminated with the help of questioning reality at least in the 19th century. For instance, one of the great thinkers of 19th century, Nietzsche claims that there is not reality; on the other hand, there are interpretations of reality itself. Allowing for the vulnerability of reality, we as speakers of languages do not need to stick to the structured forms of language in communication. Studies today indicate that men have the ability to produce infinite utterances using finite language forms. George Yule points out: "Humans are continually creating new expressions and novel utterances by manipulating their linguistic resources to describe new objects and situations." Fluidity of languages enables novelists, playwrights, poets, politicians as well as ordinary men to apply to some distinct ways to inject appropriate notions or to explain a tenet to a great mass rather than incline to the ways, which have been known to others. Especially, writers emphasize on the meaning beyond language, as they want a text convey a hidden meaning inside.

Writers present a great talent on creating ties stretching from the text they create to the subconscious of the audience. Modernist and/ or postmodernist writers do not interfere with the ethos of their readers and leave the judgmental issues open to be evaluated by the reader himself/ herself. For instance; Orhan Pamuk in his novel named after "Snow" does not directly says what is right or what is wrong about common view of strong conservative people on women who are against wearing scarf, but he explains the situation from his perspective similar to a camera recording the events around, by which he arouses hatred in the hearts of his readers. That is, Pamuk creates a dark atmosphere explaining the situation with the help of the power of words chosen. Not just the word choice affects the overall meaning a text covers. On the other hand, punctuation, emphasis and writing

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<sup>a</sup> E-mail address sakalin@atauni.edu.tr

style reveal the actual intention of the writers. Not all the time, it is about the context, but it might also be about the message of the writer to his/ her reader. According to Paula Bennett, the small but precious objects in Emily Dickinson's writing signal feminist propagation. Bennett identifies some objects in Dickinson's writings such as pebbles, pellets, nuts, pearls, gems, berries, beads, drops, jewels and bees as a part of clitoral imagery.

In this study, Mrs. Dalloway written by Virginia Woolf has been analyzed focusing on the emphasis on hedges, specific functional morphemes and parts of speech, which display possibility of occurrences. These usages shed light on how Woolf supports feminism since speaking of possibilities is one of the features of feminine speech characteristics as accepted by a great deal of research. Woolf prefers implying her interpretation of the place of women in society with the help of hedges, modals and adverbs rather than explaining it directly. Thanks to the infinite statements in and the flexibility of English Language, Woolf characterizes feminist concept by unresolved and continuous alternations contrary to certain statements used by men. This study draws a parallel between the language Virginia Woolf utilizes in her work Mrs. Dalloway for the purpose of clarifying feminist opinion system and the language used in foreign language classrooms to reduce learner anxiety.

In language classrooms in particular, learners come across some challenges such as speaking in a foreign language with a good knowledge of grammar and pronunciation. Anxiety might prevent some people from performing successfully in science or mathematics, many people find foreign language learning stressful likewise, especially in classroom situations. According to Gardner and McIntyre, language-learning anxiety can be described as "a subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the automatic nervous system". Horwitz on the other hand, detailed the specific parts that learners are affected most when it comes to language learning anxiety. A different solution to reduce language-learning anxiety based on the discourse of Mrs. Dalloway may open a new horizon into language learning. It is known that in the Desuggestopedia Method, role-play as a technique of teaching is benefitted to reduce learner anxiety. As Woolf employs hedges, models and adverbs in Mrs. Dalloway to explain certain thoughts indirectly, the same structures may be applied to foreign language teaching. For the learners of foreign language in secondary schools, usage of hedges, modals and adverbs indicating that the speaker is not concise in his accounts might lessen the anxiety of learners. The main purpose of this study is to clarify that the usage of these structures mentioned help reduce foreign language learner anxiety.

#### Literature Review

A part of speech or writing does not solely stand for a sequence of related words; on the other hand, it is related to the speaker, the place and time. The intention of the speaker may be visible through an intelligent use of discourse. That is why some people utilize discourse to inject particular notions to the audience. Discourse has the capability of conveying notions in an indirect way. Seinfeld exemplify the inner meaning of a speaker based on his/her pauses during the speech as follows:

There are two types of favors, the big favor and the small favor. You can measure the size of the favor by the pause that a person takes after they ask you to "Do me a favor." Small favor -small pause. "Can you do me a favor, hand me that pencil." No pause at all. Big favors are, "Could you do me a favor..." Eight seconds go by. "Yeah? What?" "... well." The longer it takes them to get to it, the bigger the pain is going to be. Humans are the only species that do favors. Animals don't do favors. A lizard does not go up to a cockroach and say, "Could you do me a favor and hold still, I'd like to eat you alive." That's a big favor even with no pause. Seinfeld (1993)

In addition, discourse has an ability to manipulate ideas of people, which is accepted by the majority of us. Analysts examining speeches of politicians in particular might come across the power of discourse. Paul Foss fortifies the power of discourse with his saying: "Discourse has become the arena for the generation and propagation of historically specified norms and socially adequate forms of power."

Some writers who would like to convey some messages including the ones that cannot be accepted positively by the public apply to power of discourse. For example, for feminist writers, there are countless options to create a text to deliver intended messages such as punctuation, fragmentation, speaking of possibilities, detailing the events which seem ridiculous to men or giving importance on male properties in order to draw attention towards the torture on women in societies. As a matter of identity and difference, otherness of women might be visible with a closer look. Disposing the existence of worlds of male and female languages separately, Madeleine Gagnon claims that women use language of men so as to influence and transform it. Barbara Godard in her essay titled as '*Theorizing Feminist Discourse/ Translation*' puts forward polarity, which symbolizes the echo of the individual's self and the other, as a feature of women discourse. Additionally, Godard advocates displacement of women voice by themselves is characteristics of women discourse.

On the properties of the speech of women, Plato is in the view that the speech of women, the private speech of house hold, may be in lack of the form of philosophic argumentation or the form of poetry and thus, he describe the speech of women as unformed, chaotic, and consisting of only opinion not truth. Absolutely, Plato's discrimination of women speech takes one to think about mainstream of consciousness that was invented as a writing mood via experimentation in the late 19<sup>th</sup> and early in 20<sup>th</sup> centuries. However, in studies examining thought systems of men and women, the fragmentation and detailed speech are asserted to be properties of women speech not that of men. Similarly, Woolf explains that Dorothy Richardson has invented the 'sentence of the feminine gender', a psychological sentence that disregards the story and privileges the description of frames of mind: 'It is of a more elastic fiber than the old, capable of stretching to the extreme, of suspending the frailest particles, of



enveloping the frailest shapes' (Woolf 1919:191). Women's speech is considered a challenge to male logocentrism and binary logic (Guild 1992:75). According to Guild's study, men thought system works similar to a computer as it is based on pure truth.

Rachel May asserts that, in Modernist fiction, punctuation is utilized in experimental ways for visual effects or to emphasize the interplay of textual voices (1997:2-4). Semicolons, for instance, compose paratactic structures that erase syntactical and conceptual hierarchies and therefore this results in numerous viewpoints. The creation of multiple viewpoints might be considered to be one of the main functions attributed to semicolons in writings of Virginia Woolf. David Lodge (1993:26) proposes that Virginia Woolf is prone to use semicolons rather than full stops so as to delay the moment when the sentence commits itself to an ending. Breaking the sentence and breaking the sequence (Woolf, 1929) are proposed two critical acts for modern women writers.

As can be seen from the information given above based on the research conducted in the field of discourse and feminist discourse, writers take advantage of discourse and they assert some specific ideas especially when they are reluctant to make their claim clearly. Virginia Woolf is one of these writers and she not only tries to define the properties of the speech of women but also she explains how the speech of women should be. For instance, Woolf opposes presentation of lesbianism in Radclyffe Hall in her works and wishes she did not support lesbianism in her writing. Indirect messages are not fruitful just in texts; on the other hand, indirect messages might be conducted in education as suggested in this study. In Mrs. Dalloway, Woolf resorts to hedges, specific functional morphemes and parts of speech, which display possibility of occurrences for indirect messages throughout her writing.

"If you hedge against something unpleasant or unwanted that might affect you, you do something which will protect you from it. If you hedge or hedge a problem or question, you avoid answering question or committing yourself to a particular action or decision." (Collins: 1987) Uses of hedges or other parts of speech as Collins asserts, take the responsibility out of persons, which might be applied to language learning and that's why using hedges, specific functional morphemes and parts of speech, which display possibility of occurrences might reduce anxiety of learners. It has been found that the feelings of tension or nervousness center on the two basic task requirements of foreign language learning: listening and speaking (Horwitz et al., 1986) because, in interaction, both the skills cannot be separated. Guiora advocates that language learning itself is "a profoundly un-settling psychological proposition" as it directly menaces an individual's self-concept and worldview.

Language anxiety has been argued to have an importance on learning to speak a foreign language. Many researchers of language anxiety have suggested a variety of strategies to cope with this multifaceted dilemma (Hashemi, 2013). The most frequent solution proposal by language learners is to filter teacher domination from the atmosphere of classroom. These learners suggest a classroom in which mistakes might be made without looking or sounding unskillful (Constructivist Theory of Learning). Some teachers suggest instructors to create environments in which students can feel successful in using English and avoid setting up the activities which increase the chances for the students to fail". Others put forward a communicative approach where students are given chances to succeed even with imperfect language competence. Some other teachers emphasize on the use of drama-like and role-play activities through which learners could feel safe in a pretended situation with a pretended identity (Suggestopedia).

### Analysis of Mrs. Dalloway

The analysis of Mrs. Dalloway's discourse by which Woolf tries to teach women thought system to the audience sheds light on the probability of reducing language learning anxiety by the usage of specific structures which signify possibility and uncertainty such as 'could', 'might', 'as far as I know', 'perhaps', 'nearly', 'about' and etc. Woolf avoids asserting 100 percent true statements and she softens the exactness, which some research claim to be a feature of feminist discourse. That is why Woolf frequently utilizes hedges, particular adverbs, modals and phrases in Mrs. Dalloway. She not only finds mainstream of consciousness fruitful but also she manages to show fluidity of women thought by using these speech parts. Starting with the effect of role play technique on reducing the anxiety of language learners, it may be claimed that if language learners are taught to start with a statement clarifying possibility, their anxiety will decrease as the learners accept the probability of their mistakes to come. In the analysis part, excerpts from the text of Mrs. Dalloway are going to be examined in order to understand the function of hedges and similar structures gaining possibility.

### Example 1

"There was *a sort of* - ... - *a sort of* ease in her manner to him." (Used 16 more times with the same function)

In this excerpt, the speaker obviously have difficulty in finding proper adjective to explain the situation in which the part standing for the semantic role, goal is. Similarly, if language learners are provided with the knowledge and the function of 'sort of' structure, the learners do not feel obliged to use fixed derivational morphemes. For example, a learner who has been taught to use lexical relations such as synonym and antonym or to use hedges as indicated in the excerpt, may not know specific

words for specific situations, but they could handle explaining these specific situations by trying to use related words for the situation. Imagine a situation in which a learner has the native language equivalence of a word such as 'parsley' in his/ her mind, but he/ she cannot utter it. Then, a learner qualified with the knowledge of hedges, specific functional morphemes and parts of speech, which display possibility of occurrences as in this study, can try to explain 'parsley' using related words such as sort of a green plant added to meals especially soups or a kind of pickled herb supplying a good taste for meals. Capable of explaining what he/ she wants to explain, anxiety of learner lessens automatically. The same situation is valid for the similar structure '*kind of*' as:

"...and doing her hair in *a kind of* ecstasy, ... She said they had a *kind of* courage which the older she grew the more she respected"(Used 2 more times with the same function). In the following excerpt from the novel, a derivational morpheme 'like' is used for similar function. If students are taught the function of this derivational morpheme, then they may not lock in to find proper words while speaking or writing in a foreign language.

"She was *like* a poplar, she was *like* a river, she was *like* a hyacinth, Willie Titcomb was thinking. Oh how much nicer to be in the country and do what she liked! (Used 29 more times with the same function)

#### Example 2

"*It might be* an exaggeration-but still so it did seem now." (Used 12 more times with the same function)

Another part of speech to be examined in the novel is '*it might be*'. Woolf utilizes this structure so as to avoid taking responsibility of her utterances, which is categorized as a women speech feature. When the speaker uses this structure, it indicates that the speaker is not concise in what he/ she says and makes the utterance earn possibility. In language learning classrooms, learners hesitate in making mistakes both in grammar and in exactness of the situation they utter. If they are taught such a structure, learners may get to know that it is not a learner who takes the responsibility of his/ her utterances. It means that language learners may think that they could do mistakes before stating something as the hedge that they use take the responsibility out of the speaker. When language learners take it into consideration that they do not take the responsibility of their utterances, their anxiety might decrease as in role playing; students may have positive feelings, desires and attitudes towards language learning (Scarcella and Crookall: 1990).

#### Example 3

... but that might be her heart, affected, *they said*, by influenza. (Used 5 more times with the same function)

#### Example 4

She said *somehow* very like to him, ... (Used 11 more times with the same function)

#### Example 5

...,she looked almost beautiful, very stately, very serene. (Used 5 more times with the same function)

#### Example 6

*Probably* she does not get on with Clarissa. (Used 7 more times with the same function)

#### Example 7

... and *possibly* (this was a theory he used to make up to account for her, so transparent in some ways, so inscrutable in others), *possibly* she said to herself, (Used 6 more times with the same function)

#### Example 8

*I suppose* they are praying. (Used 9 more times with the same function throughout the novel)

#### Conclusion

One might easily confer from the analysis of Mrs. Dalloway based on uses of hedges, specific functional morphemes and parts of speech that display possibility of occurrences that Woolf benefit from these structures in order to diminish firmness of utterances. Tendency on being not exact might be considered as a feature of women speech on the ground that the speech of women has a character of being non-linear. The essential traits of female discourse that Woolf describes in her critical writings are: non-linearity, openness, suspension, and dissolution of subjectivity. The analysis of Mrs. Dalloway's discourse may be capable of creating a new horizon into language teaching and learning about the chance of lessening language learning anxiety by the usage of specific structures which suggest doubtfulness and possibility such as 'almost', 'probably', 'possibly', 'it might be', 'they said', 'sort of' and etc.

When the effect of role play technique on reducing the anxiety of language learners is taken into consideration; it might be supported that if language learners are taught to start with a statement clarifying possibility, their anxiety may decrease as the learners accept the probability of their probable mistakes. In role-playing, language learners choose different identities for themselves since it is found fruitful for students to see these foreign names responsible for their own mistakes. It is claimed in this paper that supposed that language learners are provided with words or phrases of possibility, the learners might welcome the possibility of their mistakes, which may happen during language classes, at first and that might reduce language learning anxiety.

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# The education and the human capital to get rid of the middle-income trap and to provide the economic development

Refika Atalay<sup>a\*</sup>\*\*\*\*\*

<sup>a</sup> *Akören Vocational School, Selcuk University, Konya, Turkey*

## Abstract

The developing countries rising their national income to \$ 10.000 per capita face to two major problems: the economic development and the middle income trap. The economic development and the economic growth have been considered as equivalent terms until 1970. The economic growth is a numerical value to be able to measure the reel GDP(Gross Domestic Product) increasing rate while the economic development is a social criterion measuring the social levels of the human being such as the health , the education and the human living standard.

The other problem of the developing countries achieving to the middle income level is the middle income trap. The developing countries facing to the middle income trap and aiming to the economic development can improve their human capital in order to remove it. The human capital means the aptitudes such as the knowledge and the skill to be obtained by the manpower. All these enable to increase the individual and social development and the economical prosperity.

The basic condition of developing the human capital is the education and the lifelong learning. However, the more the education duration in the developing countries increases, the more the individual and social costs increase. Therefore, these countries must improve the employment during the education in order to both develop the human capital and decrease the alternative costs that would cause the education.

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Keywords: human capital, economic development, middle income trap, economy education.

## 1. Introduction

Nowadays, the biggest problem of the countries which reached to the level of middle-income countries is to be trapped in a middle income trap because they can't reach to the upper segment which is the level of high-income countries. The most important reason that the developing countries can't reach to the level of developed countries is that their level of production and development is lower than developed countries. In order to increase the production and development levels of countries, they must increase primarily the human capital education. For this reason, the countries should give importance to their human capital education. Because it is seen today that the countries advanced in the human capital education improved productivity levels in their production.

As the primacy of human capital requires both the education and the activities of R & D, it imposes heavy costs both to individuals and to the public. As long as the education levels scale up, it is observed that the difference between individual costs and public costs rises up. The reason of this case is that the education especially, higher education in developing countries is funded by the public. In order to ensure the social state conception and the equality of opportunity, the sponsoring of education by the public increases the demand for higher education and the necessity of allocating more resources to education in developing countries.

The purpose of this study is to offer the proposition solutions and to provide the human capital education by minimizing public and individual costs in order that developing countries can get ride of middle income trap. This study consists of six subtitles including the introduction and the conclusion. In the second subtitle, the human capital concept and human development level will be studied. The third subtitle aims to focus on the private and social returns of the education. The fourth subtitle targets to make comparison between Japan and South Korea and Turkey in the matter of the accumulation of human capital and R & D activities. In the last subtitle the training costs will be examined. In the conclusion subtitle, propositions will be offered in order to reduce the impact of education expenses on public and individuals

## 2. Concept of Human Capital and Human Development Index

### 2.1. Concept of Human Capital

\* Corresponding author: Phone number: 0905544887611  
e-mail address: refika\_atalay@hotmail.com

The concept of human capital, "as a social concept, has not a common definition. In most general terms, the human capital is a term expressing, on the one hand, the information, skills, abilities, experiences, that the individuals have in terms of the production process, their level of behaviour, sentimental dependence on their work, on the other hand, their physical and mental fitness or strength"(Keskin 2011:128). In other words," it explains the education expenditures to be realised in order that people obtain the knowledge, skill, and aptitude" (Seyidoğlu, 2002:59). The importance of the human capital for the economies has been expressed since Adam Smith to today. However, the physical capital has been insufficient by the globalization and the competitive environment after Second World War. As a result of that, the human capital concept has been proposed again for the agenda by economists.

Nowadays, the education expenditures made for the development of individuals is considered as investment expense in a sense. Because "the cultivated and skilful individuals who can use advanced machines and propose new ideas and methods in the production process" would increase the yield by minimizing the wastage (Bekmez et al 2009:67).

## 2.2. Education and Turkey in the Human Development Index

Since 1990, UNDP (United Nations Development Program) publishes every year the Human Development Index" making possible the wealth and social development degree of countries, in contemporary expression, the measurement realization by converting the human development into numerical values" (Keskin, 2011:129). "The Human Development Index is calculated by being based on three indicators. The first indicator is "the average life" showing the duration of the expected "average life" of a newborn person. The second indicator is the education status measured by schooling rate containing the adult literacy rate having the 2/3 weight and of and primary school, high school and university rate having the 1/3 weight. The third indicator is "the living standard " measured with real national income per capita calculated according to Purchasing Power Parity (PPP)(Keskin 2011:129).

According to the 2013 Human Development Index, Turkey having the value of 0.722 in the high human development category takes place in the 90<sup>th</sup> rank among 187 countries and regions. When we appreciate only Turkey in terms of education according to the Human Development Index, a significant difference is seen between the expectation of education duration and the average education duration. An increase has been seen every year in both periods.

**Table 1:** The data concerning the Human Development Index of Turkey.

Year	Expectation of education duration	Average education duration
1980	7.4	2.9
1985	8.3	4
1990	8.8	4.5
1995	9.5	4.8
2000	10.6	5.5
2005	11.7	6.1
2010	12.9	6.5
2011	12.9	6.5
2012	12.9	6.5

**Reference :** The report concerning the Human Development Index of Turkey " published by UNDP

According to "The United Nations Development Programme Report 2005", Turkey with 99.1% literacy rate takes place in the 83<sup>th</sup> rank among 184 countries (www.makaleler.com). Schooling rate in terms of educational levels in Turkey is figured in Table 2. According to the data, the schooling rate is higher in the level of primary school having the compulsory education. In higher education, the schooling rate has increased from year to year. However, if compared with other countries Turkey is seen to remain behind them.

	1980	1985	1990	1995	2000
Pre-School Education					
Turkey	0,5	5,0	4,7	7,3	6,1
Other Countries	27,4	30,5	33,8	37,2	43,2
Primary School					
Turkey	96,4	113,3	99,1	106,7	91,9
Other Countries	102,1	109,1	110,9	109,2	108,2
High School and Equivalent					
Turkey	34,6	41,6	47,3	57,0	73,3
Other Countries	55,0	56,1	60,6	71,2	75,0
Higher Education					

Turkey	5,4	8,9	13,1	19,5	23,8
Other Countries	14,3	16,0	17,9	20,9	25,9

**Table 2:**  
Schooling  
Rate in terms

of Educational Levels (%)

Reference: (Bekmez et al 2009:70)

\* Other countries group contains the data of 47 countries in kindergarten group in the 47, those of 48 countries in other education levels.

### 3.Profits of Education

Depending on the trend in the world, the increase in schooling rate, especially in higher education in Turkey arises from the expectation that the education, especially in higher education in Turkey will bring higher income stems from expectations. Moreover, we can make mention of many profits of the education such as the individual, social and non-monetary profits.

"Special profits are benefits which are obtained by individuals taking education, but aren't reflecting on the society. These profits appear in manner that the education enables individuals to obtain further incomes by increasing the possibility, productivity and capacity of earning of the employment in the future, indirectly to benefit from more goods and services ( Gölpek , 2012:46 ) . " Social returns are benefits that individual can't appropriate, but reflected to other members of the community These benefits will reflect to the national income by increasing the tax revenues and the productivity educated individuals to the society"( Gölpek 2012:48 ). " As for non-monetary returns, they can be enumerated as the employment of the educated individuals , particularly the employment of the higher education graduates in better conditions, their awareness in consumption and investment decisions, their more healthy and longer life, their increase of the literacy rate, their development of citizenship and democracy consciousness, the formation of an environment more suitable to the economic growth, the lower crime rates, the increase in publications and cultural activities, the better functioning of the economy and the markets and the development of freedoms ( Gölpek 2011:85 ).

### 4.The Education of Human Capital to get rid of the middle income trap and to provide the Economic Development

#### 4.1. The Concept of Middle Income Trap and Human Capital Relationship

The concept of middle-income trap has been placed for the first time in the literature by Homi Kharas and Intermit Gill who were employees in the World Bank (SDE 2012:64).

The middle-income trap describes that " economies reached to the level of middle-income have been in this level for so many years and don't spring up to the the higher income level. This concept measuring the per capita income in countries by dollar according to data field and mainly Purchasing Power Parity (PPP) indicates that a country enters into the vicious circle in a certain income level. Accordingly, the countries trapped in middle-income remain at this level for a long time and can not upgrade "(2012:96 MÜSIAD). In other words, economies pressed between 20 and 58% of national income per capita of USA are considered as countries trapped in middle-income.The income level per capita according to current prices in 2011 in USA is 48,147 \$. According to this data, the countries having the average income 10,000 \$ per capita are regarded as countries having middle-income level.

According to the theory of Gill and Kharas, these countries must be around 27,000 in 10 years otherwise it is inevitable to mention the middle income trap (Göçer 2013:216, <http://www.mahfiegilmez.com>, <http://tr.wikipedia.org> ). According to the theory proposed by Gill and Kharas, the process operates in the following way: the labor force surplus in the agriculture in the early stages of the development in under-developed countries is transferred to industry and services sectors.

Thus, the marginal productivity of labor is increased by preventing the hidden unemployment in rural regions and the profit starts to increase because the production will increase in the city. However, in the later phases the labor force to be transferred from agriculture to industry and service sectors will decrease and this will cause the decrease in production level. In other words, the country using the initial advantage of labor force surplus, is able to maintain its economic growth in modest rates, but a country which isn't able to maintain sustainable growth rates in this ongoing process has entered into a vicious cycle.

The main economic problems of countries trapped in middle-income can be listed as: the lack of investment resulting from the savings gap, the slow development in the manufacturing industry, the disappearance in the industry diversification and weakness in the labor market"(www.mahfiegilmez.com), the lowliness of R & D level and the human capital.Thanks to the export-based economic growth model that they started to apply since 1980s, the developing countries accelerated their economic growth and closed largely the difference between them " (Göçer 2013:220). The most of countries having the export-based economy has managed to achieve the middle-income country status in a short period. " While making initially the export based on the labor intensive and the natural resources, these countries managed to create their own brand and to export more capital and technology-intensive products and services by passing over time the contract-Producing process and by increasing the human capital and R & D expenditures (2013:220 Göçer).

When studied countries around the world, we see countries trapped in middle-income such as Thailand, Philippines and Malaysia etc. (MÜSIAD 2012:98). According to the theory of Gill and Kharas, it is observed that no country excepting Japan and South Korea can not escape from this trap until now (SDA 2012:64).

South Korea reaching to the middle-income country status with 10,310 dollars per capita income in 1993 has a 30,970

dollars national income per capita in 2012. Thanks to the "technology and the intensive export South Korea having the high-income country status after reached quickly to middle income level, takes place among countries accelerating significantly the economic growth (Göcer 2013:220). In 1982 by its 10,510 dollars per capita national income, Japan rose to the high income country status at the end of the 1990s.

Turkey which entered into monitoring Liberal policies in the 1950s in the economy, leaved the import substitution foreign trade policy closed to the outside in 1980. (Eroglu, 2008:296). By the 24 January 1980 Stability Decisions, Turkish economy entered into the squirm process, but internal and external efforts necessary for a departure could not be moved and global adjustment mechanism could not be established. Despite some economical improvements" the economic growth could not be seen until the 1990s. "In 1990s, the economic instability increased due to political and economic instability created by the coalition governments. This case ended in 2001 crisis (MÜSIAD 2012:99). "On 14 April 2001 the "Strong Economy Transition Program" was put into effect (Erdem 2013:209). With the impact of single-party government and the "Strong Economy Transition Program" the national income per capital and an economic growth began to increase.

When the national income per capita in dollar of Turkey is examined according to years, we see that Turkey takes place in the category of middle-income countries. Although a decline was seen in Turkish economy by the effect of the global crisis in 2009 we see that Turkey continues to be a middle-income country in subsequent years.

**Table 3:** Turkey's Gross Domestic Product (GDP) per capita (U.S.A \$)

Year	GDP per capita (USA \$)	Years	GDP per capita (USA \$)
1998	4.338	2006	7.586
1999	3.907	2007	9.240
2000	4.130	2008	10.438
2001	3.021	2009	8.559
2002	3.492	2010	10.079
2003	4.559	2011	10.444
2004	5.764	2012	10.504
2005	7.022	2013	10.782

**Reference:** <http://www.tuik.gov.tr>

In 2008, Turkey reaching to 10,438 dollars per capita national income has achieved the status of middle-income countries. During five years later Turkey gives signals fall into the middle income trap for its national per capita income around 10.000 dollars. In order that Turkey can be passed to a group of high-income countries such as Japan and South Korea without falling into the middle income trap, the basic requirement of this is to complete the human capital education and the R & D development.

"The education is an element allowing to labor to be more qualified, in other words, to increase knowledge and skills". The investments in education for the development of the human capital prepare ground both for the technological development and the human "capital accumulation. This case is reflected positively in the economic development. The human capital accumulation has a great importance in R & D activities and the process of technology production. Because the information is the source of R & D activities and technological innovations, it emerges thanks to the human capital accumulation"(Tiryakioğlu 2008:323). Trained and experienced individuals lead to progress more quickly the technology.

If we compared the development of education and R & D of Japan and South Korea with that of Turkey from high-income to middle-income trap now able to jam and, according to data of the World Bank, the part of public expenditures on education in GDP is 5.8% for Japan in 1980, and 3.7% for South Korea in 1998. 1980 was a year of transition to the medium income level for Japan while 1998 was the year when South Korea reached to medium income level in the World Bank data base. The 2008 year when Turkey reached to the middle-income level was the most recent date to 2006 for which there were databases. The share for this year is 2.9% (SDA 2012:64)

According to OECD data in 2004, the ratio of the education expenditures in GDP was 2.9 % in the primary and middle school, %1, 3 in higher education and % 4,8 in all education programs. These rates in South Korea were 4.4 % in the primary and middle school, % 2, 3 in higher education and % 7,2 in all education programs. According to data in 2004 in OECD countries, the ratio of the education expenditures in GDP was % 5,7 on average. According to these data, the ratio of the education expenditures in GDP in Turkey was % 3,1 in the primary and middle school, % 1 in higher education and % 4,1 in all education programs (Altundemir 2008:57). These ratios indicate that Turkey must give a great importance to the education in order to not fall into middle-income trap.

"Various studies show us that there is a strong correlation between the rise in R & D activities of the countries and their productivity growth. R & D activities are defined as transformations of the investments realised for increasing knowledge accumulation into new technologies or those of physical and human resources into more effective use "(Erkiletlioğlu the 2013:2). "If R & D is general for the country's economy it aims to use more effectively the national resources, to increase continually the knowledge accumulation and to produce the national technologies"(Unal and Seçil 2013:13). Thus, increasing the level of national income is realised. In Table 4, "Turkey's R & D" data are compared with those of "Japan's R & D".

**Table 4:** Japan-Turkey R & D data

Year	Rate of R & D Activities in GDP (%)		Number of Patent Applications in the context of PCT		Part of High Technology Export in the Total Export (%)		Performance of Scientific Publications	
	Japan	Turkey	Japan	Turkey	Japan	Turkey	Japan	Turkey
2000	3,04	0,48	384.201	227	27,00	3,97	72.062	5.321
2001	3,12	0,54	382.815	337	24,73	3,25	74.536	6.484
2002	3,17	0,53	365.204	414	23,09	1,63	73.452	8.511
2003	3,20	0,48	358.184	489	22,75	1,80	80.581	19.781
2004	3,17	0,52	368.416	682	22,37	1,88	73.524	12.463
2005	3,32	0,59	367.060	928	21,15	1,35	80.601	15.106
2006	3,40	0,60	347.060	1.072	20,04	1,65	76.647	14.971
2007	3,44	0,72	333.498	1.810	18,00	1,70	73.756	15.987
2008	3,45	0,73	330.110	2.221	16,30	1,50	79.515	20.806
2009	3,36	0,85	295.315	2.555	17,40	1,50	78.930	22.037

Reference : (Ünal ve Seçil 2013:15-23) PCT\* (Patent Cooperati on Treaty)

When R & D data are examined about Japan and Turkey

according to the years Turkey is seen to be still behind Japan although Turkey makes progress.

Turkey accomplishing to take place among the middle-income countries category must transform the advantage of young population into the human capital and create the qualified labour power to work to reach in R & D activities in order to increase national income level

#### 4.2. Concept of Economic Development and Human Capital Relationship

The economic growth refers to the increase in national income. The economic development also is a concept including the economic growth. The economic development is rather a concept in which the developing countries are mostly interested. It is a science studying the income justice, the human capital and the people-oriented social dimension of society and economy such as the average life expectancy. According to Romer (1990) having many studies in the matter of the economic development, the development rate of a country is not affected much by the increase in physical capital. It is indicated that the predominant effect in the increasing in the rate of development arises from opening to the world market and from the increase of the number of qualified engineers and scientists. The human capital in economic growth models plays a special role. The key of the research and development sector is the human capital stimulating the production of new products and forming the technological developments (Baş, 2004:25). Fredeerick Harbison and Charles A.Mayers indicate that the number of a highly skilled workforce of a country such as managers, scientists, engineers, doctors, teachers and qualified assistants is the most important criterion showing the development level of that country (Taban and Kar 2008:327). Schultz making many studies in 1950, accentuate that many people under developed countries neglected the primary school education and gave a great importance on the physical structures (factories) and the equipments. He considered that the education is a instrument of increasing the human capital and he stated that the education gives the resistance as well as the energy to people (Doğan and Şanlı 2003:187).

"The realization of the economic development of developing countries such as Turkey depends primarily on improving the quality of human capital that they have. The education must be the area for which the resources will be allocated firstly. The education quality should be well improved and generalized to a vast majority of public. The education policy should be redesigned in such a way that the staff will be trained in number and qualification to respond to the needs of sectors, particularly the industrial and service sectors.

However, in order to generalize the university education, the capacity of universities should be increase; the new universities should be established; the characteristics of the unemployed persons of a country should be coincided with the labour force qualification needed by that country; the employees working in continuous training programs should be trained with the vocational courses and women should be encouraged to participate to the labour force by vocational courses (Keskin 2011:147).

#### 6. Costs of the Human Capital Education to Developing Countries

All expenses incurred by the firms to make production are called "the cost" (Çoban 2012:157). "Education shows the investment property because it has the properties of increasing the future productivity and earning capacity and benefiting from more income, more goods and more services" (Gölpek 2012: 45). Both government and individuals should put up with some training costs for the education regarded as investment in long-term.

When the expenditures realised for the human capital are considered as investment expenditure, it is important to compare



them with their private and social costs. The social costs of education in developing countries rises quickly accordingly with the progress of individuals in education levels individual whereas individuals costs are increasing at a slower rate. The gap between social and individual costs has led to higher demand for education (Taban ve Kar 2008:328). Especially the demand in higher education encourages the private sector to invest in the field of higher education. As the public support to the education will be much in a poor country to ensure the equality of opportunity, the assessment rates in the evaluation can be negligible". (Gölpek 2011:88). According to 2010 OECD data, the distribution of higher education expenses in Turkey shows that the portion of 98.6% is sponsored by the public.

## 7. Conclusions and Propositions

Until 2000s, Turkey was exposed to many economic crises both due to political and economic instability within the country and external conjuncture. Turkey which succeeded to ensure economic stability since 2000 's years has achieved the middle-income country status by reaching to 10,438 dollars per capita national income in 2008's. However, Turkey is in the danger of the middle-income trap which is the problem of many developing countries. In order to be the third country which can't be exposed to this trap, Turkey should give importance to the human capital education, achieve scientific publications and obtain patents by increasing their R & D activities.

As Schultz suggested, "the human capital has been created by investing in the human being" (Dogan and Şanlı 2003:181) The main cause of human capital considered as investment is to increase the productivity in the long term. For the creation of human capital, both government and individuals are obliged to endure many educational costs. The fact that the private sectors are not investing enough in developed and developing countries particularly in the higher education sector and the government acts with the social state concept act impose heavy costs to the public. Another reflection of the current financing system on higher education is that the students have graduated after many years from the program they enrolled and it is question of lack of revenue losses because they can't work in the educational process. Such a system causes both a waste of public resources and public resources. The developing countries want to increase the level of national income and to ensure economic development by acquiring the human capital through the education but the education causes the waste of scarce public resources.

In order to escape from this dilemma, the developing countries can include the inactive labor force in the production and reduce the individual costs by employing the individuals taking the education in the part-time jobs to provide the benefits to their futur occupation and to participate in the production. In addition, the workforce wasting can be minimized by expanding hourly rate application in the private sector and by creating more flexible working hours for the studying individuals. In order to make the vocational education more qualified and minimize individual costs during the education, it can be obligated that the private sector can make payment to students at a minimum rate to be determined by the goverment in the periods of internship.

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# The educational policy of European Union

Seda CANKAYA<sup>a\*</sup> Önder KUTLU<sup>b</sup> , Esra Cebeci<sup>c</sup>

<sup>a</sup>*Selcuk University, Faculty of Economic and Administrative Sciences, Phd Student, 42130, "Konya", Turkey*

<sup>b</sup>*Selcuk University, Faculty of Economic and Administrative Sciences, 42130, "Konya", Turkey*

<sup>c</sup>*Selcuk University, Silifke-Tasucu Vocational School, 33900, "Mersin", Turkey*

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## Abstract

Since its foundation EU aims to increase the number of members, to make the collaboration among its members. EU having the economic characteristics at this point has focuses its politic in some areas such as agriculture, social politics and economics. In order to arrive to its economical targets the education has been considered as instrument. In the field of education EU education cooperation initiatives carried out in accordance with economic objectives of the community. After the Second War, the knowledge, the developments in the communication technologies and the globalisation fact have played great role in the education approach of EU. According to respond the growing expectation of individuals, EU has been forced to develop education policy with quality and efficient.

Education is one of the fundamental rights of individuals. Therefore All member states perceive a need to increase the quality of their education, develop accessed to learning at all stages of life. Its clear that Life-long learning has become the basic point in EU's educational strategy. This concept includes in itself all the stages and forms of education and besides combines them.

The aim of this study was to focus on the educational policy of European Union which has the goal of maintaining collaboration and integration among the members of the union within the framework of common cultural values. And also with this study was stressed historical perspective of EU education programmes.

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*Key Words:* EU, Life-Long Learning, Education Policy, EU Educational Programmes

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## 1. The Formation of Educational Policy and the Historical Development Process of European Union

European Union was established by the six leader European countries (Germany, France, Italy, Belgium, Netherlands, and Luxembourg) after WWII firstly in order to set an economic union among them (Fontaine, 2007). EU educational policy emerges essentially by the aim of carrying out internal market obligations, depending on economic justifications (Besgul, 2013). EU started to attach importance to educational policies by noticing that it had to provide a cultural and social integration for achieving the aim of politic and cultural integration (Besgul, 2013). In this point, EU educational policy emerged from social and economic factors, and it was considered as an instrument to fulfill the demands of equality and justice in society to realize social

justice and contribute to economic growth (Fontaine, 2007). EU sees its educational policy as both a national area of activity and goal to facilitate the applications of other community activities thanks to its educational policies at the same time. On the one hand while it consolidates the harmony among the citizens of union by supporting foreign education and exchange of students and teachers and empowering EU's integration, it successfully contributes to apply the policies like community, unemployment, research, technological development, environment etc. on the other hand (Horvath, 2007).

Different cultural, historical, and political identities which the twenty-eight members have in EU bring some differences in its education systems (Kihitir, 2004). In spite of these differences among EU's member countries, while education is seen as an advantage for countries to put their own experiences forwards, knowledge appears as an advantage in terms of the development of new viewpoints by experiences and innovations are exchanged (Kihitir, 2004). That is to say, it is accepted their own

differences of every member country to bring new ideas in the Union to boost the education system into a better level. EU in this way does not try to standardize its education system ignoring these differences in its education system and insist a unique educational policy; it sets the member countries free in applying a system suitable for their own national structures on the contrary. The harmonization of education systems more than the integration is deemed significantly with regards to the future of the Union. In this point, the basic approach of the Union in the field of education is to regulate the education systems of the member countries without contradicting each other (Tuzcu, 2006). The way of minimizing the negative states that can be emerged from the present differences is to develop policies inclined towards cooperating with EU's member countries in the field of education (Charlier and Croshe, 2005).

Despite EU supports the members countries to be applied their own national systems in the general education, the policies like broadening of vocational education, forming a common policy in vocational education, passing from vertical models of education to horizontal models of education, and teaching of two foreign languages at least before completing the compulsory education are accepted as *sine qua non* conditions (Aslan, 2010).

The historical course of EU educational policies has been assessed in different intervals by different authors. We are going to evaluate it in three phases as it was discussed by Charlier and Crosh (Charlier and Croshe, 2005).

### ***1.1. Towards a Common Policy (1957-1985)***

The first official assessment about EU educational policies was made in the Article 128 of the Roma Treaty in 1957. In the Roma Treaty, emphasizing on the importance of professional education for the free movements of services and persons, it was offered to provide the nostrification of diplomas abroad to raise free movements and encourage foreign language education (Besgul, 2013). However, these assessments could not have gone beyond the idea about emphasizing on the importance of education can develop the partnership (Duman, 2002).

The politic and economic factors leading European Economic Community (EEC) to be established since 1960's necessitated to cooperate in the other areas, too. However the Community foresaw the harmonization of educational area and its discussion in the eye of the Community, several members of the Community, France in the first, kept on defending that the education systems were to be treated also in the national platforms. As a result of this dichotomy experienced, it was accepted the educational policy to be continued under the intergovernmental cooperation out of the Community (Palayret, 1994).

Because EU had no an adequate experience and technique elements on developing an educational project special and specific to the Union in 1970's, the educational policy was not interested by the members as a field (Cakir, 2010). In that period, it was usually made some suggestions by recommendations on education.

Some problems, such feeling the effects of the oil shock in 1973 closely, the stagnation in the Community, and the unemployment of young generation, consolidated a belief in the field of education could be a solution way, and it was set about the studies on the way of realizing a closer cooperation also in the area of education (Ertl, 2003; Kilic, 2009). For these reasons, as the Community had not a leading educational policy containing all its members until 1980, the studies done showed to be attached importance to education by the perception on education would be an exit way for carrying out economic goals.

The decision taken by the Commission in 1974 for the vocational education is the foundation of vocational education system. By this decision, it was highlighted the education was a national system firstly and then reached a

consensus on establishing a committee consisting of the representatives of the member states to harmonize the national systems of the member countries in the integration process rather than standardizing and coordinate the educational programmes (Karaman, 2013). With the effect of these developments, it was made the first “Education Action Plan” by the decisions of EU Commission in 1976. Under this Action Plan, it was determined as the basic aims to facilitate the transition of young people from education to business life, improve the educational possibilities of migrant employees, develop the language education, and boost the cooperation in the higher education (Karluk, 2005). On the way of carrying out these aims, the importance attached to education started to increase because both some politicians saw education as a tool for forming a European Citizenship and the Union met with an economic mistrust during this period (Ertl, 2003).

In 1980, it was established Eurydice as a network of education and information to collect and spread reliable information in Europe about education systems and policies, put it into the service of those making educational policies, and contribute to constitute common policies based on the cooperation in the Community in this way (Kilic, 2009).

Consequently, the efforts of this period were limited only with statements of opinion because both the founding treaties had not any open authority on educational policies, the member countries considered education system as their own national issue, and they wanted to keep it in their own fields. The statements of opinion about the education were seen as an instrument on the way of carrying the economic goals out as parallel to the conjuncture of that period. The problems of unemployment and economic crisis at that time led to be focused mostly on vocational education. Regarding the educational policies of higher education, there was not any statement or information because the founding treaties did not mention any authorization in these fields.

### ***1.2. The Weakening of Legal and Political Limitations (1985-2000)***

In the period 1985-2000, it was started to mention about the higher education as a part of educational policies. These educational policies in the higher education went into the field of intervention of EU Commission because vocational education is considered as a phase of preparation for professional life. The political initiatives in the area of higher education were brought in a legal status in this manner, (Kilic, 1998, cited from Lonbay).

A prominent milestone about education in the history of the Community was realized by Single European Act (1986), which stipulated the completion of a single European internal market. It was accepted the completion of Single Market, which means free movements of goods, persons, capital, and services, to be dependent on human resources of the Community and development of these people’s skills. In this way, education became a new priority to the Community members. After this development, the member states started to develop educational opportunities to establish a single market, and it was started the exchange of students and lecturers in 1987 by the EU programmes like Erasmus Programme (European Commission, 1985).

The end of the Cold War refers to a period when EU experienced a transformation into the educational policies. By the members of the Eastern Bloc contributed to the Union, it was made some regulations on the educational policies. In this manner, it was started a reform process to provide the harmonization of new members, which were attended to the Union by 1990, in the Union (Cakir, 2010).

By the Maastricht Treaty that was signed in 1992, the education officially became one of the fields of EU educational policies and achieved a legal dimension (Coorparete and Public Strategy Advisory Group, 2009). In the Treaty, it was decided to constitute an EU formation to integration for every field among the member countries of EU. By this Treaty, Education, Vocational Education, and Youth Policies were firstly brought to agenda, and the aims of EU were fixed again in this way (Horvath, 2007). With the effect of acceleration brought with the Maastricht Treaty, EU accepted “*White Paper*” in the Brussels Summit in 1993 (Cakir, 2010).

EU published “*Green Paper*” in 1993 to provide young people improve their own skills for technological and social changes and contribute to the process of production more actively, and it accepted European Youth Programme III, too. In this Paper, it was brought in agenda to suit the labor force in parallel to technological developments and systematically develop the vocational-technical education emphasizing on its importance (Tuzcu, 2006).

In 1994, the Union prepared “*White Paper*” to form a social model in Europe as a continuation of “*Green Paper*.” In this Paper, there are some subjects like freedom of employees and equality of labor force (male or female). Because considered that it has not any effect apart from reducing quality of education, it does not give a place to any kinds of

discrimination like race, religion, language, and sex; sexual apartheid in the first. In this point, it is aimed at constituting a systemic educational policy setting a direct link between removal of unemployment and formation of educational policy (Tuzcu, 2006).

EU has some problems needed to overcome while constituting its vocational and technical policy of education. One of the most important of them is the problem of unemployment ruling across EU. This state, which leads young people completing their education live problems to find a job, causes that EU needs to solve this problem firstly because of the importance attached to vocational and technical education by EU. Another matter is the sustainability of lifelong education (European Commission, 1993). EU, with its vocational and technical policy of education, which it tries to constitute, tries to form a multinational structure against problems it will possibly meet in the future. Namely, generally it is not considered the period when the vocational and technical education system is provided, but assessed as a system for students to renew their knowledge continuously when they start in business life (Tuzcu, 2006).

In this point, when the national educational structures of each member country are considered from a general perspective, diversity appears as an advantage, but it is aimed at providing an increasing cooperation and harmonization in the vocational and technical education.

Some changes foreseen by EU for the higher education systems came in on the Sorbonne Declaration, which was accepted in 1998. Under the Declaration, it was aimed at providing international exchanges of students, teachers, and academicians, keeping national and international cooperation increasingly, achieving the nostrification of diplomas, and improving the language skills. In the Declaration, it was additionally offered that the higher education programmes were regulated as *graduate* and *postgraduate* (master's degree and doctorate) at the same time (Eurydice, 2010).

The EU's studies on the educational policy gained speed by the Bologna Process started in 1999 and the Lisbon Summit made in 2000 (TEPAV, 2006). The Bologna Declaration was prepared under the framework of the Sorbonne Declaration. The process following the Declaration was assessed as "*Bologna Process*." Despite the Bologna Process is a process designed separately from EU, EU has more effects on the process because most of its members are the member of EU and it was given a special status to EU Commission in the decision-making process. By the Bologna Process, the countries began to share their experiences in comparing their higher education systems with ones in the other countries and form regional cooperation to develop solutions against similar problems in which they live collectively. The objective is to form an Area for European Higher Education with different higher education systems of Europe and provide a harmony towards establishing a competitive system for European Higher Education System (European Commission, 2006).

As a result, this time became a period of time when the educational policies got a legal dimension more separately and the founding treaties were mentioned more than the previous period. The education in this period started to be used more on the way of realizing the aims of the Union. For the scope and content of the vocational education, which was considerable emphasized on education, some steps that are more concrete were taken. "Europeanness dimension" and "Europeanness conscious" among the basic philosophies of the Community began to come into prominence besides.

### **1.3. The Period of Consolidation After 2000**

The developments under the field of education by the end of 1990's were observed to increase. In the Lisbon Strategy, which became a milestone for EU education, it was aimed at bringing EU economy in a competitive, knowledge-based, and living state in a sustainable capacity of growth. Additionally, it was highlighted that common culture to be empowered in EU enlargement process and the diversity in language necessitated cooperating in education (Tuzcu, 2006). By this Strategy, it was fixed as a basic aim to bring Europe in a dynamic, competitive, and knowledge-based economy by 2010. In order to reach this foundational objective, EU tried to put some educational possibilities forwards in the fields of education, vocational education, and lifelong education for all citizens to benefit, after EU revealed the perspective on "*Education 2010*" for arriving at this goal (TEPAV, 2006).

It can be expressed that several EU principles on educational policies as a basis such as formation of multiculturalism, movement, education for all, profession information, and openness to the world (Topsakal and Hesapcioglu, 2001, cited from Freund, 1994). These principles offered the member countries to need to work on five basic areas in the following as the Commission emphasized in the Lisbon Summit:

*Quality:* All member countries should work for increasing quality in every phase of education and vocational education systems. It includes quality in general, quality of learning process, quality of teaching process for both the young and old the adult, quality of materials for helping people's learning, and quality of present teaching materials.

*Accessed:* All member countries should work for developing the accessed to learn and improving the lifelong learning for every phase of life. Here, it was emphasized on the role played by the member countries to develop the social harmony of education systems and on being sensitive to the conditions of learners for carrying out a more responsible and attractive learning at the same time.

*Contents:* All member countries should work for reviewing the basic skills of young people who left from primary school or education, and completely integrating them into information and communication technologies. Most of the member countries underline the role of education on transferring some social values of the Community like democracy and citizenship. This is at the same time the reason under all the interpretations made by the member countries about the role of education as a whole.

*Openness:* Most countries highlight to need schools, educational centers, and universities, which are opened to the world, for guarantying the spirit of openness (transparency) for member countries, other foreign countries, Europe, and a wider space, and in this manner the activities in this matter should be increased.

*Efficiency:* Despite the member countries mention about the increments in the expenditures of human resource, they emphasize on the need of making the quality assurance in the education systems more useful and convenient and on the efficiency of things introduced. Therefore, it should be worked for the suited resources to be used at best, and investments should be rightly directed to humane and financial conditions and processes (Commission of the European Communities, 2001).

As seen in these five basic elements, it is planned to be an important phase that the member countries adapt a common system (bachelor, master's degree, and doctorate) in their own national systems to reach the determined aims in the education system by aiming at constituting a more transparent education system in Europe. In this point, in order to establish European Higher Area via the Bologna Process, it has been achieved a consensus since 2010.

In 3 March of 2010, the report on "*Europe 2020: A European Strategy for Smart, Sustainable, and Inclusive Growth*" was published. Under the report, it is emphasized the initiatives in the field of *education, vocational education, and lifelong learning* under the smart growth need to be increased and aimed at boosting the quality of education and vocational education in every level and the employment opportunities of young population. In order to decrease the unemployment of young people, it is envisioned to benefit from young people's experiences, include them in the labor market, and increase the labor possibilities (Akas and Apar, 2010).

## **2. Educational Programmes of European Union**

EU tries to carry out its educational policies by its educational programmes. Thanks to these programmes, it is planned to develop both corporate and personal cooperation among the member countries of EU. When we express it in a general perspective, we see that the educational programmes operate for providing the donation support towards activities and projects to be performed in education and youth personally and corporately for the European people. By these programmes, while individuals increase their self-confidence within responsibilities that they take, they consolidate their conscious as citizens on the other hand. It is enabled to share different experiences with people in different culture who join to the programmes in an environment of understanding and cooperation. In this way, the aims of development and integration of EU, which it tries to reach by its educational policies, will be performed by people who have a European conscious and attend to the programme activities. The efficiency and sustainability of educational programmes are tried to provide by the education is carried out in every phase of life and in the strategy called "*Lifelong Learning*."

EU states that the educational system will generally provide three basic aims to be performed in this context. Firstly, it will be provided for a person to notice his own potentiality within education and contributed to his development for achieving a happy and productive life; secondly, differences and inequalities between individuals and groups will be reduced, and the development of community will be provided; finally, the (life satisfaction) level of employees will be pushed up to a level for fulfilling the needs of business life and entrepreneurs, and the improvement of economy will be gotten in this manner (Commission of the European Communities, 2001).

EU has various educational programmes that it has put into practice since 1987. These programmes have changed and showed sustainability on the way of reaching the expectations from the educational programme and achieving more applicable examples as to periods of time.

The first educational programme of EU is the programme called “COMETT”, which was accepted in 1987. This programme was designed for encouraging consultancies and contacts between the industry and the university in EU. As for Erasmus Programme, which follows this policy, both promotes the cooperative contacts among universities and aims at student mobility (Corporate and Public Strategy Advisory Group, 2009).

The other programmes applied since 1995 are *SOCRATES I-II* (1995-2006), *LIFELONG LEARNING* (2007-2013), and *ERASMUS+* (2014-2020).

### **2.1. Socrates I-II (1995-2006)**

EU conducted its educational activities for long years under “Socrates” Programme as EU General Programme of Education with the idea that education would be a very important factor in the future of Europe (Kihir, 2004). The first period of Socrates Programme was performed in between 1995 and 1999 for five years. The total budget for the first period of Socrates Programme in 1995-1999 was fixed as 933 million Euros (European Commission, 2001).

Socrates Programme was conducted in the fifteen countries and the other countries including in *European Economic Area* (Iceland, Liechtenstein, and Norway) in between 1995 and 1999. Since 1997, the programme was opened to Hungary, Romania, Czech Republic, and Greek Cypriot State. In the beginnings of 1998, Poland and Slovakia included in the programme. In the ends of 1998, while the three Baltic countries –Lithuania, Latvia, and Estonia– attended to the programme, and in the April of 1999, firstly Bulgaria and then Slovenia joined to the programme, too. Turkey included in Socrates Programme by the decision of European Parliament and Council, which was issued in Official Journal of the European Communities (24.01.2000), and its full participation occurred in the first April of 2004 (Rencber, 2005).

The Programme contains education of all age and tries to rise up the quality of education across Europe, encouraging cooperation among countries contributing to the programme. In this point, it is managed with some reasons like improving the information about European languages, being opened to innovation in education, and supporting mobility and cooperation during education. Additionally, it is tried to do studies, benefitting from experiences of different educational systems and respecting for linguistic variety of all countries contributing to the Programme. This Programme aims at all the actors in the educational life (Karluk, 2005).

Socrates II Programme was established, assessing the experiences obtained from the first period of the Programme to be conducted in between 2000 and 2006. It was tried to increase the efficiency of Socrates Programme in this manner (European Commission, 2006). The Programme encourages studying abroad, exchanging programmes for students and teachers, learning language, exchanging information, and the best practices in all grades of education (Horvath, 2007). The total budget left for the second period of the Program for 2000-2006 is 1,850 million Euros.

Socrates II Programme consists of several sub-action programmes and activities that enable teachers and students to have an experience about more different scientific, educational, and social situations than what they have in their own country and regions (European Commission, 2004). These fields of studies under the scope of the Programme are Erasmus (Higher Education), Comenius (School Training), Grundtving (Adult Education), Minevra (Open and Distance Education), Lingua (Encouraging Learning Language), Leonardo Da Vinci (Vocational Education) Youth Programme, Tempus Programme, and Erasmus-Mundus Programmes.

When looked at the general framework of these programmes, we see that it is opened to the benefits of young and adult people almost in all grades of education. The budget of mobility and the number of people benefitting may be indicated as a success of the programme. As a matter of fact, experiencing different cultures and educational systems mutually thanks to the mobility is a significant opportunity to contribute to both individual and social development

### **2.2. Lifelong Learning Programme (2007-2013)**

In this Programme started since 2007, it is aimed at the Union to have sustainable economic development, more and better works, and develop itself as an information society for lifelong learning. It includes doing studies for

exchange and cooperation to provide quality in consolidating as an important reference point. The Programme supports the activities of the member countries and respects for their differences in the educational systems.

This Programme, which covers the years between 2007 and 2013 and has about 3 billion Euros in budget, includes 27 EU members with Liechtenstein, Iceland, and Norway. By the Lifelong Learning Programme, it is aimed at realizing a social integration, providing better opportunities of business, and forming an information society under the roof of European Union (Toygur, 2012).

The sub-actions under the Programme are the programmes of Erasmus (Higher Education), Comenius (School Training), Leonardo Da Vinci (Vocational Education), and Grundtvig (Adult Education) (Turkish National Agency Website, 2006). These programmes are established on Socrates Programme. As it has the same scope and objectives, it is aimed at developing the Programme in being benefitted from experiences and reaching a wider mass. When we look at the Programme in a general perspective, we see that thousands of people benefit from the programme and contribute to both individual and social developments. Nevertheless, it can be criticized because there are many activities in the name of lifelong learning, each of them has separate procedures, and people have difficulty in accessing. Moreover, because it has changeable grants from country to country, the contributors see the Programme as inadequate. In this point, EU should contribute to minimize the problems in the practice of programmes at least and make the programmes more simple and flexible.

### **2.3. Erasmus Plus (+) Programme (2014-2020)**

Erasmus+ Programme is an educational programme of EU that is going to be conducted between 2014 and 2020 and to take the place of Lifelong Learning and Youth Programmes. Erasmus, Leonardo da Vinci, Comenius, Grundtvig, and Youth Programmes, which were performed in 2007-2013 under the framework of *Lifelong Learning Programmes* before, are united under an umbrella programme called “*ERASMUS PLUS*.” This Programme aims at bringing people in new skills without paying attention to their ages and educational experiences, consolidating personal development, and increasing employment possibilities (Turkish National Agency Website, 2013).

EU, with Erasmus+ Programme, plans to offer solutions for the unemployment problem, which increases among young people day by day and is one of the most urgent works of European countries especially. Because the number of people dropout from primary school raises, the risk of unemployment rises up for the adults having lower skills, too. In this manner, it is considered to offer solutions against these problems by the systems of education, business and youth that show a strong and good performance, the capabilities needed to a competitive economy, and a labor market are introduced to citizens. With another word, it is aimed at developing social capital among young people, motivating young people, and encouraging them for contribution to the democratic life in Europe (European Commission, 2013).

Androulla Vassiliou, who is a member of EU Commission and responsible for education, culture, multilingualism, and youth, informs about Erasmus+ Programme, expressing, “Erasmus+ Programme enables young people to increase their knowledge and skills abroad. Despite the large part of the budget is going to be spent for individual mobility, Erasmus+ is going to establish partnerships to people’s transition from educational life to business life, modernize the education in the member countries, and support the reforms to improve quality of education” (Euroaktiv, 2013). As we see from this expression, the basic activity field of the Programme is determined as providing exchange of individuals in mutual and increasing quality of education systems.

By this Programme, it is firstly given an opportunity of low interest loan (12.000-18.000 Euros) for students who want to study in Europe for their master’s degree education. Especially, importance attached by employers to master’s degrees has become a significant factor for EU to go into action in this matter (Euroaktiv, 2013).

The Programme is opened to the benefits of 28 member countries of EU, the programme countries, which are not a member of EU (Norway, Iceland, Liechtenstein, Switzerland, Macedonia, and Turkey), the third countries (Albania, Bosnia-Herzegovina, Kosovo, Montenegro, Serbia, Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, Russian Federation, Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, and Tunis).

It is important for us to understand the changes in the educational policy of EU why EU needs a new educational programme. EU, via its educational programmes, keeps on its educational policies. One of reasons for a new attempt of programme is the end of operating period of the Lifelong Learning Programme, which was planned to apply between 2007 and 2013. EU has put a new umbrella programme forwards for this programme of which expiration date was



definite in the beginning. Another or the most important factor is interested in the strategy of growth and employment, which EU determined in its 2020 Strategy due to economic conditions. The exit point of EU in the 2020 Strategy is concerned with some structural problems and developments like globalization and climate changes in the world and the population aging in Europe. A structural transformation is aimed by the effects of these problems on EU are discussed (Akas and Apar, 2010).

One of the important concepts in the strategy is education. It was considered that the consolidation of education system would be one of the most effective ways to struggle with inequality and poverty. The most significant educational aims in the strategy were determined as realizing the lifelong learning and mobility, increasing the quality and efficiency of educational and training system, encouraging equality, social harmony, and active citizenship, and urging the efforts toward ingenuity and innovativeness in every grade of education, including entrepreneurship (Official Web Site of TR Ministry of EU, 2013). In this point, it is planned to raise the accessed of higher education up to 40% from 32% in according with the determined aims and reduce the dropout rate (before graduation) down 10% from 18%. This rate is 40% in USA, and 50% in Japan. It is among EU's indispensable aims to increase the number of student who study in the university (IKV Bulletin, 2013). Consequently, Erasmus+ Programme aims at helping people to have more and better skills with its opportunities of studying and working abroad in conformity with the 2020 Strategy of EU (Commission of European Community, 2009).

It is expressed that Erasmus+ Programme will differ from the programmes that were applied in the previous periods because it is more flexible and more accessible to programmes. It can be seen only in the future years to what extent the flexibility and accessibility will occur in practice. Nevertheless, overcoming the problems in the previous periods will increase the fertility and the efficiency of this programme that will be applied yet.

### **3.Conclusion And Suggestions**

Social and economic changes coming with globalization, and economic and politic aims that EU has since its foundation necessitate EU to cooperate with the member countries also in the field of education and to develop policies in this area. Here, the studies of EU in the field of education occur at the heart of economy, and this approach is criticized because there is not any change in practice despite a different interpretation is put in the developing process. In the same way, the idea about vocational education policies are usually expressed when EU educational policies are in question, education is introduced to the problem of unemployment as a solution, and well-learned people are more resistant on struggling with economic crisis does support this critique.

Different styles of culture, language, belief, and life, which EU has, bring the variety of educational systems with it. However, EU tries to develop its educational policies in respect for these differences. In this point, this variety is perceived as an advantage especially when looked at the general education, and EU sees as an opportunity to benefit from different kinds of culture, language, belief, and life instead of trying to make a monotype educational policy. Nevertheless, the main target in the vocational education becomes cooperation and harmonization increasingly.

It will not be a mistake to express that the reason of importance attached to the educational policies by EU is related to its problems of economic crisis and unemployment. In this context, EU tries to increase the number of individual who starts to study in higher education because EU thinks graduates from higher education are more resistant to struggle with economic crisis and more advantageous to find a job.

When we look at the EU educational programmes in general, we can say there are some deficiencies in practice despite the number of people benefitting from the programme shows that people are successful in the programme. In addition, because there are programmes more than one under the roof of a single programme and each of them has a different complex application process, the accessed of individuals to the programme becomes difficult. The inadequacy of budget, left for the beneficiaries of programme, appears as another problem. That's why, the budget left for the programmes should be increased and provided an adequate support. While the economic conditions in which EU is today do not allow to the grant increment, EU may not possibly want to make these arrangements to reach more beneficiaries. However, it can be reached the wanted targets by solving these problems and increasing the fertility and efficiency of the educational programmes in special and the educational policies in general.

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# The effect of critical thinking disposition on entrepreneurship levels: A study on future teachers

Merve Kırbaşlar<sup>a</sup>, Zeliha Özsoy-Güneş<sup>b</sup>

<sup>a</sup>*Istanbul University, School of Business, Department of Human Resources Management, Avcılar, Istanbul, Turkey*

<sup>b</sup>*Istanbul University, Hasan Ali Yücel Faculty of Education, Department of Science Education, Vefa, Istanbul, Turkey*

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## Abstract

The aim of this research is to study the relations between Critical Thinking Dispositions and entrepreneurship levels of future teachers and to evaluate them in terms of some demographic variables. Relational scanning model were used in this study. The California Critical Thinking Disposition Inventory (CCTDI) developed by Facione, Facione & Giancarlo (1998) and adapted to Turkish by Kökdemir (2003), Entrepreneurship Scale (ES) developed by Yılmaz & Sünbül (2009) were used as the data collection tool. The sample of this study is formed by 548 pre-services from Science, elementary school, mathematics, social studies Education, Department of Faculty of Education. In order to analyze the data, ANOVA, independent group t-test, Pearson correlation coefficient analysis, regression analysis were used. Between scales has been found a positive correlation. It has been seen that critical thinking dispositions have a significant effect on entrepreneurship levels. There are statistically significant differences on gender, high school and department variables in terms of CCTDI. Also, statistically significant differences were determined on grades in terms of ES.

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*Keywords:* Critical Thinking Abilities, Entrepreneurship, Future Teachers.

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## 1. Introduction

Entrepreneurship is a comprehensive concept which is an substantial element of all economies in the world. Entrepreneurs are crucial to make contributions to the nations through creating new economic activity. It strengthens competition between developed economies and has potential economic benefits for society as a whole (Soriano, 2011). Entrepreneurs procure job opportunities for the unemployed, endorse innovation and creativity. Although the origin of the term “entrepreneur” has been traced to famous economist and author Richard Cantillon in 1755, entrepreneurship is still broadly discussed by many scholars. The definition has gone beyond merely creating new businesses (Gartner, 2010) and transformed into a process of seeking opportunities which includes creative, innovative and risk taking individuals, intentions and environmental factors (Stevenson & Jarillo, 1990; McKenzie, Ugbah & Smothers, 2007). Entrepreneurism is to create a value by engendering a novelty, using creative skills or by finding a new production, service, source, technology or markets in other ways (Bird, 1989). In this context it can be seen that in entrepreneurship concept factors like: novelty, alteration, flexibility, dynamism, taking risks, creativity and focusing on improvement are affective (Korkmaz, 2000). Successful entrepreneurs possess characteristics such as desire for success, creativity, enthusiasm, risk taking, self confidence, locus of control, vision, persuasiveness, adaptability, determination, assertiveness, optimism, imagination, other motivational factors and personal values (Khan, 1986; Raposo, Do Paço & Ferreira, 2008). As it is seen, entrepreneurship requires a unique personality and a mind-set.

Decision making has gained a major significance in the age of information. The way of thinking has been debated over the years and critical thinking abilities came forward in the literature. The term critical thinking refers to the use of cognitive skills or strategies that increase the probability of a desirable outcome, evaluating the outcomes of thought

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\* Corresponding author: Merve Kırbaşlar  
E-mail address: mervekirbaslar@gmail.com

processes, how good a decision is or how well a problem is solved (Halpern, 1998). Critical Thinking can be defined as an effective, organized and operative cognitive period enabling us to improve understanding our own thoughts and others ideas and our skill to explain the opinions (Chaffe, 1994). According to various researches, evidence show that individuals are able to gain critical thinking abilities through proper guidance. Therefore, future teachers' thinking abilities can be enhanced if it is possible to consider notions such as looking for novel approaches and reject myths (Pithers & Soden, 2010).

Considering the fact that entrepreneurship has evolved from mere business meaning into creating innovative ideas and processes, teachers might also benefit from the concept. Considering all these changes, it is necessary that countries should rearrange their educational programs. In this context, in Turkey as well, the updated teaching programs encourage critical thinking, creative thinking, communication, research- questioning, problem solving, information technologies, entrepreneurship and using Turkish language correctly and effectively with an approach that puts the students in focus point (MEB, 2005). One of the basic skills in primary school programs, entrepreneurship is one of the key factors for individuals to reach information, use and apply information in new situations (Aytaç, 2006). Along with this, the entrepreneurship skills of students are related to the personal and occupational qualifications and entrepreneurship skills of their teachers (Bacanak, Ülküdür & Öner, 2012).

## **2.The Aim of the Research**

The aim of this research is to study the relations between critical thinking dispositions and entrepreneurship levels of future teachers and to evaluate them in terms of some demographic variables.

## **3.Hypotheses**

Hypothesis 1: Critical thinking dispositions levels of teacher candidates differentiate according to the varieties of gender, department, class, and graduated secondary school.

Hypothesis 2: Entrepreneurship levels of teacher candidates differentiate according to the varieties of gender, department, class, and graduated secondary school.

Hypothesis 3: Critical thinking dispositions have a significant effect on entrepreneurship Levels of teacher candidates.

## **4.Methods of the Research**

In this study, quantitative research method and relational screening model has been used.

### **4.1.Sample of the Research**

The sample of this study is formed by 548 teacher candidates from departments of science, social studies, elementary school, mathematics at Education Faculty. 167 of participants (30.5%) were from the department of science, 129 of them (23.5%) were from the department of elementary school, 143 of them (26.1%) were from the department of mathematics, 109 of them (19.9%) were from the department of social studies, 397 of the participants (72.4%) were female and 151 of them (27.6%) were male.

### **4.2.Data Collection Instruments**

Data collection tool consists of three parts. In the first part personal data such as the gender, department and graduated secondary school have been collected. Second part includes The California Critical Thinking Disposition Inventory (CCTDI-R) which is developed by Facione, Facione & Giancarlo (1998) and adapted to Turkish by Kökdemir (2003). Third part includes Entrepreneurship Scale (ES) which is developed by Yılmaz & Sünbül (2009)

The California Critical Thinking Disposition Inventory (CCTDI-R): As a data collection tool, The California Critical Thinking Disposition Inventory (CCTDI) was developed by Facione, Facione & Giancarlo (1998) and was translated

and validated in Turkish by Kökdemir (2003) has been used. Cronbach's alpha coefficient, which shows internal consistency for the dimensions of the CCTDI-R were calculated as .75 in analyticity dimension, .75 in open-mindedness dimension, .78 in inquisitiveness dimension, .77 in self-confidence dimension, .61 in truth-seeking dimension, and .63 in systematicity dimension. Cronbach's alpha coefficient of the latest scale which was translated in Turkish by Kökdemir (2003) and has six dimensions and 51 items was calculated as .88. The scale was prepared as six – point Likert scale. Six-point Likert type scale shows “totally agree” option 6, “disagree” option 1 point. Six-point Likert type scale responses were collected. Raw scores were calculated for total scale and each factor. The raw scores were divided by the number of questions. In this way, the lowest value 1, and the highest value 6 standard scores are obtained. (Kökdemir, 2003).

Entrepreneurship Scale (ES): In the study; “Entrepreneurship Scale (ES)” which is developed by Yılmaz & Sünbül (2009) to determine students' entrepreneurship levels was used as the data collection tool. The scale was prepared as five–point Likert type scale. The factor analysis of the questionnaire responses using Principal Component Analysis resulted in 36 items which loaded on one factor. Cronbach Alpha coefficient was of found to be  $\alpha=0.90$ . The minimum and the maximum score that can be taken from the scale are between 36-180. Entrepreneurship points based on the following criteria were included in the evaluation.

Points	ES Evaluation
36-64	Very low entrepreneurship
65-92	low entrepreneurship
93-123	Mid-level entrepreneurship
124-151	High entrepreneurship
152-180	Very high entrepreneurship

### 3.3. Analyzing Data

SPSS 16.00 is used to analyze the data. ANOVA, independent group t-test, Kruskal-Wallis test have been conducted to monitor the scores taken from the scales in terms of demographic varieties. PEARSON correlation coefficient analysis technique and Regression Analysis are applied in order to observe the relations between scales. In all statistical processes significance at a level of .05 has been sought.

## 5. Findings

The sample of this study is formed by 548 students from Education Faculty. In this study, the taken total The California Critical Thinking Disposition Inventory (CCTDI-R) scale score was calculated as 4.1926 . The minimum and the maximum score that can be taken from the Entrepreneurship Scale (ES) are between 36-180. In this study, the taken total Entrepreneurship Scale (ES) score was calculated as 155.4394 (Table 1).

Table 1. Distribution of scores of teacher candidates taken from CCTDI-R scale according to the factors and Entrepreneurship Scale.

Scale	X	SD	SE
CCTDI-R Scale	Analyticity	4.3595	.55778
	Open-Mindedness	3.9256	.49588
	Inquisitiveness	4.3112	.55864
	Self-Confidence	4.2242	.58454
	Truth-Seeking	4.2500	.66410
	Systemacity	4.1670	.63790
	CCTDI-R Scale Total	4.1926	.43277
ES Total Score		131.3412	20.25600

As in table 2, as a result of independent group T-test applied to define whether the scores taken from the CCTDI-R scale and factors differentiate according to the gender variable; for the CCTDI-R scale total score and all factor scores the difference between the arithmetic average of the groups have been found statistically significant. Female students' score average is significantly higher than the Male students ( $p<.05$ ). The result of independent group t-test applied to

define whether the scores taken from the Entrepreneurship Scale differentiate according to the gender variable; for the Entrepreneurship Scale total score the difference between the arithmetic average of the groups have not been found statistically significant ( $p>.05$ ).

In this study, independent groups t-test and ANOVA have been used to test the hypothesis 1 and hypothesis 2.

Table 2. The results of Independent group t-test of the scores taken from CCTDI-R scale and factors and Entrepreneurship Scale according to the gender variable of teacher candidates.

Scale	Group	N	X	SD	SE	t-test		
						t	df	p
CCTDI-R Scale	Analyticity	Female	397	4.4552	.53135	6.773	546	.000
		Male	151	4.1079	.54888			
	Open-Mindedness	Female	397	3.9652	.48780	3.048	546	.002
		Male	151	3.8217	.50351			
	Inquisitiveness	Female	397	4.3602	.54510	3.358	546	.001
		Male	151	4.1825	.57497			
	Self-Confidence	Female	397	4.2814	.56761	3.759	546	.000
		Male	151	4.0738	.60336			
	Truth-Seeking	Female	397	4.3235	.66151	4.266	546	.000
		Male	151	4.0568	.63333			
	Systemacity	Female	397	4.2338	.63007	4.034	546	.000
		Male	151	3.9912	.62680			
	CCTDI-R Scale Total	Female	397	4.2551	.41877	5.634	546	.000
		Male	151	4.0283	.42721			
	ES Total Score	Female	397	131.7582	20.10822	.781	546	.435
		Male	151	130.2450	20.66687			

As seen in Table 3 as a result of ANOVA which is done in order to determine whether the scores taken from the Profound Approach and Superficial Approach factors show a significant difference according to the department variable; for the superficial approach factor scores the difference between the arithmetic average of the group has been found statistically significant but the difference has been found to be insignificant for the profound approach factor. Following this process Post-Hoc analysis techniques are started to be applied.

After ANOVA; to determine the changes in CCTDI-R scale and factors among sub-groups, considering the department variable, LSD test has been chosen from among the post-hoc analysis techniques; because of Analyticity, Open-Mindedness, Inquisitiveness, Self-Confidence, Systemacity factors and CCTDI-R Scale group variance are homogen according to the Levene's test ( $L=1.522$ ,  $L=.735$ ,  $L=.725$ ,  $L=.565$ ,  $L=.565$ ,  $L=.859$ ,  $p>.05$ ), Tamhane test has been chosen from among the post-hoc analysis techniques; because of Truth-Seeking factor group variance are not homogen according to the Levene's test ( $L=2.856$ ,  $p<.05$ ). As a result of this test it has been stated that, Science Education students' score are significantly higher than all other department students' score for Analyticity, Inquisitiveness, Self-Confidence, Truth-Seeking Factors and CCTDI-R Scale total score, Science Education students' score are significantly higher than Elementary School and Mathematics Education department students' score for the Open-Mindedness Factor scores, Science Education students' score are significantly higher than Elementary School and Social Studies Education department students' score for the Systemacity Factor scores.

As a result of non-parametric Kruskal-Wallis test which is done in order to determine whether the scores taken from the Entrepreneurship Scale show a significant difference according to the department variable; for scale scores the difference between the arithmetic average of the group has been found to be insignificant statistically ( $\chi^2=6.525$ ,  $Sd=3$ ,  $p>.05$ ).

Table 3. The results of ANOVA applied to define whether the scores taken from CCTDI-R scale and factors differentiate according to the department variable of teacher candidates.

N, X and SD Values					ANOVA Results				
CCTDI-R Scale and Factors	Group	N	X	SD	Var. K.	SS	df	MS	F p
Analyticity	Science Education	167	4.5108	.53290	Between	6.224	3	2.075	6.883 .000

	Elementary School Education	129	4.2357	.59841	Within	163.957	544	.301		
	Mathematics Education	143	4.3070	.50262	Total	170.181	547			
	Social Studies Education	109	4.3431	.57015						
Open-Mindedness	Science Education	167	4.0120	.52300	Between	2.097	3	.699		
	Elementary School Education	129	3.8598	.49366	Within	132.407	544	.243		
	Mathematics Education	143	3.8805	.47032	Total	134.504	547			
	Social Studies Education	109	3.9304	.47528						
Inquisitiveness	Science Education	167	4.5090	.53639	Between	9.801	3	3.267		
	Elementary School Education	129	4.1860	.58369	Within	160.907	544	.296		
	Mathematics Education	143	4.2253	.50246	Total	170.708	547			
	Social Studies Education	109	4.2691	.55849						
Self-Confidence	Science Education	167	4.4055	.61541	Between	9.507	3	3.169		
	Elementary School Education	129	4.1849	.56958	Within	177.398	544	.326		
	Mathematics Education	143	4.1868	.53351	Total	186.905	547			
	Social Studies Education	109	4.0419	.54927						
Truth-Seeking	Science Education	167	4.4380	.67992	Between	10.027	3	3.342		
	Elementary School Education	129	4.1008	.64147	Within	231.213	544	.425		
	Mathematics Education	143	4.2468	.56056	Total	241.240	547			
	Social Studies Education	109	4.1429	.72765						
Systemacity	Science Education	167	4.2605	.65516	Between	3.464	3	1.155		
	Elementary School Education	129	4.0943	.64947	Within	219.120	544	.403		
	Mathematics Education	143	4.2016	.55272	Total	222.583	547			
	Social Studies Education	109	4.0642	.68377						
CCTDI-R Scale	Science Education	167	4.3392	.43846	Between	5.395	3	1.798		
	Elementary School Education	129	4.0964	.43557	Within	97.055	544	.178		
	Mathematics Education	143	4.1551	.38411	Total	102.450	547			
Total Score	Social Studies Education	109	4.1313	.42933						

As a result of ANOVA which is done in order to determine whether the scores taken from the CCTDI-R scale and factors show a significant difference according to the class variable; the difference between the arithmetic averages of the group has been found to be insignificant statistically.

As seen in table 4 as a result of ANOVA which is done in order to determine whether the Entrepreneurship Scale show a significant difference according to the class variable; the difference between the arithmetic averages of the group has been found statistically significant.

Following this process Post-Hoc analysis techniques were applied. After ANOVA; to determine the changes in Entrepreneurship Scale among sub-groups, considering the class variable, LSD test has been chosen from among the post-hoc analysis techniques; because of group variance are homogeny according to the Levene's test ( $L=1.759$ ,  $p>.05$ ).

As a result of this test it has been stated that senior students' score are significantly higher than all other class students' score for Entrepreneurship Scale total score.

Table 4. The results of ANOVA applied to define whether the scores taken from Entrepreneurship Scale differentiate according to the class variable of teacher candidates.

Group	N,X and SS Values			ANOVA Results					
	N	X	SS	Var. K.	SS	df	MS	F	p
1.Grade	161	130.0497	20.89402	Between	8955.104	3	2985.035		
2.Grade	133	128.0000	20.74009	Within	215482.083	544	396.107	7.536	.000
3.Grade	129	129.3178	18.16848	Total	224437.188	547			



As seen in table 5 as a result of ANOVA which is done in order to determine whether the CCTDI-R scale and factors show a significant difference according to the graduated secondary school variable; for scale total score and Analyticity, Inquisitiveness, Truth-Seeking factors scores the difference between the arithmetic average of the group has been found statistically significant. Following this process Post-Hoc analysis techniques are started to be applied.

After ANOVA; to determine how changed in CCTDI-R scale and factors among sub-groups, considering the graduated secondary school variable, LSD test has been chosen from among the post-hoc analysis techniques; because of Analyticity, Inquisitiveness, Truth-Seeking factors and CCTDI-R Scale group variance are homogeny according to the Levene's test ( $L=.415$ ,  $L=.537$ ,  $L=.009$ ,  $L=.208$ ,  $p>.05$ ).

As a result of this test it has been stated that, graduated public high school and anatolian high school students' score are significantly higher than graduated teacher high school students' score for Analyticity, Inquisitiveness, Truth-Seeking Factors and CCTDI-R Scale total score.

As a result, for scale scores the difference between the arithmetic averages of the group has been found to be insignificant statistically.

As a result of Pearson Multiplication Momentum Correlation Analysis, conducted to define the relations between the CCTDI-R scale and factors and Entrepreneurship Scale score have a significant positive relation (Table 6).

In order to determine whether there is a significant effect of CCTDI-R scores on entrepreneurship scale, linear regression analysis has been conducted. It has been seen that critical thinking dispositions have a significant effect on entrepreneurship levels ( $R=0.507$ ,  $R^2=0.257$ ,  $F=188.766$ ,  $p<.01$ ). According to the results, 25.7% of the variation in entrepreneurship levels is explained by the variation in critical thinking dispositions (Table 7) Therefore, hypothesis 3 is accepted.

Table 5. The results of Independent group t-test of the scores taken from SRLS scale and factors according to the gender variable of students.

		N, X and SD Values			ANOVA Results					
CCTDI-R Scale and Factors	Group	N	X	SD	Var. K.	SS	df	MS	F	p
Analyticity	Public High School	161	4.4267	.54701	Between	3.589	3	1.196	3.907	.009
	Anatolian High School	152	4.4257	.54475	Within	166.592	544	.306		
	Teacher High School	191	4.2524	.54991	Total	170.181	547			
	Others	44	4.3500	.61851						
Open-Mindedness	Public High School	161	3.9705	.51786	Between	.980	3	.327	1.331	.264
	Anatolian High School	152	3.9474	.47089	Within	133.525	544	.245		
	Teacher High School	191	3.8914	.51022	Total	134.504	547			
	Others	44	3.8352	.42244						
Inquisitiveness	Public High School	161	4.3658	.57409	Between	4.715	3	1.572	5.151	.002
	Anatolian High School	152	4.4057	.55049	Within	165.992	544	.305		
	Teacher High School	191	4.1885	.52540	Total	170.708	547			
	Others	44	4.3182	.59164						
Self-Confidence	Public High School	161	4.2724	.61400	Between	1.836	3	.612	1.799	.146
	Anatolian High School	152	4.2707	.57241	Within	185.069	544	.340		
	Teacher High School	191	4.1750	.54912	Total	186.905	547			
	Others	44	4.1006	.64669						
Truth-Seeking	Public High School	161	4.3301	.65839	Between	3.605	3	1.202	2.751	.042
	Anatolian High School	152	4.3073	.66738	Within	237.634	544	.437		

	Teacher High School	191	4.1488	.65479	Total	241.240	547		
	Others	44	4.1981	.67445					
Systemacity	Public High School	161	4.1843	.64269	Between	.615	3	.205	
	Anatolian High School	152	4.2061	.62028	Within	221.969	544	.408	
	Teacher High School	191	4.1326	.62933	Total	222.583	547		.502
	Others	44	4.1174	.72388					.681
CCTDI-R Scale Total Score	Public High School	161	4.2456	.43980	Between	2.093	3	.698	
	Anatolian High School	152	4.2463	.41946	Within	100.356	544	.184	
	Teacher High School	191	4.1172	.42633	Total	102.450	547		3.783
	Others	44	4.1408	.43949					.010

Table 6. Pearson Multiplication Momentum Correlation Analysis Results conducted to define factors relations of the scales.

CCTDI-R scale and Factors	Entrepreneurship Scale
Analyticity	$r=.286(**)$
Open-Mindedness	$r=.323(**)$
Inquisitiveness	$r=.441(**)$
Self-Confidence	$r=.452(**)$
Truth-Seeking	$r=.456(**)$
Systemacity	$r=.387(**)$
CCTDI-R scale	$r=.507(**)$

Table 7. Analysis Results related to entrepreneurship levels

Model	B	Std Error	$\beta$	T	P	r
Constant	.885	.202		4.380	.000	
CCTDI-R scale	.659	.048	.507	13.739	.000	.507
R=0.507		R <sub>2</sub> =0.257				
F <sub>(1,546)</sub> =188.766		P=0.000				

## 6.Results

It has been seen that the teacher candidates included to the research have very high entrepreneurship levels with the score of 155.4394. One of the sub-problems of the research is whether there is a differentiation on entrepreneurship levels and critical thinking dispositions according to the varieties of gender, department, class, and graduated secondary school. The statistical evidence shows that on the CCTDI-R scale total score and all factor scores the difference between the arithmetic averages of the groups have been found statistically significant. Female teacher candidates' score average is significantly higher than the male teacher candidates.

On the other hand, for the Entrepreneurship Scale total score the difference between the arithmetic averages of the groups have not been found statistically significant in terms of gender. Furthermore, for critical thinking dispositions scale total score and all factors scores, the difference between the arithmetic averages of the group has been found statistically significant. Science Education students' score are significantly higher than all other department students' score for Analyticity, Inquisitiveness, Self-Confidence, Truth-Seeking Factors and CCTDI-R Scale total score, Science Education students' score are significantly higher than Elementary School and Mathematics Education department students' score for the Open-Mindedness Factor scores, Science Education students' score are significantly higher than Elementary School and Social Studies Education department students' score for the Systemacity Factor scores. This might show the differences between methods and perspectives of those disciplines.

Another important result is that senior students' score are significantly higher than all other class students' score for Entrepreneurship Scale total score. It might be interpreted into the awareness of employment opportunities as students approach to graduation.

It has been stated that, graduated public high school and Anatolian high school students' score are significantly higher than graduated teacher high school students' score for Analyticity, Inquisitiveness, Truth-Seeking Factors and CCTDI-R Scale total score.

As we argued before, the results show that there is a correlation between critical thinking dispositions and entrepreneurship levels of teacher candidates. Also, there is evidence that critical thinking dispositions have a significant effect on entrepreneurship levels.

For further research, other variables related to entrepreneurship levels might be examined. Additionally, teacher candidates in various disciplines might be included to further investigations.

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**Article Title : The Effect of Educational Context on Affective Characteristics at Korean Students based on TIMSS Mathematics Results**

**Presentation Type: Video Presentation**

**Sangwook Park**(Research Fellow, Korea Institute for Curriculum and Evaluation)

**Jaok Ku** (Research Fellow, Korea Institute for Curriculum and Evaluation)

Korean students have shown high achievement on mathematics through international achievement tests such as Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS). However, their affective domains, such as interest, self-efficacy, and value recognition, in the mathematics subject were ranked last among countries. It has been required to make a plan to progress students' affective characteristics in the mathematics subject.

In this paper, the effects of educational contexts on students' affective domains (interest, self-efficacy, and value recognition) in mathematics subject were statistically analyzed and reported. Grade 8 Korean students in TIMSS 2011 were selected and Hierarchical Linear Model (HLM) was used for statistical data analysis. The results showed that the number of books at home, home resources, parents' interest on study, attitude toward to school, class participation, years of teacher career, frequency of homework, and application of homework affected on students' affective domains, positively. On the other hand, teacher satisfaction and no experience of bullying affected on students' affective domains, negatively. The affective characteristics of male students are higher than those of female students in mathematics.

# The effect of gender and socio-economic status of students on their physics conceptual knowledge, scientific reasoning, and nature of science understanding

\*Ömer Acar<sup>a</sup>, Ayşe Büber<sup>a</sup>, Zehra Tola<sup>a</sup>

<sup>a</sup>Kocaeli University College of Education, Umuttepe, İzmit, Turkey

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## Abstract

We examined the effect of gender and socio-economic status of Turkish 8<sup>th</sup> graders on their conceptual knowledge, scientific reasoning, and nature of science (NOS) understanding. Results showed females performed better than males on physics conceptual knowledge test. However no difference between males and females was found for scientific reasoning and NOS understanding. Besides high SES students performed better than low SES students on scientific reasoning and NOS test. No physics conceptual knowledge difference was found between low and high SES students. Implications for science education were discussed according to these findings.

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*Keywords:* Gender, socio-economic status, conceptual knowledge, scientific reasoning, nature of science

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## Introduction

Factors affecting students' science achievement have been a concern in science education. Self efficacy (Lawson et al., 2007), prior knowledge (Acar, 2014a; Coletta & Phillips, 2005; O'Reilly & McNamara, 2007; Yenilmez, Sungur, & Tekkaya, 2006), and scientific reasoning (Johnson & Lawson, 1998) have been found to affect science achievement. Besides these factors, students' SES explained more of the science achievement variance in an international assessment (The Organisation for Economic Co-operation and Development, 2013). In addition it was found that females perform better than males on topics related to biology (Alparslan, Tekkaya, & Geban, 2003; Yenilmez et al., 2006) however this case turns to reverse on topics related to physics (Cavallo, Potter, & Rozman, 2004).

In Turkey, females perform better than males in science (Bursal, 2013; Milli Eğitim Bakanlığı, 2013). Moreover high SES students perform better than low SES students (Milli Eğitim Bakanlığı, 2013). Although gender and different SES groups' science achievement differences have been studied in Turkey, paucity of study exists in the literature which examined the effect of these factors on student nature of science understanding and scientific reasoning. Furthermore although gender conceptual knowledge differences were examined in biology related topics (Alparslan et al., 2003; Yenilmez et al., 2006), few study exists which examined this issue in physics related topics. To close these gaps in the literature, this study examined the effect of student gender and SES on their physics conceptual knowledge, nature of science, and scientific reasoning. Following research questions were sought for this aim:

R.Q.1. Are there any gender differences in physics conceptual knowledge, nature of science, and scientific reasoning?

R.Q.2. Does student SES has an effect on their physics conceptual knowledge, nature of science, and scientific reasoning?

## **Method**

### *Research Context and Participants*

This study was conducted in an industrial city in Turkey. Two school regions were selected for the aim to categorize students under different SES groups. One of these regions was in a suburban area. Families residing in this region were mostly emigrants from other cities and had low SES. The other region was in an urban area. Families in this region, on the other hand, mostly had high SES. Two 8<sup>th</sup> grade classes from each region were selected. Although 96 students participated in this study, only students who completed all the instruments used in this study remained in the final sample. As a consequence a total 26 8<sup>th</sup> grade students in low SES region and 20 students in high SES region constituted the final sample. 20 students were female and 26 students were male.

### *Instruments*

#### *Conceptual knowledge test*

This test was used to assess 8<sup>th</sup> graders conceptual knowledge about sound, heat and temperature, matter states and heat, electricity in our life, and natural processes. Since this test was administered before students were instructed about these concepts, it assessed students' prior knowledge about these concepts. There were 17 multiple choice items in the test. Several items were selected from different student study books. Other items were constructed by the researchers. Science teachers participated in this study examined the test for content validity before the study took place. Student responses were coded as 1 if they answered an item correct otherwise they were coded as 0.

#### *Scientific reasoning test*

This test was originally developed by Lawson (1978). In its original form, there were questions about conservation of mass, control of variables, proportional reasoning, correlational reasoning, and probabilistic reasoning. Questions related to hypothetical reasoning were included in a modified version (Lawson, 2000). There were 24 items in the test. This version of the test was translated to Turkish by the first author and an expert from Teaching English as a Second Language department edited any vague statement in this translation. Students' responses were coded as 1 if they answered a question correct otherwise they were coded as 0.

#### *Nature of science test*

Bora (2005) used selected items from nature of science (NOS) test developed by Aikenhead and Ryan (1992) to examine NOS understandings of high school teachers and students. This modified version was used in this study to assess 8<sup>th</sup> graders' NOS understanding. There were 25 multiple choice items in the modified version. Each item's multiple choices were rated by scientists for their relation to contemporary understanding of NOS as realistic, acceptable, and insufficient in Bora's (2005) study. We adopted this coding in the present study. Accordingly, multiple choices that were defined as realistic were coded as 3, acceptable were coded as 2, and insufficient were coded as 1.

## Results

### *R.Q.1. Is there any gender differences in conceptual knowledge, nature of science, and scientific reasoning?*

To test the first research question, analyses of variances (ANOVA) was performed for physics conceptual knowledge, scientific reasoning, and nature of science understanding separately. In these analyses, gender was the independent variable. According to the result of the first ANOVA, conceptual knowledge scores between females and males differed significantly ( $F_{(1, 44)} = 12.65, p = .00$ ). This result means that females performed better than males on physics conceptual knowledge according to the mean scores seen in Table 1. According to the result of the second ANOVA, scientific reasoning performances of females and males were similar ( $F_{(1, 44)} = 1.69, p = .20$ ). Finally the result of the last ANOVA showed that females and males did not differ significantly on NOS scores but the difference got closer to .05 significance level ( $F_{(1, 44)} = 3.15, p = .08$ ).

Table 1. Descriptive statistics of female and male students on study measures

	Conceptual Knowledge		Scientific Reasoning		Nature of Science	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Females*	8.20	2.04	8.95	3.09	50.30	3.34
Males**	6.35	1.50	7.73	3.21	48.42	3.71

\*n=20, \*\*n=26

### *R.Q.2. Does student SES has an effect on their conceptual knowledge, nature of science, and scientific reasoning?*

An ANOVA was performed separately for each study measure to examine the second research question. In these analyses, SES type was the independent variable. Result of the first ANOVA showed that low and high SES students did not differ on conceptual knowledge scores ( $F_{(1, 44)} = 1.46, p = .23$ ). On the other hand, second ANOVA's result showed there was a statistical difference between these groups on scientific reasoning scores ( $F_{(1, 44)} = 7.13, p = .01$ ). If we examine the mean scores in Table 2, this result means that high SES group students scored higher than low SES group students. A final ANOVA was performed on NOS scores. The result showed low and high SES group students' NOS scores were different from each other ( $F_{(1, 44)} = 5.89, p = .02$ ). This result suggests that high SES group students scored higher than low SES students on NOS test according to the mean scores at Table 2.

Table 2. Descriptive statistics of low and high SES students on study measures

	Conceptual Knowledge		Scientific Reasoning		Nature of Science	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Low SES*	6.85	1.95	7.23	2.70	48.15	3.44
High SES**	7.55	1.96	9.6	3.32	50.65	3.48

\* n=26, \*\*n=20

## Discussion

According to the results females performed better than males on physics conceptual knowledge test but both genders scientific reasoning and NOS scores did not differ. In addition, high SES students outperformed low SES students on scientific reasoning and NOS tests but not on physics conceptual knowledge test. Result regarding females' conceptual knowledge advantage over males is consistent with the results of previous research conducted in Turkey (Alparslan et al., 2003; Yenilmez et al., 2006). Since scientific reasoning is a good predictor of science achievement (Johnson & Lawson, 1998) and no gender difference was found on this measure, we can be hopeful to expect similar science achievement between males and females in the future. In fact, fostering argumentation in science classrooms can reduce the conceptual knowledge gap between males and females (Acar, 2014b). Our result regarding NOS understanding relation to students' SES is alignment with the finding of Bora (2005). We recommend including more instructional activities regarding scientific reasoning and NOS understanding in science classrooms

for low SES students to enhance their science achievement. On the other hand, low and high SES students' physics prior conceptual knowledge seems to be similar because they may be exposed to similar information about these concepts before the formal science instruction.

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# The effect of group work on the self-efficacy of social work students

Özlem CANKURTARAN ÖNTAŞ<sup>a</sup>, Melike TUNÇ TEKİNDAL<sup>b</sup>.

<sup>a</sup>Associate Professor, Department of Social Work, Hacettepe University Faculty of Economics and Administrative Sciences. Beytepe Campus, 06800, Çankaya, Ankara, Turkey.

<sup>b</sup>Research Assistant, Department of Social Work, Hacettepe University Faculty of Economics and Administrative Sciences. Beytepe Campus, 06800, Çankaya, Ankara, Turkey.

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## Abstract

The oldest social work education institution of Turkey is Hacettepe University Department of Social Work. One of the most important goals of the Theory of Social Work 2 course given in this department is to improve the application skills of students. Thus, a group work is conducted with voluntary students throughout this course where the instructor functions as a facilitator. In this group work, students are expected to develop an insight and self-awareness of themselves. The present study aimed at determining the effect of group work on the self-efficacy of the 2<sup>nd</sup> grade students receiving social work education. The group work was constructed on the basis of creating awareness for them to know themselves. Therefore, the pretest-posttest comparison group design was employed. The general self-efficacy scale was used as the pretest tool and the posttest tool. Based on the said design, 46 students (12 people constituting the in-group and 34 people constituting the out-group) were included in the study. A group work lasting 6 weeks was conducted with the in-group. The out-group, on the other hand, only observed the group work, and took notes. Then the differences between the scores obtained by the in-group members before the group work and the scores obtained by them after the group work were examined, and the differences between the in-group and the out-group score averages before and after the group work were analyzed.

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**Keywords:** Group work, social work, self-efficacy, quantitative research

## 1. Introduction

Group work is one of the important intervention methods in the application of social work. It involves such skills as helping one another, strengthening people, and understanding people despite differences (Gougeon, 2002), and provides various advantages including but not limited to empathy, feedback, hope-instilling, mutual assistance, normalization, socialization, social support, and approval (Toseland and Rivas, 2009). Besides such advantages, the inclusion of social work students in self-knowledge oriented group work is of big importance for the development of their insight and self-awareness.

Insight and self-awareness intended to be developed via group work may affect the self-efficacy of students. Self-efficacy is described as people's beliefs in their capabilities to produce given attainments in specific contexts (Bandura, 1977, 1986). According to Bandura (1997), self-efficacy, which is cognitive in nature, is open to effects and change to be introduced by knowledge. Efficacy expectations provide a gap for the prediction of formation, development, generalization, and permanence of the coping behavior. General self-efficacy, on the other hand, refers to a person's belief in his/her capability to cope with stressful and difficult life events in general (Scholz and Schwarzer, 2005). They

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\* Corresponding author. Tel.: +90 312 297 63 62/343; fax: +90 312 297 63 65.  
E-mail address: meliketunc@yahoo.com.tr

are also defined as an individual's general confidence in view of new situations which s/he encounters in various fields and are unusual or difficult to cope with (Scholz, Gutierrez-Dona, Sud and Schwarzer, 2002).

Raising awareness and acquiring insight may be dynamics of the group work and affect one another due to in-group and out-group effects. Thus, the performance of the group work with students in a protected and safe environment may enable students to express themselves more comfortably. For that reason, awareness-raising efforts on the basis of self-knowledge may encourage students to develop more effective coping strategies. This is because; according to the research findings provided by Luszczynska et al., while high general self-efficacy beliefs were mostly associated with the selection of effective coping strategies (planning, seeking for knowledge, having a positive attitude towards the problem, etc.), low general self-efficacy beliefs were mostly related to passive coping behaviors (self-condemnation, interrupting and doing nothing behavioral, etc.) (Luszczynska et al., 2005). As can be understood from the definition of self-efficacy, individuals may cope with the different life events they encounter and produce solutions for them only by knowing themselves.

In consideration of the foregoing, the present study aimed at determining the effect of the group work constructed on the basis of self-knowledge on the self-efficacy of the 2<sup>nd</sup> grade students receiving social work education.

## **2. Method**

The pretest-posttest comparison group design was employed in the current study. The general self-efficacy scale was used as the pretest tool and the posttest tool. Based on the said design, 46 students (12 people constituting the in-group and 34 people constituting the out-group) were included in the study. A group work lasting 6 weeks was conducted with the in-group. The out-group, on the other hand, only observed the group work, and took notes. The group sessions took averagely 90 minutes each week.

The group process was constructed as follows;

1<sup>st</sup> Session: The group members introduced themselves, and group rules were determined. In this session, the group members were asked to add a concept to their names, and the reasons for the selection of such concepts were discussed. The aims of participation in the group and the expectations from the group were touched upon.

2<sup>nd</sup> Session: The previous session was evaluated, and the sculpture & animal activity was conducted in order to reveal the perspectives of the group members on themselves. Each group member performed the animal or sculpture s/he desired. Then discussions were made on why the group members selected such animals or sculptures, what they felt when performing such animals or sculptures, and how related such animals or sculptures were with them.

3<sup>rd</sup> Session: The previous session and its effects on the group members were evaluated. The paper pieces prepared by the group facilitator that were in different colors and forms and were not fit for any specific pattern were chosen by the group members. Then discussions were made on why the group members selected such pieces. In addition, whether they were able to choose immediately or they had difficulty in choosing was addressed. The name "group turtle" was given to the group.

4<sup>th</sup> Session: The previous session was evaluated. In this session, the group became integrated. The integrity of the group manifested itself especially when the members not participating in the group felt themselves incomplete. Thus, the "sailing" activity was conducted. Everyone performed whomever they wanted on board. Then the ship sank. This scenario questioned what the group members did and why they did so. The activity was aimed at seeing group belonging and integrity in particular.

5<sup>th</sup> session: The previous session was evaluated, and the thoughts of the group members on the group until the 5<sup>th</sup> session were discussed. This session aimed to concentrate on the importance of building confidence with the group members. Thus, the "confidence walk" activity was conducted with the group members. In this activity, two people walked in group. One of them closed his/her eyes, and the other one guided. Then they changed sides. By this means, the students were enabled to notice what guiding and walking with closed eyes made them feel.

6<sup>th</sup> session: Firstly, the group members were asked to create a sculpture with the participation of all members. Then

discussions were made on why the related sculpture was created. Later the final evaluations of the group members were requested. Finally, the group members were asked to explain what they felt in the group work process, what kind of characters they noticed in themselves, and what they thought about the group as a whole.

### 2.1. Data collection tool

The “General Self-efficacy Scale” (GSE), which was developed by Schwarzer and Jerusalem (1995) and whose Turkish validity and reliability study was carried out by Aypay (2010), was used in the present study in order to measure general self-efficacy. This scale has been adapted to more than 25 languages. Based on the examination of the psychometric characteristics included in its versions in more than 25 languages, it is highlighted that general self-efficacy is a universal structure (Scholz et al., 2002). In the scale, low score refers to low self-efficacy, and high score refers to high self-efficacy.

### 2.2. Data analysis

The differences between the scores obtained by the in-group members before the group work and the scores obtained by them after the group work were examined, and the differences between the in-group and the out-group score averages before and after the group work were analyzed.

The statistical software SPSS version 17 (Statistical Package for Social Sciences, Version 17, Chicago IL, USA) was used for calculations. All values presented as mean  $\pm$  standard deviation and mean (Maximum- Minimum) percent and frequencies. Repeated measures of analysis of variance was analysed by Mauchy's sphericity test and Box's Test of Equality of Covariance Matrices. For comparisons of means of repeated measures Repeated Measures Analysis of Variance was used. If parametric tests (factorial design for repeated measures analysis) does not provide the preconditions, Greenhouse-Geisser (1959) correction or Huynh-Feldt (1976) correction was used for corrections to the Degrees of Freedom. The Corrected Bonferroni test was used for multiple comparisons.  $p$  values  $< 0.05$  were considered statistically significant.

## 3. Findings and Results

This section presents the findings and the results of the current study. Table 1 presents the self-efficacy score analysis of the in-group and the out-group.

**Table 1. The analysis of the in-group and out-group self-efficacy scores**

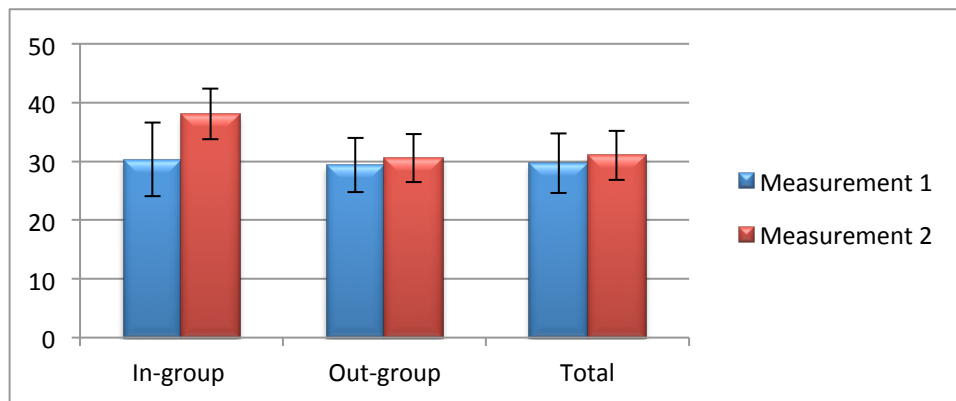
	Mean $\pm$ SD Median (Min-Max)	Mean $\pm$ SD Median (Min-Max)	Interaction p Self-efficacy score*group	Difference between measurements p
	Measurement 1	Measurement 2		
In-group	30.33 $\pm$ 6.26 29.5 (21-39)	38.08 $\pm$ 4.3 32 (24-38)	0.540	0.025*
Out-group	29.38 $\pm$ 4.6 30 (18-40)	30.58 $\pm$ 4.1 31 (22-40)		0.024*
Inter-group Difference p	0.603	0.312		
Total	29.68 $\pm$ 5.1 30 (18-40)	31.05 $\pm$ 4.2 31 (22-40)		

\* $p < 0.05$

When the in-group and the out-group are considered, it can be said that the variation in self-efficacy scores through the group work was not statistically (interaction effect) significant ( $p = 0.540$ ). However, when the groups are not

considered, it can be said that a statistical increase occurred in the self-efficacy scores through the group work ( $p < 0.05$ ).

The variation in the score can be seen better in the figure below.



**Fig. 1. Self-efficacy measurements belonging to the in-group and the out-group**

According to the Fig. 1, there was a significant difference (increase) between the pretest (Measurement 1) and posttest (Measurement 2) scores. While the self-efficacy score average of the in-group increased from 30.33 to 38.08, the self-efficacy score average of the out-group rose from 29.38 to 30.58. In addition, since the score difference between the in-group and the out-group was casual, the highness of the score average of the in-group was not significant in comparison to the out-group.

To sum up, the group work constructed on the basis of raising awareness for self-knowledge affected the self-efficacy of both the in-group and the out-group, and increased the self-efficacy score average of the entire class.

Among the main objectives of the Theory of Social Work 2 course are improving the application skills of students and making them develop insight and self-awareness through group works. In this sense, the course achieved its objective through the group work, and enabled not only the in-group members but also the entire class to make progress in terms of self-efficacy.

In the light of the research results, it is safe to say that group works on the basis of self-knowledge may have a positive effect on the self-efficacy levels of the students receiving social work education. Therefore, self-knowledge groups should be designed in social work education in particular, and it should be made sure that each student takes part in the self-knowledge group until graduation. In this way, professionals and scientists with an insight of themselves and a developed self-efficacy may be cultivated.

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# The effect of learning styles of accounting education students on their performance: a field study

Yusuf Polat<sup>a</sup>, Ali Aykut PEKER<sup>b</sup>, Rabia Özpeynirci<sup>c</sup>, Haluk Duman<sup>d</sup>

<sup>a</sup>Aksaray Universtiy, Instutie of Social Sciences, Aksaray – 68400, Turkey

<sup>b</sup>Aksaray University, Ortaköy Vocational High School, Aksaray – 68400, Turkey

<sup>c</sup>Karamanoglu Mehmetbey Universtiy, Faculty of Economics and Administrative Sciences, Karaman – 68400, Turkey

<sup>d</sup>Aksaray Universtiy, Faculty of Economics and Administrative Sciences, Aksaray – 68100, Turkey

## Abstract

In the accounting education process, theoretical - practical information is taught as a whole. In this period in which several teaching methods such as cooperative learning, discussion, case studies and so on, are used, the methods are being shaped as educational factor and just one or several of these methods can be used together. The learning style concept is defined in literature as an individual way chosen in analyzing and comprehending. The learning styles are innate and it affects the people's learning process. It is how a person learns than what a person learns. In this context, the students' success is related directly with the right learning style. So the aim of the study is measuring the influence of learning styles over the students taken accounting courses. Therefore a questionnaire will be applied to the students of ASU FEAS and the data collected will be analyzed with SPSS package program. With the results, we aim bringing out the inventory of students' learning styles and the performance relations.

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1. *Keywords:* Muhasebe Eğitimi, Kaygı.

## Introduction

The data needed for implementing the activities efficiently in the businesses is produced by the information system. One of the most important information system is the accounting information system. The financial information produced by accounting information system is used by the inner or outer users and it has a significant role for the deciding process. So the quality of personnel work in accounting department has a great importance for taking advantage of the information. In this aspect, the accounting education is hived off the educations of other disciplines (Carland, Carland, & Dye, 1994).

The accounting education is comprised of theoretical accounting education and applications. With the globalization and rapidly evolving technology, the accounting applications become very important. Theoretical structure of accounting and the education quality of accounting applications are related to the learning style adopted by the student as well as instructive, course material etc. (Adler, Whiting, & Wynn-Williams, 2004).

The learning is a process that includes continuous and permanent changes which occur in the attitudes of people by repetition or experience (Seven, Bağcivan, Kılıç, & Açikel, 2012). The people gains knowledge, skills, attitudes and values via learning. In normal conditions, everyone who is mentally health has the learning ability, but this process is fast and easy for some while it is slow and difficult for some others (Topuz & Karamustafaoğlu, 2013). In this context, it can be said that the method and process of each individual is different. At this point, it is known that the learning style determines how a student fulfill his learning action (speaking, listening, writing, symbolizing, memorizing etc.). The learning style is a consistent and characteristic approach about a person's perception, processing, editing and interpretation of the stimulants surrounded him (Özbaş, 2013).

The concept of learning style was emerged for the first time in 1960 by Dunn and after this there have been so many works about it (Durukan, 2013). The learning style is a continuous and constant style that shows how a student react to

the stimulants and how a student use the stimulants in the learning process (Claxton & Ralston, 1978) and it is an obtaining and processing information style which starts with the learner's focusing on a new and difficult data (Dunn, 2001), and a method preferred by individually while comprehending and processing data (Kolb, 1984), and a learning situation formed by people according to perception capability (Gregorc, 1984). Considering the descriptions, it can be seen that there are different variables in the learning styles. By adhering the variables, different learning styles has been developed. The most familiar and popular ones are Kolb's "Learning Styles Inventory", Gregorc's "Information Systems Model", "Learning Styles Inventory" developed by Dunn and Dunn, "Learning Styles Model" developed by Honey and Mumford and which is used in this study.

Mumford declined that people cannot learn new knowledges if there are no aims for them and different people pursue different objectives for learning (Duff & Duffy, 2002). Considering this definition, we can say that there are four learning styles according to the inventory of learning style developed by Honey and Mumford (1992) who inspired from Kolb's "Learning Style Theory":

1. **Activist:** They decide intuitively and enjoy acquiring new experinces. They dislike restricted works. Their learning capability is limited in the passive activities such as listening or reading and they relatively fulfill learning via fleeting activities.
2. **Theorists:** They don't rely on intuitions or emotions, they consider importance to the rationality and systematic functionality. The learning becomes more difficult without a pattern or plan. The efficiency of learning will increase if they place whatever they has learnt into a theory, draft, plan, or pattern framework. They enjoy associating the observations with a conceptual model.
3. **Pragmatists:** They enjoy taking risk, discussing with a group, acting practically, approaching realistically. They cannot show patience for working with a group or discussing endlessly. They believe the principles such as "everytime there is a better way to do" or "it is good if it works".
4. **Reflectors:** They are used to observing the processes, comprehending the results and inferring a meaning. Listening at the background and participating in the activities that they can observe are according to them. Their learning level is low if there is no opportunity for planning.

The learning styles are as in the figure below according to Kolb and Honey and Mumford:

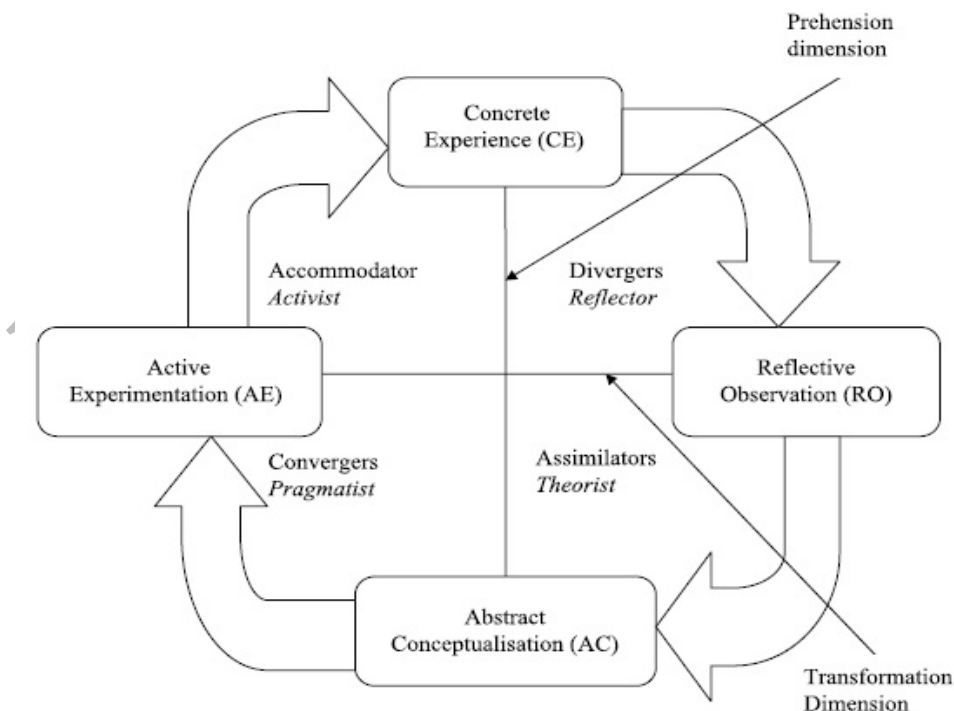


Figure 1: The Learning Style Model of Kolb and Honey and Mumford



Source: McChlerya & Visserb, 2009.

According to Honey and Mumford, in case of learning activities, it is excepted that an individual prefer one of four learning styles above. Being known of these preferences can be used in matching the style to which an individual tends with the education activities. Learning accounting can be convert from boring and difficult way to entertaining and easy way.

### 1.Literature Review

In this chapter, we refer the knowledge from the academic works over accounting education and learning styles of accounting.

In McChlerya and Visserb (2009)'s study, there is a research over comparing the learning styles of the English students with South African students. Fedler's learning styles are used as data collection tool. The findings show that the students have different learning styles and the teacher who own strength or weakness of the learning styles must design the learning activities according to the styles.

Guyen and Kurum (2004) were implemented a theoretical study over the relationship between the learning styles and the critical thinking. They clarified that the features of learning styles and critical thinking are directed increasing the individual and communal development of the individuals and both concepts are similar in that aspect.

Bilgin and Durmus (2003) examined the relationship between the learning style and students' success. Grasha's learning style scala was used as data collection scala. In the study implemented in two different schools, they found no significant relationship between the learning styles of the students, but they appointed that the students who adopted the learning styles were more successful than others.

In the study by Seven et al. (2012), it was aimed examining the learning styles and success in the courses bu using Kolb's learning style inventory. They found that the learning styles of the students didn't affect the academical success.

In the study of Novin, Arjomand and Jourdan (2003), they examined in the learning styles of the students studied at the accounting, marketting, management and other departments of the business administration. In the study Kolb's learning styles was used and as a result they pointed out that the case of noticing the students' learning styles by educator can increase the efficiency and productivity.

Duff (2004) analyzed the role of the cognitive learning styles in accounting education. The work which is a kind of literature review at the studies about the learning styles underlines that the learning ability of the students will develop if the educators comprehend cognitive learning styles.

In her study, Senyuva (2009) aimed to examine the learning styles in terms of class, school, department and so on. Senyuva used Kolb's "Learning Styles Inventory" and she ascertained that all learning styles must be regarded when arranging the teaching-learning process.

Swanson, Heath and Edmiston (2005) investigated the effect of the learning styles over students' performance in accounting courses. The results shows that knowing the learning styles has a positive effect on the learning.

### 2.Research

#### 2.1.Scope and Methodology

The research includes the students of Aksaray University (ASU) Faculty of Economics and Administrative Science. The students of the public administration, economics, and management information systems departments exclude from the research in that they don't study the accounting sufficiently.

Survey questions as tool of data collection adapt from "The Learning Styles Inventory" developed in 1992 by Honey and Mumford. The research data was collected from the students of Aksaray University Business Administration via the questionnaire method. The collected data was analyzed by SPSS 20 package program.

Table 1. Reliability Coefficient	
Number of Polls	243
Number of Questions	80
Alpha	0.755

The reliability coefficient which is applied to all surveys is determined as 0.755. This figure means the reliability of the survey is pretty good.

## 2.2.Purpose

The aim of the study is determining the learning styles which adopted by the students of ASU at accounting education and examining the relationship between these styles and the performance of the students.

## 2.3.Findings and Analysis

The frequency values of demographic data concerning the research universe are shown at Table 2:

Table 2. Demographic Research Findings of the Universe

	Frequency	Percent(%)		Frequency	Percent(%)
<b>Gender</b>			<b>Age</b>		
Male	90	37,0	17-21	184	51,3
Female	153	63,0	22-26	171	47,6
			27 and over	4	1,1
<b>District Inhabited By Family</b>			<b>Planned Career Field</b>		
Marmara	24	9,9	Banking and Finance	66	27,2
Ic Anadolu	109	44,9	Self-Employed	13	5,3
Akdeniz	62	25,5	Public-Employed	90	37,0
Dogu Anadolu	6	2,5	Marketing	14	5,8
Guney Dogu Anadolu	12	4,9	Entrepreneur	23	9,5
Karadeniz	6	2,5	Financial Advisors	25	10,3
Ege	22	9,1	Others	11	4,5
<b>Description By Students About Cultivation</b>			<b>State of Having Anxiety</b>		
Village or Borough	37	15,2	Have	140	57,6
County Town	62	25,5	Don't Have	27	11,1
City Centre (Medium Size)	56	23,0	Partly Have	76	31,3
Metropolitan	88	36,2			
<b>Class</b>					
1st Grade	103	42,4			
2nd Grade	44	18,1			
3rd Grade	70	28,8			
4th Grade	26	10,7			

Table 1 provides the data of % 63 of the participants are female and %37 of the participants are male and %44,9 of the participants are from Ic Anadolu District. The %57,6 of the students have career concerns about future and %31,3 of it has partly career concerns. It can be read from the table that the career planning of the students intensify over the public sector with a rate of %37 and %27,2 of the students make career plan about banking and finance.

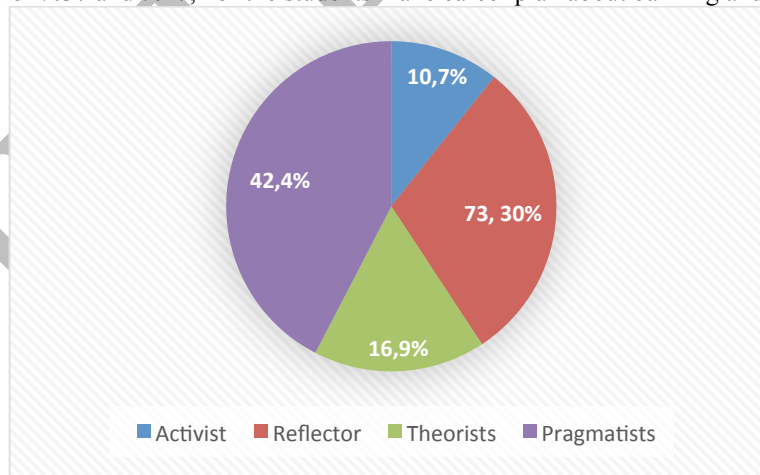


Figure 2. The Learning Styles Adopted by the Participants

The learning styles adopted by the students considering the collected data are constituted as Figure 2. As we look at the Figure 2, it is obvious that %42 of the participants internalize Pragmatist learning style, % 30 are Reflector learning style, %17 are Theorists learning style and %11 are Activist learning style. So it affects the choices of students towards public sector as a professional career depending upon the career anxiety over their learning styles. Because there is less

risk at the public sector, and the conditions are better than the private sector. Whereas the private sector has a theoretical structure which provides practical solutions to the problems. It demonstrates that there is a relationship between their personal and professional development and the education taken by the students, the learning styles adopted by the students, the future plans about their career.

Table-3 Frequency, Percentage and Standard Deviation Values Concerning Learning Techniques Applied by Students for Accounting

Learning Techniques Applied By Students	Absolutely Important-Important		Not Sure		Absolutely Not Important - Not Important		n:243
	f	%	f	%	f	%	$\bar{x}$
I learn the lesson when instructor lecture it.	185	76.1	29	11.9	29	11.9	1.14030
I learn the lesson when I study myself.	204	84	32	13.2	7	2.8	0.79945
I learn the lesson when my friend lecture it.	169	69.5	47	19.3	27	10.8	1.03490
I learn the lesson when we study with a group of friends.	127	52.3	61	25.1	55	22.6	1.17538

Table 3 provides that the students learn better when they work themselves or the instructor lectures it. It is observed the students consider it is least useful when they work with a group of friends. The students' judgment of adopting pragmatist learning style (%42) who don't join to the group works supports this finding.

Table-4 Frequency, Percentage and Standard Deviation Values Concerning Factors That Make Accounting Courses Productive

Factors That Make Accounting Lessons Productive	Absolutely Important-Important		Not Sure		Absolutely Not Important - Not Important		n:243
	f	%	f	%	f	%	
	$\bar{X}$						
Personal knowledge, interest and talent	206	84.8	24	9.9	13	5.4	0.94088
The overall success of a high level of class	115	47.3	50	20.6	78	32.1	1.24759
Lecturing the course efficiently and effectively by the instructor	210	86.4	20	8.2	13	5.3	0.97955
Physical facilities in schools; library, internet and so on.	148	60.9	44	18.1	51	21	1.24918
Being educational theory supported by the practice	197	81.1	23	9.5	23	9.5	1.12799

As we look at Table 4, it is shown that the students attribute the productivity of accounting courses firstly to lecturing effective and efficient by instructor and then to the personal information, interests and abilities and at the same time to supporting the theory with practice. Also it can be seen that there is a majority of considering that the success of the class has no influence on the efficiency of accounting courses.

The relation between the gender and the learning styles adopted by the students are compared by the data collected from the participants. In this context, the hypotheses are following:

**H<sub>0</sub>:** Learning styles and gender are independent.

**H<sub>1</sub>:** Learning styles and gender are not independent from each other.

Table – 5 Test Results of Gender Chi - Square of Independence and Learning Styles

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,365a	3	,010

Analyzing Table 5, it is observed that the value of Pearson Chi – Square is lower than 0.05 and so H<sub>0</sub> is refused. Therefore it can be said that there is a relationship between the gender and the learning styles. In that context, several factors such culture, family, values of society lived in, environmental factors, education etc. have influence on adopting the learning styles. So, it can be considered as reasonable that the male students adopt the activist learning style in the male dominated society; and female students adopt a logical and systematic learning style which she can share the risk and acts as a group.

Table – 6 Learning Styles / Gender crosstabulations

		Male	Female	Total
Learning Styles	Count	17	9	26
	% within Learning Styles	65,4%	34,6%	100,0%
	% within Gender	18,9%	5,9%	10,7%
	% of Total	7,0%	3,7%	10,7%
	Count	17	24	41

	% within Learning Styles	41,5%	58,5%	100,0%
	% within Gender	18,9%	15,7%	16,9%
	% of Total	7,0%	9,9%	16,9%
	Count	33	70	103
Pragmatists	% within Learning Styles	32,0%	68,0%	100,0%
	% within Gender	36,7%	45,8%	42,4%
	% of Total	13,6%	28,8%	42,4%
	Count	23	50	73
Reflector	% within Learning Styles	31,5%	68,5%	100,0%
	% within Gender	25,6%	32,7%	30,0%
	% of Total	9,5%	20,6%	30,0%

Table 6 provides the data of female students adopt pragmatist, theorist and reflector learning styles. And it can be said that male students adopt activist learning style more than female students.

The relation between the success level and the learning styles adopted by the students are compared by the data collected from the participants. In this context, the hypotheses are following:

**H<sub>0</sub>:** Learning styles and success level are independent from each other.

**H<sub>1</sub>:** Learning styles and success level are not independent from each other.

Table 7. Test Results of Chi - Square of Independence Between Learning Styles and Success Level			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35,492a	3	,000

Analyzing Table 5, it is observed that the value of Pearson Chi – Square is lower than 0.05 and so H<sub>0</sub> is refused. Therefore it can be said that there is a relationship between the success level and the learning styles.

Table – 8 Learning Styles / Success Level crosstabulations					
		Successful*	Unsuccessful	Total	
Learning Styles	Activist	Count	12	14	26
		% within Learning Styles	46,2%	53,8%	100,0%
		% within Success	8,4%	14,0%	10,7%
		% of Total	4,9%	5,8%	10,7%
	Theorists	Count	19	22	41
		% within Learning Styles	46,3%	53,7%	100,0%
		% within Success	13,3%	22,0%	16,9%
		% of Total	7,8%	9,1%	16,9%
	Pragmatists	Count	83	20	103
		% within Learning Styles	80,6%	19,4%	100,0%
		% within Success	58,0%	20,0%	42,4%
		% of Total	34,2%	8,2%	42,4%
	Reflector	Count	29	44	73
		% within Learning Styles	39,7%	60,3%	100,0%
		% within Success	20,3%	44,0%	30,0%
		% of Total	11,9%	18,1%	30,0%

\* The students are agreed as successful who has the CC and over points according to Aksaray University, Associate Degree, Bachelor of Education and Article 21 of Examination Regulations.

As we look through the Table 8, it is obvious that the success level in the pragmatist learning style which is most adopted by the students is %80,6 which is a high rate. Examining other learning styles, it is noticeable that the students who adopt activist, theorist or reflector learning styles and who are unsuccessful at the same time are more than the successful students as amount. It can be seen that the highest level of unsuccessfulness in the learning styles is belong to reflector learning style with a %60,3.

### 3.Conclusions and Recommendations

Totally 243 questionnaires has been done on the business administration students of ASU FEAS so that ascertaining the reasons for anxiety of learning accounting and the results are following:

- It is set that there is a relationship between learning styles and academic achievement. But it is seen from the data that students adopted pragmatist learning style are just successful.
- The learning styles and gender factors are not unconnected from each other. It can be seen that female students prefer mostly pragmatist learning styles.
- It is obvious that the students don't prefer studying with a group of friends and they don't consider that the success of the class aren't dependent the mean of class success. The results support the idea that the students adopted pragmatist learning style don't prefer joining in the group works.
- It can be inferred from the results that most of the students adopt pragmatist learning style. But results show also that in the education process there are the students who adopt different learning styles not the students who adopt just one learning style.

Every individual in a society learn in different ways and they adopt a suitable learning style considering their abilities. Knowing the best learning style for him supports the learning power (Duff, 2004). In this context, the changes in the attitudes of the students studied by the learning style are following (Veznedaroğlu & Özgür, 2005):

- A positive significant increase in attitudes about teaching,
- An increase in adopting attitude to what is different from themselves,
- An increase in academical success,
- A positive development in behavior in the classroom and discipline
- More internal discipline in completing their homework,

In light of these results, it is necessary that informing the instructors and students about the learning styles and arranging the education environment by the instructors considering four different styles not just most adopted one and determining the teaching methods, approaches and educational materials by the instructors considering all learning styles and using them efficiently.

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# The effect of pedagogical formation courses upon the professional self-efficacy perception of pre-service teachers

Hakkı Kontaş<sup>a</sup>, Mehmet Demir<sup>b</sup>.

*Adiyaman University, Faculty of Education, 002040, Adiyaman, Turkey*

*Adiyaman University, Faculty of Education, 002040, Adiyaman, Turkey*

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## Abstract

The purpose of this study was to determine the effect of pedagogical formation courses upon the professional self-efficacy perception of pre-service teachers. The study was carried out through the participation of 29 pre-service teachers having pedagogical formation training in Adiyaman University Educational Faculty in 2013-2014 academic year. This study was carried out in single-group pre-test and post-test model as one of the pre-experimental designs. In the study, profession of teaching professional self-efficacy scale was used as the pre-test. Cronbach Alpha Reliability Coefficient calculated for overall scale was found as .92. The scale included totally 27 items including the sub-dimensions of instructional design, teaching enhancement, teaching evaluation and professional development. At the end of six-week pedagogical formation training, the same measurement instrument was performed to the pre-service teachers as the post-test. In analysis of the data, arithmetic average and dependent-groups t-test were performed. As result of the research, it was determined that pedagogical formation courses had a significant effect upon developing the professional self-efficacy perception of pre-service teachers.

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*Keywords:* Teaching profession, professional self-efficacy, pre-service teachers

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## Introduction

Through the emergence and development of education as a science, professional teaching knowledge started to gain importance; and the necessity for the individuals to have special knowledge and skills for teaching appeared (Erden, 1998). When teaching process is considered, the responsibility is mostly taken over by the teachers. The reason for this is the necessity of reflecting new educational applications under changing conditions and the strong effect created by teachers upon shaping the learning process of their students through the academic activities they carry out (Wang & Walberg, 1994). For that reason, pre-service teachers and teachers that will raise next generation should be educated in a qualified way and they should be guided well in accordance with specific purposes during their education. In order to actualize this, professional development of teachers is needed in subjects such as instructional planning, practice, and evaluation through planned studies. Pedagogical formation courses are provided in order to have these features. In order to be a successful teacher, pedagogic formation, self-confidence, and adequate knowledge related to how teaching will be created are necessary (Lin & Tsai, 2000).

It has been mentioned that the teachers responsible for teaching are required to have some competences upon fulfilling their responsibilities (Gordon, 2010). The leading of these is self-efficacy. When the conditions of teaching profession are considered, the teachers should struggle with different conditions and cope with different problems. The belief of professional self-efficacy is essential upon coping with these situations (Bandura, 1997).

Self-efficacy is one of the fundamental concepts revealed by Bandura (1997) as the social learning theoretician and

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\* Corresponding author. Tel.: +90 532 285 83 63; fax: +90 416 223 14 26

E-mail address: hakkikontas@hotmail.com

suggested to be efficient upon behavior. According to Bandura, the belief of self-efficacy is the belief of an individual towards practicing the capacity into a given behavior or behaviors (Bandura, 1997; Zimmerman, 1995). Self-efficacy is a product, a result of individuals' judgments related to what they can do using their own skills, a perception of their own self related to their capacity and ability of achieving a specific activity, and their own belief, judgment (Senemoğlu, 2013). This judgment creates a great effect upon teacher's intra-class behaviors, instructional planning, practicing, evaluation, and motivation (Adu & Olantundun, 2007; Akiri & Ugborugbo, 2009; Allinder, 1995; Hoy & Spero, 2005; Woolfolk, Rosoff & Hoy, 1990). Because self-efficacy perception of teachers proves their own capacity or the ability of actualizing their own courses successfully (Ashton, 1984).

Council of Higher Education (YÖK) restructured Educational Faculties in 1998 in order to provide teachers to reveal their own capacities and actualize their courses successfully. As result of this restructuring, total credit of professional teaching knowledge courses was increased up to 36, and total course hours were increased up to 48. Through this regulation, it was aimed to develop more professional practicum of pre-service teachers. In this perception, it was also proposed for the ones that have been graduated from arts and science faculty but assigned as teachers after having pedagogical formation training to obtain 36-credit professional teaching knowledge courses. Pedagogical Formation refers the curriculum including courses related to teaching profession provided within the framework of Ministry, and cooperation of Ministry and Council of Higher Education. Within the framework of this curriculum, pre-service teachers are trained with the courses of introduction to teaching profession, development psychology, teaching-learning theories and approaches, assessment and evaluation, program development and teaching, classroom management in the first term, and with instructional technologies and material design, special teaching methods, guidance and counselling and teaching practice in the second term (YÖK, 1998).

When the literature was analysed, there have been several studies related to self-efficacy beliefs (Gömleksiz & Serhatlıoğlu, 2013; Taşkın & Hacıömeroğlu, 2010; Demirtaş, Cömert & Özer, 2011) and perceptions of teachers (Kurt & Ekici, 2013; Coşkun, Özer & Tiryaki, 2010; Ülper & Bağcı, 2012). However, there has been no study revealing the effect of pedagogical formation courses upon the pre-service teachers' perception of professional self-efficacy. For that reason, this experimental study that was carried out upon pre-service teachers trained with pedagogical formation has been considered to provide contribution for the literature.

### **1. The purpose of the study**

The purpose of the study was to analyze the effect of pedagogical formation courses upon pre-service teachers' perception of professional self-efficacy. In accordance with this purpose, answers to the questions below were sought:

1. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers?
2. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the instructional design sub-dimension of pedagogical formation courses?
3. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the teaching enhancement sub-dimension of pedagogical formation courses?
4. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the teaching evaluation sub-dimension of pedagogical formation courses?
5. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the professional development sub-dimension of pedagogical formation courses?

### **2. Methodology**

In this research, single-group pre-test post-test design as one of the semi-experimental designs was used. In single group, pre-test post-test design, the independent variable is performed to a randomly selected group. Both pre-test and post-test measurements were performed. The symbolic appearance of the model was as below:



G1 is O1.1 X O1.2.

G1: Research group, O1.1: First measurement (pre-test), X: independent variable (educational activity), O1.2: second measurement (post-test)

If  $O1.2 > O1.1$  in the model, this is accepted as to be arisen from the implementation of X, and the evaluation is administered considering this (Karasar, 2005). In order to analyze the change in self-efficacy perceptions of the pre-service teachers, "Profession of Teaching Professional Self-Efficacy Scale" (PTPSES) was performed as pre-test to 29 students at the beginning of the term. Totally 144-hour pedagogical formation courses including 24 hours per week were provided to pre-service teachers for six weeks. The content of these courses were determined in accordance with the curriculum specified by YÖK for Educational Faculties. "Profession of Teaching professional self-efficacy scale" was performed as pre-test at the beginning of the term and as the post-test at the end of the term to the pre-service teachers. After this measurement, it was searched whether the courses pre-service teachers received created a change upon their perception level of self-efficacy.

### 2.1. Participants

The study group of the research included 29 (16 females, 13 males) pre-service teachers graduated from arts and science faculty history department having pedagogical formation training at Adiyaman University Educational Faculty in 2013-2014 academic year. Purposive sampling method was used for selecting the study group. In such kind of sampling, the researcher uses his/her own judgment about who will be selected, and the ones deemed as appropriate by the researcher are included into sampling (Balci, 2004). For that purpose, the appropriateness of study group is decided considering their absenteeism and their carrying on teaching profession or not.

### 2.2. Instruments

The research data were obtained through "Profession of Teaching Professional Self-Efficacy Scale" (PTPSES) developed by Konaş & Demir (2014). The scale included 27 items and four sub-dimensions on five-point likert type. The first sub-dimension was "instructional design" (13 items), the second sub-dimension was "teaching enhancement" (6 items), the third sub-dimension was "teaching evaluation" (4 items), and the first sub-dimension was determined as "professional development" (4 items). The highest score that could be obtained from the scale was 135, and the lowest was 27. Whereas Cronbach Alpha Reliability Coefficient calculated for the whole scale was found as .92, it was .90 for instructional design dimension, .83 for teaching enhancement dimension, .70 for teaching evaluation dimension and .73 for professional development dimension.

### 2.3. Data Analysis

For this study, arithmetic mean was used for the analysis of data; dependent group t-test, Cronbach Alpha reliability, and eta-squared effect size were used for testing the significance of difference between the averages.

### 2.4. Experimental Process

The research was carried out in a six-week (each week 24 hours) time period. After the pre-test implementation, the pre-service teachers in the study group were trained with the courses of introduction to teach, development psychology, teaching-learning theories and approaches, assessment and evaluation, program development and teaching, classroom management, instructional technologies and material design, special teaching methods, guidance and counselling and teaching practice courses within the scope of pedagogical formation. At the end of this instructional process, the same measurement scale was performed to pre-service teachers as post-test.

## 3. Results

In this section, the findings obtained in accordance with the purposes of the research were included. T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale were presented in Table 1.

**Table 1.** T-test results of pre-service teachers' professional self-efficacy pre-test and post-test average scores

Measurement	N	$\bar{X}$	S	Sd	t	p	$\eta^2$
Pre-test	29	102.52	9.34	28	3.63	.001	.19
Post-test	29	113.17	10.63				

When Table 1 was analyzed, pre-test score averages of pre-service teachers related to their professional self-efficacy perceptions were calculated as  $\bar{X}=102.52$ , and post-test score averages were calculated as  $\bar{X}=113.17$ . In post-test, total score averaged were noticed to be increased. It was found according to the t-test result that the difference between score averages was significantly higher in favor of post-test ( $t=3.63$ ,  $p<.05$ ).

Effect size ( $\eta^2$ ) was analyzed in order to determine to what extent pedagogical formation courses affected the self-efficacy perception of the pre-service teachers. The effect size value related to the pedagogical formation courses was determined to be .19 in overall scale. According to the criteria specified by Karasar (2005), this value was interpreted as a broad effect size. It was understood that 19% of the positive change in professional self-efficacy perception levels of pre-service teachers was arisen from the pedagogical formation courses.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale instructional design sub-dimension were presented in Table 2.

**Table 2.** T-test results of instructional design sub-dimension pre-test and pos-test average scores

Measurement	N	$\bar{X}$	S	Sd	t	p
Pre-test	29	51.55	5.07	28	2.16	.039
Post-test	29	54.76	5.75			

When Table 2 was analyzed, whereas pre-test score averages of pre-service teachers related to the "instructional design" sub-dimension was  $\bar{X}=51.55$ , post-test score averages were found as  $\bar{X}=54.76$ ; and score averages were noticed to be increased in post-test. It was found according to the t-test result that the difference between score averages was significantly higher in favor of post-test ( $t=2.16$ ,  $p<.05$ ). It could be mentioned related to instructional design sub-dimension that pedagogical formation courses received by the pre-service teachers caused this difference. This finding proved that pedagogical formation courses had a significant effect upon increasing the instructional design perceptions of pre-service teachers. In other words, pedagogical formation courses can be mentioned to provide contribution upon development of pre-service teachers in instructional design dimension.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale teaching enhancement sub-dimension were presented in Table 3.

**Table 3.** T-test results of teaching enhancement sub-dimension pre-test and post-test average scores

Measurement	N	$\bar{X}$	S	Sd	t	p
Pre-test	29	23.28	3.25	28	1.82	.080
Post-test	29	24.86	2.80			

When Table 3 was analyzed, whereas pre-test score averages of pre-service teachers related to the "instructional design" sub-dimension was  $\bar{X}=23.28$ , post-test score averages were found as  $\bar{X}=24.86$ ; and score averages were noticed to be increased in post-test. It was found according to the t-test result performed whether the difference was significant or not that the difference was not significant ( $t=1.82$ ,  $p>.05$ ). Teaching enhancement is closely related with

the process of gaining professional experience. Among the pedagogical formation courses, instructional technologies and material design, special teaching methods and teaching practice courses were determined to have a significant affect upon pre-service teachers' gaining professional experience. The aforementioned courses were provided in the second-term after the post-test implementation.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale professional development sub-dimension were presented in Table 4.

**Table 4.** T-test results of professional development sub-dimension pre-test and post-test average scores

Measurement	N	$\bar{X}$	S	Sd	t	p
Pre-test	29	14.69	1.02	28	7.17	.000
Post-test	29	17.83	2.02			

When Table 4 was analyzed, whereas pre-test score averages of pre-service teachers related to the “instructional design” sub-dimension was  $\bar{X}=14.69$ , post-test score averages were found as  $\bar{X}=17.83$ ; and score averages were noticed to be increased in post-test. It was found according to the t-test result performed to determine whether the difference was significant or not that the difference between score averages were significantly higher in favor of post-test ( $t=7.17$ ,  $p<.05$ ). It could be mentioned related to teaching evaluation sub-dimension that pedagogical formation courses received by the pre-service teachers caused this difference. This finding proved that pedagogical formation courses had a significant effect upon increasing the teaching evaluation perceptions of pre-service teachers. In other words, pedagogical formation courses can be mentioned to provide contribution upon development of pre-service teachers in teaching evaluation dimension.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale teaching evaluation sub-dimension were presented in Table 5.

**Table 5.** T-test scores of teaching evaluation sub-dimension pre-test and post-test scores

Measurement	N	$\bar{X}$	S	Sd	t	p
Pre-test	29	11.00	1.81	28	3.07	.005
Post-test	29	12.14	1.55			

When Table 5 was analyzed, whereas pre-test score averages of pre-service teachers related to the “professional development” sub-dimension was  $\bar{X}=11.00$ , post-test score averages were found as  $\bar{X}=12.14$ ; and score averages were noticed to be increased in post-test. It was found according to the t-test result performed to determine whether the difference was significant or not that the difference between score averages were significantly higher in favor of post-test ( $t=3.07$ ,  $p<.05$ ). It could be mentioned related to professional development sub-dimension that pedagogical formation courses received by the pre-service teachers caused this difference. This finding proved that pedagogical formation courses had a significant effect upon increasing the instructional design perceptions of pre-service teachers. In other words, pedagogical formation courses can be mentioned to provide contribution upon development of pre-service teachers in teaching evaluation dimension.

#### 4. Conclusion and Discussion

Important results were concluded at the end of this study. It was concluded that there was significant difference between pre-test and post-test total score averages in all scale with which self-efficacy perceptions of pre-service

teachers were determined. This obtained result has a quality supporting the results of some research results. In this perception, Kurt & Ekici (2013) mentioned that there was a statistically significant difference between the pre-test and post-test scores of the overall scale in which instructional process self-efficacy perception levels of the pre-service teachers were determined. It could be noticed in this research that teaching profession courses had a significant effect upon the professional development of teachers. Because it was concluded that the difference between pre-test and post-test average scores of professional self-efficacy scale professional development sub-dimension was significant. Kutluca, Birgin & Çatlıoğlu (2007) concluded in their study that the course of planning and evaluation in teaching as one of the pedagogical formation courses provided contribution upon individual, professional and social development of pre-service teachers, and helped their learning; moreover, this finding proved the finding in our study.

It was also concluded that there was a significant difference between the pre-test and post-test average scores of teaching profession, professional self-efficacy scale instructional design and teaching evaluation sub-dimensions. It was noticed that there was no significant difference between the pre-test and post-test score averages in profession of teaching professional self-efficacy scale teaching enhancement sub-dimension.

When the results obtained from the study were analyzed, it was understood that pedagogical formations courses were efficient upon increasing the professional self-efficacy perceptions of the pre-service teachers. Furthermore, effect size ( $\eta^2$ ) was analyzed in order to determine to what extent pedagogical formation courses had effect upon the professional self-efficacy perception of the pre-service teachers. The effect size value related to pedagogical formation results was determined to be .19. It was understood that 19% of the positive change in professional self-efficacy perception levels of pre-service teachers was arisen from the pedagogical formation courses. When the literature was reviewed, the study carried out by Wagler (2007) supported this finding. Wagler mentioned that teaching competence belief of pre-service teachers had significant difference between pre-test and post-test at the end of the practical pedagogical formation courses and their self-efficacy levels developed positively. In this perception, when the effect of pedagogical formation courses upon the self-efficacy perception levels of pre-service teachers was analyzed, the effect size values related to the practiced pedagogical formation courses were determined to be ( $\eta^2=.172$ ) in overall scale. These values expressed a high effect. Because the effect size of 0.01 was defined as small, 0.06 as medium, and 0.14 as large.

Consequently, pedagogical formation courses created a positive effect upon raising pre-service teachers and developing their professional self-efficacy perceptions. In this perception, the effect created by the pedagogical formation courses should be analyzed separately for developing the self-efficacy perceptions of teachers. The experimental studies that will be carried out in that perception should be supported through qualitative studies.

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# The effect of physical fatigue on short-term memory

Asuman Şahana\*, Alparslan Ermana, Sebahat Meneka

*School of Physical Education and Sports, Akdeniz University, Dumlupınar Avenue 07058 Campus Antalya, Turkey*

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## Abstract

The purpose of the study is to examine the acute effect of physical fatigue on short-term memory. 25 university students in total, as being 6 females (with an average age of  $21,57 \pm 1,59$ ) and 10 males (with an average age of  $21,72 \pm 1,48$ ), had participated voluntarily in the study. Following collection of rested heart rates (HR) of all the participants, Numerical String Learning Test (NSLT) and then an exercise with 90% load on treadmill had been applied 5 minutes later. Right after the applied exercise, NSLT had been applied for the second time, and the results of both test scores had been compared. As per the results of statistical analysis performed, a statistically significant difference had been determined in between the NSLT scores of all the group ( $p < 0,05$ ) prior to ( $17,48 \pm 3,79$ ) and after ( $14,88 \pm 5,5$ ) fatigue. According to these results, it can be said that physical fatigue generating as the result of running exercise performed at maximal intensity has negative effect on short-term memory.

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**Key Words:** Physical fatigue, Memory, Numerical String Learning Test, Short-Term Memory

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## 1. Introduction

The term memory is a very comprehensive term, and it covers many different skills and abilities (Leana, 2009). The memory is the function of assessment, processing, coding, storage in mind and recalling –when required- of learned information and experiences (Öktem, 1992, Yıldız, 2008). Short-term memory is the memory which can only be measured with seconds or at most minutes unless converted to long-term memory. It is described as being able to keep in mind the 7-10 figures of a phone number (or 7-10 specific articles) for a few seconds and minutes only by continuously thinking or verbally repeating them (İşgüzar, 2010). Memory and learning are cognitive functions. In some of the previous studies while it had been specified that exercise had facilitated cognitive functions or that it was beneficial, in some other studies it had been specified that exercise had harmful effects on cognitive functions or had no effect at all. It is very difficult to compare these studies. Because, the period and intensity (high or medium intensity etc) of the exercise and the applied cognitive tests had differentiated considerably. The researchers had specified that the low or high intensity of exercises had different effects on cognitive functions. They had also specified that the level of fitness was also significant in determining the effect of intense physical exercise (Antunes, 2006).

Generally fatigue is being defined as decrease in performance level depending on the decrease of force and power generated by a muscle (Pekünlü, 2012). It had been indicated that the performance loss -obtained in studies relevant to fatigue- could arise from changes occurring at any phase of neural pathway which is being assessed as factor of central nervous system or at neuromuscles, or that it could arise from negative changes affecting the contractile process of skeleton's muscle cells. Under the light of this information, in order to better understand the definition, the fatigue arising by the changes in neural pathway had been named as central, and the performance loss arising as the result of changes in muscle cell had been named as peripheral fatigue (Korkmaz, 2010).

The purpose of this study is to examine the acute effect of maximal running exercise performed on treadmill on short-term memory -among cognitive functions- through NSLT test for the effect of fatigue in young people.

## 2. Material and Methods

### 2.1. Participants

Twenty five university students -as being 6 females and 19 males- who were  $21,68 \pm 1,47$  years old, whose heights were  $177,56 \pm 9,083$  cm and who perform regular sports activities had voluntarily participated in the study.

### 2.2. Test procedure

In the study, the rested Heart Rate (HR), Perceived Difficulty Degrees (PDD) during maximal exercise and 90% HR had been recorded. Prior to test, polar watches had been provided to all the participants after providing information regarding test protocol and borg scale, and their rested heart rates had been determined. 90% HR values of the participants had been calculated by using the karvoven formula. NSLT had been applied to all the participants prior to exercise, and their points had been recorded. And then they had performed heat-up run on the treadmill for 5 min with a speed of 6km/h. After the heat-up run, the test had been started with 8km/h and 2% inclination. The km/h speed had been increased by 2 with two minutes intervals, and the inclination had been increased by 1% with one and a half minute intervals. The % of inclination had been determined as at most 6%. The PDD values had been asked to participants at times when HR reached 90%, and they had been recorded. It had been continued with the exercise until the HR values had reached and got fixed at 90%. NSLT had been applied for a second time on the participants right after the completion of exercise on treadmill, and the obtained results had been recorded.

**Numerical String Learning Test 9:** The Numerical String Test had been developed in 1943. NSLT measures the memory and learning ability. The test is sensitive against temporal area, hippocampus and other limbic system structures. There are 3 units of numerical strings in NSLT 9. The strings consist of figures from 1 to 9, and a figure is being referred only once in a specific string. The place of figure in the string had been determined randomly. The test is realized individually in a silent room. NSLT 9 form is applied to subjects who are under the age of 65 and who had been educated after high school. Any of the strings in the form in subject is selected. The serial number of the determined string (1, 2 or 3), and the figures in the string are written at relevant places in the entry form. The numerical string written on the entry form is told as to provide one figure in a second. 1 second after the completion of string, it is commanded for the subject to start. The figures told by the subject are written at the relevant place on entry form. If the subject corrects any of the figures s/he had told, the newly provided figure is entered on the entry form. The accuracy of the provided figures is immediately determined. The trials continue until the subject repeats the string correctly for 2 consecutive times. At most 12 trials are performed in this manner.

**Scoring of Test:** 2 points is provided to the subject for trials in which all figures of the string is correctly repeated. 1 point is provided for trials in which only one figure is incorrectly repeated. 0 point is provided for all the other conditions. When two adjacent figures are replaced, it is deemed as two faults, and 0 point is provided for such conditions. The obtained points are written at the relevant place on entry form. The type of fault (skipping the figure, replacing it with another figure, replacing adjacent figures etc) is specified. In the implementation of NSLT, the test is concluded when the subject correctly repeats the string for 2 consecutive times. In such a case, 2 points are provided for each trial including 12<sup>th</sup> trial following the trial in which the string is correctly repeated for the 2<sup>nd</sup> time and which is not applied to the subject. The points obtained from 12 trials are summed up, and the total point is calculated. The value is written at the relevant place on entry form. The highest point possible to be obtained is: 24. Approximate application period is: 15 minutes (Demir, 2012).

**Perceived Difficulty Degree (Borg Scale):** The participants of the study had been briefly informed regarding Borg Scale prior to the start of test. It had been required for the volunteers to provide a figure in between 0-10 during exercise in order to measure their fatigue degree, and the data had been entered on the computer environment.

**Heart Rate:** The % values of heart rates had been calculated with the following formula.

Maximal Heart Rate=  $220 - \text{age}$

Karvoven HR% =  $x\% (\text{Maximal Heart Rate} - \text{Rested Heart Rate}) + \text{Rested Heart Rate}$ .

### 2.3. Statistical method:

The descriptive statistical analyses of the whole group and their distribution had been considered. Kolmogorov Smirnow analysis had been used in order to determine the homogeneity of data. Wilcoxon test had been used in the pretest-posttest comparisons, and Mann Whitney U test had been used in the comparison of two groups.

### 3. Results

The purpose of the study is to examine the effect of physical fatigue on short-term memory.

**Table 1: Descriptive features of subjects.**

N	Age (years) M±S.D.	Height (cm) M±S.D.	Weight (kg) M±S.D.
<b>Whole Group (n= 25)</b>	<b>21,68±1,48</b>	<b>177,56±9,08</b>	<b>72,36±11,04</b>
<b>Female (n= 6)</b>	<b>21,57±1,59</b>	<b>167,50±8,46</b>	<b>58,17±8,77</b>
<b>p</b>	<b>0,75</b>	<b>0,00*</b>	<b>0,00*</b>
<b>Male (n= 19)</b>	<b>21,72±1,48</b>	<b>180,74±6,76</b>	<b>76,84±7,27</b>

**Table 2: Differences in between females and males.**

N	HR M±S.D.	90% PULSE M±S.D.	PDD M±S.D.	NSLT (pre-test) M±S.D.	NSLT (post-test) M±S.D.	NSLT(pre- posttest) M±S.D.
<b>Whole Group (n= 25)</b>	<b>71,32±10,05</b>	<b>186,54±2,58</b>	<b>7,20±1,19</b>	<b>17,48±3,79</b>	<b>14,88±5,50</b>	<b>0,01*</b>
<b>Female (n= 6)</b>	<b>73,33±9,24</b>	<b>186,73±1,53</b>	<b>6,50±0,83</b>	<b>16,17±2,99</b>	<b>14,33±4,63</b>	<b>0,53</b>
<b>p</b>	<b>0,41</b>	<b>0,19</b>	<b>0,11</b>	<b>0,27</b>	<b>0,61</b>	
<b>Male (n= 19)</b>	<b>70,68±10,45</b>	<b>186,48±2,87</b>	<b>7,42±1,21</b>	<b>17,89±3,98</b>	<b>15,05±5,85</b>	<b>0,01*</b>

**HR:** Heart Rate, **PDD:** Perceived Difficulty Degree, **NSLT:** Numerical String Learning Test

As seen on Table 2, the performance of short-term memory had been negatively affected following maximal loaded exercise applied with similar intensity on female and male individuals. Significant difference had occurred ( $p < 0,05$ ) in between the NSLT points of the whole group prior to and after the maximal exercise. No significant difference had occurred ( $p > 0,05$ ) in between the NSLT points of females pre to and after the exercise. Significant difference had occurred ( $p < 0,05$ ) in between the NSLT points of males pre to and after the exercise.

### Discussion

The purpose of the study is to examine the acute effect of maximal running exercise on short-term memory which is among cognitive functions.

In the previous studies, it had been specified that the effect of acute exercise on memory may differ according to time, type of memory (i.e. acquisition, consolidation, recall) (Roiga et al., 2013). In this study, it had determined that NSLT points measuring the short-term memory performance following 90% loaded running exercise had decreased. While the decrease in short-term memory points of males was statistically significant, it had been determined that it was not significant in females. It is being considered that this result arises from the low number of female subjects.



In literature, it is being specified that intense exercises may cause decrease in cognitive functions as similar to our study. In a study performed on 102 male and female recreative sports people, maximal treadmill exercise test had been applied for the effect of physical fatigue and a test (IMPACT) measuring the cognitive functions prior to and after the exercise had been applied to all the participants. As the result of research performed by 15 minutes running exercise on treadmill (it had been started with an inclination of 0% and had been increased by 2,5 mph, and had been increased by 0,5 mph until reaching to 6 mph. And then 3% increase of inclination had been performed until occurrence of fatigue), impairment of verbal memory had been found regarding the performance of short-term memory (Covassin et al., 2007).

In the reviews of Rooks, Thorn, McCully, and Dishman (2010), the effect of acute exercises on cerebral oxygenation had been searched by using near-infrared spectroscopy. As the result of that research, it had been found that moderate exercises increase the oxygen level of prefrontal cortex, but that intense exercises decrease the same. Consequently, they had specified that exercise period and difficulty level may cause differences in the performance of memory (Martin A.Q et al., 2013).

Fleury and Bard (1987) reported that a strenuous anaerobic treadmill run to exhaustion produced a significant impairment in exercisers' recall memory but that recall memory was not influenced by a 30-minute sub-maximal treadmill run (Tomprowski and Ganio, 2006).

Briefly, in this study the effect of 90% loaded maximal treadmill exercise on short-term memory among cognitive functions- had been researched. NSLT had been applied to all the participants prior to and after the exercise in order measure the effect of exercise on short-term memory. After an exercise in which the participants reached a pulse of 90%, impairment had been determined in the scores of NSLT test. Based on the result of this research performed on healthy young people, it can be told that the trainers shall consider their strategies of developing the cognitive functions of sports people while forming their exercises for a good sportive performance. In the researches to be performed in the future, the effect of intensity of exercise on cognitive functions shall be determined by using more direct protocols in activities peculiar to sports.

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# The effect of simulator-education on students receiving education at the department of elderly care

Ülkü Saygılı<sup>a\*</sup>, Birol Özkalp<sup>b</sup>

<sup>a</sup>Selçuk University Vocational Health High School, Department of Care Services, Selçuklu 42100, Konya, Türkiye <sup>b</sup>Selçuk University Vocational Health High School, Department of Medical Services and Technics, Selçuklu 42100, Konya, Türkiye

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## Abstract

Usage and development of new learning tools increased along with the developing technology in health education. The changing expectations in the health services drew attention to clinical skill trainings. Patient safety, which is among the rising values, the struggle to increase the patient rights and student competency, enabled the simulation usage getting more and more widespread in the health education. These developments rising from the technology and education paved the way for the applications and tools of simulation, which is used widespread in enhancing the technical and non-technical skills in health education and which is among the trust worthy education methods, by bringing these two fields together along with them. Using simulation helps students have increased self-esteem and develop their ability to make clinical decisions by providing learning based on experience. Because it contributes to the experiences and occupational skills of the students positively at the same time, the goal of increasing the clinical competence of the students in a virtual or laboratory environment prior to the patient care environment is accomplished. Before going out to the clinic, students can develop their occupational skills in a laboratory that reflects a real clinical environment that is integrated with the life like scenario.

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*Keywords:* Education, Health, Simulator

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## 1. Introduction

Usage and development of new learning tools increased along with the developing technology in health education (Bradley, P., Bligh, J., 2005). The health education needs to provide students of associate degree level with knowledge, skills( Karaoğlu et al., 2011), and attitudes they can use in daily practice and usage (General Medical Council. Tomorrow's Doctors. Report of the Education Committee, 1993). Clinical skill is a skill that all the students must learn and something that can be used by the individual in all aspects of his life (Çifçili et al., 2006). While some writers define clinical skill as procedures and attempts to be used for the occupation, some writers include to this definition of the clinical skills, communication, professional ethics, physical examination, resuscitation skills, problem solving, team work and information technologies (Das et al., 1998 , Ledingham et al., 2006). Today, which we define as an age of information technology and change, the importance of the easy way of observing very fast developments in science and technology and the medical cognitive applications such as simulator and virtual reality in terms of internalizing during the process of education cannot be denied (Kapıcıoğlu et al. ,2014 ).

Simulation is defined as the imitation of duties, relationships, phenomena, equipments, behaviors or some cognitive activities that exist in reality (Patrik 2002). Developments in technology and education have brought along the association of these two areas and enabled the simulation applications and instruments to become widespread and be used in education. Both the patient safety that is among the rising values and the efforts of increasing the patient rights and student's competence have enabled the simulation to be commonly used in medical education (Mıdık et al., 2010). Patient simulators provide a number of opportunities in medical education. In the system involving a robot patient

(model) operating based on a computer program, as well as a required computer software and various accessories, the model enables us to obtain information about the heartbeat, respiration, pulses, pupil reflex, urination, all kinds of normal and abnormal heart and respiratory sounds (Kneebone 1999). Models being used provide the students a chance to apply many of the skills before encountering the real patients. Model applications that will be used in the skill laboratory will gain the students the basic medical skills that are necessary without damaging the patient (Yazar 2003). Both in the world countries and in our country, the population of the elderly increase day by day. Along with the scientific differences, the prevention of the diseases by scientific and technological developments, providing early stage diagnosis and treatment, the decrease of the fertility rate and infant death are reflected to the average life positively and this helped the increase of the age of death. Thus the rate of population above the age of 65 increased. In this age group, where both physical and cognitive ability losses are experienced, dependency constitutes a very important problem (Onat 2004., Öztöpe et al., 2008, Bahar et al., 2007, Akgün et al., 2004).

### 1.1. Purpose

In this study we conducted with the 45 student of the elderly care program on the efficiency of the simulator usage, it is determined that the simulator usage affects the learning.

Elderly Care Associate Degree Program raises students that can take part in academic and service areas related with the elderly health which is needed in our country; and raises individuals that can provide service and studies in the fields of aging process, protection of the health of the elderly, encouraging aging healthily, and meeting the needs of our society.

## 2. Method

The research was planned and carried out as descriptive in order to find out about the thoughts of the students that are studying in the elderly care department of the Selçuk University Health Services Occupational High School, concerning their education with the simulator. The scope of the study is comprised of the students that are studying in the care services department during the academic year of 2013- 2014. In order to carry out the research, a written permission is taken from the Directorate of Selçuk University Health Services Occupational High School. The survey form, which is prepared by the researcher through the analysis of related literature, consists of 2 sections. In the first section, there are questions about the sociodemographic features related with the student; the age, sex, income and education period of the students in the university. In the second section, there are questions that include the impacts of the simulator usage on the learning. There are many applications performed on the alternating student groups by different instructors annually. In the assessment of the study, each student that provide feedback is asked survey questions with the answers: I agree, I am unsure, I do not agree and his views on the educations with the simulator are collected. In the statistical assessment of the data acquired as a result of the research, number percentage distributions are used.

## 3. Findings

Table 1. Sociodemographic features of the students

Sociodemographic features of the students		Frequency	Percentage
Sex	Female	28	62.2
	Male	17	37.8
Age groups (years)	18-21	25	55.6
	21-23	15	33.3
	24 and above	5	11.1
Economic Status	Bad	15	33.3
	Medium	12	26.7
	Good	18	40.0
Education year in university	1.Sınıf	26	57.8
	2.Sınıf	19	42.2
Total		45	100

The distribution of the students taken to the research context in terms of their sociodemographic features are given in Table 1. 62.2% of the students are women and 37.8% of the students are men. When it is analyzed in terms of age groups, 55.6% is 18-21 years old, 33.3% is 21-23 years old and 11.1% is 24 years old and above. When their economic situation is analyzed, it is determined that 33.3% is bad, 26.75% is medium and 40% is good. When it is analyzed in terms of their education year in the university, 1<sup>st</sup> graders are 57.8%, 2<sup>nd</sup> graders are 42.2%.

Table 2: Thoughts of Students about the Simulator Use

Thoughts of students about the simulator use	Agree n %	Disagree n %	Undecided n %
Simulator use has helped me in learning a lot.	42 93.4	1 2.2	2 4.4
Simulator use has increased my communicational skills.	36 80.0	3 6.7	6 13.3
Simulator use has developed my autonomy.	37 82.2	3 6.7	5 11.1
Simulator use has increased my self-confidence.	37 82.2	- -	8 17.8
I can easily apply the skill that I have acquired following the simulator-education in my professional life.	34 75.6	1 2.2	10 22.2
Simulator-education has decreased my anxiety about the clinic.	30 66.7	1 2.2	14 31.1
The course hour should be higher in the simulator-education.	33 73.3	5 11.1	7 15.6
Both the physical space and the duration were convenient for me in terms of the simulator-education.	18 40.0	11 24.4	16 35.6
The attitude of the instructor considerably affects my motivation in the simulator-education.	35 77.8	3 6.7	7 15.6
Total		n=45 100 %	

The views of the students taken to the scope of research concerning the simulator usage are provided in table 2. 93.4% of the students stated that the simulator is helpful for learning, 80.05 stated that it increased their communication skills, 82.2% stated that it enhanced their autonomy, 75.6% stated that they can apply the skills gained from the simulator in their professional lives, 77.8% stated that the instructor's attitude is important, 73.3% stated that the hours of the applicable lessons must be increased, 66.7% stated that the anxiety towards clinic decreases with the simulator usage. In addition to that, 24.4% of the students stated that the physical environment and time provided to them is not sufficient (Table 2).

#### 4. Discussion

With the simulation education, students gain a full care application ability, technical skill, making decision, assessment, team work and management skill in a safe environment without having the fear of misunderstanding the current situation of the patient and being unsuccessful (Alinier G, 2003). Students can experience fear and anxiety related with the lack of experience in clinical applications (Rhodes M, Curran C, 2005). (Altıok HÖ, Üstün B, 2013).

The anxiety levels of the students can affect their skills of making decisions directly for the clinic and it also affects their learning (Altıok HÖ, Üstün B, 2013). Continuous repetitions provided by the education based on simulation increases the performance and self-esteem of the student (Moule et al., 2008), (Burgess 2007).

Schoening et al. (2006); stated that the simulation for the students are not merely an effective learning tool but also a learning tool that increases their self-esteem for unexpected situations occurring in the clinic. Besides, they stated that this self-esteem after the simulation education is related with the development of hand skill, team work, communication and decision making skills.

In another study related with the topic, it is indicated that students must take a major role in order to control the situation during the simulation. With this way, the students learn to see their mistakes by making appropriate decisions in patient care and treatment and they learn how to move upon their decisions (Alinier et al., 2006), (Göriş et al., 2014)

## 5. Result

There should be studies towards enabling the society to develop positive attitudes and preventing the nursing home and care center to be seen as the last resort of life. The first of them is the need for qualified care personnel. The presentation of elderly care given within the scope of corporate care is performed by the helping attendants. In this context, the need for educated personnel to be employed for elderly care services is inevitable.

Physical, emotional and cognitive incompetence are very important problems for the old age. Diseases and loss of abilities cause both decrease in quality life and health expenses at great dimensions. However, it is possible to decrease them with protective measures. Elderly Care Associate Degree Program raises students that can take part in academic and service areas related with the elderly health which is needed in our country; and raises individuals that can provide service and studies in the fields of aging process, protection of the health of the elderly, encouraging aging healthily, and meeting the needs of our society. As a result with the usage of skill laboratories and simulators in health education, the potential medical errors can be decreased to a large extent, and a better and effective health service can be provided.

Simulator use will enable the student to prepare for the professional life better by smoothing the way especially for some complicated basic applications and the perception of both biochemical and physiological incidents occurring in body.

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# The effect of the computer assisted instruction on the academic achievement and retention of technical programme students' in vocational foreign language

Hakan Yüksel<sup>a\*</sup>, Azize Yüksel<sup>b</sup>

<sup>a</sup>Suleyman Demirel University, Vocational School of Technical Science, Computer Programme, Isparta, Turkey

<sup>b</sup>Suleyman Demirel University, Institute of Science, Department of Educational Technology, Isparta, Turkey

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## Abstract

This study aims to find out the effect of computer based teaching activities on the academic achievement and retention of technical programme Students of Computer Programming on Vocational Foreign Language in Computer Technologies Department. The study was conducted in Vocational School of Technical Science in Suleyman Demirel University with 30 students of computer programming. The experimental group (15 students) was taught with computer assisted instructional software and the control group (15 students) was taught with traditional methods. Achievement test was developed to measure the success of second class students of Vocational Foreign Language lesson was used as pretest, posttest and retention test. As a consequence, it is seemed that the application of computer assisted instructional methods used Vocational Foreign Language lesson is more effective than traditional instructional methods in terms of students' academic achievement and retention.

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*Keywords:* Computer assisted instruction, academic achievement, retention ;

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\*Corresponding author. Tel.: +902462111516; fax: +902462371717.  
E-mail address: hakanyuksel@sdu.edu.tr

## 1.Introduction

Today, the technology is going ahead rapidly. Computers have an important place from social to educational life of us. This situation which is the result of computer and human interaction, positively affects both the professional and personal success (Teo, 2008; Hammond, etc, 2009). The increase in the usage of computers in every field of the science and technology especially in education enables to have new development in education and increase the usage of computer in this system (Bottino, 2004; Altun& Bektaş, 2010).

Technology is defined as people's developing new production that eases the life of them by using available equipment. The needs of people's living more modern life cause the technologies rapid development (Tor & Erden, 2004).

Information and communication technologies are mostly affected by the rapid changes and the developments of science and technology in recent years and developing innovations are felt in every aspects of the life. This development

accelerates the producing and using information and information became the main factor both in social and similar fields (Tor & Erden, 2004).

This, in the educational institutions, is affected by the changes and developments in technology. These developments show fundamental changes in the process of education and develop a point of view. While person- information-society triad's changes in quality and developments coming together with their mutual interaction shows changes in person's qualities, it also enables the developments in modern social structures (Keser, 1991).

Some of the technologies used in educations are films, Cyclopes and computers (Akdağ, 2006). Especially its increasing the motivation of the student and its alternatives in programming and increasing flexibility shows the reason of using computer in education (Alkan, 1997; Gürol, 1990; Arseven, 1986).

Computer assisted instruction; is backing up the education with the technologic materials like films, Cyclopes and computers. It is seen as a teaching method and also it also has the role of enriching the education.

As the main item of the education, multimedia equipments can be shown. Multimedia consists of the audio, video, and visual and written material all together. It is the most important technologic material enables students to learn audial and visual learning and gets the information actively by trial and error. It also enables the presentation of the natural application's simulations of complicated terms and enables people to learn with their capacity and capability. Technology is presenting the educational materials appropriate to each level of the education to the usage of the students one to one or as a group (Alakoç, 2003).

### *Problem*

This study aims to find out the effect of computer based teaching activities on the academic achievement and retention of technical programme Students of Computer Programming on Vocational Foreign Language in Computer Technologies Department. So, the answers are seeking for those subs problems.

### *Subs-Problem*

1. Is there a significant difference in the pre-test academic success scores between experimental group and control group?
2. Is there a significant difference in the pre-test and post-test academic success scores in experimental group?
3. Is there a significant difference in the pre-test and post-test academic success scores in control group?
4. Is there a significant difference in the post-test academic success scores between experimental group and control group?
5. Is there a significant difference in the post-test and retention-test scores in control group?
6. Is there a significant difference in the post-test and retention-test scores in experimental group?

## **2.Method**

In this study, it is used 30 students sample, 15 students for experimental group and 15 students for control group who are the students of vocational foreign language students of computer programming in Vocational School of Technical Science in Suleyman Demirel University in the spring term of 2013-2014 educational year.

It is used experimental design with control and experimental group in this study. The effectiveness of computer assisted instruction to traditional methods is compared.

### *Consisting of The Groups*

Literature review has been done related to the topic and the obtained data consists the theoretical background of the study. Before instructing the topic of " The Terms using in Programming Language" It has been applied a pretest consisting of 15 questions prepared by the experts instructing the same lesson in the other departments of the university and the obtained data has been evaluated by the same experts with the answer key prepared by them. Then the topic "The Terms using in Programming Language" is instructed to the experimental group with instructional software and



visual materials and to control group with traditional methods. After this application, a post test with the same questions in the pretest was applied. The tests were again evaluated with the same answer key. After three weeks from this evaluation a retention test was applied.

#### *Application of The Experiment*

A pretest was applied in order to measure the pre knowledge of the groups about the topic before the instruction. Then, the topic was instructed to the control group with traditional method using just board and board marker and to experimental group by using instructional software as Microsoft Office PowerPoint, Microsoft Visual Studio and visual materials in computer lab by the instructor 3 hours in 2 weeks. And also for experimental group interactive lecturing prepared by the instructor, animations, tests related to the topic and instructional videos were used.

#### *Data Analysis*

It has been used statistical tests, T-test in order to observe the significant differences between the pretest and post test scores of the students attended this study. it has been defined  $p < .05$  the level of significance in the statistical analysis.

The pretest and the posttest have been evaluated with 15 points by giving each question 1 point by the experts. After evaluating, the data has been evaluated in SPSS 15, programme.

### **3.Findings**

1) Is there a significant difference in the pre-test academic success scores between experimental group and control group?

Table 1. The comparison of the scores of pretests of control-experimental group

Group	N	$\bar{X}$	S	Sd	T	p
Control	15	3.93	0.96	28	0.34	0.73
Experimental	15	3.80	1.14			

It is seen that the scores of the pretests of the control and experimental group are very close to each other. While the arithmetic mean of the pretest scores of control group is 3.93 and standard deviation is 0.96, the arithmetic mean of the pretest scores of experimental 1 group is 3.80 and standard deviation is 1.14. It has been used the Independent samples T-test if there is a significant differences between the means of their pretest scores. Because the founded "p" value is not  $“.73” < .01$ , there isn't a significant differences between the pretest scores of the groups. So the group equality between the groups is enabled.

2) Is there a significant difference in the pre-test and post-test academic success scores in experimental group?

Table 2. The comparison of the scores of pretest and the posttest of the experimental group

Test	N	$\bar{X}$	S	Sd	t	p
pretest	15	3.80	1.14	14	14.22	0.000
posttest	15	12.60	1.84			

When Table 2. is examined, it is seen that the arithmetic mean of the pretest scores of experimental group is 3.80 and standard deviation is 1.14 and the arithmetic mean of the posttest scores of experimental group is 12.60 and standard deviation is 1.84. It is used paired samples T-test to define the significance of the sub problem. Because the obtained p value is smaller than .01, the proposal has been accepted and it is seen that there is a significant differences between the pretest and posttest scores of the experimental group. While the pretest main of the experimental group is 3.80, the posttest main is 12.60 after instructing the lesson with computer assisted methods. So there is a 8.80 points of increase has been observed. According to the obtained data it is seen that there is an increase in the academic success of the students used computer assisted instruction methods compared to the beginning.

3) Is there a significant difference in the pre-test and post-test academic success scores in control group?

Table 3. The comparison of the scores of pretest and the posttest of the control group

Test	N	$\bar{X}$	S	Sd	t	p
Pretest	15	3.93	0.96	14	11.66	0.000
Posttest	15	8.46	1.50			

When Table 3 is examined, it is seen that the arithmetic mean of the pretest scores of control group is 3.93 and standard deviation is 0.96 and the arithmetic mean of the posttest scores of experimental group is 8.46 and standard deviation is 1.50. It is used paired samples T-test to define the significance of the sub problem. Because the obtained p value is smaller than .01, the proposal has been accepted and it is seen that there is a significant differences between the pretest and posttest scores of the control group. While the pretest main of the control group is 3.93, the posttest main increased to 8.46 after instructing the lesson with traditional methods. So there is a 4.53 points of increase has been observed. According to the obtained data it is also seen that there is an increase in the academic success of the students used computer assisted instruction methods compared to the beginning and traditional methods also contributes the academic success of the students.

4) Is there a significant difference in the post-test academic success scores between experimental group and control group?

Table 4. The comparison of the scores of posttest of control-experimental group

Group	N	$\bar{X}$	S	Sd	T	p
Control	15	8.46	1.50	28	6.72	0.000
Experimental	15	12.60	1.84			

When Table 4. is examined, it is seen that the arithmetic mean of the posttest scores of control and experimental group is 12.60 and standard deviation is 1.84, the arithmetic mean of the posttest scores of control group is 8.46 and standard deviation is 1.50. It has been used the Independent samples T-test if there is a significant differences between the means of their posttest scores. Because the obtained "p" value is smaller than .01, the proposal has been accepted and it is seen that there is a significant differences between the scores of the posttest of control and experimental group.

5) Is there a significant difference in the post-test and retention-test scores in control group?

Table 5. The comparison of the posttest and retention test scores of control group

Test	N	$\bar{X}$	S	Sd	T	p
Posttest	15	8.46	1.50	14	12.85	0,000

Retention	15	5.53	1.45
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6) Is there a significant difference in the post-test and retention-test scores in experimental group?

Table 3.6. The comparison of the posttest and retention test scores of control group

Test	N	$\bar{X}$	S	Sd	T	p
Posttest	15	12.60	1.84	14	7.13	0,000
Retention	15	11.26	2.15			

When Table 5 and 6 are examined, there is a significant difference between the scores of posttests and retention tests of both experimental and control group. ( $p < 0.01$ ). Retention test scores of the both group is lower than the posttest scores. But the differences are lower in experimental group. While the decrease between the posttest and retention test scores of experimental group is 1.34, the decrease between the posttest and retention test scores of control group 2.93.

#### 4. Conclusion And Discussion

1) In this study, firstly in order to define the equality of the groups and see their evaluation steps, a pretest was applied and then to show the effectiveness of the methods a posttest was applied. When looked at the pretest scores of the control and experimental group, they are very close to each other. After it is determined that the groups are homogenous and medium level, In the Vocational Foreign lesson, the control group was instructed with traditional methods and the experimental group was instructed with computer assisted instruction methods to the students by the instructor 3 hours 2 weeks.

2) There is 4.53 points difference between the pretest and posttest scores of the control group to whom traditional methods were used in Vocational Foreign Language lesson. So according to this traditional method positively affects the academic success of the students.

3) There is 8.80 points difference between the pretest and posttest scores of the experimental group to whom computer assisted instruction methods were used in Vocational Foreign Language lesson. So according to this, computer an assisted instruction method also positively affects the academic success of the students.

4) When compared the posttest scores of the control and the experimental group, the scores of experimental group is 4.14 higher than the scores of control group. So according to this differences, It is seen that in Vocational Foreign Lesson, the experimental group to whom computer assisted instruction methods are used are more successful than the control group to whom traditional methods are used.

5) When looked the differences between the posttest and retention test scores of the experimental and control group, While there is a 1.34 decrease in the posttest and retention test scores of the experimental group, the decrease in the control group is 2.93. When looked at this difference in view of the retention of the instruction, it is seen that computer assisted instruction is more successful than the traditional instruction in enabling the retention.

According to this conclusion, we can say that in Vocational Foreign Language lesson, an application of computer assisted instruction positively affects the academic success of the students.

In the study of Kulik and Kulik(1991), it has been examined the results of 254 different studies. According to the results of the studies, the computer assisted instruction positively affects the students' attitude and behaviors to computer and education and it shortens the time needed for instruction.

The instruction diversity is increasing with the developing technology. According to the most researchers, the educational technologies used affectively have the potential to enhance the education (Jonassen & Reeves, 1996; Means, 1994). One of these educational technologies is computers. It is shown in the literature that the usage of computers in education increases the success of students and their motivation and similarly decreases the anxiety level of them (Köse, Ayas & Taş, 2003; Sanger & Greenbowe, 2000; Tezcan & Yılmaz, 2003; Zacharia, 2003). It is also seen that computer

assisted instruction not only affects the academic success but also it positively affects the retention of the instruction (Hacker & Sova, 1998, Chang, 2002). Also, besides the academic success and the retention, it enables the learning by understanding more than memorizing (Renshaw & Taylor, 2000).

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# The Effect of Using Multimedia in Teaching Geography on the Achievement

## and Critical Thinking Skills of Second Secondary School Students

### in KSA

أثر استخدام برمجيات الوسائط المتعددة في تدريس الجغرافيا على تنمية التحصيل ومهارات التفكير الناقد لطلاب الصف الثاني الثانوي في المملكة العربية السعودية

Theyab Moqbel Hareb Asharari, Aljouf University, AlQuarayyat, 1300, Saudi Arabia

#### Abstract

##### ملخص الدراسة.

هدفت الدراسة إلى التعرف على أثر استخدام برمجيات الوسائط المتعددة في تدريس الجغرافيا على التحصيل ومهارات التفكير الناقد لدى عينة الدراسة التي تشمل طلاب الصف الثاني الثانوي فرع العلوم الشرعية في محافظة القريات. ولتحقيق هذا الهدف، تم إعداد وحدة إلكترونية تجريبية (السكان والموارد الطبيعية) بمقرر الجغرافيا للصف الثاني الثانوي بالفصل الدراسي الثاني من العام الدراسي 2012/2013م، باستخدام برمجيات الوسائط المتعددة، وإعداد اختبار تحصيلي لقياس المستوى المعرفي لمحتويات الوحدة التجريبية لدى عينة الدراسة، وتطبيق اختبار التفكير الناقد على عينة الدراسة لقياس مدى تنمية مهارات التفكير الناقد. وتم تطبيق الاختبار التحصيلي واختبار التفكير الناقد تطبيقاً قيبلياً وبعدياً على عينة الدراسة، حيث تم تقسيمها إلى مجموعتين (تجريبية وضابطة).

وننتج عن الدراسة وجود فروق ذات دلالة إحصائية عند مستوى (0.05) لصالح المجموعة التجريبية، في التحصيل ومهارات التفكير الناقد قبل التجريب وبعده. وقد أشارت نتائج تطبيق الاختبارين على المجموعتين (التجريبية والضابطة) أن الوحدة الإلكترونية المعدة باستخدام برمجيات الوسائط المتعددة يتضمن: قيام الطلاب بأنشطة مختلفة تنمي التحصيل لديهم، وتنمي قدراتهم على التفكير الناقد. (الكلمات المفتاحية: الوسائط المتعددة، مهارات التفكير الناقد، الجغرافيا).

This study aims at identifying the effect of using multimedia in teaching geography on the achievement and critical thinking skills of second secondary school students. To achieve this goal, an experimental electronic unit (Human and Natural Resources) are assigned in the geography text book of second secondary students in the province of AlQurrayat, in Second semester of the academic year 2012/2013, in the form of PowerPoint.

An achievement test is also designed for assessing the cognitive level of the content of the experimental unit. Moreover, a critical thinking test is applied for evaluating the critical thinking skills. Both tests were applied to a sample of students who were classified into two groups: experimental and controlling.

The study results in finding out some statistical differences (0.05) in favour of the experimental group in the achievement and critical thinking skills before and after the treatment. The results of applying the two tests to both groups (controlling and experimental) indicate that the electronic unit supported by multimedia programs has assisted students practice various activities that develop their cognitive skills as well as their critical thinking abilities.

(Keywords: Multimedia, Critical Thinking Skills, Geography).

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#### • المقدمة:

يشهد القرن الحادي والعشرين ثورة معلوماتية مذهلة في شتى مجالات الحياة متمثلة في الانفجار المعرفي والتقدم التقني، والتطور التكنولوجي، الذي ألقى بظلاله على الأنظمة التربوية، لتأخذ دورها في نقل تلك المعارف والتكنولوجيا إلى المتعلمين، فكان دور التربية أكثر أهمية ليس فقط في نقل المعارف إلى المتعلمين، بل في إكسابهم مهارات عمليات التعلم ومهارات التفكير العلمي ومهارات التفكير الناقد والابتكاري، فكان لاستخدام الحاسب الآلي النصيب الأوفر في مجال التربية منها: استخدامه كمساعد تعليمي Computer Assisted Instruction، والتعليم المدار بالحاسب الآلي Managed Computer Instruction، واستخدامه كمعلم Computer as a TUTOR،

واستخدامه كمتعلم Computer as a TUTEE، واستخدامه كأداة تعليمية Computer as a TOOL (صقر، 2007، ص 45).  
ومما ساعد على ذلك، ظهور العديد من البرامج الحاسوبية المختلفة منها : برنامج البروينت (برنامج العروض التقديمية) وبرنامج الفوتوشوب (برنامج لمعالجة الصور) وبرنامج الوسائط المتعددة وغيرها ، مما يسر عرض المادة التعليمية بالصوت والصورة مصحوبة بالحركة واللون ، وعرض لقطات الفيديو والرسوم والتحكم في سرعة وزمن العرض. فأصبح من الممكن الاعتماد على أكثر من مؤثر تعليمي، بالإضافة إلى جذب المتعلم وجعله نشطا أثناء فترة العرض، خاصة بما يتخلل العرض من تقديم أسئلة ومناقشات تتطلب استدعاء معلومات من جانب المتعلم.

وتؤيد الأبحاث لعلامة الحاسوب في تكنولوجيا التعليم، فمنها تكويد في التوثيق، القتل كما أشارت نتائج إحصائيات الدراسات السابقة إلى أهمية استخدام الوسائل التكنولوجية الحديثة في التعلم ، حيث أنها تعمل على توفير من (30% إلى 40%) من وقت التعليم ، كذلك مساعدة المتعلم على الاحتفاظ بالمهارات والمعارف لفترة زمنية أطول ، وبتكلفة أقل من التعليم بدون استخدام التقنيات الحديثة ( السيد ، 2002 ، 34 ).  
وتؤيد الأبحاث لعلامة الحاسوب في تكنولوجيا التعليم، فمنها تكويد في التوثيق، القتل كما أشارت نتائج إحصائيات الدراسات السابقة إلى أهمية استخدام الوسائل التكنولوجية الحديثة في التعلم ، حيث أنها تعمل على توفير من (30% إلى 40%) من وقت التعليم ، كذلك مساعدة المتعلم على الاحتفاظ بالمهارات والمعارف لفترة زمنية أطول ، وبتكلفة أقل من التعليم بدون استخدام التقنيات الحديثة ( السيد ، 2002 ، 34 ).  
فهي تتميز بتحقيق التفاعل مع المتعلم ، وبذلك يصبح المتعلم محور العملية التعليمية وليس المعلم ، وبذلك يتوفر عنصر جذب المتعلم وتشويقه للمحتوى وزيادة مدة احتفاظ التلاميذ بالمعلومات والقدرة على استرجاعها ( صقر ، 2007 ، 223 ) ، وكذلك سهولة إدخال النصوص والصور والفيديو والأصوات في برامج التعليم ، والتحكم في سرعة العرض ، ورخص ثمن أجهزة التخزين المستخدمة CD-ROM .

وهناك العديد من الدراسات التي بينت ذلك، حيث هدفت دراسة رادا وآخرون (Rada et al., 1994)، ودراسة الفار (1998)، ودراسة أوغتون وريد (Oughton and Reed, 1998) ، ودراسة ألن (Allen, 1998) ودراسة أبا الخيل والسيد (2000) ، ودراسة عباس (2001) ، ودراسة بوليك وميجلين (Bolic & McGlinn, 2004) ، ودراسة لال (2004) ودراسة خضر والمهديب (2006) ودراسة السيد (2007) ، ودراسة حسين وخير الدين (2007) ، ودراسة سليمان (2010)، ودراسة أبي الحمال (2013)، ودراسة تشينك وفوك (Ching and Fook, 2013).

هذا وقد اهتمت المملكة العربية السعودية بإدخال الحاسب الآلي في العملية التعليمية التعليمية بما توفره في جميع المدارس من معامل للحاسب الآلي، ومصادر التعلم وربط المدارس بشبكات الانترنت، وقد تمثل ذلك في مشروع الملك عبد الله بن عبد العزيز الوطني لاستخدام الحاسب الآلي في التعليم عام 2000م .  
من جميع ما تقدم يتضح لنا ضرورة توظيف الوسائط المتعددة في تصميم برمجيات تعليمية (وحدة الكترونية) لوحدة تدريسية في الجغرافيا والكشف عن فعاليتها في تنمية التحصيل ومهارات التفكير الناقد.

#### • مشكلة وأسئلة الدراسة :

يحدد الباحث المشكلة الرئيسة للدراسة الحالية في الإجابة عن السؤال الرئيس الآتي :

- ما أثر استخدام برمجيات الوسائط المتعددة في تدريس الجغرافيا على تنمية التحصيل ومهارات التفكير الناقد لدى طلاب الصف الثاني الثانوي؟

وبتفرع منه الأسئلة الآتية:

1. ما أثر استخدام برمجيات الوسائط المتعددة في تدريس الجغرافيا على تنمية التحصيل لوحدة " السكان والموارد الطبيعية " لدى طلاب الصف الثاني الثانوي ؟
2. ما أثر استخدام برمجيات الوسائط المتعددة في تدريس وحدة "السكان والموارد الطبيعية" بمقرر الجغرافيا على تنمية مهارات التفكير الناقد ككل لدى طلاب الصف الثاني الثانوي ؟

#### • أهداف الدراسة :

تهدف الدراسة الحالية إلى:

1. التعرف إلى أثر استخدام برمجيات الوسائط المتعددة في تنمية التحصيل لدى طلاب الصف الثاني الثانوي في مقرر الجغرافيا.
2. التعرف إلى أثر استخدام برمجيات الوسائط المتعددة في تنمية بعض مهارات التفكير الناقد ككل لدى طلاب الصف الثاني الثانوي في مقرر الجغرافيا.

#### • محددات الدراسة :

تقتصر الدراسة الحالية على:

- حدود خاصة بالعينة : تم اختيار الصف الثاني الثانوي من مدرسة ثانوية عبد الرحمن بن عوف بمحافظة القريات كمجموعة تجريبية، و الصف الثاني الثانوي من مدرسة ثانوية الحديثة كمجموعة ضابطة .
- حدود خاصة بالمحتوى: حيث اقتصر المحتوى على اختيار وحدة " السكان والموارد الطبيعية" بمقرر الجغرافيا لدى طلاب الصف الثاني ثانوي بالفصل الدراسي الثاني، عام 2013م.
- تكونت الوحدة من عشر حصص تدريسية

#### • التعريفات بالمصطلحات:

الوسائط المتعددة (Multimedia): تعددت تعاريف مصطلح الوسائط المتعددة ومنها:

فقد عرفها بأنه "مجموعة من أدواتها التي يمكن استخدامها لتقديم محتوى تعليمي".

وتعرف إجرائيا: بأنها استخدام إمكانات الحاسب الآلي في بناء برنامج تعليمي لربط النص والصوت والرسوم والصور الثابتة ولقطات الفيديو والرسوم المتحركة، وتقديمها في صورة الكترونية متكاملة.

**التفكير الناقد: في اللغة:** ورد الفعل " نقد " في لسان العرب بمعنى ميز الدراهم وأخرج الزيف منها فنقد الدراهم أي ميز الذهبية منها ، بمعنى اكتشاف الزائفة .  
**ووظيفته:** بله الأسلوب الذي يستخدمه الطالب في تفسير واستنتاج، واستنباط المعلومات، **وهدفه:** وتقويم الحجج لحل المشكلات التي تواجهه، ويقاس بالدرجة التي يحصل عليها الطالب في اختبار مهارات التفكير الناقد الذي تبناه الباحث.  
 التجريب الأساسي:

تم تطبيق التجربة الأساسية للبحث بالفصل الدراسي الثاني عام 2013م ، بعد التأكد من صدق وثبات الأداة.

#### • النتائج:

##### أولا : نتائج تطبيق الاختبار التحصيلي:

1. **لإجابة أسئلة في اللغة:** (ما أثر استخدام برمجيات الوسائط المتعددة في تدريس الجغرافيا على تنمية التحصيل لوحدة " السكان والموارد الطبيعية " لدى طلاب الصف الثاني الثانوي؟).  
 قام الباحث باستخراج المتوسطات الحسابية والانحرافات المعيارية وقيم (ت) لنتائج التطبيق البعدي لاختبار التحصيل؛ فكانت النتائج كما يوضحها الجدول رقم (1) الآتي:

**جدول ( 1 )**

المتوسطات والانحرافات المعيارية وقيم (ت) لنتائج التطبيق البعدي لاختبار التحصيل الكلي على كل من المجموعتين التجريبية والضابطة

الاختبار	المجموعة التجريبية		المجموعة الضابطة		قيمة ت	حجم التأثير
	ن=5		ن=7			
	م1	ع1	م2	ع2		
الاختبار التحصيلي	60	3,162	52,6	3,361	0,05	كبير

- ويتبين من الجدول رقم (1) وجود فروق دالة إحصائية عند مستوى (0.05) بين متوسطات درجات عینتي الدراسة في الاختبار التحصيلي لصالح المجموعة التجريبية ، كما تشير النتائج إلى أن حجم تأثير الوحدة الالكترونية المعدة ببرامج الوسائط المتعددة كبير.  
**لإجابة أسئلة في اللغة:** (ما أثر استخدام برمجيات الوسائط المتعددة في تدريس الجغرافيا على تنمية مهارات التفكير الناقد لدى طلاب الصف الثاني الثانوي؟).  
 قام الباحث باستخراج المتوسطات الحسابية، والانحرافات المعيارية، وقيم (ت)، لنتائج التطبيق البعدي لاختبار التفكير الناقد الكلي ؛ فكانت النتائج كما يوضحها الجدول رقم (2) الآتي:

**جدول ( 2 )**

المتوسطات والانحرافات المعيارية وقيم (ت) لنتائج التطبيق البعدي لاختبار التفكير الناقد ككل على كل من المجموعتين التجريبية والضابطة

الاختبار	المجموعة التجريبية		المجموعة الضابطة		قيمة ت	حجم التأثير
	ن=5		ن=7			
	م1	ع1	م2	ع2		
التفكير الناقد	80,2	2,864	60,8	1,304	0,05	كبير

- ويتضح من الجدول رقم (2) وجود فروق دالة إحصائية عند مستوى (0.05) بين متوسطات درجات عینتي الدراسة في التفكير الناقد ككل لصالح المجموعة التجريبية، كما تشير النتائج إلى أن حجم تأثير الوحدة الالكترونية المعدة ببرامج الوسائط المتعددة كبير.

#### • الاستنتاجات والتوصيات:

- في ضوء ما توصلت إليه نتائج الدراسة ، يمكن تقديم الاستنتاجات والتوصيات التالية :
- 1 التأكيد على ضرورة استخدام برامج الوسائط المتعددة لطلاب الأقسام الأدبية في تدريس مقرر الجغرافيا.
  - 2 تدريب المعلمين على إعداد الوحدات الدراسية ببرمجيات الوسائط المتعددة.
  - 3 إجراء دراسات تتناول فعالية الوسائط المتعددة في تنمية مهارات التفكير الإبداعي لدى الطلاب والطالبات من خلال محتوى المقرر الدراسي .
  - 4 بحث مخططي مناهج المواد الاجتماعية والمسؤولين المختصين في وزارة التربية والتعليم (وكالة الوزارة للتطوير التربوي) على ضرورة تضمين النشاطات التعليمية، التي تساعد في تنمية مهارات التفكير الناقد لدى طلاب المرحلة الثانوية.

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# The effectiveness of simulator usage in the paramedic education

Birol Özkalp<sup>a\*</sup>, Ülkü Saygılı<sup>b</sup>

<sup>a</sup>*Selçuk University Vocational Health High School, Department of Medical Services and Technics, Selçuklu 42100, Konya, Türkiye* <sup>b</sup>*Selçuk University Vocational Health High School, Department of Care Services, Selçuklu 42100, Konya, Türkiye*

## Abstract

Turkey, the educational simulation has an important place in terms of this changing sense in medical education. The universities, which review the training they provide, involve the simulation in their curriculum in order to enable the students-to-graduate to acquire the need of convenient knowledge and some skills during the faculty education. The team that is employed in 112 emergency health services primarily aims to perform interventions for saving the human life in cases of any danger, try to prevent the possible secondary damages while performing these interventions and thus, enable the sustainment of life without any sequela. Simulation presents a learning environment that provides the possibility of a learner-centered experience rather than an experience where the patient is objective, and gives both confidence and support to the student.

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*Keywords:* Education, Health, Simulator

## 1. Introduction

The history of simulation dates back to 5000 years ago. The first simulations, known as WEICH, come from Chinese war games. These games were also used to develop army and navy strategies. Since 1800s, military plans were made with the help of simulations (Shah et al., 2007). The second important milestone in the history of simulation was the first flight simulator developed by Edward Link in 1929. Although it was designed for paid recreational flights, Link's simulator was later extensively used in military and commercial aviation training and evaluation beginning from 1949 (Patrick 2002). The third milestone in the history of simulation was its use in the training and evaluation of medicine students with the medicine training reform in the 1990s, which has made it recognized world-wide. At first, simulators were only used in clinical skill laboratories because of their high costs. Today, they are an indispensable part of both pre- and post-graduation training programs and simulation-based training has been extensively used as an innovative approach in medicine training (Bradley 2006).

The concept of simulated patient was first suggested by Barrows and Abrahamson in 1964 in order to make it easier to teach clinical skills (Collins et al., 1998). The first studies on simulated patients were conducted by Harden, Stevenson, Wilson and Downie in 1975. The use of simulated patients has become widespread in both training and assessment-evaluation after 1980 (Lane et al., 2001).

### • The definition of simulation

Simulation is defined as the imitation of tasks, relations, phenomena, equipments, behaviours and certain cognitive activities, which are present in reality. Developments in technology and education resulted in a collaboration between these fields, thus allowing simulation applications and tools to become widespread and used in training. Rising values such as patient safety, patient rights and efforts for improving student competency made it possible for simulations to be extensively used in medicine training (Mıdık et al., 2010).

Every simulation must possess the property of "fidelity", which can be defined as "consistency with real life", or in other words, "authenticity". This property reflects the reality of experiences (Maran et al., 2003). A simulation must be able to imitate all existing possibilities and provide a rich environment, where participants can respond realistically. A

simulation must contain different paths that the participant can follow in case of a change in the problem or situation or unclear situations, it should be able to act in accordance with the actions of the participant. The more of these features contains the system, the better the participants can transfer what they learned during the simulation to the real life (Patrick 2002).

- *The Benefits of Using Simulation in Training*

Using certain occupational applications on the patient for the first time puts the student under stress for many reasons. The primary reasons are worrying about making a mistake or fear of harming the patient. The other reasons include not being able to experiment on the patient continuously, not being able to learn because of lack of supervision and worrying about being insufficient (Weller 2004). The trainings on real patients are brief, opportunistic and they depend on the experience level and interests of the trainer. This results in a training environment which is difficult, incomplete, insecure and lacks feedback. The use of simulations helps reverse all these negativities (Ziv 2005). The use of simulations will provide an innovative spirit for the training program, it will take basic and advanced trainings to a higher level by increasing cognitive knowledge level. The transfer of skill from training environment to real situations will be encouraged and proficiency of the students will improve with right applications and high recall ratios. Thus, it will be possible to claim an increase in the quality of training programs and graduates. With the use of simulations in training programs, trainers will have the opportunity to actively participate in student's trainings and evaluations, learn about the developments in the field and practice (Ziv 2003).

## **2. Discussion**

Simulation is defined as the imitation of tasks, relations, phenomena, equipments, behaviours and certain cognitive activities, which are present in reality (Midik et al., 2010). Issenberg et al. (2001) defined simulation as an application in which students have to act as if they were in a real life situation. Bradley (2006) approached the use of simulation in medicine training as in a broad perspective and defined it not only as a wide range of technological possibilities, but also as a training method which contains an considerable amount of human interaction. According to Gaba (2007), simulation is a technique which makes it possible to experience a real situation beforehand with the help of a guide. It's important to give feedback to students on a regular basis during the application in order to expand their knowledge about the practice (Alinier 2003). Giving feedbacks to students during trainings in which simulation is used makes it possible for them to learn from their mistakes and gain experience without harming patients (Burgess 2007). Students may experience fear and anxiety during clinic practices due to lack of experience (Rhodes et al., 2005). Anxiety levels of students directly affects their ability to make clinic-related decisions and learn (Rhodes et al., 2005). Continuous repetitions made possible with simulation-based trainings improve students' performances and boost their self-confidence (Reilly 2007). Having more practice allows students to have lower levels of anxiety and improve their self-confidence, thus improve the quality of their performance (Karaköz 2003).

In a study conducted by Terzioğlu et al. (2002), it has been stated that using advanced application-responsive models in skill development applications was more effective in terms of making them feel proficient. Schoening et al (2006) has stated that simulation was not only an effective training tool, but also a training tool which boosts students' confidence in emergency situations which may occur in clinics. In addition, students have expressed that this self-confidence was associated with improvements in post-training dexterity, team work, communication and decision-making skills. (Göriş et al 2014)

## **3. Conclusion**

Considering the mortality rates, the first few hours after the onset of the event that is called "golden hours" on the margin of life and death are very important in terms of intervention. Once the event occurs, it is required to perform the right intervention on the patient/injured at the right time, provide the stabilization (balance of vital functions) of the patient/injured on the scene and carry her/him with convenient teams and equipments and with convenient carrying methods. Today, it is required to have sufficient knowledge and skills in many respects in 112 emergency health services. Simulation-based health education is one of the best examples of the application areas of the experience-based learning. It enables the patient to gain experience by repeating, making mistakes and learning from mistakes without

any harm. It prepares an educational environment for the student to think about her/his performance. It is possible to prepare scenarios as required and test all probable conditions. Such an educational environment will increase the transfer of what is learned with the help of convenient skill educational methods to learnings in the clinical environment.

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# The effectiveness of using toys in developing Palestinian students' communication skills and vocabulary retention

Dr. Ibrahim Mahmud Sabatin

Hebron University -Hebron, Palestine

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## Abstract

This study aimed to investigate the effectiveness of using toys in developing Palestinians students communication skills. . It also examined the long-term effect of the toys on the retention of the vocabulary. The researcher chose 60 third grade students from Quziba School for girls and boys in Hebron area. He chose two classes from the third grade classes randomly . The sample of the study was 60 students, 30 students in each one. Toys were used in teaching the experimental group, while the traditional way was used with the control one in the first semester of the academic year (2013-2014).

The experiment lasted for six weeks. After two weeks, a delayed test was administrated to the experimental group to measure retention. The results of the study revealed that there were statistically significant differences in the total mean score in communication skills achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group ) in the post test. It also showed that there were statistically significant differences at ( $\alpha \leq 0.05$ ) in the total mean score in vocabulary achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group ). And this was due to the method of using toys in teaching vocabulary. In the light of those findings the study recommended the necessity of using toys in teaching English language to make better outcomes in students' achievement and to shed light on techniques that emphasize organizing information for long learning (retention).

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*Keywords:* Toys, Teaching English, Retention

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## Introduction

Language plays an essential role in making people communicate with each other. And as for English, it is considered one of the most important languages all over the world. It helps communicating with foreigners at home and abroad. Accordingly, The English language is widely used in science, technology, computer services, politics, commerce and internet. Hence, many countries emphasize the importance of teaching English to their citizens. Richards (2001: 1) believes that "Second and foreign language teaching is one of the world's largest educational enterprises and millions of children and adults worldwide devote large amounts of time and efforts to the task of mastering a new language". The English language has a special place in the world today. It has become an international language, both in the sense that it is now the native language of people from several continent sand in the sense that many others have learnt to speak it as a second language (Graddol, Cheshire& Swann,1987:3). Ardeo (2003:110) states that during the last few decades there has been an increasing need to use the English language for the expression of knowledge within specific professional fields. In order to achieve a successful process of learning English, one must acquire its vocabulary, grammar, pronunciation and the Four skills: listening, reading, speaking, and writing. Accurate and adequate vocabulary

influences language comprehension more than grammatical correctness in effective communication. In this concern, Wilkins (1972:111) emphasizes that “Without grammar very little can be conveyed, without vocabulary nothing can be conveyed”. This clarifies the importance and the essential role of vocabulary in learning a foreign language. Vocabulary is a vital part of language that students need to master in order to communicate effectively. Moreover, it is considered the base for the other skills.

### **Statement of the Problem**

The researchers has observed that students face big difficulties in English communication skills and vocabulary retention. This difficulty might be a result of ineffective communication skills and vocabulary teaching methods which affect their vocabulary achievement and retention. Thus, the students' low achievement level in communication skills and vocabulary requires a serious research for alternative and effective techniques that may increase students' achievement and motivation. and adults worldwide devote large amounts of time and efforts to the task of mastering a new language”. The English language has a special place in the world today. It has become an international language, both in the sense that it is now the native language of people from several continents and in the sense that many others have learnt to speak it as a second language.

### **Purpose of the Study**

The purpose of the present study is to investigate the effectiveness of using toys on the learners' achievement in communication skills and vocabulary retention.

In short we can say that this study will try to help teachers of English in Palestine to improve their students' level in communication skills and to achieve good communication in foreign language.

### **Research Questions:**

- Are there statistically significant differences at ( $\alpha \leq 0.05$ ) in the total mean score in communication skills achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group) in the post test.
- Are there statistically significant differences at ( $\alpha \leq 0.05$ ) in the mean score in communication skills achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group) due to sex.
- Are there statistically significant differences at ( $\alpha \leq 0.05$ ) in the total mean score in vocabulary achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group)

### **Limits of the Study**

The researcher acknowledges the following limitations to the study. This study will be limited to the third grade students who study English at Hebron area for the academic year 2013/202014. The results of this study could not be generalized out the boarders of these limits. All of the subjects are non-native speakers of English. The results of this study could be generalized only to other similar conditions.

### **Methodology**

This study aimed to investigate the effectiveness of using toys in developing the third grade students communication skills achievement. It also examined the long-term effect of toys on the retention of the vocabulary.

### **Research Design**

The researchers followed the experimental approach. Two groups were assigned as the participants of the study; the experimental group, and the control group. The research includes four variables; the first variable is toys, the second variable is vocabulary achievement, the third variable is communication skills, the fourth variable is vocabulary retention. The experimental group was taught communication skills and vocabulary via toys, while the control group was taught via the traditional method. The experiment lasted for six weeks. Both groups were taught by the same teacher, the researchers.

### **Population of the Study**

The population of the study consists of all third grade students at the governmental schools in Hebron area in the first semester of the academic year (2013-2014).

### Sample of the Study

The sample of the study consisted of (60) students distributed into two groups; one experimental group consists of (30) students and one control group consists of (30) students. The sample of the study was chosen purposively from Quaziba girls school. The sample of the study was randomly chosen from the third grade classes and equally divided into two groups, experimental and control.

### Instrumentation

The researcher used an achievement tests to gather data. The tests were held on two days. In the first day, the researcher divided the subjects into two groups (experimental and control ). Each group consists of 30 male and female students. The a post test was given to them.

### The homogeneity of the sample

This section of the study presents the homogeneity between the two experimental and the two controlled groups in order to form homogenous groups.

Before administering the test, the research assured the homogeneity of all students to form homogeneous groups, depending on their GAE.

**Table :( 1). Means and Standard Deviation for the Homogeneity between the Two Groups (A/B) for the First Sample**

Section	Number	Mean	Std Dev	DF	T-VALUE	Sig
A	30	74.4286	1.77484	58	-.762	0.449
B	30	76.3714	1.83023			

A: Controlled group

B: Experimental group

As can be seen from the mean scores in Table (3.5 )group A assigned (M=74.43, Sd=1.77) while group B assigned (M=76.37, Sd=1.83).Both groups assigned almost the same mean scores. No significant difference was found between the two groups.(P > 0.05)

### Results :Data Analysis

This section will discuss the results of the effectiveness of using toys on the learners' achievement in communication skills and vocabulary retention.

The study revealed the following results:

#### Hypothesis 1

There is no statistically significant difference in the total mean score in communication skills achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group ) in the post test

**Table (2) Means and Standard Deviation of Students' Performance in communication skills due to the group**

Group	No	Mean	Std. Deviation	DF	T-value	Sig.
Controlled	30	0.538	0.156	58	5.027	0.000
Experimental	30	0.717	0.116			

Comparing the mean scores of both texts we notice that the experimental group which was taught by using toys assigned higher mean scores ( M= 0.717, Sd=0.116) than the controlled group which was taught by the traditional way (M=0.538,Sd=0.156 ). We notice from Table (1) that the hypothesis is rejected .

#### Hypothesis 2

There is no statistically significant difference in the total mean score in communication skills achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group) due to sex.

**Table(3) Means and Standard Deviation of Students' Performance in communication skills due to sex**

Variable	N	Mean	Std. Deviation	DF	T-value	Sig.
Male	31	0.656	0.136	58	0.556	0.580
Female	29	0.623	0.168			

This result supports the second hypothesis which says There is no significant difference in the total mean score in communication skills achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group) due to sex.

### Hypothesis 3

There is no statistically significant differences at ( $\alpha \leq 0.05$ ) in the total mean score in vocabulary achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group).

**Table(4) Means and Standard Deviation of Students' Performance in vocabulary due to the group**

Group	No	Mean	Std. Deviation	DF	T-value	Sig.
Controlled	30	0.538	0.156	58	5.027	0.010
Experimental	30	0.717	0.116			

Comparing the mean scores of both texts we notice that the experimental group which was taught by using toys assigned higher mean scores ( $M = 0.717$ ,  $Sd = 0.116$ ) than the controlled group which was taught by the traditional way ( $M = 0.538$ ,  $Sd = 0.156$ ). We notice from Table (1) that the hypothesis is rejected. This means that there is statistically significant differences at ( $\alpha \leq 0.05$ ) in the total mean score in vocabulary achievement between the pupils who learned through toys (experimental group) and those who learned through the traditional method (control group).

### Conclusion

Based on the findings, derived from the results of this study, the following conclusions were reached:

1. Toys stimulate students towards an independent practice of English language instead of direct instruction.
2. Educational toys provide a context in which language is used in a meaningful way and they helped students develop communicative competence in the English language. This also adds an interesting aspect to toys, the competition. Adding competition to educational toys is a good technique to try to push its players to learn.
3. Toys provide students with enjoyment, pleasure, enthusiasm and variation which are significant enough to affect the students' achievement positively.
4. Toys can afford a valuable technique in language classroom for students at intermediate level and hence can be used to facilitate the process of vocabulary learning.

### Pedagogical Implications

In the light of the study results, the researchers suggest the following:

1. Teachers should be aware of the needs of their students as well as their abilities and can accordingly choose suitable techniques for activating English vocabulary.
2. Teachers should avoid teacher-centered classes and encourage student-centered classes. And should use strategies which can promote learners' motivation.

## Recommendations

In the light of the results, the researchers recommend that:

Curriculum designers and decision makers are recommended to enrich the Palestinian curriculum with different educational toys that tackle the different skills of English language .And Develop and enrich the Teacher's Guide with activities and techniques with different types of toys. Supervisors are recommended to Provide teachers with instructional materials which improve their awareness about toys and their importance and the necessity of using them in teaching English. And Conduct workshops that aim at familiarizing teachers with different toys. English language teachers are recommended to Change the methods and approaches of teaching from traditional to communicative which based on the students' real involvement in the teaching-learning process. And Change their role from instructors who dominate the class into educators whose role is to facilitate, guide, organize, help, coordinate and support the students to communicate and acquire the language.

## Recommendations for Further Studies

The researchers suggested the following recommendations for further studies:

1. The effect of computerized competitions on developing students reading comprehension skills.
2. The effectiveness of using toys on developing listening comprehension skills.
3. The effect of educational toys on developing students' critical thinking.
4. The effectiveness of a suggested program based on toys on developing reading comprehension skills.
5. The effect of toys based learning on the development of self-learning .

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# The effects of education system on to the child labour: an evaluation from the social work perspective

Buğra Yıldırım<sup>a86</sup>, Eda Beydili<sup>b</sup>, Merve Görgülü<sup>c</sup>

<sup>a,b,c</sup> *Hacettepe University, Faculty of Economics and Administrative Sciences Department of Social Work, 06800, Ankara, Turkey.*

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## Abstract

Education is an important tool for development of individuals and societies. Children as a part of education system and the adults of future are a vital importance. The education system should be covered, especially children, including every human being in order to develop. In Turkey the process of education raised to twelve year, is known 4+4+4 system, and this decision got so much reaction because of its possible results. One of this results is the child labour problem. The aim of this study is to discuss the effects of education system on the child labour and bring into question social work intervention in order to eliminate this problem.

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*Keywords:* Turkey, education system, child, child labour, social work.

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## 1. Introduction

Among other members of a community, a child is an individual who needs looking after and private caring because of having a nature sensitive, sentimental and cognitive characteristic open to learning. Progression of a society is merely possible with the development of children in that community, who are strong psychosocially and physically. While child abuse dates back early humans, any child abuse in whatsoever form it is requires medical and psychosocial treatment, in addition the person who are involved in child abuse is subjected to legal act. Child abuse is mainly grouped as physical, emotional, sexual, and economical and negligence, and child labour is one of the prime issues of the economical abuse.

Economical abuse can best be defined as hiring a child for a work in which his rights are infringed, low payment is made, and his personal development is hindered (Bahar et. al, 2009). It is an insurmountable issue in our country as well as in many other developed and developing countries as a clear result of the distribution of unbalanced economic and technological growth. The need for human workers in the industries has gained an utmost importance because of the competition in the global markets in a correlation with globalisation; it has resulted in a crowded mass of labour class first in Europe and all around the world respectively (Alp et.al, 2009; Sunal et.al, 2008; Yıldız, 2007; Kavi, 2006; Özdemir, 2005; Sapancalı, 2002; exp.: Güler, 2001). As expected, first male workers and then in time female workers and in a short span of time child workers have been employed in industries, which has led a disturbance in the physical, sensorial, kinaesthetic, social, medical and moral development and his right for education has been disregarded. That has brought about children being prone to every threat, for they have adopted all the negative experiences and way of behaving in the work life.

## 2. The Issue Of Child Labour

To make a definition of child labour necessitates the definition of child. It can best be done by taking the age criteria and the children rights into consideration. The United Nations Convention on the Rights of the Child (commonly abbreviated as the CRC, CROC, or UNCRC) defines a child as any human being under the age of eighteen.

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<sup>86</sup> Corresponding author. Tel.: +90 0312 297 63 63 / 328; fax: +90 0312 297 63 65.

E-mail address: bugrayildirim58@gmail.com

Child labour refers to the employment of children in any work that deprives children of their childhood, interferes with their ability to attend regular school, and that is mentally, physically, socially or morally dangerous and harmful. According to ILO (International Labour Organisation), the definition of working child and that of child labour do not overlap (FAO, 2013).

Child labour has always been considered as the series of acts that deprive the children of their childhood, main potentials, and the most importantly their honours, and that give a serious harm to their physical and mental development. All these prevent them from attending school and even if they do so, they lead them to work in heavy jobs that last for hours. To decide if a job is child labour or not is solely depends on the kind of job, the age of the child, the content the hours of the job, the working conditions, and the goals of the country; therefore, it varies from country to country and from sector to sector (ILO, 2004).

In Turkey, in accordance with the labour law of 2003, it is forbidden for employers to employ children under the age of 15; however, those who are in their 15 legally and have completed secondary school education or those who continue their education could be hired for the jobs as long as these jobs do not harm their physical, mental, and moral developments. For employment, it is a requirement for the workplaces to consider children's safety measures, their physical, mental, and psychological developments, personal tendencies, and abilities. It is necessary for works not to hinder them from going to school, and vocational training. Working hours of the children who have completed the compulsory education and do not attend to school is not allowed to be more than 7 hours per day and 35 hours per week, but for those who have completed the age of 15, the time could be extended to 8 hours per day and 40 hours per week (Labour Law No: 4857, Article 71).

It is clear that education system has considerably important to shape the working conditions of children. It would be useful to have a look at the prospects of child labour both in our country and in the World before giving the details of education.

### **3. A General Overview Of Child Labour Both In Turkey And In The World.**

Almost 1/3 of the World population is comprised of children under the age of 18. Children and youngsters constitute almost half of the whole population in most countries (Unicef, 2006). Although according to the statistics of ILO there are a plethora of children who are employed under the age of 5, almost all of the children employed are those under at the age range of 5-17. In accordance with the records of ILO, 306 million out of 1.586 billion children in the World (19.3%) are in the employment sector, and 250 million (around 70%) of these children are child worker, which shows that one out of every seven child in the World is child worker. 115 million of these children are performing very dangerous tasks (ILO, 2010).

The same statistics 176 million children at the age range of 5-14 are in industry and it is clear that the number of child workers is 153 million, of whom 53 million are employed in dangerous tasks. 129 million children at the age range of 15-17 in the industry of whom 53 million are employed in dangerous tasks are child workers and all of the workers in that range have been working in dangerous tasks (ILO, 2010).

As of considering the rates from gender point of view, the records reveal that 15.6 % of male children and 11.4% of female children at the age range of 5-17 are child workers. In other words, the number of female workers is 88 million, while the same number applies to 128 million for male children. 9.4% of the male children and 5.4% of the female children at the same age range has been working for dangerous jobs (ILO, 2010).

60% of the children at the age range of 5-17 in the World has been employed in the agriculture sector and are subjected to work accident or occupational disease (FAO; 2013) most of the male children are employed in the industrial and agricultural sector, while female children operate in service sectors. 67.5 of the children employed work without payment, and 21.4% are paid, and 5% work freelance. The rate of female children who work without payment is 72% and the same rate is 64% for males (ILO, 2010).

According to 2012 records of Turkey Institute of Statistics, the population of children at the age range of 0-17 constitutes of 30% of the total population (22 691 179). It is a reality that the issue of child labour which is relevant to a huge segment of the society should not be ignored. The exploitation of the labour of the children has still been an issue that has been deeply affecting the country which has promised to strive for the exploitation of child labour and has started to implement some laws to regulate the issue. The issue of child labour has been observed in two ways as both employing the children under the legal age illegally and forcing them to work under heavy work conditions.

According to the records of the questionnaire of child labour in Turkey in 2012, children at the age range of 6 -17 have mostly been employed in agricultural sector. The second sector in which they are employed abundantly is service sector and the third one industrial sector. Considering the gender, the records show that female children are mostly employed in the agricultural sector, but male children are hired for service sector. When the records between 2006 and 2012 are compared, it comes out that the number of child workers has increased, while the number of male and female children working in service and industrial sectors has decreased, but the number of those working in agricultural sector has risen.

Considering the questionnaires about child labour in 2006 – 2012 , the results have shown that in 2012 , 413.000 children out of 893.000 in Turkey have worked as family workers , and 470.000 are paid workers and that 10.000 run their own businesses. It is a striking point that the number of children who work as family workers without payment is huge. It is interesting to note that the number of children has dramatically fallen in comparison with those of 2006 and that the number of family child workers unpaid (<http://www.tuik.gov.tr>).

#### **4. Reformation Of The Education System As 4+4+4 Causing Children To Work In Turkey**

The response to be given to the question of why children work or have them work could best be explained by the economic conditions of the family, the increasing tendency for the illegal employment, the gender roles, social security working against women and children, and the effects of immigration on children, in addition the instability on the education policies takes the priority.

The education system in Turkey is classified as public and vocational education. Public education is comprised of primary, secondary, high school education and tertiary education. Vocational education is defined as the education system that aims to teach reading and writing to the elderly, and the vocational schools in which students are able to put what they have learnt all throughout their education life into practice (Senar and Garip, 2013). It is indisputable to go for some changes in education system as a requirement of modern era. However, the point that should be considered well is to what extent all these changes will affect students, parents, and teachers and more importantly the future of the country.

A new formulation has been required in the education system on the grounds that the compulsory education for 8 years, which was legislated at the 28 February process in Turkey, is not satisfactory enough to meet demands for teaching all the contemporary topics to the new generation; therefore, the compulsory education has been enlarged to 12 years, and the logic behind that policy has been stated as Turkey being far behind the other nations in terms of the number of schools and graduate students. Another important point highlighted by the new policy is the need for democratization of education system and making the education system more flexible (<http://www.meb.gov.tr>).

With the new system that started in 2012- 2013 education year, education has been divided into levels in which first 4 years is primary school, and the next 4 years is secondary school and the last 4 years is planned to be the high school. The age to start to school has been decreased with that new system that has been objected much by public. Children 66 months old have been decided to start the school. However, the point to be discussed is that a child at the age of 5.5 is lack of physical, cognitive and psychological capabilities; namely, psycho-social situation of the child is unable to meet the demands of such an education. The new system has stated that a student at the second level of the education (secondary school) or parents have got the right to choose the suitable eclectic course in accordance with the wishes and the talents of the child. A critic to be given to that matter is that children can be directed to the religion classes without getting the wishes of the children (<http://www.egitimsen.org.tr>).

Also, the implementation of 4+4+4 system has been objected by many unions and protest walks have been held (<http://www.radikal.com.tr>). According to a study carried out by Karadeniz Bahtiyar (2012) in which 468 teachers are involved, it has been concluded that 82.3% of the teachers feel that the new law has not been discussed properly before implementation, 79.1% feel that teachers have not been advocated beforehand, 62.8% of the teachers do not support the law, 64.3% of the teachers feel that the new law will enable students to graduate from the high school without attending the school.

According to a study having been carried out by Memişoğlu and İsmetoğlu (2013), the interviews with the school managers have shown that 8 of them feel the new law is missing in many points and that, although the new law might be considered appropriate, there are many deficiencies in planning and implementation and that it has to be in the form 5+3+4; there is a rush and enforcement in implementation and the weekly hours are more than required. Moreover, it is another matter of dispute that the implementation is limited to only Religious Vocational Schools.

On condition that students are unable to pass the proficiency test after 8th grade (SBS), they might have a chance to sign up Religious Vocational Schools or other Vocational School with the coordination of governors. The issue that arises at that point is that it is uncertain whether students could be followed well since the system will run e-school (<http://www.meb.gov.tr>). That issue should also be considered from the social gender roles. It is necessary to take into consideration that the children who will graduate at an early period have the risk to start to work as child workers and that female children have the risk to get married at an early age and that necessary measure should be taken immediately.

It is evident that the new system of 4+4+4 has been objected much indeed. It is necessary to carry out enough studies to accommodate the needs to arise and to prevent the issues from happening about the children who started to the first grade at the implementation of the system and study at the 5th grade for the time being and also for the current students of 8th grade who will start to high school. For the sake of the country and education system, it is highly important that the law should be re-evaluated to the extent that the missing points are filled.

## **5. Child Labour And Social Work**

The fight with the issue of child labour which is a kind of economical exploitation requires a holistic approach; therefore, the social work to be applied should cover micro, mezzo and macro levels. The implementation of social work at micro and mezzo levels should be started with the definition of the characteristics of the families who force their children to work and the main reasons of that issue. The awareness that depriving children of the right to study is a violation of human rights should be raised on the families' side. The child and his family have got the right to get the social benefits provided by the government; therefore, social worker should direct the child and his family to the use of these economical resources. It is necessary to follow a way to maximize the benefits of these resources in order to prevent child labour.

According to Karataş (2007), one of the major things that should be taken into consideration, while deciding on child care system in Turkey, is whether an inclusive and straightforward approach has been implemented. Even though there are a lot of judicial, managerial applications about the matter, it could be said that all these do not reflect the necessities required by a contemporary world. The prime feature of the existing policies is that they have developed themselves separately from each other in the span of time. As stated above, the interference to be developed at macro level could best be provided by using constructive child caring policies and social policies. The interference to be applied at macro level by social workers could be summarized as follows.

- To be able to enforce some dissuasive sanctions to families who consider children as child workers unpaid by depriving them of the right of education and to employers and families who force the children under a certain age set out by laws.
- To promote some social events which are educational, advocacy, and empowering the right based in parallel with the needs and characteristics of the populations which the implications and applications cover.
- To select the children of the families who are under the socioeconomic level and provide scholarship to them.
- With the accompany of the social workers employed in the ministries, to take the role of enforcement in order to prevent child labour and to engage in lobby facilities.

Furthermore, social work and social workers should take an active role in shaping social policies and regulations that are required for the fight with the issue child labour.

## **6. Conclusion And Proposals**

Child labour which is a kind of economical exploitation is a growing issue in both our country and all around the World. The most important measure to be taken to prevent child labour is education. One of the main responsibilities of a nation aiming to increase social welfare is to shape the education to an extent to cover the whole nation. While the changes the educational policy is parallel with the needs of contemporary World, the issue of how to shape is a matter of concern, for the changes implemented might result in children to be away from school or to be ousted from school.

The compulsory education has been increased to 12 years after 2012-2013 school years and designed as 4+4+4. The new education system has been discussed since the age to start to school has gone down, Religious Vocational Schools have opened as a result of conservative social structure, these students have been desired to be sent to these schools,

female children have been forced to get married at an early age as a requirement of compulsory religion classes and patriarchal social structure.

Social workers are mainly responsible for providing the individuals who have lost their social functions as a result of their interactions to their environments with these positive qualities again. Social workers who evaluate the life of every child and his family should take major role against every policy that will make the child away from education and help them get their shares equally from education. Also, people who are knowledgeable enough should engage in law making policies in order to strengthen the education system.

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# The effects of isokinetic performance on accurate throwing in team handball

Emel Çetin<sup>a</sup>, Nilüfer Balcı<sup>b</sup>

<sup>a</sup>Akdeniz University, School of Physical Education and Sports, Antalya 07058, Turkey

<sup>b</sup>Akdeniz University, School of Medicine, Department of Physical Medicine, Antalya 07058, Turkey

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## Abstract

The purpose of the study was to investigate the relationship between throwing accuracy and shoulder strength. Two groups of young healthy, male participants took part in the experiments as a elite and non- elite athletes. The ball velocity at ball release was derived from the change in distance between wrist and the ball. The elite athletes performed many accurate throwing with lower ball velocity. The isokinetic strength performances were determinate as 60°/s and 240°/s, by using the Cybex Norm Dynamometer. The elite athletes presented a bigger shoulder extension value (for dominant and non-dominant arms). As the angular velocity increased, peak torque values displayed lesser value on extension and flexion in the elite athletes and the non-elite athletes. The peak torque values of the elite athletes were found higher during extension and flexion at each angular velocity. However, correlation was not found between shoulder extension/flexion and ball velocity. Elite handball players shoot with lower shooting velocity but more accurately.

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*Keywords:* team handball, kinematics, shoulder, muscle strength, accuracy

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## Introduction

In many sports branches, the over arm throwing is considered to be the most important skill. The throwing performance depends on the player's optimal coordination of his/her body to create the maximum velocity. The player, when she/he is ready for throwing, has to use all body segments from ankle to wrist. Toyoshima et al. have indicated that the 53,1% of the throwing velocity springs from arm movement and the 49,9% of it is dependent on stepping and body rotation (Toyoshima et al., 1974). In the acceleration stage of the throw, the arm performs the whip motion while passing from the external rotation (ER) position to the internal rotation (IR) position. Tullos and King (1973) suggested that, as the shoulder rotational range of motion increases, the efficiency of the athlete's internal rotator muscles will increase and the velocity of the ball will be higher (Tullos & King, 1973). Jobe et al. (1984), Braatz & Gogia (1987), and Pappas et al. (1985) examined internal and external range of motion and strength in throwing motion in baseball (Jobe et al., 1987; Braatz & Gogia, 1985; Pappas et al., 1985). In these studies, they have found that the thrower should produce a considerable amount of torque during the IR in order to throw the ball accurately and with a high speed.

Handball necessitates several skills and physical traits special to the game. The goal, which is the essential to win in handball, depends on a quality throwing (Joris et al., 1985). Thus, throwing is a crucial skill in handball as it is the case in several other sports branches (Joris et al., 1985; Elias 1999). The goal is achieved expeditiously before defenders and the goalkeeper block. When the kinematic chain during the throwing is observed to give the ball maximum velocity; firstly the shoulder, then the elbow, and finally the wrist reaches the maximum velocity (Joris et al., 1985).

In handball, the goals coring ability substantially depends on ball velocity and throwing accuracy. Throwing velocity and accuracy are the main performance parameters during the game in handball (Bayious & Boudoulos, 1998). This study aimed to investigate the contribution of shoulder strength and throwing accurate in overarm throwing in team handball.

## Material and Methods

### Participant

Eighteen participant in total participated in the study; nine of which are elite male handball players (Elite athletes: playing for the Turkish National Handball Team) (age: 25.44±3.28 years, height: 188.88±6.75 cm, weight: 89.55±10.33 kg, training experience: 15.4±3.3 year) and nine of which are male non-elite athletes in Physical Education Sports College and playing handball (Non-elite athletes) (age: 22.66±1.58 years, height: 183.66±5.17 cm, weight: 89.00±11.82 kg, training experience: 6.4±1.8 year). Determination of subject's characteristics (Table 1) and clinical examination of the shoulder were performed prior to isokinetic testing. Individuals with present shoulder pain were excluded from the study. All participants prior to examination signed a consent form which explained the testing procedure in detail.

Table 1. Subjects characteristics

Groups (n=18)	Age (year)	Height (cm)	Weight (kg)	Experience (year)
Group 1	25.4±3.3	188.9±6.7	89.6±10.3	15.4±3.3
Group 2	22.7±1.6	184.4±5.3	85.1±13.2	6.4±1.8

### Kinematic

Motion data were collected using two 100-Hz fast cameras (BASLER- A602 fc color, 100 Hz) in gym after ten minutes warm-up. The performance values of the participants were recorded through recording two throwing performances of each of them after ten minutes warm up session. In this study, the participants were requested to present throwing performances, after taking three steps, directed towards the target placed on the upper right corner of the goal which is at six meters distance from the throwing line. The subjects were asked to perform fast and accurate shooting. The target was placed on 25 cm below of the upper right corner of the goal, and the dimensions of the target were 60x60 cm. Participants were given two minutes breaks between each throwing performance. Passive markers were placed at the heel, ankle, knee, hip, shoulder, wrist, hand, head, chin and ball.

Three dimensional location of markers were calculated with and manual digitizing system HUBAG (Hacettepe University Biomechanics Research Group, <http://www.biomech.hacettepe.edu.tr>)(Aritan, Çilli &Amca, 2010) utilizing the direct linear transformation method (Abdel-Aziz, 1971).

The root mean square error in the calculation of the 3D passive markers location, with a calibration cube approximately 3.0 m x2.0 m x 1.0 m in size, was found to be less than 10 mm. Coordinate data were filtered with a Butterworth digital low-pass filter.

Ball velocity was calculated using a five-point differential filter. The velocity at ball release was derived from the change in distance between wrist and the ball ( Tillaar & Ettema, 2007). The velocity location  $x$  at the time frame  $i$  is determined based on two data points before ( $i-1$ ,  $i-2$ ) and two data points after ( $i+1$ ,  $i+2$ ) the position data

$$\vec{v}_x[i] = \frac{1}{12} (-\vec{p}_x[i+2] + 8\vec{p}_x[i+1] - 8\vec{p}_x[i-1] + \vec{p}_x[i-2])f$$

Where  $f$  stands for the sampling frequency (Tillaar and Ettema, 2003; Zheng et al., 2004).

### Isokinetic Assessment

The isokinetic strength performance was defined in a different day through a different test. Each participant had been given the instructions about the test procedure and the equipment before the test. Each of them was tested by Cybex Norm isokinetic dynamometer (Lumex, Ronkonkoma, NY). Isokinetic dynamometer was calibrated by the

Cybex calibration procedure and the isokinetic force was determined as Nm.

Arm ergometer was used in the warm up. Extension exercises were done for five minutes before and after the test in order to prevent possible injuries. Peak torques, work and power variables were determinate as 60°/s and 240°/s, by using the Cybex Norm Dynamometer. Participants took 30 seconds break between repetitions.

### Statistics

All data are presented as means (SD). Data were analyzed using SPSS software (version 10.0). Student-t test for independent samples was used to compare baseline values between groups. The Pearson product moment correlation coefficient was used to examine the relationship between isokinetic strength and ball velocity. The level of significance was set at 0, 05.

### Results

The shoulder flexion and extension peak torque values for each group are presented in the Table 1. There was not a statistically significant difference between two groups in terms of shoulder flexion values.

Table 2. Comparison of dominant and non-dominant shoulder extension and flexion at 60 and 240 °s<sup>-1</sup> in Group 1 and Group 2

	Group 1				Group 2			
	Extension 60°s <sup>-1</sup>	Flexion 60 °s <sup>-1</sup>	Extension 240 °s <sup>-1</sup>	Flexion 240 °s <sup>-1</sup>	Extension 60°s <sup>-1</sup>	Flexion 60 °s <sup>-1</sup>	Extension 240 °s <sup>-1</sup>	Flexion 240 °s <sup>-1</sup>
Dominant	111.6±25.2	77.5±14.9	79.3±18.2*	54.3±13.7	98.2±15	73.3±12.3	55.2±23.1	41.7±19.5
Non-dominant	100.1±16.7*	79.8±12.2	69±14*	56±12.3	84.3±10.7	75.7±11.8	48.6±19.1	46.7±18.9

\* p<.05

The shoulder IR and ER average and standard deviation values for each group are presented in the Table 2.

The differences between groups in terms of shoulder IR and ER values for dominant and non-dominant arms are statistically significant(p<.05). Shoulder IR and ER values of the elite athletes at 60 and 240 °/s were bigger compared to the other group. Only the shoulder ER values for non-dominant arms were not statistically significant (p>.05).

Table 3. Comparison of dominant and non-dominant shoulder IR and ER in Group 1 and Group 2

	Group 1				Group 2			
	IR 60 °s <sup>-1</sup>	ER 60 °s <sup>-1</sup>	IR 240 °s <sup>-1</sup>	ER 240 °s <sup>-1</sup>	IR 60 °s <sup>-1</sup>	ER 60 °s <sup>-1</sup>	IR 240 °s <sup>-1</sup>	ER 240 °s <sup>-1</sup>
Dominant	71.1±20.2*	50.6±14.3*	58.5±16.4*	38.6±11.5*	49.1±9.9	35.6±7.6	37.5±10.7	27.7±6.4
Non-dominant	69.6±18.3*	53±14.6	54±14.6*	40.1±13.4	48.6±9.7	39.7±12.1	40.5±8.2	32.8±10.3

\* p<.05

IR: shoulder internal rotation

ER:shoulder external rotation

Differences were found between the groups in terms of ball velocity for accurate throwing (Table 3). The students threw faster compared to the elite athletes. However, the number of accurate throws was eleven for the elite athletes, and six for the non-elite athletes. There is not a significant difference between the elite athletes and the non-elite athletes in terms of inaccurate throws.



Table 4. Ball velocities in accuracy and non-accuracy throwing

	Ball velocity (m/sec)	
	Group 1	Group 2
Accuracy throwing	16.5±5.8(n=11)*	23.5±6.7(n=6)
Non-accuracy throwing	22.8±6.6(n=7)	22.7±7.8(n=12)

\* p&lt;.05

n= accuracy and non-accuracy throwing number

The shoulder IR/ER values of the elite athletes and non-elite athletes did not present significant correlation with the ball velocity in accurate and inaccurate throws.

## Dicussion

In handball, throwing velocity and accuracy are considered to be the main performance parameters during the game. Various researchers have examined the correlation between the movement velocity of the upper limb and accurate throwing to the target. The results of these studies have generally suggested that there exists a significant negative correlation between velocity and accuracy (Elias, 1999).

The aim of this study is to define the relation between throwing velocity and shoulder strength in accurate and inaccurate throws in handball.

We found a significant difference between two groups in accurate throws in terms of ball velocity. The ball velocity was determined as 16.50(5.80) m/s for the elite athletes and as 23.50(6.70) m/s for the non-elite athletes. Despite the fact that the elite athletes consists of highly training experienced athletes having 15 years of experience in average, the ball velocity in this group was lower than that in the other group. However, the number of accurate throws was higher in the non-elite athletes (The number of accurate throws elite athletes: 11, non-elite athletes: 6). Elite athletes preferred to throw accurately rather than throwing fast, thanks to their technical skills which they had obtained through experience.

They presented a more careful throwing performance compared to the other group. The ball velocity for accurate shots was determined 26.10(2.90) m/s for cricket (Sachlikidis & Salter, 2007), and 17.20(1.40) m/s for handball (Joris et al., 1985). Akpınar et al.'s study has found that the ball velocity for throwing after taking three steps was determined 20.80(1.02) m/s for the Super League Team, and 19.35(1.47) m/s for the 1st League Team and the study also suggested that the velocity of the ball when it is released from the hand is correlated with maximal power and force (Akpınar & Mirzeoğlu, 2006). Various researchers who analyzed the over arm throwing have indicated that the muscle force is a crucial factor in throwing velocity (Elasz, 1999; Best et al., 1993). According to Bayious et al., the maximal arm speed is one of the important factors in the determination of ball velocity during set shot (Bayious et al., 2001).

Shoulder IR/ER force in 90° abduction were tested at 60 and 240 °/s. A significant difference was found between the elite athletes and the non-elite athletes in terms of shoulder IR/ER force values. Elite athletes have presented a bigger shoulder IR (for dominant and non-dominant arms) and ER (for the dominant arm) values at 60 and 240 °/s (p<.05).

Many studies on handball have examined the correlation between the shoulder IR/ER force and the ball velocity for different shot types. In these studies, significant correlation between ball velocity and shoulder IR/ER force has only been found in jump shot performance (Elasz, 1999; Fleck et al., 1992).

The shoulder IR and the elbow extension are related to the total ball velocity, after the release of the ball. Tillaar and Ettema have indicated that the shoulder IR and the elbow extension are crucial factors for high speed shots (Tillaar & Ettema, 2007). However, only the shoulder IR and the elbow extension are not enough for high speed shot. These parameters are dependent on body and lower extremity.

In this study, a correlation between shoulder IR/ER force and ball velocity was not found. Bayious et al., did not find any significant difference between shoulder IR and ER force among groups for three different shot types in handball (set shot, cross-over step and jump shot) (Bayious & Boudoulos, 1998). In addition, a significant correlation between the shoulder IR/ER and the ball velocity was not found, except the jump-shot performance. Here, the role of the lower extremities has been effective in jump shot performance. According to Bayious, the shoulder internal/external peak

torque values are not good indicators of throwing velocity, except jump-shot (Bayious & Boudoulos, 1998). The conclusions that we reached in this study show similarity to those of these studies.

The shoulder extension/flexion was tested at 60 and 240 °/s for dominant and non-dominant arms. Significant difference for dominant and non-dominant arms was found in the shoulder extension value; at 240 °/s for the elite athletes, and at 60 and 240 °/s for the non-elite athletes ( $p < .05$ ). The elite athletes presented a bigger shoulder extension value (for dominant and non-dominant arms).

As the angular velocity increased, peak torque values displayed lesser value on extension and flexion in the elite athletes and the non-elite athletes. The peak torque values of the elite athletes were found higher during extension and flexion at each angular velocity. However, correlation was not found between shoulder extension/flexion and ball velocity.

The throwing success in handball depends on throwing velocity. However, the most important factor affecting ball velocity is the technique of the movement (Wit & Eliazsz, 1990). On the other hand, accuracy is among the important factors too. As the attention devoted to accuracy increases, the velocity will go down. When the aim is to throw accurately, the throwing velocity is 85% of the maximal velocity (Tillaar & Ettema, 2003). This study shows that elite handball players shoot with lower shooting velocity but more accurately.

## Conclusion

In the present study we analyzed accuracy performance and kinematics of 9 elite and 9 non-elite team-handball players in the standing throw with three steps and not found significant influence of shoulder IR/ER to the ball velocity in accuracy or non-accuracy throwing. For team handball coaches and athletes, the results of this study suggest that trainers, while coaching their players, should put as much emphasis on throwing accuracy as they do on increasing ball velocity.

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# The effects of self-regulation skills on TEOG exam

Nazife Süer<sup>a</sup>, Sertel Altun<sup>b</sup>

<sup>a</sup>75. Yıl (75<sup>th</sup> Year) Secondary School, Güngören, Istanbul 34220, Turkey  
<sup>b</sup>Yıldız Teknik University, Faculty of Education, Istanbul 34220, Turkey

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## Abstract

In this study, the effects of secondary school students' self-regulation skills on TEOG examination were examined. *Motivational Strategy Scale*, developed by Pintrich and De Groot (1990) and adapted to Turkish by Üredi (2005), was used as the data collection instrument. TEOG exam scores of the students were obtained from their school administrations. The study group of the research consisted of 412 students attending the 8<sup>th</sup> Year Classes of 75<sup>th</sup> Year Secondary School of Güngören District in the province of Istanbul. To analyse the data of the research, multi regression analysis was used. The research showed that the variables of self-efficacy and anxiety were effective in predicting the TEOG exam, and that use of cognitive strategy came after self-efficacy and anxiety with respect to impacting the TEOG exam achievement, and also that self-regulation and intrinsic value dimensions were not effective in predicting the TEOG exam scores.

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**Keywords:** Self-regulation, Self-regulation strategies, motivational beliefs, TEOG exam

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## 1. Introduction

Due to the fact that educational levels of societies are considered as the main criteria in determining their development levels, societies make effort to narrow the gaps between them, in terms of development, through education. (Erdoğan, 2010). The central exams play a key role in educational lives of students in Turkey as their admissions into and placements in high schools and universities depend on the exam scores achieved, which means that they may become students of education bodies either with high education standards or poor education standards. Once the student has achieved a good score in the central exam, s/he will have the privilege to have an education in a school where the quality of education is better. Starting from this point, families display a tendency to make the greatest effort within their own means in order to provide their children with a qualified education as part of their short term goals, and therefore with a bright future as part of their long term goals.

While the exam oriented education system gives rise to the mentioned effect upon the parties concerned, it confronts us as a reality affecting the system negatively as one of the factors that inhibit achieving the desired student profile. However, success in education should not be perceived as the performance displayed in exams only. (MEB, 2013a). Taking this into consideration, the Ministry of National Education abolished the Placement Test called SBS, the student selection exam for admission to secondary education as from 2013-2014 Academic Year with the aim of relieving students of the exam stress. A new transitional system, abbreviated to TEOG and standing for transition to secondary education from primary education in Turkish, to replace the exam abolished has been introduced. The new system aims to present a pluralistic approach eliminating the conventional approach of raising monotype individuals through secondary education, observing respect to differences as well as securing students. The new system allows 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> year students' school test scores to be included in calculating their final scores to be used in their admissions to secondary education bodies besides their scores achieved in centrally designed and applied Turkish, Mathematics, Science and Technology, History of The Turkish Revolution, Religion and Morals and Foreign Language tests each

term (MEB,2013b). While exam achievement is quite important in our country, the TEOG exam which is a new system in this research has been considered worth scrutinizing in order to put forward the variables that affect the student exam achievement and understand them.

A lot of factors that could have an effect on the course achievement or exam achievement of the student can be mentioned. The concept *self-regulation*, which plays an affective role in students' own learning process, lies on the focal point of the researches done on academic success in recent years (Üredi, 2005). Self-regulation, which is defined by a great number of theoretical points of view, has been defined by Pintrich (2000) as "an effective and constructive process in which the students determine their own learning purposes, try to arrange their cognitions, motivations and behaviours, and are directed and limited by their targets and the contextual features in their environment". It is defined by Risemberg and Zimmerman (1992) as "determining targets, developing strategies in order to realize these targets and, managing whatever gained thanks to these strategies". Self-regulation skill is considered as a mechanism that assists in explaining the differences of achievement among the students, and this means an increase of the achievement (Schunk, 2005). In spite of the fact that the concept self-regulation is interpreted through various theoretical points of view, researchers have focused on two elements in the organization of the learning process of individuals which are self-regulation strategies and motivational beliefs which are the sources of motivation enabling the usage of these strategies.

Self-regulation strategies, according to Zimmerman (1990), are the processes implemented by students which they believe will be of help to them and serve as a tool in gaining the knowledge and skills required to meet their objectives. These processes are the cognitive strategies such as self-regulation, which contains the metacognitive strategies for the planning, monitoring and changing the cognition, and students' managing their efforts to do an academic assignment in the classroom and repeating, making sense and organizing for use in order to learn, remember and understand (Pintrich ve De Groot, 1990). However, in addition to the usage of the cognitive and metacognitive strategy in order to achieve success, the individual should not only use the cognitive strategies, but also the belief, will-power and affective factors so that the self-regulation processes will be effective (Pintrich, 2000). Motivational beliefs are the beliefs of learners about the event and the object, or the topic (Boekarts, 2002). Individuals opinions on their abilities to learn are beliefs linked to one another, which are being certain about their knowledge and skills, judgment of proficiency, output expectation and appreciation of academic duties (Pintrich and De Groot, 1990). The beliefs of students related to their own management and proficiency levels may provide an important clue in predicting their future applications and participations. In the field literature, Alan has put forward the fact that self-regulating learning strategies and motivational beliefs influence achievement in researches that examine the relationship between self-regulation and achievement (Malpass, O'neil, Herold and Hocevar, 1999; Pintrich, 1999; Zimmerman and Martinez-Pons, 1990; Azevedo, Cromley, Winters, Moos and Greene, 2005; Cleary and Zimmerman, 2004; Chen, 2002; Canca, 2005; Üredi, 2005). According to the data of the Program of International Student Assessment, PISA 2012, arranged by Organization for Economic Cooperation and Development (OECD), and which is one of the most comprehensive educational researches of the world, when the self-regulation and motivational beliefs in Mathematics lesson are examined, in spite of the fact that the intrinsic motivation or the approach towards the lesson is above the OECD average in Turkey, this positive attitude did not reflect on the results as an academic success, and our country took a place in the last rows in Mathematics Achievement. According to the PISA reports, self-efficacy in Mathematics displays a tendency of rising among the countries whose Mathematics Anxiety levels are low (OECD,2013).

In this study, the level of motivational strategies' predicting the TEOG exam scores related to learning has been examined in terms of self-regulation. In this context, an answer to the question "To what extent do the self-regulation skills on predict the scores achieved in the TEOG exam?" was sought for.

## **2. Method**

### **The Model of the Research**

Of the screening models, the relational screening model was applied in the study. The relational screening models are research models aiming to determine the existence or degree of the covariance among two or more variables (Karasar, 2006).

### **Study Group**

Of the 412 students attending the 8<sup>th</sup> Grades of 75 Yıl (75<sup>th</sup> Year) Secondary School in Güngören District in the province of Istanbul, 213 (51,7 %) of them were girls, and 199 (48,3 %) were boys.

### Data Collection Tools

In the study, Self-regulation strategies and motivational beliefs of the students were examined using the “Motivational Strategies Scale Related to Learning” developed by Pintrich and De Groot (1990). It was adapted to Turkish and its validity and security checks were by Üredi (2005). The measuring scale consisted of two sections, which were self-regulation strategies and motivational beliefs. The measuring scale within the section of self-regulation strategies comprises of two scales as Cognitive strategy usage and Self-regulation; and within the section of motivational beliefs, there were three scales which were self efficacy, intrinsic value and exam anxiety. 2013-2014 school year, 1<sup>st</sup> Semester TEOG exam scores of the students were obtained from the school administration.

### Analysis of the Data

To what extent the motivational strategies related to learning predict the TEOG Achievement was tested by using SPSS 16.00 program via “Multi regression analysis”.

### 3. Findings

The subjects of Turkish, Mathematics, Science, Revolution History and Kemalism, Foreign Language, Religion and Morals included in the TEOG exam were handled separately in order to find an answer to the question “To what extent the self-regulation skills on effect the scores achieved in the TEOG exam?”, which was the problem of the study. In order to find an answer to this question, first of all, the arithmetic average of the related variables, their Standard Deviations and minimum-maximum scores were found. The data obtained are as follows, given in Table 1.

**Table1: Self-regulation skills and descriptive statistics related to the TEOG scores with respect to various subjects**

Variables	N	Min.	Max.	$\bar{x}$	SS
Cognitive strategy usage	412	21,00	85,00	64,58	12,04
Self-regulation	412	16,00	63,00	42,58	8,83
Self efficacy	412	17,00	63,00	44,27	11,45
Intrinsic Value	412	16,00	63,00	48,29	8,79
Anxiety	412	4,00	28,00	17,57	6,65
TEOG Turkish Test Achievement	412	5,00	100,00	64,77	19,63
TEOG Mathematics Test Achievement	412	5,50	100,00	42,46	21,03
TEOG Science Test Achievement	412	10,52	94,73	55,66	16,97
TEOG Revolution History and Kemalism Test Achievement	412	15,00	100,00	56,61	20,17
TEOG Foreign Language Test Achievement	412	5,00	100,00	37,98	17,20
TEOG Religious and Morals Test Achievement	412	20,00	100,00	64,05	16,13

N: Participation number,  $\bar{x}$ : Arithmetic Average, SS: Standard Deviation, Min: Minimum Value, Max: Maximum Value

In the study, regression analyses were made individually for each lesson in order to determine the predictability rate of the independent Variables (Self-regulation Skills) on the dependant variable (TEOG score according to different subjects) with the aim of finding an answer. The hypothesis required in order that the regression analysis can be made is that each of the independent variables at issue should display a linear relationship with the TEOG score, which is a dependant variable. For this reason, Pearson Correlation Analysis was made in order to determine the relationship between the independent variables (Self-regulation Skills) and dependant variables (TEOG score according to various subjects) before the regression analysis. The findings obtained as a result of the analysis are presented in Table 2.

**Table 2: The Relationship Between Self-regulation Skills and the TEOG scores belonging to all the subjects**

Variables	TEOG scores according to subject					
	Turkish	Mathematics	Science	Revolution History and Kemalism	Foreign Language	Religious Culture and Moral Knowledge
	r	r	r	r	r	r
<b>Cognitive strategy usage</b>	,305**	,286**	,208**	,272**	,281**	,314**
<b>Self-regulation</b>	,215**	,238**	,148**	,170**	,196**	,311**

Self-efficacy	,391**	,526**	,396**	,404**	,356**	,409**
Intrinsic Value	,237**	,236**	,218**	,212**	,151**	,253**
Anxiety	-,228**	-,349**	-,224**	-,252**	-,153**	-,200**

\*\* p<,01

When the Relationship Between self-regulation skills and the TEOG scores belonging to all the subjects in Table 2 is examined, it is seen that there is a meaningful correlation in the positive direction in a level of  $p<,01$  between the Cognitive strategy usage, Self-regulation, self – sufficiency and Intrinsic Value Variables and the TEOG exam scores belonging to each leasson; and a meaningful correlation in the negative direction in a level of  $p<,01$  between the Anxiety and TEOG exam scores belonging to each lesson. After the relationship at issue was seen, a regression analysis to find out the predictability of TEOG scores through motivational strategies related to learning was carried out.

#### The Level of Predicting the TEOG Score of the Self-regulation Skills:

The multi regression analysis results are given in the Table below in order to find an answer to the question “To what extent do self regulation skills on effect the scores achieved in the TEOG exam?”, which is the problem of the study

**Table 3: The results of multi regression analyses to determine the predictability of TEOG scores through self-regulation skills**

SUBJECTS	Variables	Standard Scores		Standardized scores	
		B	SH	B	t
Turkish	Fixed	39,56	6,12	-	6,46**
	Cognitive strategy usage	,29	,11	,17	2,51*
	Self-regulation	-,19	,15	-,08	-1,30
	Self - efficacy	,50	,11	,29	4,29**
	Intrinsic Value	-,00	,14	-,00	-,03
	Anxiety	-,40	,14	-,13	-2,83**
R = 0,42		R <sup>2</sup> = 0,18		F = 17,87**	
Mathematics	Fixed	22,509	5,94	-	3,78**
	Cognitive strategy usage	,04	,11	,02	,37
	Self-regulation	-,10	,14	-,04	-,70
	Self - efficacy	,99	,11	,54	8,80**
	Intrinsic Value	-,24	,13	-,10	-1,72
	Anxiety	-,62	,13	-,19	-4,47**
R = 0,57		R <sup>2</sup> = 0,32		F = 39,43**	
Science	Fixed	40,45	5,30	-	7,62**
	Cognitive strategy usage	,03	,10	,02	,36
	Self-regulation	-,21	,13	-,11	-1,62
	Self efficacy	,59	,10	,40	5,88**
	Intrinsic Value	,01	,12	,01	,15
	Anxiety	-,30	,12	-,11	-2,44**
R = 0,42		R <sup>2</sup> = 0,17		F = 17,42**	
Revolution History and Kemalism	Fixed	36,47	6,23	-	5,85**
	Cognitive strategy usage	,25	,11	,15	2,18*
	Self-regulation	-,32	,15	-,14	-2,10
	Self efficacy	,64	,11	,36	5,39**
	Intrinsic Value	-,06	,14	-,02	-,44
	Anxiety	-,45	,14	-,14	-3,09**

		R = 0,44	R <sup>2</sup> = 0,19	F = 19,76**		
Foreign Language	<b>Fixed</b>	17,86	5,45	-	3,27**	
	Cognitive strategy usage	,26	,10	,18	2,54**	
	Self-regulation	-,10	,13	-,05	-,75	
	Self efficacy	,54	,10	,36	5,20**	
	Intrinsic Value	-,30	,12	-,15	-2,37	
	Anxiety	-,10	,12	-,03	-,79	
		R = 0,39	R <sup>2</sup> = 0,15	F = 14,60**		
Religious Culture and Moral Knowledge	<b>Fixed</b>	40,63	5,00	-	8,12**	
	Cognitive strategy usage	,25	,09	,18	2,65**	
	Self-regulation	-,21	,12	-,11	-,1,75	
	Self efficacy	,46	,09	,32	4,86**	
	Intrinsic Value	,00	,11	,00	0,04	
	Anxiety	-,24	,11	-,10	-2,10*	
		R = 0,43	R <sup>2</sup> = 0,18	F = 18,96**		

\*p<,05    \*\*p<,01

When all the subjects included in TEOG exam are taken individually in Table 3; the regression analysis results related to predicting the TEOG Turkish scores are meaningful predictors each in explaining the Turkish Achievement of the self-regulation skills (F:17,87, p<,01). The cognitive strategy usage, self-regulation, self efficacy, intrinsic value, which are the independent variables and the anxiety variables explain together the 18% of the variability on the TEOG Turkish score, which is a dependant variable. It has been found that self efficacy (t=4,29, p<,01), cognitive strategy usage (t=2,51, p<,05) and anxiety (t=-2,83, p<,01) variables are meaningful predictors in explaining the Turkish Achievement each.

Regression analysis results related to predicting the TEOG *Mathematics* scores show that the self-regulation skills are meaningful predictors of the Mathematics Achievement each (F:39,43, p<,01). The cognitive strategy usage, self-regulation, self efficacy, intrinsic value, which are the independent variables and the anxiety variables explain together the 32% of the variability on the Mathematics Achievement, which is a dependant variable. It has been found that self efficacy (t=8,80, p<,01) and anxiety (t=,19, p<,01) variables are important predictors of Mathematics Achievement.

The regression analysis results related to predicting the TEOG *Science* score are meaningful predictors each in explaining the self-regulation skills in Science Achievement (F:17,42, p<,01). The cognitive strategy usage, self-regulation, self efficacy, intrinsic value, which are independent variables and the anxiety variables explain together the 17% of the variability on the Science Achievement, which is a dependant variable. It has been found that self efficacy (t=5,88, p<,01) and anxiety (t=-2,44, p<,01) variables are meaningful predictors of Science Achievement each.

The regression analysis results related to predicting the TEOG *Revolution History and Kemalism* show that the self-regulation skills are meaningful predictors in explaining the Revolution History and Kemalism Achievement (F:17,42, p<,01). The cognitive strategy usage, self-regulation, self efficacy, intrinsic value and anxiety variables which are independent variables together explain 19% of the variability upon Revolution History and Kemalism Achievement, which is a dependant variable. It has been found that self efficacy (t=5,39, p<,01) , anxiety (t=-3,09, p<,01) and cognitive strategy usage (t=2,18, p<,05) variables are meaningful predictors of Revolution History and Kemalism Achievement.

The regression analysis results related to predicting the TEOG *Foreign Language* score show that self-regulation skills are meaningful predictors in explaining the Foreign Language Achievement (F:14,60, p<,01). The cognitive strategy usage, self-regulation, self efficacy, intrinsic value and anxiety variables, which are independent variables together explain 15% of the variability upon the Foreign Language Achievement, which is an independent variable. It has been found that self efficacy (t=5,20, p<,01) and the cognitive strategy usage (t=2,54, p<,01) variables are meaningful predictors of the Foreign Language Achievement each.

The regression analysis results related to predicting the TEOG *Religion and Morals* score show that the self-regulation skills are meaningful predictors in explaining the Religion and Morals Achievement (F:18,96, p<,01). The Cognitive strategy usage, self-regulation, self efficacy, intrinsic value and anxiety variables, which are independent



variables jointly explain 18% of the variability upon the Religion and Morals, which is a dependant variable. It was found out that the self efficacy ( $t=0,32$ ,  $p<,01$ ), cognitive strategy usage ( $t=0,18$ ,  $p<,01$ ) and anxiety ( $t=0,10$ ,  $p<,05$ ) variables are meaningful predictors of Religion and Morals.

#### 4. Conclusion, discussion and suggestions

In light of the findings obtained in the research, it is seen that the sub-dimensions of the self-regulation skills in different subjects predict the TEOG exam meaningfully. The results can be summarized as follows:

- “Self-efficacy”, which is a sub-dimension of the motivation scale, is the most important variable in predicting the TEOG score of all the subjects (Turkish, Mathematics, Science, Revolution History and Kemalism, Foreign Language, Religious Culture and Moral Knowledge).
- “Anxiety”, which is a sub-dimension of the motivation scale, is the second important variable in predicting the TEOG score except for the English lesson.
- “Cognitive strategy usage”, which is the sub-dimension of the self-regulating learning strategies scale, is the variable that predicts achievement and is the variable that predicts TEOG score and the achievement in the subjects of Turkish, Revolution History and Kemalism, Foreign Language, Religion and Morals after self-efficacy and anxiety.
- It was found out that the “Self-regulation and Intrinsic Value” dimensions are not effective in predicting the TEOG score.

In the study, was discovered that *self-efficacy*, which is a meaningful predictor in each subject, is the most important variable in predicting achievement. It was observed that the students that have a high self efficacy perception are more resistant to difficulties confronted throughout the learning activities (Zimmerman, 2001) and made more efforts (Williams, 2006). Otherwise, the students with lower self efficacy levels, who have lost their beliefs in themselves and who have given in will not struggle. In the research that was carried out by OECD on this topic, due to the fact that the students who have a low self efficacy level have problems in the fields such as class participation and self-direction, it is emphasized that the possibilities of their displaying a low academic performance increase. Furthermore, like low motivation, low self efficacy may give rise to the students’ not being able to make career plans matching their skills, as well (OECD, 2013). In parallel to the conclusion in this study, the studies made on self efficacy and academic success in the literature show that the higher the students’ levels of self-reliance increase, the higher their academic success increases (Zimmerman and Martinezpons 1990; Schunk 1996; Pintrich 1999; Malpass, O’neil, Herold and Hocevar 1999; Altun 2005; Him 2006; Alci 2007; Yamaç 2011; Mutlu 2012).

Another conclusion that has been reached in the study at hand is that the variable of *Anxiety* is effective in predicting the TEOG score except the English lesson. According to the findings at hand, it has been found that there is a meaningful relationship between exam achievement and anxiety in the negative way, in other words, as Anxiety increases, the score received from the TEOG exam decreases. The students’ exam anxieties increasing makes a negative impact on their achievement. The fact that there is too much anxiety in the exams may cause the students to have difficulties in the questions. According to Kurt (2006), Anxiety is a feeling that is experienced in the possibility arising from the individual’s inner and outer world, or in any situation perceived or interpreted as dangerous by the person. According to PISA 2012 report, while the student’s academic performance of the person whose anxiety is high decreases, the students most of whom are 15 years old stated that they felt desperate and stressful when they dealt with Mathematics. When the reason of anxiety was researched, however, 59% of the OECD countries worried about the fact that mathematics would be difficult, 31% were stressed when they were solving a Mathematics problem, 33% were stressed when they were doing homework, 30% felt hopeless when they were solving a problem, and 61% were worried about receiving a low mark (OECD, 2013). In the same study, there are two fields in which the students in Turkey feel more anxiety compared to the other countries. It appeared that the students felt helpless while they were solving a Mathematics problem, and that they were much stressed when they were doing Mathematics homework. In our country, the fact that the exams create a great pressure on the students because they feel that they have to be successful in an exam they take with a mentality that considers academic success and exam achievement the same is an unavoidable fact. The result obtained in this study is in a quality that supports the studies in the literature, and a meaningful relationship in the negative way has been determined between the exam anxiety and achievement (Malpass, O’neil, Herold and Hocevar 1999; Hofer and Yu 2003; Üredi and Üredi 2005; Him 2006; Yamaç 2011).

Another result that has been obtained in the research is that the cognitive strategy usage was effective in predicting the achievement in the TEOG score in the subjects of Turkish, Revolution History and Kemalism, Foreign

Language and Religious Culture and Moral Knowledge, and that the cognitive strategy usage was not effective in predicting the achievement according to the TEOG Mathematics and Science scores. In that case, if we start out with the subjects, it appeared that while the cognitive strategy usage was effective in predicting the achievement in the verbal lessons, it was not effective in the non-verbal lessons. As a reason of this situation, while the cognitive strategies used in the education of the verbal lessons and the cognitive strategy measured in the exam showed parallelism, there may not be such a parallelism in the non-verbal lessons. According to Heo (2000), the cognitive strategies used in the self-regulation process enable the learners to attain, store and express the knowledge in the learning process in a more effective way. The cognitive strategies include the interpretation strategies that enable the activation of knowledge in a working memory and the repeating strategies used for simple processes, and storing knowledge in a long term memory by establishing the inner connections among pieces of knowledge of the students and the organization strategies that enable them to select the appropriate knowledge (Hofer, Yu, & Pintrich, 1998). The conclusion reached in this study supports the related literature, and the self-regulating learning strategies affect the academic success in the positive way. (Zimmerman and Martinez-Pons 1990; Paterson 1996; Schunk 1996; Pintrich 1999; Altun 2005; Uredi and Uredi 2005; Alcı 2007; Kitsantas, Steen and Huie 2009; Puteh and Ibrahim 2010; Altun and Canca 2011; Cheng 2011; Tonguç 2013).

In the present study, the self-regulation and intrinsic value dimensions are not effective in predicting the achievement of any subject. The students who adopt the kind of learning which is based on self-regulation possess qualities such as being able to set a target that is unique to themselves, knowing what they are doing in learning, progressing with self-assured steps in their own achievements, being able to manage time effectively, being able to get productive and learning by discovering (Pintrich, 2000). At this point, the fact that the concept that we express as success within our educational context is used only for the good results to be achieved in the exams cause education to be dragged into an environment of competition. Instead of learning, adopting or discovering the subject, students give priority to be successful in the exam only by memorizing some patterns of knowledge in the way that will appear in the exams they are to take as from a very young age. As a result of the study, it was seen that rather than structuring knowledge, students to take the TEOG exam study in an exam oriented way, that is not permanent, that is based on rote learning, that brings about anxiety of achieving good scores. The effect of the variables at issue related to the PISA exam was examined, and according to the data obtained, it was seen that there was a decrease in both the inner motivation and the motivation directed to the target of the students in Turkey between 2003 and 2012 (ERG, 2014). Given these, it can be said that the belief that learning is necessary only for exams since students take exams almost every year in our country has been adopted. Instead of students who are curious, and who are open to learning and development, students who believe that whatever knowledge they have gained will lose significance once the exam is over exist our education system. The exams cause the student to ignore the piece of knowledge which they think will not be of help to them in exams but seek for whatever they think will contribute in this process. In spite of the fact that school achievement and the significance attributed to school are desired to be increased through TEOG, which is the new system introduced, it is an unavoidable fact that the learning level will not be able to get out of the framework of exam oriented context as long as there is an “exam” ahead.

## 5. Suggestions

- When the positive effect of the self efficacy belief on academic success and the negative effects of the exam anxiety on achievement are taken into consideration, activities boosting students’ self efficacy beliefs and decreasing the exam anxiety should be organized.
- Educative seminars aiming to provide students, parents, teachers and administrators with the content reached through this study, which is self efficacy, anxiety and cognitive strategy usage as boosters of success, should be given.
- Activities directed towards the development of the learning strategies based on self-regulation could be organized by the teachers for students with respect to cognitive strategy usage, which has an important effect on achievement.
- Studies similar to this research could be carried out with larger study groups, and the results could be opened to discussion.
- Exam achievements of the students who attend different types of schools and their self-regulation skills could be examined and a comparative study could be carried out.

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# The evaluation of the course description quality by students of the psychology teaching training programme

Dana Malá<sup>87</sup>, Michal Čerešník<sup>\*\*</sup>

*Constantine the Philosopher University in Nitra, Faculty of Education, Department of Pedagogy and School Psychology,  
Dražovská 4, 949 01 Nitra, Slovakia*

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## Abstract

In our contribution we focus on the problem of the quality increase of university education and its evaluation by students in the last year of university study. The quality increase is an actual challenge which is analysed and practically implemented through various concepts, like KSC (knowledge, skills, competences) Typology (Wintertog, Delamare-Le Deist, & Stringfellow, 2006), Tuning Methodology (González, & Wagenaar, 2008), Biggs' SOLO Taxonomy (Biggs, & Tang, 2007) or Bloom's taxonomy of cognitive education goals (Bloom et al., 1956; Krathwohl, 2002). Our attention is dominantly set onto these concepts, as well as on the practical outcomes which are the products of the projects solved at the University of Constantine the Philosopher in Nitra (Verešová, Žilová, & Vozár, 2012; Verešová, & Čerešník, 2013). The research problem was determined as the evaluation of the explicitness and the understandability of the changes in course descriptions of the study program subjects by the students of the Psychology teacher training program. The research sample consisted of students in the last year of the Psychology teacher training program (N=22). We assumed that innovated course descriptions will be evaluated positively from the point of view of better explicitness and understandability. The research method was the original questionnaire created by M. Verešová, & Ľ. Pilárik (2013). It was targeted on the evaluation of nine parameters of the course descriptions through a five point scale where the end points expressed clear agreement and disagreement respectively, with formulated items. Statistical analysis was realised by Mann-Whitney test in SPSS 20.0 software. We accepted the standard level of statistical significance  $\alpha \leq 0.05$ . The acquired results allow us to support the formulated hypotheses. The results show that the innovation of the course descriptions was a progressive change which can be considered as a positive alteration of the quality increase system in education. They also show that there exists a need for a higher application of the acquired knowledge and the particularity and diversification of the methods of education, self-education and evaluation.

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*Keywords:* quality increasing, evaluation, course description, learning outcomes

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## Introduction

The area of education results is a significant part of university quality evaluation. Nowadays their implementation in European university field and in field of qualifications and occupations therefore represents a demanded and supported activity (Verešová, & Čerešník, 2013). M. Blaško (2012) characterizes school quality via optimal operation of processes at school, especially the process with which are satisfied school partners and which is optimally measured and evaluated. The attention is therefore paid to the results which the school achieves as well as processes, which lead to them.

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\* Corresponding author. Tel.: +421 37 6408 278

E-mail address: dmala@ukf.sk

\*\* Corresponding author. Tel.: +421 37 6408 289

E-mail address: mceresnik@ukf.sk

## Learning Outcomes as a Need of the Actual University Education

The process of creation/definition of specific education results is currently supported by a combination of multiple approaches. Accordingly, the formulation of education results particularly requires an orientation in theoretical bases of tuning methodology (González, & Wagenaar, 2008), KSC typology (Wintertog, Delamare-Le Deist, & Stringfellow, 2006), (knowledge, skills, competences), Biggs' theory in relation to education results (SOLO taxonomy) (Biggs, & Tang, 2007) or Bloom theory (Bloom et al., 1956; Krathwohl, 2002) and its revised version, which is in conditions of our university recommended as key approach (Verešová, & Čerešník, 2013).

Education results bring multiple benefits within optimization and harmonization of university studies in EU. According to D. Kennedy, A. Hyland and N. Ryan (2006), key advantages of education results are:

- Clear overview of what the student should achieve to be successful,
- precision,
- easier definition compared to education targets,
- transparency.

Above state advantages of education results are expanded by M. Verešová (2013) as follows:

- they help students in observation of education process and address teachers' expectations,
- they help students in decision making when selecting a study program as well as by enrolment of subject (mandatory or optional),
- they help teachers to aim the curriculum and direct students' expectations,
- they help to synchronize content with methods (education and learning) and with expected or achieved "performance" and its evaluation,
- together with the criterion of student's study load, they enable to correctly set the credit value of education item (subject, module, study part),
- they create space for fluency and consistency of education aims in the direction of progressing demands and the enable to verify how individual study program subjects or modules link up within the education process and increase of knowledge, skills and competences,
- they simplify the proposal of curriculum by visualizing the "overlapping" areas between study programs (primarily related) and subjects within one study program,
- clearly define the subject field of study, study program for the purpose of accreditation and evaluation,
- they have key role as reference points when creating evaluation standards, they help to improve evaluation methodology of study programs quality,
- they improve the effectiveness of student's mobility in the area of curriculum comprehension and performance standard of appropriate study program which is a subject of student's mobility on a different university and improve the transfer of study results at various universities,
- they offer information to prospective employers about gained competences of graduates in individual study fields,
- they simplify the comparison of study programs equivalency in the process of recognizing foreign university qualifications.

The biggest advantages of unified approach to education results description on the level of study programs and their disciplines are: clarity, precision and transparency when describing student's requisites for being successful; help when observing the education process and reflexion of educator's expectations; possibility to improve the evaluation methodology of study programs quality; offering information about competences for prospective employers and many others (Verešová, Čerešník, 2013).

Education results, as being perceived by ESG based quality system also valid on our university, are measurable and verifiable set of information, skills and/or competences, gained by individual and/or is able to present not only at the end of education process as whole but also at the end of every module, block of study program, even after the end of every subject within the study program.

## Method

22 second grade students of Psychology master's teaching program in academic year 2012/2013 participated in the

research. This means all the students who have had experience with appropriate subjects of their study program. Some evaluations were however omitted from the analysis because of incompleteness. Therefore we can see lower quantities in some of the charts and groups (Results section).

To measure the effectiveness of education results implementation, we used an originally compiled questionnaire named “Quality of subject course descriptions from the point of view of education results at UKF Nitra” (Verešová, & Pilárik, 2013). The questionnaire contained header area for information about grade, study level, form and study program. In the second part there was a space for identification of evaluated discipline (subject course description). The third part represented the instruction for evaluation of presented form of course description (not a vision or required perspective) within nine selected parameters and two of their qualities. The fourth part contained a representation of nine parameters (knowledge, abilities, topics, methods – knowledge, methods – abilities, preparation – knowledge, preparation – abilities, evaluation – knowledge, evaluation – abilities). These were evaluated by participants using two qualities – explicitness and understandability. Qualities of selected ILP parameters were evaluated on a scale of 1 to 4 (1 – definitely agree, 2 – partially agree, 3 – partially disagree, 4 – definitely disagree, N – not able to evaluate). The aim of the research was to verify the quality of course descriptions without introduced education results and with introduced education results defined based on revised Bloom taxonomy methodology. The output was then a comparison of explicitness and understandability statements of 9 observed course descriptions quality parameters:

1. description of expected knowledge,
2. description of expected abilities,
3. content standard (topics which create the content of education),
4. methods of knowledge acquisition of a student, related to educator’s didactic activity,
5. methods of ability acquisition of a student, related to educator’s didactic activity,
6. methods of knowledge acquisition of a student by independent studying,
7. methods of ability acquisition of a student by independent studying,
8. methods of teacher’s final evaluation of acquired student’s knowledge,
9. methods of teacher’s final evaluation of acquired student’s abilities.

In the charts in chapter Results are these parameters introduced under the acronym which represents the identification by “item”, number which represents the numeric order of a parameter (1-9) and letter “e” and “u”, representing the terms “explicitness” and “understandability”.

We hypothesized that:

- H1: innovated course descriptions will be evaluated by students as being more explicit.  
H2: innovated course descriptions will be evaluated by students as being more understandable.

## Results

To test the hypotheses we used Mann-Whitney test for two independent selections in SPSS 20.0 software. The reason for this was an abnormal data distribution of the observed variables. We accepted the standard level of significance  $\alpha \leq 0.05$ . Analysis results are presented in charts 1 to 6.

Table 1. Comparison of original and innovated course description in subject “Psychodiagnostics in School”

Psychodiagnostics in School														
Original course description							Innovated course description						U      p	
N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD			
i1e	21	-2	2	1.24	0.26	1.179	22	1	2	1.77	0.09	0.429	177.0	0.111
i2e	21	-2	2	0.95	0.29	1.322	22	-2	2	1.27	0.25	1.162	199.5	0.399
i3e	20	-1	2	1.05	0.26	1.146	22	1	2	1.73	0.10	0.456	<b>147.0</b>	<b>0.035</b>
i4e	21	-2	2	0.05	0.35	1.596	22	-2	2	0.59	0.30	1.403	181.5	0.210
i5e	21	-2	2	-0.10	0.34	1.546	22	-2	2	0.64	0.26	1.217	167.5	0.103
i6e	21	-2	2	-0.48	0.34	1.569	22	-2	2	0.73	0.32	1.486	<b>140.0</b>	<b>0.021</b>
i7e	21	-2	2	-0.43	0.34	1.535	22	-2	2	0.09	0.34	1.601	187.5	0.271
i8e	21	-2	2	0.71	0.33	1.521	21	-2	2	0.81	0.34	1.569	211.5	0.809

i9e	21	-2	2	0.76	0.32	1.446	21	-2	2	1.14	0.33	1.493	167.5	0.145
Original course description							Innovated course description						U	
	N	Min	Max	AM	SEM	SD		N	Min	Max	AM	SEM	SD	p
i1u	21	-2	2	1.33	0.23	1.065	22	1	2	1.77	0.09	0.429	179.5	0.127
i2u	21	-2	2	0.95	0.29	1.322	22	-2	2	1.41	0.23	1.054	186.5	0.228
i3u	20	-1	2	1.20	0.20	0.894	22	-1	2	1.73	0.15	0.703	<b>130.0</b>	<b>0.008</b>
i4u	21	-2	2	0.10	0.34	1.546	22	-2	2	0.86	0.29	1.356	161.0	0.075
i5u	21	-2	2	-0.29	0.33	1.521	22	-2	2	0.64	0.26	1.217	<b>151.5</b>	<b>0.043</b>
i6u	21	-2	2	-0.33	0.36	1.653	22	-2	2	0.73	0.32	1.486	<b>153.5</b>	<b>0.050</b>
i7u	21	-2	1	-0.71	0.29	1.309	22	-2	2	0.36	0.35	1.649	<b>143.5</b>	<b>0.027</b>
i8u	21	-2	2	0.86	0.30	1.389	21	-2	2	0.86	0.33	1.493	214.0	0.860
i9u	21	-2	2	0.86	0.30	1.389	21	-2	2	1.14	0.33	1.493	169.5	0.159

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance

Table 2. Comparison of original and innovated course description in subject “Didactics of Psychology”

Didactics of Psychology														
Original course description							Innovated course description						U      p	
N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD			
i1e	21	-2	2	1.17	0.18	1.146	21	-1	2	1.62	0.16	0.740	338.0	0.089
i2e	21	-2	2	0.78	0.19	1.235	21	-1	2	1.62	0.16	0.740	<b>242.5</b>	<b>0.002</b>
i3e	20	-1	2	1.52	0.13	0.833	20	-1	2	1.50	0.21	0.946	411.0	0.869
i4e	21	-2	2	-0.62	0.25	1.547	21	-2	2	1.05	0.21	0.973	<b>184.0</b>	<b>&lt; 0.001</b>
i5e	21	-2	2	-0.86	0.22	1.424	21	-2	2	1.00	0.24	1.095	<b>149.5</b>	<b>&lt; 0.001</b>
i6e	21	-2	2	-0.56	0.23	1.501	21	-2	2	0.76	0.29	1.338	<b>210.5</b>	<b>0.001</b>
i7e	21	-2	2	-0.90	0.21	1.340	21	-2	2	0.67	0.35	1.592	<b>209.0</b>	<b>&lt; 0.001</b>
i8e	21	-2	2	0.93	0.22	1.404	21	-1	2	1.33	0.20	0.913	386.5	0.387
i9e	21	-2	2	0.40	0.24	1.547	21	-1	2	1.29	0.23	1.056	<b>283.5</b>	<b>0.015</b>
Original course description							Innovated course description						U      p	
N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD			
i1u	21	-2	2	1.36	0.15	0.983	21	1	2	1.76	0.10	0.436	347.0	0.105
i2u	21	-2	2	1.02	0.18	1.158	21	-1	2	1.67	0.16	0.730	<b>285.5</b>	<b>0.012</b>
i3u	20	-1	2	1.66	0.11	0.728	20	-1	2	1.60	0.17	0.754	388.0	0.660
i4u	21	-2	2	-0.50	0.26	1.617	21	-2	2	0.86	0.22	1.014	<b>232.5</b>	<b>0.002</b>
i5u	21	-2	2	-0.81	0.23	1.502	21	-2	2	1.19	0.23	1.030	<b>145.5</b>	<b>&lt; 0.001</b>
i6u	21	-2	2	-0.51	0.25	1.567	21	-2	2	1.05	0.27	1.244	<b>190.5</b>	<b>&lt; 0.001</b>
i7u	21	-2	2	-0.74	0.23	1.466	21	-2	2	0.62	0.36	1.658	<b>238.0</b>	<b>0.002</b>
i8u	21	-2	2	0.98	0.21	1.370	21	-1	2	1.29	0.23	1.056	382.5	0.351
i9u	21	-2	2	0.48	0.23	1.502	21	-1	2	1.43	0.24	1.076	<b>246.0</b>	<b>0.003</b>

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance

Table 3. Comparison of original and innovated course description in subject “School and Pedagogical Psychology in Praxis”

Praxis																
School and Pedagogical Psychology in Praxis																
Original course description							Innovated course description						U		p	
	N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD				
i1e	21	-2	2	0.71	0.29	1.309	15	-1	2	1.60	0.21	0.828			<b>89.0</b>	<b>0.028</b>
i2e	21	-2	2	-0.29	0.33	1.521	15	-1	2	1.67	0.21	0.816			<b>42.0</b>	<b>&lt; 0.001</b>
i3e	21	-1	2	1.62	0.20	0.921	14	-1	2	1.57	0.23	0.852			135.0	0.702
i4e	21	-2	1	-1.52	0.20	0.928	15	-2	2	0.73	0.30	1.163			<b>30.5</b>	<b>&lt; 0.001</b>
i5e	21	-2	1	-1.62	0.16	0.740	15	-2	2	0.67	0.29	1.113			<b>25.5</b>	<b>&lt; 0.001</b>
i6e	21	-2	2	-0.57	0.30	1.363	15	-1	2	0.73	0.35	1.335			<b>77.0</b>	<b>0.009</b>



i7e	20	-2	1	-0.90	0.25	1.119	15	-2	2	0.73	0.42	1.624	<b>66.5</b>	<b>0.004</b>
i8e	21	-2	2	0.48	0.30	1.365	15	-1	2	1.47	0.27	1.060	<b>85.0</b>	<b>0.019</b>
i9e	21	-2	2	-0.33	0.32	1.461	15	-1	2	1.20	0.31	1.207	<b>61.5</b>	<b>0.001</b>
Original course description							Innovated course description						U	
	N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD		
i1u	21	-2	2	0.86	0.28	1.276	15	1	2	1.73	0.12	0.458	<b>92.0</b>	<b>0.036</b>
i2u	21	-2	2	-0.05	0.35	1.596	15	1	2	1.87	0.09	0.352	<b>47.5</b>	<b>&lt; 0.001</b>
i3u	21	-1	2	1.71	0.16	0.717	14	-1	2	1.57	0.23	0.852	133.0	0.654
i4u	21	-2	2	-1.52	0.20	0.928	15	-2	2	0.53	0.31	1.187	<b>36.0</b>	<b>&lt; 0.001</b>
i5u	21	-2	2	-1.43	0.24	1.076	15	-2	2	0.93	0.33	1.280	<b>35.0</b>	<b>&lt; 0.001</b>
i6u	21	-2	2	-0.48	0.31	1.401	15	-1	2	1.07	0.30	1.163	<b>64.0</b>	<b>0.002</b>
i7u	20	-2	2	-0.75	0.29	1.293	15	-2	2	0.60	0.43	1.682	<b>81.0</b>	<b>0.021</b>
i8u	21	-2	2	0.86	0.28	1.276	15	-1	2	1.27	0.32	1.223	118.0	0.214
i9u	21	-2	2	-0.29	0.33	1.521	15	-1	2	1.33	0.32	1.234	<b>58.5</b>	<b>0.001</b>

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance

Table 4. Comparison of original and innovated course description in subject “The Basics of Psychological Methodology”

The Basics of Psychological Methodology														
Original course description							Innovated course description						U	
	N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD		
i1e	21	-2	2	0.48	0.32	1.470	12	-1	2	1.50	0.26	0.905	<b>70.0</b>	<b>0.036</b>
i2e	21	-2	2	-0.43	0.29	1.326	12	-1	2	1.50	0.26	0.905	<b>29.5</b>	<b>&lt; 0.001</b>
i3e	21	-2	2	0.19	0.38	1.721	11	-1	2	1.36	0.28	0.924	72.5	0.088
i4e	21	-2	2	-1.29	0.26	1.189	12	1	2	1.33	0.14	0.492	<b>18.0</b>	<b>&lt; 0.001</b>
i5e	21	-2	1	-1.48	0.20	0.928	12	1	2	1.50	0.15	0.522	<b>6.0</b>	<b>&lt; 0.001</b>
i6e	21	-2	2	-0.52	0.33	1.504	12	-2	2	0.42	0.43	1.505	80.5	0.089
i7e	20	-2	1	-1.05	0.29	1.276	12	-2	2	0.08	0.50	1.730	75.0	0.083
i8e	21	-2	2	0.33	0.34	1.560	12	-1	2	1.00	0.30	1.044	97.0	0.291
i9e	21	-2	2	-0.19	0.34	1.569	12	-1	2	0.92	0.36	1.240	<b>73.5</b>	<b>0.048</b>
Original course description							Innovated course description						U	
	N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD		
i1u	21	-2	2	0.81	0.32	1.470	12	1	2	1.75	0.13	0.452	78.0	0.075
i2u	21	-2	2	-0.29	0.33	1.521	12	1	2	1.75	0.13	0.452	<b>36.0</b>	<b>&lt; 0.001</b>
i3u	21	-2	2	0.43	0.36	1.630	11	-1	2	1.45	0.28	0.934	74.5	0.104
i4u	21	-2	2	-1.14	0.28	1.276	12	-1	2	1.00	0.21	0.739	<b>30.0</b>	<b>&lt; 0.001</b>
i5u	21	-2	1	-1.43	0.20	0.926	12	1	2	1.58	0.15	0.515	<b>5.0</b>	<b>&lt; 0.001</b>
i6u	21	-2	2	-0.38	0.37	1.687	12	-2	2	0.92	0.42	1.443	<b>72.5</b>	<b>0.044</b>
i7u	20	-2	2	-0.85	0.34	1.531	12	-2	2	-0.08	0.50	1.730	88.0	0.224
i8u	21	-2	2	0.43	0.34	1.535	12	-1	2	0.83	0.35	1.193	110.5	0.567
i9u	21	-2	2	-0.05	0.33	1.532	12	-1	2	1.08	0.38	1.311	<b>68.5</b>	<b>0.030</b>

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance

Table 5. Comparison of original and innovated course description in subject “Statics in Social Sciences”

Statistics in Social Sciences														
Original course description							Innovated course description						U	
	N	Min	Max	AM	SEM	SD	N	Min	Max	AM	SEM	SD		
i1e	21	-2	2	0.57	0.29	1.326	11	1	2	1.64	0.15	0.505	<b>61.0</b>	<b>0.031</b>
i2e	21	-2	2	0.10	0.34	1.546	11	1	2	1.91	0.09	0.302	<b>38.0</b>	<b>0.001</b>
i3e	21	-1	2	1.43	0.20	0.926	11	1	2	1.55	0.16	0.522	112.0	0.907
i4e	21	-2	2	-1.29	0.31	1.419	11	1	2	1.45	0.16	0.522	<b>23.0</b>	<b>&lt; 0.001</b>
i5e	21	-2	1	-1.67	0.20	0.913	11	1	2	1.64	0.15	0.505	<b>4.0</b>	<b>&lt; 0.001</b>

i6e	21	-2	2	-0.76	0.36	1.640	11	-2	2	0.27	0.51	1.679	70.0	0.074
i7e	20	-2	1	-1.30	0.27	1.218	11	-2	2	-0.55	0.56	1.864	85.0	0.317
i8e	21	-2	2	0.71	0.29	1.309	11	-1	2	0.64	0.34	1.120	107.5	0.755
i9e	21	-2	2	-0.05	0.35	1.596	11	-1	2	0.91	0.39	1.300	69.0	0.067
Original course description							Innovated course description						U	
N	Min	Max	AM	SEM	SD		N	Min	Max	AM	SEM	SD		
i1u	21	-2	2	0.62	0.32	1.465	11	1	2	1.91	0.09	0.302	<b>51.0</b>	<b>0.009</b>
i2u	21	-2	2	0.29	0.33	1.521	11	1	2	1.91	0.09	0.302	<b>44.0</b>	<b>0.004</b>
i3u	21	-1	2	1.38	0.20	0.921	11	1	2	1.64	0.15	0.505	104.0	0.667
i4u	21	-2	2	-1.29	0.31	1.419	11	1	2	1.18	0.12	0.405	<b>29.0</b>	<b>&lt; 0.001</b>
i5u	21	-2	1	-1.67	0.20	0.913	11	1	2	1.55	0.16	0.522	<b>5.0</b>	<b>&lt; 0.001</b>
i6u	21	-2	2	-0.71	0.35	1.617	11	-2	2	0.36	0.53	1.748	72.5	0.088
i7u	20	-2	2	-1.30	0.30	1.342	11	-2	2	-0.55	0.56	1.864	83.5	0.279
i8u	21	-2	2	0.62	0.30	1.359	11	-1	2	0.64	0.34	1.120	111.0	0.876
i9u	21	-2	2	0.10	0.36	1.640	11	-1	2	1.00	0.41	1.342	72.5	0.088

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance

Table 6. Comparison of original and innovated course description in subject "Psychodiagnostics of Children"

Psychodiagnostics of Children														
Original course description							Innovated course description						U	
N	Min	Max	AM	SEM	SD		N	Min	Max	AM	SEM	SD		
i1e	21	1	2	1.62	0.11	0.498	12	-1	2	1.58	0.26	0.90	113.50	0.645
i2e	21	-1	2	1.43	0.16	0.746	12	-1	2	1.67	0.26	0.89	91.00	0.200
i3e	21	1	2	1.81	0.09	0.402	12	-1	2	1.50	0.26	0.91	106.00	0.471
i4e	21	-2	2	-1.43	0.24	1.076	12	-2	2	0.50	0.34	1.17	<b>35.50</b>	<b>&lt; 0.001</b>
i5e	21	-2	1	-1.62	0.16	0.740	12	-2	2	0.50	0.34	1.17	<b>24.50</b>	<b>&lt; 0.001</b>
i6e	21	-2	2	-0.57	0.36	1.630	12	-1	2	0.75	0.39	1.36	<b>64.50</b>	<b>0.020</b>
i7e	21	-2	1	-1.38	0.20	0.921	12	-2	2	0.58	0.51	1.78	<b>52.50</b>	<b>0.005</b>
i8e	21	-2	2	0.67	0.33	1.494	12	-1	2	1.42	0.34	1.17	85.00	0.131
i9e	21	-2	2	-0.43	0.36	1.630	12	-1	2	1.17	0.39	1.34	<b>53.50</b>	<b>0.005</b>
Original course description							Innovated course description						U	
N	Min	Max	AM	SEM	SD		N	Min	Max	AM	SEM	SD		
i1u	21	1	2	1.71	0.10	0.463	12	1	2	1.75	0.13	0.452	121.5	0.868
i2u	21	-1	2	1.43	0.16	0.746	12	1	2	1.83	0.11	0.389	86.0	0.141
i3u	21	-1	2	1.62	0.20	0.921	12	-1	2	1.50	0.26	0.905	110.0	0.567
i4u	21	-2	2	-1.43	0.24	1.076	12	-2	2	0.33	0.36	1.231	<b>38.5</b>	<b>0.001</b>
i5u	21	-2	1	-1.48	0.20	0.928	12	-2	2	0.67	0.38	1.303	<b>29.0</b>	<b>&lt; 0.001</b>
i6u	21	-2	2	-0.43	0.38	1.720	12	-1	2	0.92	0.36	1.240	<b>68.5</b>	<b>0.030</b>
i7u	21	-2	1	-1.19	0.26	1.167	12	-2	2	0.42	0.53	1.832	<b>60.0</b>	<b>0.013</b>
i8u	21	-2	2	0.48	0.32	1.470	12	-1	2	1.17	0.39	1.337	86.0	0.141
i9u	21	-2	2	-0.24	0.38	1.758	12	-1	2	1.25	0.39	1.357	<b>60.0</b>	<b>0.013</b>

Legend: N = count; Min = minimal measured value; Max = maximal measured value; AM = average mean; SEM = standard error of mean; SD = standard deviation; U = value of Mann-Whitney test; p = significance

We discovered significant differences in explicitness and understandability of individual study subjects. We specifically discovered the following differences when judging explicitness:

- in the subject Psychodiagnostics in School (Table 1.) in item content standards (i3e) and methods of knowledge and abilities acquisition (i6e);
- in the subject Didactics of Psychology (Table 2.) in items description of expected abilities (i2e), methods of student's knowledge acquisition related to teacher's didactic activity (i4e), methods of student's knowledge acquisition related to teacher's didactic activity (i5e), methods of knowledge acquisition by student's self-study

- (i7e), methods of teacher's final evaluation of student's ability (i9e);
- in the subject School and Pedagogical Psychology in Praxis (Table 3.) in all items except the item content standard (i3e);
- in the subject The Basics of Psychological Methodology (Table 4.) in items description of expected knowledge (i1e), description of expected abilities (i2e), methods of student's knowledge acquisition related to teacher's didactic activity (i4e), methods of student's ability acquisition related to teacher's didactic activity (i5e), methods of teacher's final evaluation of student's acquired abilities (i9e);
- in the subject Statistics in Social Sciences (Table 5.) in items description of expected knowledge (i1e), description of expected abilities (i2e), methods of student's knowledge acquisition related to teacher's didactic activity (i4e), methods of student's ability acquisition related to teacher's didactic activity (i5e);
- in the subject Psychodiagnostics of Children (Table 6.) methods of student's knowledge acquisition related to teacher's didactic activity (i4e), methods of student's ability acquisition related to teacher's didactic activity (i5e), methods of knowledge acquisition by student's self-study (i6e), methods of ability acquisition by student's self-study (i7e), methods of teacher's final evaluation of student's ability (i9e).

When judging understandability, we discovered differences in identical items in almost all subjects. The exceptions are:

- the subject Psychodiagnostics in School, where we also observed differences in items methods of student's knowledge acquisition by self-study (i6u), methods of student's ability acquisition by self-study (i7u)
- the subject The Basics of Psychological Methodology, where we also observed the difference in the item methods of student's knowledge acquisition by self-study (i6u) and haven't observed the difference in item description of expected knowledge (i1u).

## Discussion

Based on the above stated findings we could establish that innovation of course descriptions of teacher's study program Psychology was positively perceived. Students valued increased explicitness and understandability. Every subject had its own particularity considering statistically significant differences, which shows heterogeneous quality of original course descriptions. Despite not having found significant differences in all observed items, we believe that the defined hypotheses could be supported. We point out that innovation of course descriptions from the point of view of defining expected knowledge and abilities, education standard, work methods and evaluation methods is a way of increasing university education quality specifically in Psychology teacher's field of study. We could also point out that the biggest challenge when working with expectations regarding students and their study results is (1) the area of abilities, or application level of acquired knowledge and (2) area of work methods, whether on educator's or student's side, and furthermore an explicitly phrased answer to the question: "What are the means of achieving the expected education results?".

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# The examination of elementary mathematics pre-service teachers' spatial abilities

Ahmet Şükrü ÖZDEMİR<sup>a</sup>, Sevdâ GÖKTEPE YILDIZ<sup>b</sup>

<sup>a</sup>Marmara University, Atatürk Faculty of Education, Istanbul, 34722, Turkey

<sup>b</sup>Yıldız Technical University, Faculty of Education, Istanbul, 34220, Turkey

## Abstract

The purpose of this study is to analyze the spatial abilities of pre-service mathematics teachers according to SOLO taxonomy. For this purpose, three students with different spatial skills were selected and clinical interviews were carried out with these students. The data was evaluated qualitatively and analyzed descriptively. A section was created for each of the answers given by students. In addition to that direct quotations from the dialogues were also used. The data collected shows that as the spatial skills of pre-service teachers increase their reasoning skills also increase.

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*Keywords:* spatial skills; SOLO taxonomy; descriptive analysis

## 1.Introduction

According to Sutton and Williams' (2007) definition, spatial skills include rotating objects in the mind, understanding how objects look like from different perspectives, imagining the relationship of objects with others in space and understanding forms in three-dimension. Therefore, spatial skills and geometrical thinking is interrelated. In order to understand how geometrical thinking develops in individuals, it will be useful to analyze geometrical thinking levels created by a Dutch couple Pierre and Dina Van Hiele Geldof (1957). According to their research, each individual passes through from the given levels in the same order even if not in the same age. These levels are accepted as sequenced and hierarchical. That is, when individuals fulfil the necessities of lower levels, they pass on another Van Hiele level or higher levels (Clements and Battista, 1992).

Jurdak (1991) in his study made a comparison between Van Hiele geometrical thinking skills and SOLO model used in this study. SOLO levels created for determining the levels of responses provided by students not for determining the levels of students. Therefore in this comparison the aim was generally to determine at which Van Hiele level the students were according to their own responses. In the table below, a comparison was made between Van Hiele geometrical thinking levels and level of responses in each thinking phases of SOLO model.

Table 1. The Comparison between Van Hiele Geometrical Thinking Levels and SOLO Levels

Van Hiele Levels	SOLO Levels
	Pre-structural
Visualization	Uni-structural
Analysis	Multi-structural
Informal deduction	Relational
Formal deduction	Extended abstract
Rigor	

\* Corresponding author. Tel.: +0-212-383-4891

E-mail address: goktepe@yildiz.edu.tr

Jurdak (1991) was stated in his study that when the SOLO Model which is valid for all disciplines is applied to geometry, the SOLO thinking levels and Van Hiele geometrical thinking levels which were created particularly for geometry are similar to each other. There are two situations which are not match to each other. First, pre-structural SOLO level is not matching with any of van Hiele levels. This is an understandable situation as the pre-structural SOLO level is either refusing or the insufficiency in focusing. Secondly, van Hiele level 'Rigor' is not matching with any of the SOLO levels. This is because there are individuals who are more specifically studying mathematics in the fourth level.

All the generalizations may not be suitable for all the students, thus SOLO model is created in accordance with this thought but it is important in terms of giving some ideas about how teachers on the average should behave. One of the important points is the reality that while passing on a higher level from a lower level, teachers are playing an important role. Providing education by preparing necessary learning environments makes transition between levels easier and provides us to achieve expected level.

According to Hallway (2010) SOLO Model consists of thinking levels. Each thinking level stated in SOLO model includes five sub-levels of response. These levels are also called as 'SOLO Taxonomy'. These are pre-structural, uni-structural, multi-structural, relational and extended abstract levels. As the complexity of the responses increases the level is getting increase. Besides, as the level increases the skills such as making consistent explanations, creating relations, and thinking by considering more than one situation also increase (Biggs and Collis, 1991; Çelik, 2007).

In accordance with this information, the purpose of this study was to analyze spatial abilities of elementary mathematics pre-service teachers. In the part of analyzing spatial skills, spatial visualization skill among the components of spatial skill was considered and the evaluation and the determination of the student responses were made by using SOLO model.

## **2.Methods**

The study is a qualitative study and the data was obtained through clinical interviews. In order to analyze students' thoughts deeply, interactive interviews with students are called as clinical interviews (Güven, 2006; Zazkis and Hazzan, 1999). Clinical interviews are one of the most important techniques in analyzing what students are thinking about on a particular subject and eliciting the scope of their knowledge thoroughly (Zazkis and Hazzan, 1999; Goldin, 1998). The most important features which distinguish clinical interviews from others are being semi-structured, clinical and subject field is in the centre. The meaning of the word clinical comes from the fact that interviews take place in environments where students can feel themselves more comfortable than other teaching and learning environments. The researcher decided on the questions but he/she can also ask different questions in order to analyze students' thoughts in details. For this reason it is semi-structured. It subject field centred as the main interest is especially some particular mathematics subjects and concepts (Zazkis and Hazzan, 1999).

Goldin (1998) indicates that one of the purpose of using clinical interviews is to have information about individual's mathematical behaviours through problem solving. Thus, recently clinical interviews started to be used in teaching mathematics researches (Güven, 2006; Dindyal, 2003; Çelik and Baki, 2007; Bishop, 1997; Money, 2002). In accordance with this information, it was chosen to use clinical interviews during this research.

### *2.1. Study group*

First of all in order to determine pre-service teachers' spatial ability levels, Purdue Spatial Visualization Test (PSVT) was carried out. According to the results of this test, from each student group that were classified in three levels (bad, average, good), clinical interviews were carried out with three pre-service teachers by selecting one student from each group. Three classrooms were determined by dividing the total score into three according to maximum and minimum scores obtained from the general of the test. While selecting three pre-service teachers among 81 students, it was paid attention to have pre-service teachers who were representing their own classrooms. The selection was made on the basis of willingness. Students were selected from A1 low, A2 average, A3 high levels. R shows researchers' answers in the dialogues.

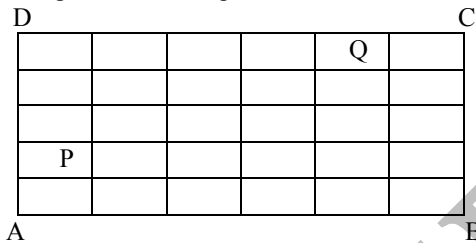
### *2.2. Data collection tools*

The Purdue Spatial Visualization Test which was used in the research for determining the spatial skill levels of pre-service teachers was created by Guay in 1997. The test has 3 sections and 36 questions. In each section, there are 12 multiple choice questions (Bodner and Guay, 1997). The sections are as Developments, Rotations, and Views. These parts were adopted to Turkish by Uygan (2011) and used within the permission of the writer. Besides a permission was taken from George Bodner who worked with Guay to develop the original version of the test. In this study, Purdue Spatial Visualization Test was carried out with 81 pre-service primary mathematics teachers and alpha reliability coefficient was found as 0,834 according to KR-20 reliability analysis. Since the coefficient is higher than 0, 80, as stated by Kalaycı (2010) the scale is highly reliable.

‘Geometrical Achievement Test’ which tested spatial abilities of students at different dimensions was prepared by the researcher for using during clinical interviews. The test was finalized after the pilot study. Geometrical Achievement Test has 16 questions which is testing the spatial skills. The questions are open ended, multiple-choice and requiring to make drawings. Besides, the questions were designed in a form which requires switching in and between dimensions. There are questions which require thinking in two and three dimension and besides switching from two-dimension to three-dimension and from three-dimension to two-dimension. In this study, there is one question which require switching from two-dimension to three-dimension in Geometrical Achievement Test. The answers provided for this question by each student from three levels were considered in details and the solutions of the students were given. The responses of the students were placed in a suitable level by evaluating according to the SOLO taxonomy.

The question is as in the following:

A Cylinder was obtained by attaching the AB and CD sides of the below cartoon which is in the shape of rectangular and composed of unit squares.



When an ant in the P point of this cylinder advanced to the Q point by using the shortest way, how many units has this ant advanced?

### 2.3. Clinical Interviews

The clinical interviews were made by using a recorder in the seminar room of the school. Each interview lasted approximately 60 minutes. During the interviews, the students were asked to answer questions and explain how they found the solution loudly by giving the questions one by one. In addition to that, questions such as ‘What kind of a generalization do you make about this question?’ and ‘What is your conclusion as a result of the asked rotation action?’ were posed to students. According pre-service teachers’ responses, the spatial visualization skills of them was determined according to SOLO taxonomy by asking different questions.

### 2.4. Data Analysis

During the analysis of the data obtained through clinical interviews, interviews which were recorded with the permission of the pre-service teachers were transcribed. The personal notes taken by the researcher also added to this text.

The data obtained through clinical interviews were analyzed qualitatively and the place of spatial visualization skills of pre-service primary schools mathematics teachers in SOLO taxonomy was searched.

The data collected in descriptive analysis are interpreted and summarized according to the levels specified before. In descriptive analysis, direct quotations are stated frequently in order to reflect dramatically the opinions of the individuals interviewed or observed. The purpose of this analysis is to present the data to the reader after the data was organized and interpreted. First, the data collected in this purpose is described systematically and openly. Later, these

descriptions are explained, cause and effect relations are analyzed and finally some conclusions are inferred (Yıldırım and Şimşek, p.224).

In this study, how pre-service primary mathematics teachers think while solving questions which require thinking from two to three-dimension of spatial visualization components, ways of understanding, direct quotations from the dialogues between the researcher and the pre-service teacher for expressing solution strategies were included.

### 3.Findings

In this part, three students' problem solutions and the dialogues having direct quotations were mentioned.

#### The Problem Solution of A1

A1 got a cylinder by attaching the AB and CD sides of the rectangular. While drawing the figure of a cylinder, she pointed the places where P and Q points will coincide. But we do not think that she used this figure for solution. She formed the hypotenuse of a right triangle by combining P and Q points on a rectangular at two-dimension. She stated that the shortest length would be found by using Pythagorean relation and pointing side length of this triangle in horizontal and vertical. For this, she expressed that hypotenuse length therefore the shortest length would also be calculated immediately by using 3-4-5 triangle. She did not think that there could another way for the shortest way so the answer that he/she found was wrong. The dialogue between the pre-service teacher and the researcher while solving the problem is as follows:

*A1: P from below 1 unit to another is somewhere from here, Q from above 1 unit to another is somewhere from here. But I rotated therefore these distances stayed in the folded places. (This dialogue happens while drawing the closed version of the figure) So, I cannot show it on this. Besides, if it was given in this way, I would prefer to open it.*

*R: So, you are saying that, for the solution I would in any way find the solution by opening the figure, right?*

*A1: Yes, in the first figure, I wrote 5 units from Pythagorean by counting the square units.*

*R: The shortest way is being asked. Why do you think of this for the shortest way? Can there be another way from P to Q.*

*A1: This is the shortest way ... (1)*

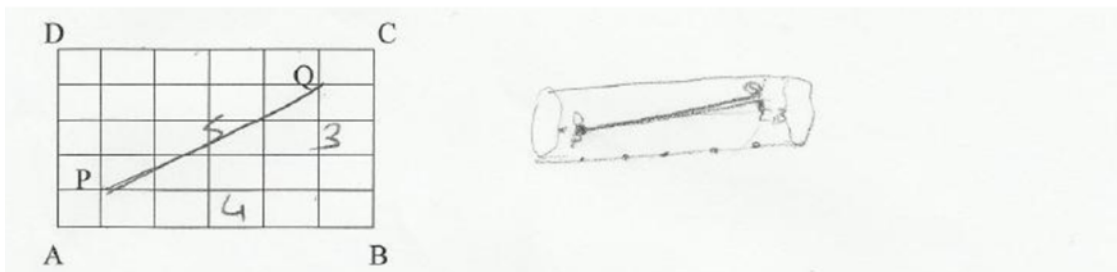


Figure 1. The Solution of A1 regarding the Problem

While reaching from P point to Q, as it can be seen from sentence (1), as the pre-service teacher thought that there is only one way for the shortest without thinking any alternatives and without making any comparisons between the distances, he/she is on 'Uni-structural' level.

#### The Problem Solution of A2

Although it was stated in the problem that AB and CD sides should be attached, the pre-service teacher attached AD and BC sides. After attaching both sides in this way, he formed the cylinder and placed P and Q points. Then he drew



the ant's way. First moved from right to left on the drawing, then from left to right and decided that this was the shortest way. For the solution, the shortest way was calculated as  $\sqrt{13}$  by pointing on the rectangular and taking 3 units in vertical and 2 units in horizontal.

A part from the dialogue between the researcher and the pre-service teacher is as follows:

A2: When we rotate in this way, it will pass through from a point from the shortest way. Q point is here, isn't it?

R: Draw this cylinder, if you want. Can you also write which point coincides to other there?

A2: If we think in this way, when we attach like this, for instance A point is here and B point is there. This is C and D point is here. If P point is here, when we rotate in this way, it is the Q point. Then the problem is asking how many units the ant advanced. It should go from the shortest way. It can go from here. How many will be there? If we take a vertical length, then that point for instance is Q point. The distance between these two is 2 units, 3 units,  $\sqrt{13} \dots$  (2)

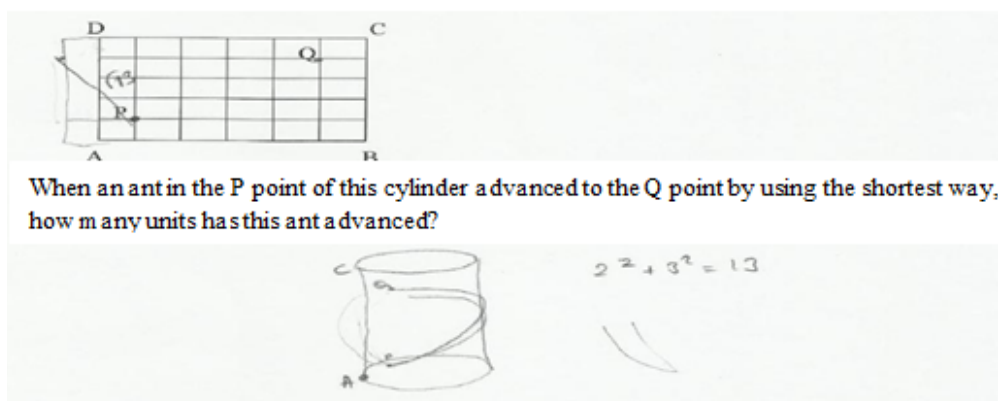


Figure 2. The Solution of A2 regarding the problem.

As it can be seen from the sentence (2), as the student specified more than one ways which the ant can follow and made calculations from different ways but since his/her explanations were superficial and started calculations without thinking deeply and preferred to attach in a wrong way, he /she is at the 'Multi-structural' level.

### The Problem Solution of A3

A3 formed the cylinder by attaching AB and CD sides, showed that A and D points and B and C points coincide and pointed P and Q points on the surface. He showed on the rectangular that which distance should be taken between the points for the shortest way. He specified why he took 2 units instead of 3 units and reached the correct solution.

The explanations of A3 during problem solving are as in the following:

A3: If I took P from here, Q would be on the other side, at the back. Then, the shortest way of this will be from the other side; this will not be in fact. It will turn around like this, in fact. (It will come back into the form given in the question. He stated that the shortest way is from the other side rather than first drawing by adding squares under the rectangular.) ... (3)

R: Is this the shortest way?

A3: Yes, at first the other one came into my mind, but this should be like this.

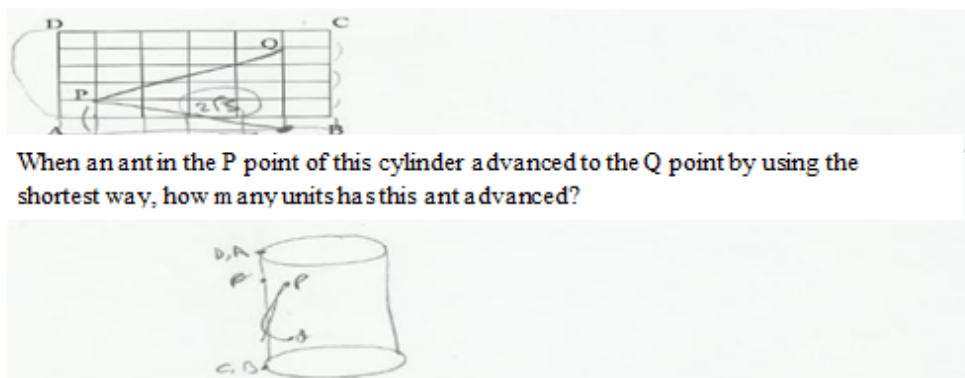


Figure 3. The Solution of A3 regarding the Problem

Since he considered more than one situation and he explained why he chose this way with reasons as it was stated in sentence (3), he is at the 'Relational' level.

According to the responses provided for the current problem, A1 is at the uni-structural level, A2 is multi-structural and A3 is at the relational level. The responses display features in the level of highest relational structure and one way relational structure.

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#### 4. Conclusion and discussion

Since the pre-service teacher who has low level spatial visualization skill is at the unistructural level, she focus on the problem, but she uses only relational single data for the solution. She cannot understand the value of data in whole and the relation of this data with the others. According to Hattie and Brown (2004), since the responses at the unistructural level are not profound, it can be said that pre-service teachers at the low level have a superficial learning. When pre-service teachers with middle level spatial visualization skills are analyzed, their responses can be seen at multi-structural level. As the spatial visualization skills increase, level of the pre-service teachers' responses has progressed into a higher level. This can be thought as normal situation because as the level of the students increases, the responses of the students are expected to be at a higher level. Similarly, it was found that pre-service teachers in high levels are at the relational level. In accordance with this information, pre-service teachers in middle or high levels generally use more than one information given in the problem but they cannot fully understand their values in the whole and their relation with the others and it is seen in each 3 situation, pre-service teachers are superficial. Experiences gained in classroom environment for geometrical concepts are developing their spatial skills (Hoover, 1996). From this point it can be concluded that in order to develop spatial skills, the necessity of carrying out various activities comes in to view. There are studies which show that dynamic geometry programs and using abstract materials can be effective at this level. Thus, Baki and Güven (2007), Kösa (2011), Uygan (2011) displayed in their studies that dynamic geometry and Arıcı (2009) in his study that origami can be effective in developing spatial skills. The fact that in Lian and Idris's (2006) studies the participants are mostly at Unistructural and multi-structural levels and the responses of the pre-service teachers in this part of the study display similarities. Çelik (2007) and Ardiç and others' (2012) studies shows parallelism with the results obtained in a part of this study in terms of the responses of the participants stayed under relational level.

When we look at the general, the responses coming from pre-service primary mathematics teacher for the questions testing spatial visualization skills from two to three-dimension are mostly at relational level and at the least at Unistructural level. Their explanations are through rote learning, they started their calculations without thinking deeply which means there is no in-depth thinking and the questions were analyzed mostly superficially. Therefore, it cannot be said that pre-service teachers are successful.

The previous studies give us the fact that spatial thinking is mostly related with geometry rather than mathematics (Battista, 1990; Grande, 1990; Karaman, 2000). Since space is a more suitable field for the development of students' spatial skill, the importance given for teaching this field should be increased.

The level of students' responses can be determined by moving from various components that are specified by the other researchers of spatial skills and other subjects included in spatial geometry. The data obtained in this study was analyzed according to thinking levels of SOLO model. After evaluating the same data by using a different taxonomy, a comparison between two models can be made so that the subject can be considered from different point of view. In this way, if there are missing or overlooked aspects, they can be added.

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# The examination of primary school students' attitudes toward science course and experiments in terms of some variables

C. Dilek Eren<sup>a\*</sup>, B. Karadeniz Bayrak<sup>b</sup>, E. Benzer<sup>c</sup>

*Kocaeli University, Faculty of Education, Science Education Department, Turkey;*

*Yıldız Teknik University, Faculty of Education, CEIT Department, Turkey;*

*Marmara University, Faculty of Atatürk Education, Science Education Department, Turkey*

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## Abstract

The purpose of this study was to determine the effects of gender, grade and type of school variables on the primary school students' attitudes toward science and technology course and science experiments. The study group is 247 students in 4th, 5th and 6th grades from three public schools and one private school in Istanbul in the semester of 2012-2013. Attitudes toward science and technology course and science experiments scale was used as a data collection instrument within the scope of this study. The scale was developed by Barmby et al (2005) and adapted to Turkish by Kaya and Büyük (2011). The data obtained were analyzed quantitatively using SPSS 16.00. T-test and One Way Anova test, and Kruskal -Wallis test for students' scores for attitudes toward science experiments were employed. In this study, it was found that students' attitudes toward science course didn't differ by gender and school type; however, there was a significant difference in terms of grade in favor of 6th grade. It was also found that students' attitudes toward science experiments didn't differ by gender and grade, however, there was a significant difference in terms of school type in favor of private school. As a result, the difference in favor of private school brings to mind the question "how and how often is science taught using experiments in state schools?" In this study, it is also recommended that pre-service science teachers should be taught the importance of making science experiments.

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Keywords: Attitude, science course, science experiments, primary school students.

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## 1. Introduction

Science course is one of the important courses that will help students cope with the problems they encounter in daily life and understand nature. By science literacy, which is one of the most important goals of science course, individuals understand the nature of science and scientific knowledge, learn to solve problems based on basic principles, concepts, laws and theories of science and technology and to use scientific methods (Kenar and Balci, 2012). Indeed, it was intended to raise all citizens as science and technology literates in science and technology course curriculum published in 2006 as well as in science course curriculum published in 2013. However, it is also expected in common and main purposes created that the students develop curiosity about, attitudes toward and interest in science [Ministry of National Education (MEB), 2006; MEB, 2013]. Focus in science course should be not only scientific knowledge but also improving students' current scientific knowledge, skills, perspectives and attitudes (Bilgin and Geban, 2004). In parallel with the rapid advancement in science and technology, importance given to science education have increased all over the world and studies conducted in the field of education revealed the role of concepts such as attitudes and motives in the learning process (Altınok, 2004). When the literature of science teaching is examined, it is clear that the importance of academic learning products as well as of affective learning products, and accordingly the ineffectiveness

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\*Corresponding author. Tel.: +90-262-303-24-78; fax: +90-262-303-24-03

E-mail address: canandilek@kocaeli.edu.tr

of science teaching are frequently verbalized. The affective learning product which is emphasized the most is attitudes toward science and science courses (Altınok and Ün Açıkgöz, 2006).

Since the importance of developing positive attitudes toward science was realized, specific activities that can be performed to improve students' attitudes toward science were carried out by many educators and researchers in a wider framework (Papanastasio and Papanastasio, 2004). The importance of students' attitudes in learning science has attracted researchers for the last 30 years (Hong, Lin and Lawrenz, 2008).

Previous research reported that students' positive attitudes toward science and hence science courses improve their academic performance and meaningful learning levels, and it is an important factor influencing understanding of science (Azizoğlu and Çetin, 2009; Erdem, Yılmaz, Atav and Gücüm, 2004; Hong and Lin, 2011). Attitude influences students' decisions and behaviors so it plays an important role in the realization of learning (Altınok and Ün Açıkgöz, 2006; George, 2006).

In studies conducted about attitudes toward science conducted with different age groups, it was established that attitudes toward science courses vary by gender, performance status, father's education level and family's economic status (Akgün, Aydın and Öner Sünkür, 2007), that they are affected by students' education readiness, desire and school conditions (Papanastasio and Papanastasio, 2004), do not show significant difference by gender (Kaya and Büyük, 2011; Altınok, 2004), and show significant difference by grade level and age (Kaya and Büyük, 2011).

In studies related to teaching methods and techniques influencing attitude toward science, multiple intelligences theory (Özyılmaz Akamca and Hamurcu, 2005) and collaborative and individual concept mapping (Altınok and Ün Açıkgöz, 2006) were found to have no significant effect on students' attitudes toward science, whereas delivering performance-based activities during evaluation process (Önal Çalışkan and Kaptan, 2012), guided questioning approach (Köksal and Berberoğlu, 2014), an education setting in which science and social events are incorporated and discussed (Hong, Lin, Wang, Chen and Yang, 2013), science-technology-social approach (Lee and Erdoğan, 2007), drama technique (Sağırlı and Gürdal, 2002), experiments made using simple materials (Koç and Büyük, 2012) and cooperative learning (Bilgin and Karaduman, 2005) were found to have positive effects on students' attitudes toward science course.

One of the most important methods used in science course is experiment method. Through science experiments, students will be able to reflect on the events that occur in nature and develop activities that will enhance their cognitive skills. Students are also thought to exhibit positive or negative attitudes toward science experiments (Yeşilyurt, Kurt and Temur, 2005), which have a core importance in learning science (Hofstein, Kipnis and Kind, 2008; Hofstein and Lunetta, 2004; Demirbaş and Pektaş, 2010). Accordingly, it was aimed to investigate whether students' attitudes toward science course as well as science experiments vary by gender, grade level and type of school they attend. For this purpose, the sub-problems below were established:

- 1.1. Do primary school students' scores for attitudes toward science courses and science experiments vary by gender?
- 1.2. Do primary school students' scores for attitudes toward science courses and science experiments vary by grade level?
- 1.3. Do primary school students' scores for attitudes toward science courses and science experiments vary by whether the school they attend is a private school or a state school?

## **2. Method**

### *2.1. Research Model*

In this study, screening model was used to determine whether primary school students' attitudes toward science courses and science experiments vary by gender, grade level, and type of school they attend.

### *2.2. Sample of the Study*

The sample of the study was 247 students from 4th, 5th and 6th grades of three different primary schools selected randomly among primary schools in the province of Istanbul during the 2012-2013 academic year. Distribution of participants by gender and grade is shown in Table 1.

Table 1. Characteristics of sample group

Grade	Female	Male	Total
4	8	9	17
5	36	43	79
6	69	82	151
Total	113	134	247

### 2.3. Data Collection Instrument

In the study, “Attitudes Toward Science Courses and Science Experiments (ATSCSES) Scale”, which is a translation into Turkish created and developed by Kaya and Böyük (2011) of a 5-point Likert attitude scale with a reliability coefficient of Cronbach Alfa 0.76, originally developed by Barmby et al. (2005) to investigate students’ attitudes toward science and technology courses and science experiments, was employed to collect to data. This scale was chosen because it collects data related to attitudes toward science course and experiments, and it was developed in an updated manner. The statements in ASTSCSE used in the study were evaluated using a five-step Likert-type rating scale as follows: strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), strongly disagree (1). The scale consists of two parts. The scale consists of a total of 21 items and its first part includes 13 attitude items related to science and technology courses aiming to reveal students’ attitudes, and its second part includes 8 attitude items regarding science experiments.

### 2.4. Data Analysis

First, in order to determine which test methods to use in the study, distribution and homogeneity of data were analyzed. Fitness of the research data for normal distribution was determined using Single- Sample Kolmogorov-Smirnov test.

Factor 1: Attitude toward Science Courses

Factor 2: Attitude toward Science Experiments

Table 2. Results of Kolmogorov Smirnov Test

	Factor 1	Factor 2
N	247	247
Mean	53.93	36.10
Kolmogorov Smirnov Z	1.266	3.184
Assymp Sig	.081	.000

Factor 1 value on line Assymp.Sig. (Significance) from Table 2 is larger than 0.05, which is considered as a limit value in statistical significance calculations, indicating that factor 1 data were normally distributed, however, Factor 2 value on line Assymp.Sig. (Significance) in the same table is smaller than 0.05, indicating that factor 2 data were not normally distributed.

Moreover, for homogeneity of the data, One-way ANOVA test was performed.

Table 3. Homogeneity results of the values

	Levene Statistic	df1	df2	p
F1	.001	1	245	.976
F2	4.807	1	245	.029

In Table 3, p values of Factor 1 are larger than 0.05, which indicates that factor 1 distributions are homogenous, whereas, p values of Factor 2 in the same table are smaller than 0.05, which indicates that factor 2 distributions are not homogenous. Therefore, it was deemed appropriate to use parametric test methods in analysis of Factor 1 and non-parametric test methods in analysis of factor 2.

t-test and One Way ANOVA test were used for students' total scores for attitudes toward science courses. Kruskal-Wallis test, an alternative technique to one-way variance analysis, which does not require the assumptions of normal distribution and equality of variances, was used for the scores for attitudes toward science experiments.

### 3. Findings

In this section, distributions of 247 primary school students included in the study sample by gender, grade level and type of school they attend were determined, and the results regarding whether students' scores for attitudes toward science courses and science experiments vary by gender, grade level, and type of school they attend are given.

#### 3.1. Do students' scores for attitudes toward science courses and science experiments vary by gender?

a. t test was conducted to determine whether students' scores for attitudes toward science courses vary significantly by gender.

Table 4. t-test results of students' scores for attitudes toward science courses by gender

Gender	N	X	S	sd	t	p
Female	113	54.83	7.53	245	1.684	.094
Male	134	53.18	7.75			

As seen in Table 4, no significant difference was found between female and male students ( $t_{(245)}=1,684$ ,  $p>.05$ ).

b. Kruskal-Wallis test was conducted to determine whether students' scores for attitudes toward science experiments vary significantly by gender.

Table 5. Kruskal-Wallis test results of students' scores for attitudes toward science experiments by gender

Gender	N	Average of Rows	sd	$\chi^2$	p
Female	113	129.33	1	1.179	.277
Male	134	119.50			

As seen in Table 5, no significant difference was found between female and male students ( $\chi^2_{(1)}=1,179$ ,  $p>.05$ ).

#### 3.2. Do students' scores for attitudes toward science courses and science experiments vary by grade level?

a. One Way ANOVA test was conducted to determine whether students' scores for attitudes toward science courses vary significantly by grade level. As shown in Table 6, a significant difference was found between the grades ( $F_{(2-244)}=3,405$ ,  $p<.05$ ). According to the results of Scheffe test conducted to find between which grades a difference exists, 6th grade students' scores ( $X=54,93$ ) for attitudes toward science courses were demonstrated to be more positive than 5th grade students' scores ( $X=49,80$ ) for attitudes toward science courses.

Table 6. t-test results of students' scores for attitudes toward science courses by grade level



Variance Source	Sum of Squares	sd	Mean of Squares	F	p	Significant Difference
Between-group	393.911	2	196.956	3.405	0.035	5-6
Within-group	14114.178	244	57.845			
Total	14508.089	246				

b. Kruskal-Wallis test was conducted to determine whether students' scores for attitudes toward science experiments vary significantly by grade level.

Table 7. Kruskal-Wallis test results of students' scores for attitudes toward science experiments by grade level

Grade	N	Average of Rows	sd	$\chi^2$	p
4	17	119.91	2	.468	.791
5	79	128.42			
6	151	122.15			

It is evident from Table 7 that no significant difference was found between grade levels ( $\chi^2_{(2)}=.468$ ,  $p>.05$ ).

### 3.3. Do students' scores for attitudes toward science courses and science experiments vary by educational institutions they attend?

a. t test was conducted to determine whether students' total scores for attitudes toward science courses vary significantly by type of school.

Table 8. t-test results of students' scores for attitudes toward science courses by type of school

School Type	N	X	S	sd	t	p
State	173	53.8035	7.81	245	.424	.672
Private	74	54.2568	7.39			

As shown in Table 8, no significant difference was found between groups for attitudes toward science courses by school type ( $t_{(245)}=.424$ ,  $p>.05$ ).

b. Kruskal-Wallis test was conducted to determine whether students' scores for attitudes toward science experiments vary significantly by school type.

Table 9. Kruskal-Wallis test results of students' scores for attitudes toward science experiments by school type

School Type	N	Average of Rows	sd	$\chi^2$	p
State	173	117.32	1	5.126	.024
Private	74	139.61			

A significant difference in favor of private schools ( $X=139.61$ ) was found between state and private schools, as shown in Table 9 ( $\chi^2_{(1)}=5.126$ ,  $p<.05$ ).

## 4. Results and Discussion

This study was conducted to investigate whether primary school students' attitudes toward science course as well as science experiments vary by gender, grade level and type of school they attend. The results were presented in line with data obtained according to these variables.

In the study, when the effect of gender variable on students' attitudes toward science course is considered, attitude scores were found to show no significant difference by gender factor. Although this result is not comparable to the results of several previous studies (Çakır et al. 2000, Yenice 2003, Çakır K. et al. 2007, Kozcu Çakır and Şenler

2007, Avcı Erduran and Darçın Selcan 2008, Kaya and Büyük 2011), it is comparable to some other studies (Weinburgh 1995, Bilgin and Karaduman 2005, Tekbiyik and İpek 2007).

In the study, when the effect of gender variable on students' attitudes toward science experiments is considered, attitude scores were found to show no significant difference by gender factor. Although this result is not supported by the result found by Yıldız et al. (2006), it is supported by previous studies which investigated attitudes toward science experiments (Bernardez 1998, Kaya and Büyük 2011, Yeşilyurt et al. 2005), attitudes toward physics experiments (Taşlıdere and Korur 2012), attitudes toward chemistry experiments (Cheung 2009) and attitudes toward biology experiments (Erdoğan et al. 2009), which are disciplines covered by the science course. In a study by Greenfield (1997), which evaluated interest and participation in science laboratory, it was observed that female students actively participated in science laboratory, set up pendulum and balance mechanisms, prepared mixtures related to chemicals, just like male students, and that male students counted the number of swings of the pendulum, took readings of the weights of objects in balance, just like female students, which also support this study, suggesting that gender has no influence on attitudes toward science experiments.

Another result of this study was that primary school students' scores for attitudes toward science course did not vary in terms of school type variable. There are studies in the literature reporting that attitudes toward science course vary by school type (Novick and Duvdani 1976, Banu 1986, Mutlu 2006). There are also studies which concluded that private school students' attitudes toward science course are at the top (Kiraz and Omağ, 2013). However, the results of this study are also supported by previous studies suggesting that attitudes toward science course do not vary by school type (Craker, 2006). With the results obtained from this study, it may not be entirely accurate to say that school type has no significant effect on attitudes toward science course. Private school students only comprise 34% of the sample of this study, which may not be adequate to measure the difference between attitudes by school type.

As a result of the analysis conducted to determine whether participating primary school students' scores for attitudes toward science experiments vary by educational institution they attend to, it was concluded that their attitudes toward science experiments varied in favor of private schools by school type. In a study by Bozdoğan and Yalçın (2005) which investigated attitude scores of primary school students grouped according to different education-teaching and different number of teachers-students, and in a study by Temel et al. which investigated attitude scores of students from faculty of science & literature and faculty of education, in which physical conditions and tools-equipment were either arranged well or not, it was concluded that those who had limited laboratory facilities could not conduct most of the experiments, resulting in reduced student attitudes toward science experiments. Özdemir and Azar (2004), and Yıldız et al. (2006) compared attitudes toward the purposes of science experiments of teachers who have science laboratory in their school and of those who don't, and identified a significant difference in favor of teachers who have science laboratory in their school. Feyzioğlu et al. (2011) determined that physical conditions of a laboratory causes significant difference in perceptions of teachers toward the laboratory. The results obtained from these investigations conducted with students and science teachers from different levels of education are consistent with the conclusion of this study that the attitudes toward science experiments vary in favor of private schools, which have better equipped laboratories. Effective use of laboratories by science teachers depends on whether teachers exhibit a positive attitude toward laboratory use as well as on whether laboratory conditions in their schools are suitable for work. Teachers' positive attitudes toward laboratories may also encourage students to adopt positive attitudes toward science experiments.

In the study, it was concluded that attitudes toward science course varied significantly by grade level in favor of 6th grade, among 5th and 6th grades, however, attitudes toward science experiments did not vary by grade level. There are research studies which demonstrated that students' scores for attitudes toward science course decreased with increasing grade level (Greenfield 1997, Bozdoğan and Yalçın 2005, Murphy et al. 2006), and that such decline is significant for especially 8th grade, compared to other levels (Akpınar et al. 2009). Weinburgh and Englehard (1994) observed that students from lower grades participate in experiments in the laboratory more actively than those from higher grades. According to Rice et al. (2013), students who receive social support from their parents, friends and teachers for mathematics and science courses have more positive attitudes toward mathematics and science courses, and their qualifications in these courses are in a sense higher. The findings of this study that attitudes toward science experiments do not vary by grade level, whereas attitudes toward science course vary in favor of 6<sup>th</sup> grade, among 5<sup>th</sup> and 6<sup>th</sup> grades, may have arisen from perceptions regarding science teachers, motivations regarding the course, of

students constituting attitudes toward science course, their friends' and parents' attitudes and laboratory or classroom setting, as suggested by Osborne et al. (2003).

## 5. Suggestions

It is important for effective use of laboratories, which are indispensable for science and technology lessons, that laboratories are rearranged in accordance with the goals of the course in all schools.

Professional development with respect to laboratory practices of teachers, knowingly or unknowingly playing an important role in students' developing positive attitudes toward science experiments, should be supported.

Considering that positive attitudes toward science course can also affect the students' course selections in the next stage of their education and their career choices in the future, science classrooms should be arranged in such a way as to attract students' attention, increase their interest and curiosity so that they have positive attitudes toward science course.

In-service training should be provided to teachers so that science courses, as a course by which students can develop their manual skills as well as their creativity and thinking styles, and laboratory practices indispensable for the course are conducted with activities that will encourage participation of students.

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# The examination of the required multicultural education characteristics in curriculum design

Nevcan Demir\*, Bünyamin Yurdakul

*Ege University, Faculty of Education, Department of Educational Sciences, Curriculum & Instruction, Bornova, İzmir 35040, Turkey*

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## Abstract

This phenomenological study focused on what multicultural characteristics can be reflected to the elements of the curriculum objectives, content, learning situations and evaluation. Multicultural literature was examined via content analysis method. The findings were reported according to the themes based on the curriculum's elements. Some results of the research revealed that a curriculum design has multicultural characteristics if the objectives have the learner characteristics such as comprehending human rights and appreciation of different views, the content consists of some subjects such as human rights and citizenship, the learning situations offer different groups bias-free implementations and the evaluation process focused on thinking skills such as reflective thinking.

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*Keywords:* Globalization; Multicultural education; designing multicultural curriculum; content analysis.

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## 1. Introduction

Multiculturalism is dealt as a set of beliefs and applications which a group of people use to make sense of themselves and the world and to arrange their personal and collective lives (Parekh, 2000); multicultural education is dealt as an idea or an educational movement that gets students to achieve academic success and a reform movement that changes all elements of the educational enterprise, including its underlying values, procedural rules, curricula, instructional materials, organizational structure and governance policies to reflect cultural pluralism (Gay, 1994).

Studies revealed that different characteristics of individuals are not accepted in educational settings and they are even marginalized because of these; so, the objectives of curricula are not achieved (Bennet 1986; Banks, 2003; Macgillivray & Jennings 2008; Gay, 2010; Aguado, Ballesteros & Malik, 2010; Terra & Bromley, 2012). It is stated that monocultural education stunts the growth of the imagination and critical skills of students and causes them to judge other cultures and societies by the norms and standards of their own and to find them odd even worthless (Parekh, 2000). So, it is proposed that restructured education systems which have multicultural curricula are needed (Cole, 1998). It is proposed that school climate and hidden curriculum, teaching styles and strategies, language of communicate, elements of participation, formal education and training program, measurement and evaluation methods, instructional materials, attitudes, perceptions, beliefs and behaviors of school staff and school policies, also, should be

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\* Corresponding author. Tel.: +0-506-347-4883; fax: +0-232-373-35-75.  
E-mail address: nevcandemir@gmail.com

changed by multicultural education which aims at ensuring equal opportunities for all students regardless of their gender, sexual opportunities, social classes, ethnic, racial and cultural features (Banks, 2003). But the primary concern is how to develop curricula, steering teaching implementations substantially, in terms of multicultural characteristics. In development of curricula, indispensable elements of education systems, multicultural characteristics can be reflected to teaching implementations taking learner differences into consideration (Banks, 2003; Grant & Sleeter, 2007). In this study, it is accepted that the hidden curriculum is inevitable and despite how perfectly was prepared, teachers can reshape formal curriculum plans with their own characteristics in implementation processes (Ertürk, 1994; Hewitt, 2006; Varış, 1988). Nevertheless, it is thought that teachers' curriculum implementations can be steered by curricula which have multicultural characteristics. In this context, the study focused on the question of what multicultural characteristics can be reflected to the elements of the curriculum objectives, content, learning situations and evaluation in designing curricula.

## 1. Method

In this study which was conducted on phenomenological method, a design of qualitative research methods, document analysis was chosen as the basic data collection method (Yıldırım & Şimşek, 2011). Multicultural literature was examined via content analysis method in the research. The findings were reported according to the themes based on the curriculum's elements.

## 2. Findings

### 2.1. The objectives of curriculum design

Multicultural curricula should have aims at imparting cognitive, affective and psychomotor features, providing a more equitable and fair society, to students (Banks, 2003).

It is suggested that curriculum plans have individual features which enable students to have knowledge about some key concepts such as democracy, human rights, prejudice, discrimination, sexism, sexual orientation, racism, social class, diversity, religious orientation, different languages, globalization which provide students with thinking multidimensionally and to examine the relations among these concepts (Banks, 2003; Bennett, 1986; Çavdar, 2014; Gay, 2010; Sears, 1991; Tiedt & Tiedt, 2010).

In terms of *affective domain*, it is suggested that a curriculum should have some features enabling; *i*) to develop empathy (Arikan, 2005; Baker, 1977; Banks, 2003; Gay, 2010; Grant & Grant, 1981; Portera, 2004); *ii*) to feel responsibility for world societies and esteem to the nature (Bennett, 1986); *iii*) to accept his/her responsibilities as a citizen of a multicultural society (Tiedt & Tiedt, 2010); *iv*) to appreciate different ideas and to be aware of how they develop decision making skill in different times (Tiedt & Tiedt, 2010); *v*) to accept different views (Tiedt & Tiedt, 2010); *f*) to develop a positive sense of self (Boyer & Babtiste, 1996), *vi*) to accept and appreciate different sexual orientations (Taxel, 1978; Sears, 1991; Macgillivray & Jennings, 2008; Mayo, 2014; Yağcıoğlu, 2014); *vii*) to reduce homophobia (Mayo, 2014; Alkan, 2014), *viii*) to develop an understanding which can remove social problems based on oppression and inequality (Boyer & Babtiste, 1996); *ix*) not to find one's and others' cultural heritage odd (Tiedt & Tiedt, 2010) and *x*) to develop friendship relations with marginalized groups (Banks, 2003).

It is, also, vital that a curriculum should include the skills enabling: *i*) to communicate with individuals who have different cultures (Boyer & Baptiste, 1996; Bennett, 1986); *ii*) to put the concept democracy into practice (Banks, 2003) *iii*) to be able to do teamwork (Banks, 2003; s. 122) and *iv*) to gain social movement (Bennett, 1986).

## *2.2. The content of curriculum design*

In the content of a multicultural curriculum design, it is highly recommended to include such concepts as notably human rights education, citizenship courses and how events, cases and notions are dealt from different views (Banks, 2003). The content should have historical and cultural events which enable to understand the experiences of different groups (Banks, 2003; Bennett, 1986). For example, the texts which deal with the roles, experiences, challenges and contributions of women to the society can take part in course books (Banks, 2003). Subjects which illuminate and break down prejudices against LGBTI individuals can be dealt (Macgillivray & Jennings, 2008; Mayo, 2014). To sum up, it is expected that content of the curriculum should identify the diversity in subject area and different views related to the content (Banks, 2003; Bennett, 1986; Gay, 2010).

## *2.3. The learning situations of curriculum design*

The findings oriented to curriculum objectives revealed that affective domain features should take part in multicultural curriculum design mostly. When it is taken into consideration that having affective features gained to individuals and measuring them are hard, it can be asserted that learning situations should be based on active experience. In this context, for Boyer & Babtiste (1996) methods such as simulation, role-play and case study/critical case can be used.

Tiedt & Tiedt (2010) suggest that teaching methods such as reading aloud, reading books with pictures, brainstorming, collaborative learning, drama, using graphic regulations and activities which let learners tell their own experiences and stories can be used. In addition, it is proposed that the materials which can make negative ideas, bias, hate speech and stereotypes against diversities shouldn't be used and the materials which are used should have the quality to test the bias against diversities (Arikan, 2005; Ayalon, 2008; Banks, 2003; Boyer & Babtiste, 1996; Collado & Atxurra, 2006; Grant & Grant, 1981; Kowalski, 2009; Ndura, 2010; Portera, 2004).

## *2.4. Measurement and evaluation process in curriculum design*

As empathy development and change in attitudes can take a long time, evaluation should be flexible to reflect diversity. In this context, it is thought that learners can prepare reflective thinking portfolios (Tiedt & Tiedt, 2010). It is also suggested that thought provoking questions can be asked after videos about discriminated groups are shown and historical and sociological information about different cultures can be used to test personal attitudes of learners (Banks, 2003). Aguado, Ballesteros & Malik (2010) propose that cultural differences should be taken into account in evaluation process.

## **3. Conclusion**

The importance of altering curricula into a multicultural structure for all ages and levels of learners is obvious so as to prevent learners who have different cultural features from being exposed to marginalization in educational settings and to affect their learning positively by turning their cultural differences into advantages. When viewed from this aspect, it can be said that a multicultural curriculum design should have the aims at raising democratic individuals who have reached the awareness and acceptance level of differences, can empathize, know human rights and respect them and communicate interculturally. A curriculum content which includes all marginalized groups and gets to gain multidimensional views should be organized. In learning situations, team works between heterogeneous groups, collaborative learning, discussing with differences and different views with due regard, and materials which include all differences as well as method and techniques such as drama enabling learners to develop the empathy skill. Evaluation process should be flexible and wide as the development of some attitudes can take a long time, and should reflect cultural diversity and should be convenient for learners' cultural backgrounds.



To sum up, this research revealed that curriculum designs can be said to have multicultural characteristics providing that curriculum includes the following; objectives having the learner characteristics such as comprehending human rights and appreciation of different views, the content consisting of subjects such as human rights and citizenship, the learning situations offering different groups bias-free implementations and lastly, the evaluation process focusing on thinking skills such as reflective thinking.

Consequently, it can be thought that program evaluation studies can be conducted to evaluate how substantial curriculum documents have multicultural characteristics accepting the characteristics determined in this study as criteria.

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İNTE 2014

# The examples of the studio approach that based on metaphors

Emine Yıldız Kuyrukçu<sup>a</sup>, Zafer Kuyrukçu<sup>b</sup>

<sup>a</sup> Research Assist, Selcuk University, Architecture Faculty, Department of Architecture, 42003 Konya, Turkey

<sup>b</sup> Research Assist, Selcuk University, Architecture Faculty, Department of Architecture, 42003 Konya, Turkey

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## Abstract

Analogy is the accordance with proportion. Metaphor is the form of analogy which contains semantic. Architect interprets metaphor which he chooses as the beginning of the design process, according to himself. The project develops and concludes with this interpretation. He transfers an image to the building with metaphor. The result reflects this metaphor. Metaphor causes the building to gain symbolism. This study Studio 7 shopping centre project that based on metaphors has been organized for third year students on Selcuk University Architecture Faculty in the academic year 2013-2014, spring semester. It is aimed to evaluate the progress in designing skills of students by using metaphor technique in architectural design. The secondary purpose is to indicate the capability of a design approach based on metaphors to meet the demand for architecture with identity and overcome the increasing monotony in the man-made environment. The relationship between architectural design practice and metaphor concept were evaluated with all positive and negative aspects within the context of students' projects.

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*Keywords:* Architectural identity, metaphoric design, formal metaphor, conceptual metaphor, sending message

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## 1.Introduction

An analysis of the general framework of the recent architectural design practice reveals that criticizing, valuation or interpretation of designed projects are based on only the visual values or architectural images of these works. Architecture is using metaphor for a communication mediator. Human describes the thoughts in his mind by establishing relations with some objects while adding architectural accumulations to the environment he lives. While establishing relations with the objects sometimes he uses the method of formal metaphoric design in which he uses the object as metaphor directly; also sometimes he uses the method of conceptual metaphoric design in which he uses the object as metaphor indirectly. The increasing in the number of the metaphoric buildings is directly proportional with the developments in today's technology. The progress in material, computer and structural fields makes the applications of the projects possible which are impossible to be built in past. Original metaphoric buildings are considered important because of being constructed against impossibilities beside possibilities.

This study emphasizes the concept of metaphor. The speeches on the usage of metaphor in architecture are examined. In this paper, these conclusions can be sad; as it can be in the world, also in our country metaphor was used in architecture. The successful buildings can be made with the right sending's, right messages but if this concept is used unconsciously, unsuccessful buildings would be formed and the reactions were borned. Because of this, architect candidates have to be thought these concepts as consciously.

## 2. Metaphor in Philosophy and Architecture

Aristotle was the first philosopher known in history who pointed out the effective role played by metaphors in creative processes. He briefly defines a metaphor as, "...consists in giving the name that belongs to something else" (Poetics, 1457b). And he explains the importance of metaphors: "...ordinary words convey only what we know already: it is from metaphor that we best get hold of something fresh... It is a great thing by far to be master of metaphor" (Rhetoric, 1410b). One of the aspects of imagination is seeing something in terms of another thing as claimed by Lakoff and Johnson (2003) who clarify the reason for this importance. If this idea is true, it can be concluded that the effectiveness of imagination and thus, creativity, can be increased through metaphorical thinking. According to Lakoff and Johnson (2003), "The essence of metaphor is understanding and experiencing one kind of thing in terms of another" (p. 5), and "...principally a way of conceiving one thing in terms of another" (p. 36). Johnson (1987: 168) asserts that "Metaphorical projection is one fundamental means by which we project structure, make new connections, and remold our experience". "A metaphor can often create novel features in an object or a situation", writes Indurkha (1999: 621). From the perspective of Lakoff (1987), new metaphors create the entire conceptual system that human activities depend on. In a similar vein, Ricoeur (1991) underlines that metaphors increase our perception of reality by shattering our sense of reality, and that reality goes through phases of metamorphosis through metaphors.

Expressing via metaphors is the richest way of building a relationship between the signifier and signified. Metaphor is a deliberate preference by the artist. Expressing via metaphors generates the depth of the piece of art. Wandering in the world of object, the artist frequently employs metaphors in the relevant discipline or in the interdisciplinary context. In addition to enriching the language, expressing via metaphors is a profound route fortifying art. Thus, art finds an easier way to connect with the outer world. Metaphor is the connection between what we see when we observe the objects and what is left beyond of our observations. Metaphor in art is an attempt to read what the artist intended to express in his/her journey to the world of objects via the concept of metaphor, using the signifier objects.

Metaphors are not just a matter of language; they are also a matter of thought and action. They involve all natural dimensions of our sense experience such as color, shape, texture, sound (Lakoff and Johnson, 2003). The origins of verbal and visual metaphors are similar according to Rothenberg (2008). The concept of "visual metaphor" was first coined in scientific vocabulary by Aldrich (1968), but has been known and used by architects since ancient times. It is quite natural that visual metaphors prevail in architecture since it is a visual art. Designers' creative ideas are usually in the form of objects or images in their minds, and they cannot be easily verbalized. However, in relation to concrete samples, it is seen that architects not only use visual metaphors directly, they also apply verbal and conceptual metaphors into visual images and by using different interpretations transform them into visual images. As a matter of fact, it is a much more intelligent attitude than using visual metaphors straightaway and has potential to create more sophisticated architectural designs because a concrete graphic image of an abstract concept changes from one architect to another and varies even according to different perspectives of the same architect at different times. Every image appearing as a result of this process would be superposed on previous images. Thus imagination would be activated and new images would emerge (Ayran, 2012).

In the process of creating, the depth of the dialogue the subject builds with the object is about narrating "the other" in the context of style-content relationship. In this relationship, narrating the other is to make a metaphor. The metaphor is the transference of ideas into form. The Architectural form is the complement of idea. When metaphor, which is simply defined as "describing something by referring to something else", becomes a concept used by the architectural creator, turning the vessel, a carrier and protector by nature, into the "metaphoric design". With its formal relation to space, the metaphoric design gains a meaning for the trace it leaves in the space. It turns into an oral and ideological act conveying this trace.

## 3. Case Study

Architectural education differs from the other education branches, includes both theoretical courses involving such methods as transfer of information and evaluation; and also "creative studio" activities specific to design education. Educational sciences consist of sub discipline titles such as "education methods", "teaching techniques", "educational environment", "education tools" and "educational psychology". In creativity education, it is necessary to use some of these components. The case study was conducted in Selcuk University Department of Architecture, and studio 7 design

studio with a cluster of twenty students in the academic year 2013-2014, spring semester. In the phase of theoretical narrating lecture and collecting data about problem; teacher oriented, discussion-debate, sample case methods were applied in formal education (8 hours a week) and class environment. During the creativeness part of design education, “metaphor” technique has been tried. In the first days of the study, information about metaphors was given to the student. Firstly metaphor designs and photographs of previously made contemporary architectural samples were shown related with the semester’s subject of design. Students were requested to be inspired from these examples for their new designs. Firstly every student researched an architecture who design based on metaphors and made his/her poster.



Fig. 1. Student's poster 1



# SANTIAGO CALATRAVA



Santiago Calatrava, İspanya, Valencia'da bir mezra olan Benimamet'te dünyaya geldi. Valencia Sanat Okulu ve Valencia Mimarlık Okulu'nda eğitim aldı. 1975 yılında mezun olduktan sonra İsviçre'nin Zürih kentinde yer alan İsviçre Federal Teknoloji Enstitüsü'ne inşaat mühendisliği üzerine doktora çalışması yapmak için kayıt oldu. 1981 yılında "On the Foldability of Space Frames" adlı doktora tezini verdikten sonra mimarlık ve mühendislik alanında çalışmalarına başladı.



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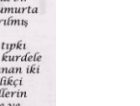
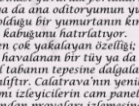
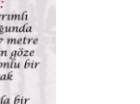
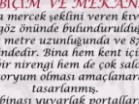
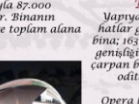
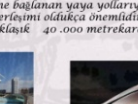
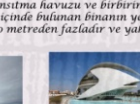
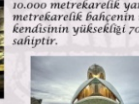
## Palau de les Arts Valencia



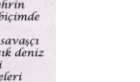
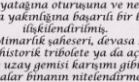
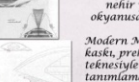
Sanat ve Bilim Şehri karmaşık, Valencia Opera House son elemanı olarak Gebe (Palacio de las Artes), iki simetrik, cut-away beton katınlıkları içinde kendi muhafaza aracılığıyla birleşik hale görünüşte rastgele çiftlik bir dizi olarak dizayn edilmiştir. Bu formlar giriş izidiham eksenel olarak çıkıntı ve eğriyel zarfın üst konturları üzerinde uzanan kapsamlı bir çelik kılıf ile taçlandırılmış. Oluşan yapı altında teraslar ve tesislerin koruma sunarken, dramatik manzara içinde sembolik ve dinamik etkiyi artırıcı, Opera House kimliğini tanımlar.

1300 koltuk opera binası içinde yer alan tamamen klimalı oditoryum, merkezi çekirdeği kaplar. Bu çekirdek küme içinde gömülü bir akustik şekilli kabuk içinde yer almaktadır.

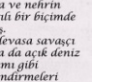
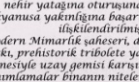
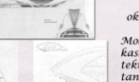
### GÖRÜŞLER



### BETONARME DİŞ KABUK



### İÇ MEKAN



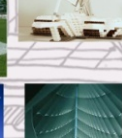
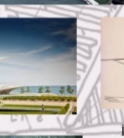
## MILWAUKEE ART MUSEUM



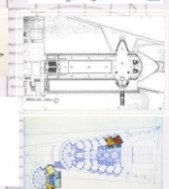
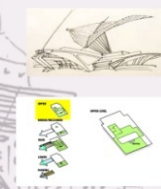
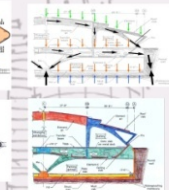
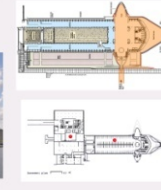
Müze çeşitli kalıcı Koleksiyonu galerileri yanı sıra yıl boyunca özel sergilerde değişen çeşitli sanat eserlerini sunmaktadır.



Köprü açılıp kapanabilir özelliktedir.



### PLANLAR



### VAZİYET



### İÇ MEKAN



Fig. 2. Student's poster 2



Fig. 3. Student's poster 3

It is seen that contemporary prominent architects especially Libeskind, Calatrava, Zaha Hadid, Correa and Holl abstain from direct Analogy and use narratives, memories, historical events, characteristics related to project subjects or site or natural structures as metaphors. It is seen that these architects reach generally multi-layered, sophisticated, effective meanings by constantly making mental shifts between the verbal and the visual metaphors. The significance of this meaning in relation to this article's argument is that it has a very remarkable architectural identity (Ayıran, 2012). According to Fernandez (1974), metaphors play a major role in identity formation. Creative or generative metaphors

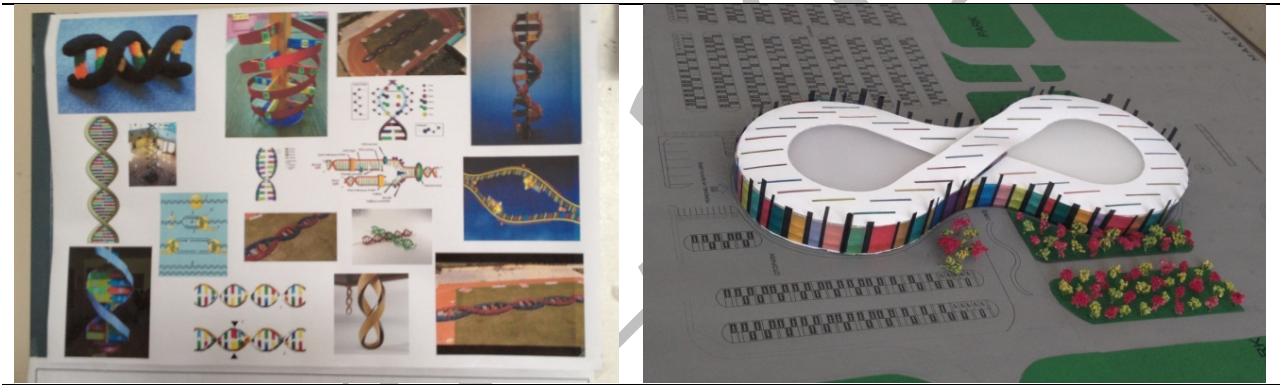


enrich a certain cultural environment by adding new meanings (Tucker, 1994). After that each student designed his or her own shopping center project that based on metaphor in Konya city. In the following Table 1 there are some shopping center projects that based on metaphors.

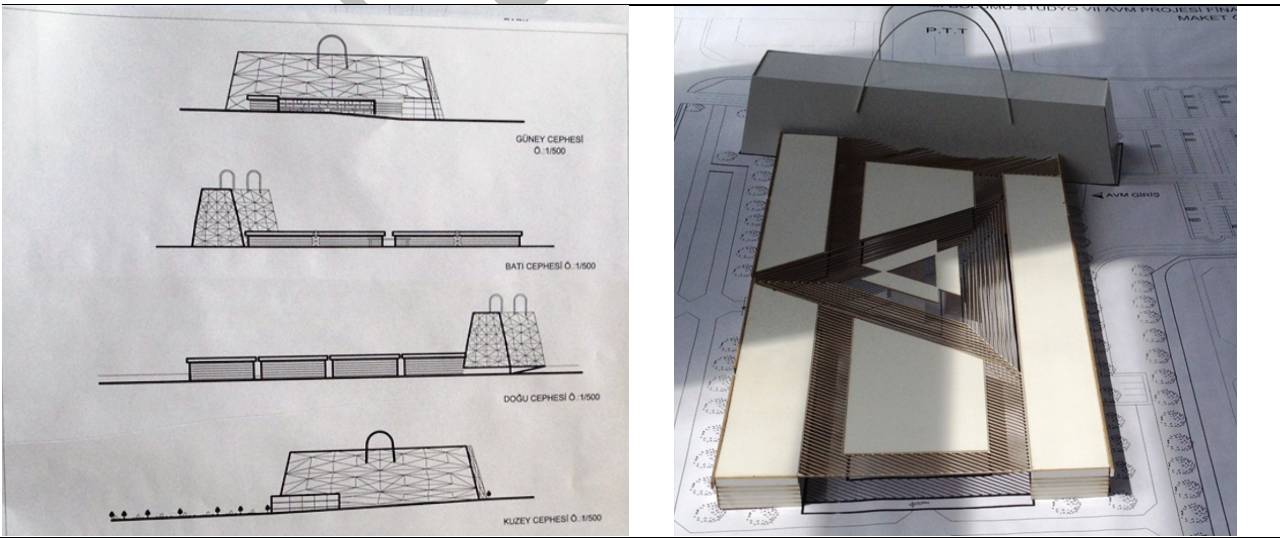
Table 1. Student’s projects at the end of the semester.



A student project that based on **TORNADO** metaphor (formal metaphoric design)



A student project that based on **DNA** metaphor (formal metaphoric design)

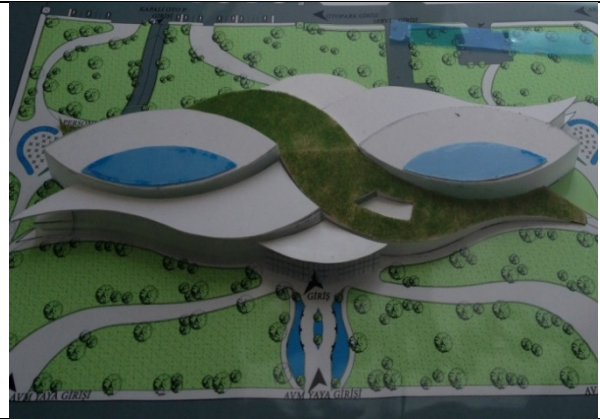
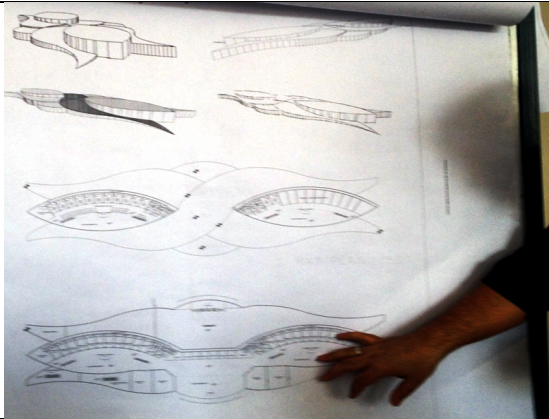




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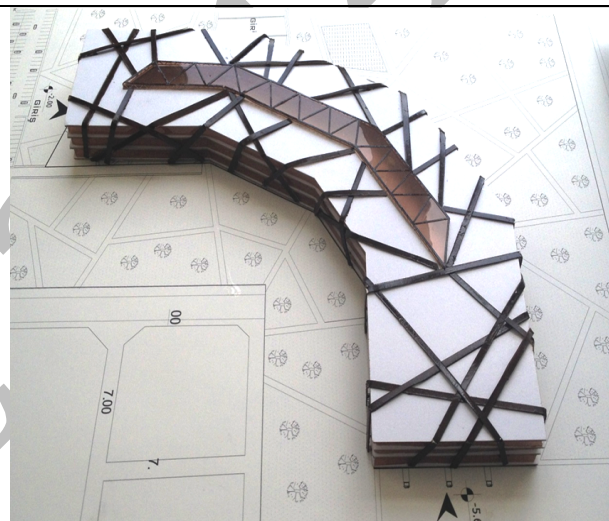
A student project that based on **HANDBAG** metaphor (formal metaphoric design)

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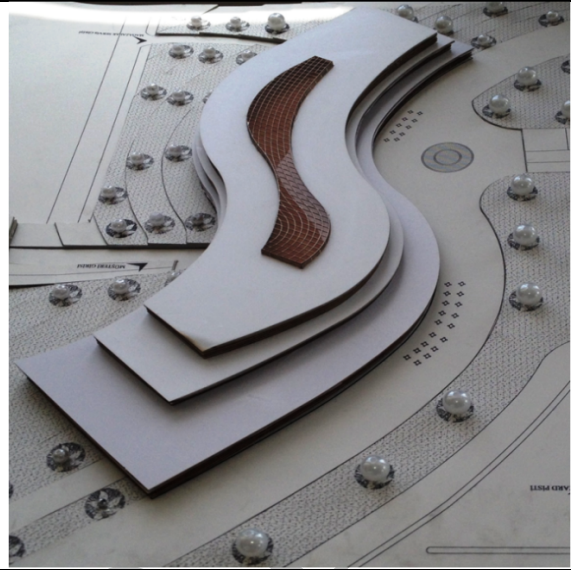
A student project that based on **TULIP** metaphor (formal metaphoric design)

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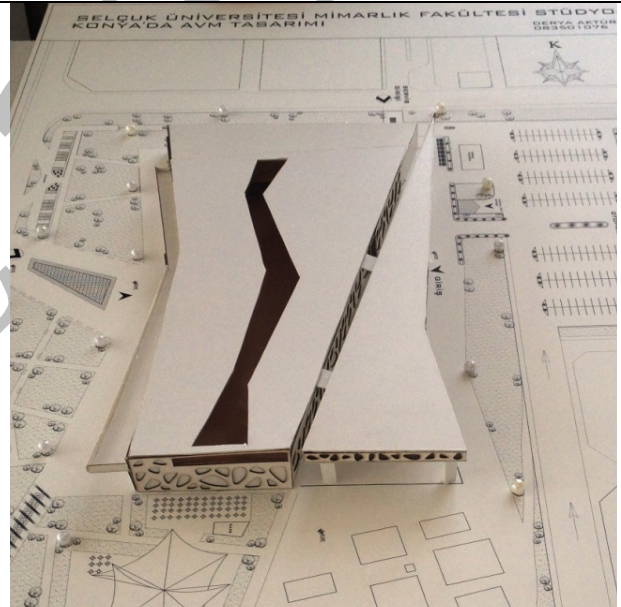
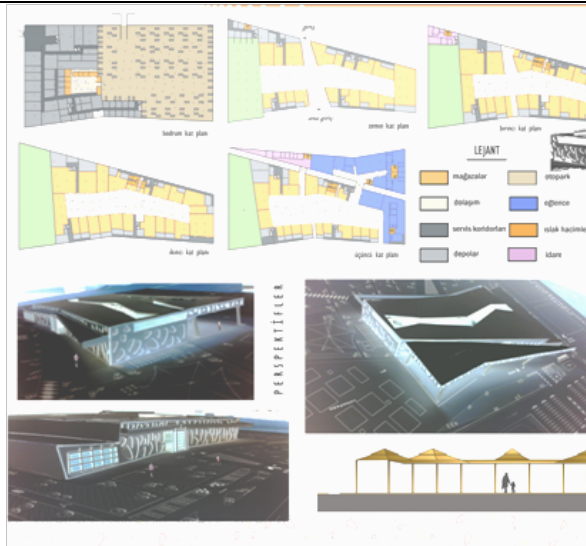


A project student that based on **KAOS** metaphor (conceptual metaphoric design)

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A student project that based on **MOTION** metaphor (conceptual metaphoric design)



A student project that based on **BREAKING** metaphor (conceptual metaphoric design)

#### 4. Assessment and Conclusion

The main purpose of architecture is to design unique architectural environments and consequently generate effective architectural identities which broaden the feelings, thoughts and imagination of human beings; in short, their experiential realm. Metaphor is seen as a very valuable tool for the designers who needs both rational thought and imagination at the same time and seeks a unique situation, in this sense, a new reality which has never been experienced before. In this study we can say, metaphoric technique is idea generator in creating new designs. So this study was intended for students to gain a way of an architect's eye vision. Successful student works were created by using the

metaphor technique. In spite of success of this technique, it is seen that the “metaphor technique” should be used conceptual metaphoric design because it is more successful than formal metaphoric design.

Since Aristotle a large number of philosophers and researchers indicate the positive role played by metaphors on creativity, primarily in art; subsequently, in science and other disciplines. The significant role of metaphors in the formation of architectural identity has been realized and applied by architects since Vitruvius. When architects implemented this tool, they created architectural works which have indelible reflections on human mind. It is seen that many architects have generated new images by triggering their imagination by overlapping two or more discrete images in their minds through homospatial thinking, particularly related to properties of a project topic or site area. Prominent architects such as Wright, Taut, Le Corbusier, Tatlin, Fuller, Cansever, Correa, Calatrava, Holl and Libeskind have been able to generate multilayered, sophisticated and significant meanings through this approach (Ayıran, 2012). As a result we can use this approach for new architectural designs.

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# The factors affecting to selected study digital art program the Faculty of Humanities and Social Science Loei Rajabhat University's students

Itsariyaphon Chaikulap<sup>1</sup>

*Department of Humanities Faculty, Humanities and Social Sciences,  
Prince of Loei Rajabhat University, Loei Province, Thailand*

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## Abstract

The purposes of research were to study and compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students Loei Province, Thailand to be sort out of sex, age, education level homeland and family salary. This is quantitative research and the target were group 59 digital art program students academic year 2013. The questionnaires have reliability situations .93. Collected data quantitative research were analyzed and statistic used percentages, mean scores and standard deviations. The statistics used in statistical hypothesis testing. The Wilcoxon Signed Ranks test and Kruskal-Wallis's test. There is significant difference ( $p < .05$ )

The research findings:

1. The factors affecting to selected study digital art program the Faculty of Humanities and Social Science Loei Rajabhat University's students were high rank follow: student and parent value, teacher, curriculum, environment, material and instruction media, bursary, organization image and financed student loans.

2. Compare the factors affecting to selected study digital art program the Faculty of Humanities and Social Science Loei Rajabhat University's students to be sort out of sex, age, education level, homeland and family salary.

2.1 None significant as a whole of the effective factors to selected study digital art program male and female, and family. Found significant level .05 of financed student loans.

2.2 None significant as a whole of the factors affecting to selected study digital art program difference age. Found significant level .05 of environment material and instruction media, teacher and bursary.

2.3 None significant as a whole of the factors affecting to selected study digital art program difference education level. Found significant level .05 of environment material and instruction media and teacher.

2.4 None significant as a whole of the factors affecting to select study digital art program difference homeland and family salary.

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**Keywords:** Factors to selected, Digital art program; Loei

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## INTRODUCTION

Today we all have high completion in every part of the world. Especially in the education such as in 2012 by Thailand Newspaper show downward of Thailand Education that we changed 3 ministers of Department of Education in past 1 year in 2012. [1] Pearson Company present their research for 52 papers in to main object 1 Balance the international education 2 Compare the international education. And Thailand is in the 37<sup>th</sup> [2]

Thailand government rule the education project in the government development project form support technology for higher education In 2000 the digital become technology a part of our lift, for example the mobile phone, notebook computer, tablet, GPRS and etc. And we are in the Globalization mean that everyone in the world can connect each other by using digital technology.[3]

Loei Rajabhat University is the only one University in the province that open Digital Art subject since 2008. For past 6 year Digital Art section increase more students every year. Because we improve and develop our course in efficiency by these following: 1) knowledge of Digital Art technology to create a new invention, 2) skill to improve and manage Digital Art technology, 3) positive Attitude in Digital Art technology design by used to develop in local society, 4) moral principle, honest and responsibility in Digital Art career and 5) consciousness and be apart to support and promote Thailand Art Culture.

The result that become Digital Art more popular in present day by the reason from the teenager' s behavior and technology. In the past the Art mostly doing by hand that cause a lot of problems but the Digital technology is the solution for many port in the new modern Art. Then fore, I am the teacher of Digital Art section have been study and research form vary institutes and research to make a research of The factors affecting to selected study digital art program.

Humanities and Social Science the Faculty of Loei Rajabhat University in 8 fields, image of institute, course, media and equipment, teacher, values, scholarship, financial aids and circumstances. Forget the new information to continue development the courses and students.

## MATERIALS AND METHODS

2.1 Scope of the study with respect to their 8 detail of factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students. The data gathering through the use of a questionnaire. Data gathering are analysis through the use of the following statistical tools: frequency count and percentage, mean scores and standard deviations. The statistics used in statistical hypothesis testing The Wilcoxon Signed Ranks test and Kruskal-Wallis's test. The target group of this study 59 digital art program students in Department of Humanities Loei Rajabhat University.

2.2 The questionnaire try out for 30 students visual art program have reliability situations .93. Part 1 Personal factors of the respondents. Gathering information relative to the part 1 and part 2 the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students. Likewise, to measure the level of rating scale. The researcher set the scale arbitrarily. Boonchom Srisaard.[4]

2.3 Data Gathering Procedure. There data were gathering procedure; 1) The research went to participation of students digital art program activities. 2) Observation of in-depth interview. 3) Data gathering are doing personal by the researcher who utilize a questionnaire for the purpose and 4) After the questionnaires are collect, the researcher tally and tabulate the results. All data in the tables are primarily taking from the questionnaire.

## RESULTS AND DISCUSSION

Table 1 Summary mean rate of the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students.

Sr. no.	Items	$\bar{X}$	SD.	DR	Level
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1	Organization image	3.94	0.81	H	7
2	Curriculum	4.29	0.56	H	3
3	Material and instruction media	4.13	0.77	H	5
4	Teacher	4.49	0.69	H	2
5	Student and parent value	4.51	0.69	VH	1
6	Scholarship	4.04	0.85	H	6
7	Financed student loans	3.78	1.09	H	8
8	Environment	4.19	0.59	H	4
Overall		4.17	0.53	H	

Legend: VH=Very Hight, H=Hight, M= Moderate, L=Low and VL=Very Low

Table 1 Presents the overall mean ratings ( $\bar{X}$  = 4.17) is “High” of The factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University’s students. This means that; students and parent value ( $\bar{X}$  = 4.51), teacher ( $\bar{X}$  = 4.49) and the curriculum ( $\bar{X}$  = 4.29) the lowest rate were the financed student loans ( $\bar{X}$  = 3.78)

Compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University’s students to be sort out of sex, age, education level, homeland and family salary.

Table 2 Compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University’s students to be sort out of sex.

Sr. no.	Items	SEX		Wilcoxon	p-values
		men	woman		
		Mean Rank	Mean Rank		
1	Organization image	26.53	34.40	875.500	.080
2	Curriculum	29.42	30.73	971.000	.770
3	Material and instruction media	30.05	29.94	778.500	.982
4	Teacher	28.17	32.33	929.500	.348
5	Student and parent value	26.33	34.65	869.000	.061
6	Scholarship	29.12	31.12	961.000	.656
7	Financed student loans	25.97	35.12	857.000*	.041
8	Environment	26.23	34.79	865.500	.056
Overall		26.38	34.60	870.500	.068

\* p<.05

Table 2 Presents none significant as a whole of the effective factors to selected study digital art program male and female. Found significant level .05 of financed student loans.

Table 3 Compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University’s students to be sort out of age.

Sr.no.	Items	AGE			Kruskal Wallis	p-values
		19-21	22-24	More 25		

		Mean Rank	Mean Rank	Mean Rank		
1	Organization image	27.33	32.67	17.50	2.957	.228
2	Curriculum	24.40	33.40	29.00	3.687	.158
3	Material and instruction media	20.83	36.21	21.67	11.420*	.003
4	Teacher	23.74	31.91	51.50	8.191*	.017
5	Student and parent value	29.19	28.73	50.50	4.634	.099
6	Scholarship	27.05	33.80	6.33	8.142*	.017
7	Financed student loans	32.12	29.99	15.33	2.531	.282
8	Environment	28.71	29.79	41.50	1.487	.475
	Overall	26.62	33.16	16.83	3.762	.152

\* p<.05

Table 3 Present none significant as a whole of the factors affecting to selected study digital art program difference age. Found significant level .05 of the material and instruction media, teacher and Scholarship.

Table 4 Compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students to be sort out of education level.

Sr.no	Items	EDUCATION LEVEL				Kruskal Wallis	p-values
		1	2	3	4		
		Mean Rank	Mean Rank	Mean Rank	Mean Rank		
1	Organization image	30.38	30.47	31.38	27.45	.319	.956
2	Curriculum	24.07	31.95	35.75	33.77	4.222	.238
3	Material and instruction media	21.10	33.18	34.69	38.09	9.459*	.024
4	Teacher	21.67	31.24	36.31	39.18	9.575*	.023
5	Student and parent value	25.60	31.97	34.00	32.09	2.289	.515
6	Scholarship	24.93	32.76	37.31	29.59	3.832	.280
7	Financed student loans	31.52	29.26	33.88	25.55	1.360	.715
8	Environment	29.57	29.63	29.88	31.55	.113	.990
	Overall	26.74	31.89	34.69	29.55	1.593	.661

\* p<.05

Table 4 Present none significant as a whole of the factors affecting to selected study digital art program difference education level. Found significant level .05 of material and instruction media and teacher.

Table 5 Compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students to be sort out of homeland.

Sr. no.	Items	Homeland		Wilcoxon	p-values
		Loei	Country		
		Mean Rank	Mean Rank		
1	Organization image	28.06	34.42	1150.500	.190
2	Curriculum	28.98	32.33	1188.000	.487

3	Material and instruction media	30.61	28.61	515.000	.679
4	Teacher	28.80	32.72	1181.000	.412
5	Student and parent value	28.95	32.39	1187.000	.473
6	Scholarship	30.68	28.44	512.000	.643
7	Financed student loans	28.96	32.36	1187.500	.482
8	Environment	29.33	31.53	1202.500	.649
Overall		29.48	31.19	1208.500	.723

\*  $p < .05$

Table 5 Present none significant as a whole of the factors affecting to selected study digital art program difference homeland.

Table 6 Compare the factors affecting to selected study digital art program Humanities and Social Science Faculty Loei Rajabhat University's students to be sort out of family salary.

Sr.no.	Items	Family Salary				Kruskal Wallis	p-values
		Less than 5,000	5,000 10,000	10,000-20,000	More 20,000		
		Mean Rank	Mean Rank	Mean Rank	Mean Rank		
1	Organization image	23.38	37.09	29.60	27.90	.813	.846
2	Curriculum	17.00	33.68	30.50	29.98	2.850	.415
3	Material and instruction media	25.38	38.32	27.69	29.13	3.402	.334
4	Teacher	19.25	38.50	29.90	27.60	4.807	.186
5	Student and parent value	36.50	36.95	28.54	26.63	3.411	.332
6	Scholarship	19.63	34.18	29.90	29.90	2.143	.543
7	Financed student loans	35.25	36.14	30.48	25.00	3.524	.318
8	Environment	26.50	39.27	30.23	25.33	4.921	.178
Overall		26.74	31.89	34.69	29.55	2.784	.426

\*  $p < .05$

Table 6 None significant as a whole of the factors affecting to selected study digital art program difference family salary.

## CONCLUSIONS

1) University should provide sufficient support in the creation of the modern library and the knowledge more suitable as a source of support and development budget personnel to go to study teacher training program of computer modern. To be used in the development of teaching and applied in educational service to the local community school.

2) The cost of borrowing the research results at the lowest level. The university should have more funding sources, both in the government and enterprises. Capital of education for students with the best or education in master to send for school related to the knowledge back development of the University.

3) Should encourage the education guidance and relations to allow access to parents of students by may have introduced educational institutions in higher education when meeting the rule.

4) Add advertisement in place, parents of students have seen frequently. Government agencies or village school far away city promotion of students and teachers in Digital Art. To participate in the local development and the promotion of social activities of the Institute of online students and parents



5) Administrators or those involved with the Loei should recognize the benefits and importance by training teachers and students to get the knowledge about the related programming techniques. In order to suit the instruction Should promote budget procurement of modern media and sufficiency requirements with appropriately.

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# The features of schools which conducted a comenius project and evaluation of features in terms of collaborative leadership characteristics

Berrin BURGAZ<sup>a88</sup>, Selçuk TURAN<sup>b</sup>

<sup>a</sup>Hacettepe University, Beytepe Campus, Ankara/TURKEY

<sup>b</sup>Hacettepe University, Beytepe Campus, Ankara/TURKEY

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## Abstract

The major aim of this study is to identify the differences between the schools, one of which had implemented a Comenius Project and the other not, depending on the views of teachers. It also aims at determining the extent to which school administrators have collaborative leadership characteristics depending on stated school features. The study is a qualitative research. The data were collected through interviews and analysed with the descriptive statistical technique. The findings showed that each school has different school features and school administrators in the school involved in project have much more collaborative characteristics.

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*Keywords:* collaborative leadership, Comenius project, school features, collaborative school culture

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## 1.Introduction

The Comenius Program is a European Union educational project. It concerns school-level education, and is part of the EU's Lifelong Learning Program 2007–2013. Its major aim is to assist both students and educational staff in having a better understanding of the range of European cultures, languages and values. Turkey is part of the program and the projects carried out under the program in Turkey are being implemented through the EU loans allocated to the Ministry of EU. In addition, the Ministry of National Education reinforces and supports schools which are planning to engage in Comenius projects or which have implementing such projects.

It is needed to be in a different organization in order to have and implement a Comenius project. School administrators, teachers and students collaboratively work and spend extra time to achieve project's goals beyond the rutin school running. During the project process a lot of group studies are carried out for planning, decision-making, problem-solving and other activities related to project. Such project activities which are required extra and voluntary attempts make the school energetic and are realized through collaborative work by the participants. Therefore, implementing a Comenius project is mainly successful experience and it is worth examining what features lead to a school for success. In addition, this kind of project can also be considered as in connected to the leadership characteristics of school administrators. Collaborative leadership supports and facilitates collaborative work which requires the participation of different groups and/or people in different status in schools. However, not only leadership but also school culture should be expected to be “collaborative” for success of the activities.

### 1.1 Concept of School Culture and Collaborative School Culture

It can be argued that both culture and its elements are the products of human's life experience and of the interactions

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\* Corresponding author : Berrin BURGAZ. Tel.: +90532 424 7408  
E-mail address: burgaz@hacettepe.edu.tr

among people. Then these cultural products become behavioral codes guiding people's thinking ways and actions (Çetin, 2004) or cognitive programming that differentiate a group of people from other groups (Hofstede, 1980). In other words, cultural products are the reasons for or determinants of intuitions, ideas, values, emotions, attitudes and acts guiding groups of people and shaping people's life. It is asserted that both content and quality of culture also change when interactions among people change.

This social fact is also observed in the organizations. Schools which are among social organizations have been studied in terms of their culture. The concept of school culture was first used by Waller (cited in Schoen & Teddlie, 2008). Waller argued that schools have their own unique identity resulting from folkways, mores, sanctions and moral codes and that it guides relationships within schools. The concept of school culture began to be studied again when the concept of organizational culture became popular in the 1980s. Although there was no commonly agreed definition of the concept during this period some definitions became known. For instance, Deal and Peterson describes school culture as

“Culture influences everything that goes on in schools: how staff dress, what they talk about, their willingness to change, the practice of instruction, and the emphasis given student and faculty learning” (1998, p.28)

As stated in the definition above non-written rules, norms, expectations and traditions influence the functioning of schools. More importantly, school culture fills the gaps in formal school rules and functioning and therefore, affects people in schools and the functioning of schools. In other words, school culture has significant effects on school organization. Each school has its own culture. Those schools with collaborative culture provides teachers with opportunities to realize their energy, creative thinking, efficiency and attempts (Kohm & Nance, 2009). It is further argued that such schools increase professional solidarity among teachers, leading to having effective outcomes (Rubin, 2009). Basic characteristics of schools with collaborative culture include solving complex problems, professional networks to exchange information, taking much more risks and making experiments, having a rich technical language shared by educators in school, higher levels of organizational commitment and job satisfaction and continuous and comprehensive attempts to improve school (Fullan & Hargreaves, 1991). Collaborative school culture is based on “collaborative” thinking which is a prerequisite of democracy (Rubin, 2009) and is not suitable for hierarchical leadership models (Bowman, 2003). Collaborative school culture necessitates “collaborative leadership” to survive its entity.

### *1.2 Collaborative Leadership*

Collaborative leadership refers to collaborative relationships between school administrators and school staff and others in school (Gruenert & Valentine, 1998). It is shared by the school administrator, teachers and others, and focuses on schoolwide activities to improve school. It requires the use and adoption of administrative processes that gives authority to both staff and students, encourages active participation in decision-making process, and supports shared accountability for student learning (Hallinger & Heck, 2010). Gruenert and Valentine (1998) list the common characteristics of collaborative leaders as follows:

- 1) Leaders value teachers' ideas
- 2) Leaders trust the professional judgments of teachers
- 3) Leaders take time to praise teachers that perform well
- 4) Leaders engage teachers in decision-making process
- 5) Leaders facilitate teachers working together
- 6) Leaders inform teachers on current issues in the school
- 7) Leaders believe that teachers' involvement in policy making is serious
- 8) Leaders reward teachers for their experimenting with new ideas and techniques
- 9) Leaders support risk-taking and innovation in teaching
- 10) Leaders protect instruction
- 11) Leaders encouraged teachers to share ideas

Characteristics of collaborative leadership are desired ones for people to lead to collaborative activities in schools. For instance, the Comeinus projects carried out by joint efforts by school administrators, teachers and students are examples of such activities. For any project to be successful effective and continuous activities by stakeholders are

needed (Hammick, Freeth, Copperman & Goodsmith, 2009). Therefore the study which finds out whether or not any Comenius project school's organisational features stem from the characteristics of collaborative leadership may contribute to explain the relation between them.

Based on this basic aim the present study tries to answer the following two major research questions:

- 1) What are the school features of the schools which involved and did not involve in a Comenius project in terms of a) administrative activities, b) teaching-learning activities, c) social and cultural activities and d) school-parents cooperation, and do such characteristics vary between two groups of schools?
- 2) Do the school features indicate that the school administrators have the characteristics of collaborative leadership?

## 2. Method

The study was designed and carried out as a qualitative case study.

### 2.1 Participants

The participants of the study are primary school teachers working at four different schools in Zonguldak province during the academic year of 2012-2013. Two schools implemented the Comenius projects, and the other two schools did not have any such project. Total number of the participants is eight, two from each school. Since mostly English language teachers are active in the Comenius Projects, one of two teachers from each school in the study was chosen from them. Therefore, the critical case sampling which part of the purposive sampling techniques was employed in the study.

The data of the study were collected through interviews with the teachers sampled. Then the interviews were transcribed and coded for data analysis. These codes also used in the tables used for the presentation of findings. The schools sampled were coded with the letters as A, B, C and D and teachers were coded with T. The characteristics of teachers are given in Table 1.

**Table 1.** Participants of the study

Schools	Type of schools	Code of participants	Teaching field	Experience	Gender	Educational background
Project schools	Primary school (A)	A.T1	English language	9	E	Undergraduate
		A.T2	Turkish language	14	K	Undergraduate
	Primary school (B)	B.T1	English language	6	E	Undergraduate
		B.T2	Mathematics	4	E	Undergraduate
Non project schools	Primary school (C)	C.T1	English language	5	K	Undergraduate
		C.T2	Classroom teaching	20	E	Undergraduate
	Primary school (D)	D.T1	English language	7	K	Undergraduate
		D.T2	Physical education	8	E	Undergraduate

### 2.2 Data collection

As stated earlier the data of the study were gathered through semi-structured interviews which are among qualitative research techniques. The interviewing technique provides the researcher with the opportunity to ask the participants both major questions and related secondary questions to express their views about a specific subject (Türnüklü, 2000). In order to develop the interview questions a literature review was done to identify the basic processes of school functioning. The questions developed were categorized based on the related process. They were also simplified to facilitate the understanding of teachers. The interview forms were reviewed by three faculty members and some secondary questions were added. In the final form there are four major questions in regard to four main processes and there are 18 secondary questions.

In order to test the understandability and content of questions a pilot study was carried out on a sample of four teachers from four schools (again, two project schools and two non project schools) in Zonguldak. The findings of the pilot study indicated that the interview form is convenient to use in the study. The interviews were carried out between 1-30 April 2013. The minimum and maximum duration of the interviews were 50 minutes and 95 minutes, respectively. All interviews were made in a quiet room in the schools where the participants were working.

### 2.3 Data analysis

The data obtained were analysed through descriptive statistical techniques and related information was recorded for each question. In the descriptive analysis two steps were followed (Yıldırım & Şimşek, 2013). The first step is to develop a framework for descriptive analysis. In this step the framework was developed including a) administrative activities, b) teaching-learning activities, c) social and cultural activities and d) school-parents cooperation. The second step is to process the data based on the framework developed. In this second step data were categorized based on the major themes given above.

### 3. Findings

This section presents the findings of the study obtained concerning school features, and the relationship between these features and the characteristics of collaborative leadership.

#### 3.1 Teachers' views about administrative activities

The views of the teachers about administrative activities working at project schools and non-project schools were collected through the questions given below:

- a) You or your colleagues have a new idea which you or the others believe that it will be useful to your school. How your administrators behave or react when you or others explain the idea at that time?
- b) Do school administrators support your participation in school-related decision-making processes?
- c) Except for formal meetings and your official duties can you talk to the school administrator?
- d) How do your administrators react when you ask permission for personal reasons or you tell about your private problem?
- e) Do school administrator participate in the meetings of commission or committee which are in the responsibility of teachers in school. Do they have any interest in such meetings?
- f) What are the reactions of school administrator when you express your ideas about the current functioning of school which can be useful for the school itself or students?

Table 2 presents the school features and the characteristics of collaborative leadership depending on teacher views related to the questions above. The responses of teachers were grouped under six sub-themes and it is found that there are some differences in their views.

**Table 2.** School features and collaborative leadership characteristics based on teacher views about administrative activities

Themes	Views of teachers in project schools	Views of teachers in non project schools	Evaluation in terms of collaborative leadership
Support for new ideas/Openness	<ul style="list-style-type: none"> <li>*Initiative</li> <li>*Practices out of regularities</li> <li>*Safe environment</li> <li>*Equipment support</li> <li>*Attempts to overcome barriers</li> <li>*Being open to new ideas</li> </ul>	<ul style="list-style-type: none"> <li>*Very limited support</li> <li>*Strict use of regularities</li> <li>*Less motivation</li> <li>*Not being able to finalize activities</li> <li>*No interest and avoidance</li> <li>*Getting anxious about potential problem</li> </ul>	<p><b>*Project schools</b></p> <p>In these schools administrators exhibit the following characteristics; valuing teacher views, trust in teacher judgements and making possible for teachers to take part in decision making process, facilitating the common work of teachers, and encouraging teachers to share their ideas.</p>
Participation in decision-making process	<ul style="list-style-type: none"> <li>*Continuous dialogue</li> <li>*Constructive and friendly setting</li> <li>*Take care of common decision making process</li> <li>*Variety in topics to be decided</li> <li>*Exchange of views in informal settings</li> <li>*Flexible exchange of ideas</li> </ul>	<ul style="list-style-type: none"> <li>*Rare exchange of ideas</li> <li>*Only notification of decisions</li> <li>*Limited participation in the decision making process about themselves</li> <li>*Strict use of regularities</li> </ul>	
Informal relations	<ul style="list-style-type: none"> <li>*Good relations with everybody</li> </ul>	<ul style="list-style-type: none"> <li>*Limited conversations about school</li> </ul>	

	*Openness to dialogue *Positive dialogue setting	*Short conversations	<b>*Non project schools</b>  In these schools administrators do not exhibit any characteristics of collaborative leadership concerning administrative activities.
Sensitivity to personal problems and ideas	*Continuous support and understanding *Sensitivity to permissions (related to professional development activities, graduate studies and health issues)	*Support under regulations *Asking for excuses for permissions	
Interest in teacher activities	*Participation with enthusiasm *Frequent participation *Conveying the ideas openly and positively and not intervention *Also participation of vice principals	*Participation to only some meetings *Mostly participation of vice principals *Mostly talk of principals	
Interest in teacher views about school activities	*Taking into consideration *Realization when possible *Easy expression of ideas	*Taking into consideration *Realization of ideas which require low levels of financial support	

### 3.2 Teacher views about teaching-learning activities

The views of the teachers about teaching-learning activities working at project schools and non-project schools were collected through the questions given below:

1. Do you assign your students collaborative research projects? Do you allow your students to share the findings of these projects in your classroom? What is the attitude or reaction of school administrators to these activities?

2. Do you use various sources for your courses other than textbooks and other supplementary sources recommended by the Ministry of National Education (MONE)? What is the reaction of school administrators to these activities?

3. Do you have professional cooperation with your colleagues who some of which are in your field and the others not? What is the attitude or reaction of school administrators to these activities?

4. Do you regularly observe and follow and evaluate your students? Do you inform them about their incomplete knowledge revealed by your evaluation? Do you take steps to overcome these? How? What is the attitude of school administrators to these activities?

5. Do you use new ways of teaching and try them in your teaching activities? What is the attitude or reaction of school administrators to these activities?

Table 3 presents the teacher responses to the questions above in relation to the features of schools and characteristics of collaborative leadership. The responses of teachers about teaching-learning activities were grouped under five sub themes and it is found that there are some differences in their views.

**Table 3.** School features and collaborative leadership characteristics based on teacher views about teaching learning activities

Themes	Views of teachers in project schools	Views of teachers in non project schools	Evaluation in terms of collaborative leadership
Making students do the projects in cooperation	*Frequently *Continuous attempts *Rewarding the best *Sharing with class *Administrators' support	*Rare (once a year) *Not project but assignment *Limited sharing with class *No administrators' support	<b>*Project schools</b> In these schools administrators exhibit the following characteristics; taking risks and supporting taking risks, and trusting in teachers' professional judgements, facilitating joint teacher work, informing teachers about new practices, supporting to share ideas and new activities.
Using various and different sources	*Using various sources (not advised by MONE) *Support by both administrators and parents	*Using various sources (not advised by MONE) *Support by both administrators and parents	
Professional cooperation among teachers and support for professional development	*Continuous cooperation *Extensive exchange of ideas *Support in professional problems *Proper setting created by administrators and support by them for professional development	*Rare guiding *Weak professional solidarity *Indifferent administrators to professional development	

Identifying the students' incomplete knowledge-base/sharing it with them and taking steps to improve it	<ul style="list-style-type: none"> <li>*Continuous evaluation of student achievement (careful and systematical follow-up)</li> <li>*Identification of incomplete knowledge-base</li> <li>*Recognition of self-defiancy (self-motivation/how can I teach?)</li> <li>*Taking personal steps for students (individualized teaching and assignments)</li> <li>*Relecturing on incomplete topics</li> <li>*Assigning projects and presentations</li> <li>*Reviewing exam papers</li> <li>*Special attention and support by administrators</li> </ul>	<ul style="list-style-type: none"> <li>*Summative evaluations based on examinations instead of continous and time-consuming evaluations</li> <li>*Being informed to inform school supervisors</li> <li>*Interest in student achievement since it is obligatory</li> <li>*Not taking special steps to improve student achievement</li> <li>*Additional assignments for unsuccessful students</li> <li>*Responding students' questions only during recess</li> <li>*More exercises</li> <li>*Interest by school administrators to inform school supervisors</li> </ul>	<p><b>*Non-project schools</b></p> <p>In this regard the school administrators only take into account the teacher views about using various sources.</p>
Taking risks over teaching/ trying new activities	<ul style="list-style-type: none"> <li>*High levels of interest in teaching-learning activities</li> <li>*Eagerness to have additional education on professional development</li> <li>*Openness to new activities</li> <li>*Encouragement and support of administrators (for additional education, being informed about new approaches)</li> </ul>	<ul style="list-style-type: none"> <li>*Limited learning about new activities</li> <li>*Involunteerness to try new ways</li> <li>*Limited administrator support</li> </ul>	

### 3.3 Teacher views about social and cultural activities

The views of the teachers about social and cultural activities working at project schools and non-project schools were collected through the questions given below.

1. Is there any school or class newspaper or bulletin in your school? What is the attitude or reaction of school administrators to these activities?

2. Is there any active drama group in your school? What is the attitude of school administrators to these activities?

3. Is there any competition of sports or a poetry reading and quiz competition or in other fields? What is the attitude of school administrators to these activities?

4. Is there any school or social trip that school administrators, teachers, parents and students take part in? What is the reaction of school administrators to these activities?

5. Do you have opportunity to come together with your administrators outside of school? What is the attitude of school administrators to these activities?

6. Do administrators and teachers regularly generate a fund among them to spend for certain common objectives (i.e. for any social activity, for poor people, educational grant for some students, etc.)? What is the reaction of school administrators to these activities?

Table 4 presents the teacher responses to the questions above in relation to the features of schools and characteristics of collaborative leadership. The responses of teachers about teaching-learning activities were grouped under six sub themes and it is found that there are no difference in their views.

Table 4. School features and collaborative leadership characteristics based on teacher views about social and cultural activities

Themes	Views of teachers in project schools	Views of teachers in non project schools	Evaluation in terms of collaborative leadership
Publications such as school newspapers, bulletins etc.	<ul style="list-style-type: none"> <li>*Monthly thematic bulletins</li> <li>*Newsletters</li> <li>*Bulletinboard by students clubs</li> <li>*No administrative support</li> </ul>	<ul style="list-style-type: none"> <li>*Newsletter</li> <li>*No administrative support</li> </ul>	<p><b>*Both project and non project schools</b></p> <p>Any result can not be</p>

Drama activities	<ul style="list-style-type: none"> <li>*Smallscaled class dramas</li> <li>*Smallscaled plays in special days</li> <li>*Lack of experience teachers</li> <li>*No administrators' support</li> </ul>	<ul style="list-style-type: none"> <li>*A small play under the heading of "English drama exercise" (2 years ago)</li> <li>*No administrators' support</li> </ul>	<p>inferred that indicates collaborative leadership characteristics based on obtained data. However, in project schools there are more various activities and there are more varied interactions between teachers and administrators than non-project schools.</p>
Competitions	<ul style="list-style-type: none"> <li>*Frequently</li> <li>*Varied competitions</li> <li>*Support by administrators</li> </ul>	<ul style="list-style-type: none"> <li>*Frequently but only in sports</li> <li>*Support by school administrators</li> </ul>	
School trips	<ul style="list-style-type: none"> <li>*Certainly in each semester</li> <li>*With parents if it is out of city</li> <li>*With administrators if it is out of city</li> </ul>	<ul style="list-style-type: none"> <li>*Each year a in city and out of city trips</li> <li>*With administrators if it is out of city</li> </ul>	
Extra-curricular activities	<ul style="list-style-type: none"> <li>*Frequently</li> <li>*Astroturf match</li> <li>*Picnics</li> <li>*School trips</li> <li>*Home visits</li> <li>*When anyone leaves school</li> <li>*When anyone marriages</li> <li>*In teachers' day</li> <li>*Few participants</li> <li>*Frequent participation of school administrators</li> </ul>	<ul style="list-style-type: none"> <li>*Rarely</li> <li>*Only teachers</li> <li>*For only in official duties</li> <li>*In "Teachers' Day"</li> <li>*Rare participation by school administrators</li> </ul>	
Welfare	<ul style="list-style-type: none"> <li>*When necessary at once</li> <li>*All people in the schools</li> <li>*Sense of welfare</li> <li>*Participation and support by administrators</li> </ul>	<ul style="list-style-type: none"> <li>*When necessary</li> <li>*Rarely</li> <li>*Only some teachers</li> <li>*Participation and support by administrators</li> </ul>	

### 3.4 Teacher views about school-parents cooperation

The views of the teachers about school-parents activities working at project schools and non-project schools were collected through the questions given below.

1. Do parents regularly participate in school meetings? What is the attitude of school administrators to these activities?
2. Do parents come school to be informed about their children excepting official school-parent meetings? What is the reaction of school administrators to these activities?
3. What is the level of interest of parents to social-cultural activities in school? Do you invite them to participate in these activities? What is the attitude of school administrators to these activities?
4. Is there any cooperative activities with parents? Do you have any cooperation with parents? What is the reaction of school administrators to these activities?

Table 5 presents the teacher responses to the questions above in relation to the features of schools and characteristics of collaborative leadership. The responses of teachers about school-parents activities were grouped under five sub-themes and it is found that there are some differences in their views.

Table 5. School and collaborative leadership characteristics based on teacher views about school-parents cooperation

Themes	Views of teachers in project schools	Views of teachers in non project schools	Evaluation in terms of collaborative leadership
Participation in parent meetings	<ul style="list-style-type: none"> <li>*Higher levels of participation</li> <li>*Good communication</li> <li>*Sharing problems or solutions between administrators and teachers</li> </ul>	<ul style="list-style-type: none"> <li>*Lower levels of participation</li> <li>*Infrequent participation</li> <li>*Parental concerns about asking for financial support</li> <li>*Controlled by administrators</li> </ul>	<p><b>*Project schools</b> The school administrators exhibit the following characteristics: trusting in teachers' professional judgements and facilitating common teacher work.</p>
Meeting with parents other than in meetings	<ul style="list-style-type: none"> <li>*Higher levels of parental sensitivity</li> <li>*Frequently</li> <li>*Telephone calls</li> <li>*Administrators are pleased with</li> </ul>	<ul style="list-style-type: none"> <li>*The same parents participate</li> <li>*Infrequent</li> <li>*Near to the end of semester</li> <li>*No reaction by administrators, no</li> </ul>	



	parents' interests	special effort	*Non project schools
Participation of parents in school activities	*Participation by parents if their children are involved *Mostly *Paying attention to participation of parents by administrators	*Participation by parents to some important activities *Mostly *Paying attention to participation of parents by administrators	The administrators support only for common teacher work.
Common activities	*Avoiding non attendance by students *Social activities *Support by administrators	*Kermesses *Support by administrators	

#### 4. Discussion and Conclusion

The activities carried out by organizations are among the distinctive features of organizations (Aydın, 1994). The way they carry out activities can also be taken into consideration. It may further provides information about characteristics of centralised organizations.

The present study analysed school features through teacher views and highlighted the functioning of schools asking how. The findings about project schools show that the school administrators have higher levels of participation and interest in activities. In addition such schools are found to have the following features: provision of proper setting, continous cooperation and support, support for professional development, constructive professional solidarity, careful and systematical follow-up and support for students, openness to new practices, positive school-community relationships, common and shared decision-making process, higher levels of interest in activities by school administrators, teachers and parents. The findings about non-project schools revealed that these schools have the following features: lower levels of interest and participation by school administrators in activities, activities limited to regularities, weak communication and cooperation, weak professional solidarity, interest in student achievement due to its being obligatory, cautious approach towards new practices, decision-making based on authority, and weak school-community relationships.

It is seen that project schools exhibit much more desired features. It can be argued that project schools are much more eligible for the features that are pertinent to common activities such as problem-solving, sharing of experience, efficient and continous attempts (Hammick et. al., 2009), eagerness to achieve, working with others, and consecutive and simultaneous activities (Morrison & Arthur, 2013). Therefore, the administrators of the schools which are planning to be involved in project-type activities can review the schools in terms of such features.

In terms of collaborative leadership characteristics the findings are similar. School administrators of project schools are found to have more collaborative leadership characteristics. More specifically, they exhibited eight of eleven such characteristics proposed by Gruenert & Valentine (1998). The collaborative leadership characteristics that were not found in the sample are as follows: "Leaders take time to praise teachers that perform well", "Leaders inform teachers on current issues in the school", "Leaders reward teachers for their experimenting with new ideas and techniques". In non-project schools it is found that school administrators exhibit the collaborative characteristics of "Leaders value teachers' ideas" and "Leaders facilitate teachers working together". The main result of the study is that schools must have certain characteristics that are required to plan and implement projects such as the Comenius Projects which requires continous, systematical, time-consuming common work and school administrators should have collaborative leadership characteristics.

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# The Finland of poetry revisited four snapshots

Matti Itkonen\*

*University of Jyväskylä, Department of Teacher Education  
PO Box 35, FI-40014 University of Jyväskylä*

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## Abstract

A poem is a condensation of signs and a method characteristic of every human being for investigating a shared reality. Accordingly, a human being also lives and exists poetically in this common world. This being so, the primacy of the mother tongue refers to the lived language, which mediates the possibility for us of carving out our own unique imprint on existence. Similarly, the native land signifies a milieu where a human being takes on a reality amidst other objects, surrounded by them and as one of them. Poetry creates harmony between past and present.

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## 1. Motto

"Our home area, the place in this land which our being is tied to with unbreakable roots, the sphere of being for our childhood and youth, the eternal dwelling place of our heart, the most beautiful and precious on earth, beautiful even in its ruggedness, and all the more beautiful for its ruggedness, and the object of our longing if we have left it, – it is the natural circle of our life outside of which we always somehow feel cut adrift from life." (Hollo, 1931.)

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\*Corresponding author. Tel.: +358 40 705 55 28; fax: +358 14 260 16 01.  
E-mail address: matti.itkonen@jyu.fi

## 2. To Begin With

Poetry does not simply mean melodiousness and rhythm. If lyric poetry means that a person expresses their worldly pain through song accompanied on a lyre, then poetry denotes something entirely different. Poetry is every person's individual way of looking at a world that is communally shared. The aspect of uniqueness is also essential: moments do not return as such, and nobody experiences any situation twice in exactly the same way. In poetry a person carves out their own mark in the centre of a common reality with an outline already formed long ago. This is precisely why the landscape of one's home feels so precious. It is the archetype of all other landscapes, which are merely reflections of it. The home radiates its warm glow all the days of a human life. It puts the humanity into humanity.

## 3. Poem

### 3.1. *A glimpse from afar: Yrjö Kokko*

The same thing can be described in reality through several different narratives. To the tellers of these tales, each in their own age, the tales are equally true. The essential point here is the view of culture as a tallying of what has gone before. Perhaps it can be seen as the idea of some kind of collective settlement, a national reckoning. Yrjö Kokko pondered this same question in post-war Finland. His thoughts were published in a fine travel book, *The Islands of Good Will*, which appeared in 1953 during the period of reconstruction. Kokko takes a look at his native land from far away, the Canary Isles, and writes in the following touching way: "Is one's native land then a period when a person is born, where he has grown up, and which will die along with him? Perhaps your native land is just the earth and soil where you were born, the local area which, compared to infinity, is no bigger than the grave where you will be buried when you die. But isn't your native land the people who speak your language, the people you have shared joys and sorrows with, common destinies? But, as we know, the generations depart. New generations do not think or feel in the same way. Opinions change just as circumstances do. When our own generation dies, does our own nation also die then?" (Kokko, 1953.)

In addition to the nation's shared settling of accounts, there is also another individual and very personal view opening up on the past. A private person can also go to an existential confession and try to clothe his own yesteryears in some kind of self-comprehending linguistic garb.

### 3.2. *Aleksis Kivi: a full-length portrait*

At the end of Jari Halonen's film *The Life of Aleksis Kivi* (2001), the writer Kivi climbs up high onto a hill, almost a mountain, a kind of metaphysical point: from there it is possible to look into the far distance, into the remotest past and into the shimmering future, lying at the furthest extreme. The time has come to weigh up the old and the new, as well as that which is here and now.

From where he stands on high Kivi sees the sparkling waters and the forests glowing in their summer green. High above all this there stretches the vault of the eternal blue sky. The words of his poem "Suomenmaa" (1878) ring in our ears:

"A land of hills and valleys,  
What are you, my beauty?  
Your glow of summer days,  
Your lustre of northern fires,  
This delight of winter, summer,  
What is this lovely land? [...]"  
(SR 1, 1990.)

The full-length portrait is nearing completion. Why can a particular place or landscape feel so close that even the thought of losing it hurts? Is the place beautiful in itself or is it the feeling, the loving of it, that gives it beauty? One

answer to this can be found in the work quoted in the motto above, *Self-education and the Skill of Living*. It was written by Juho Hollo, philosopher and professor of adult education. His ideas continue to stir the heart: "We like beauty, it pleases us, fills our being with a powerful sense of inner bliss. Is beauty perhaps created by love? Or is beauty the subject and cause of our love? Or is it mostly a matter of love creating beauty and beauty inspiring love?" (Hollo, 1931.)

In order to describe, we need our own mother tongue, its expressive power and resilience. Otherwise the words are mute – lacking the immediacy of lived truth.

### 3.3. Kersti Bergroth: memory and longing

Kersti Bergroth writes the following poem, *Beloved City*, in her collection of the same name<sup>1</sup>:

"Karelians! Hail to you,  
To you that have strayed westwards!  
In your hearts you carry an image  
That will be forgotten only in death.  
Perhaps a far-off lake,  
A cottage and close by a sauna.  
Perhaps the dark stripe of the Vuoksi river  
Bringing to mind that eternal yearning.  
Perhaps what is dearest to you  
Is a street in the old city,  
Perhaps the park of our Torkkeli,  
An aching memory of the castle.

How long in this world  
Will these pictures exist?  
The dear country of our memories  
Will disappear when we die.

But there are still some of us here  
A few who know,  
How everything looked then:  
The old ramparts on a spring evening,  
The colourful yawls in autumn,  
The annual market at Punalähde,  
The winter snows, the summer rains,  
Hundreds of places vanished."  
(Bergroth, 1951.)

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<sup>1</sup>The Winter War was fought between Finland and the Soviet Union. It began on 30.11.1939 and ended 13.4.1940. For Finland, it was a defensive war. Finland lost the war and, in accordance with the terms of the Moscow Peace Treaty, had to surrender 12% of its surface area to the Soviet Union. This involved the loss of, for example, the Karelian isthmus and parts of Karelia surrounding Lake Ladoga, as well as the three largest cities in these areas: Vyborg, Sortavala and Käkisalme.

With the surrender of territory, 12% of the population, i.e., over 400,000 people, lost their home. Accommodation was found for them elsewhere in Finland. The ceded areas were evacuated and the Karelians called evacuees. There was born a home-sickness, lasting across generations, for the Karelia that was lost.

Vyborg was granted municipal rights in 1403. Before the outbreak of the Winter War Vyborg was Finland's second largest city, with a population of over 80,000 in 1939. Vyborg was also a cosmopolitan and multilingual city where Russian, Swedish and German were spoken alongside Finnish. Places of note in the city include Torkkeli Park, Torkkeli Street, Monrepos Park and Punalähde Square. The city's important buildings are Vyborg

Castle, the Round Tower and the functionalist library designed by Alvar Aalto.

Vuoksi is an outlet of the Vuoksi lake and river system running from Lake Saimaa into Lake Ladoga. Its total length is 156 kilometres. In its upper reaches there are huge rapids, for example, the Imatrankoski rapids.

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The Karelia that was lost lives on in people's minds as a longing that crosses the generation gap. It will not disappear even though the number of those who remember has indeed diminished. The story, however, is not interrupted: the tale is told and passed on from one generation to another. And of course there are photographs and written fiction. Bergroth's use of language in her novel about the activities of the Lotta-Svärd organization, *The Diary of a Young Defence Volunteer*, moves us<sup>2</sup>: "These days we are all thinking about Vyborg. We've begun to understand that perhaps the time has come to leave Vyborg. [...] Vyborg, my home city. To me, you are almost like a living being. [...] Nobody who has lived in Vyborg can imagine anything so crushingly sweet as spring on the Vyborg ramparts. There I encounter all my wistful longings – longing for the sea, longing for my hopes, longing for Karelianness, longing for history. When you are young and walk on the Vyborg ramparts, the elation of the entire world fills your whole heart. [...] And Vyborg castle. It gives joy to the whole of Finland. Every heart holds the memory of its mysterious beauty. A thousand times, and a thousand times again, I have looked at it as if looking would give me strength. Are you to fall to strangers who cannot behold you properly because they have not loved you for such a long, long time. No love is truly moving at its very outset, only memories make love tender." (Bergroth, 1940.)

### 3.4. Arvi Kivimaa: a multidimensional perspective

As Arvi Kivimaa's song to Finland's beautiful young capital city rings out, we are hushed by his words and our hearts respond with tender feeling:

"You have the beauty of the sea,  
Its clarity, its freshness,  
You youthful Helsinki of ours!  
We, this tribe of this great Finland,  
We raised you through toil and deed  
Into our shield against Europe

Into the granite of your face  
We carved the yearning of this nation,  
Yet upon your open sea and in your trees  
Your murmuring song rings out,  
And across the centuries  
In them have rippled your memories.

You have the beauty of the sea  
And the love of winter, summer,  
Our youthful Helsinki!  
They are blissful who once enter  
Your sunlit life,  
Which we dream into greatness!"  
(Kivimaa, 1935.)

Kivimaa's splendid collection of poems *"Longing and Life"* reminds us of a multidimensional perspective, also examining the present moment through the eyes of the bygone. The observers change but the allure of Helsinki continues to captivate. It ceaselessly charms new generations of travellers. As long ago as 1914, V. A. Koskenniemi chose to include our capital city in his celebrated travel book *Cities of Poetry and Other Writings*<sup>3</sup>. The modern Finnish reader joyfully approves of the striking characterization of Helsinki made by this Turku poet and professor: "Is there any inhabitant of Helsinki who has not at some time experienced the stirring of poetic feelings towards his city, almost

<sup>2</sup>The Lotta Svärd was a voluntary national defence organization for women. It operated from 1920 until 1944. The volunteers initially worked in support of Civil Guard groups and later of all Finnish defence forces. The Finnish Lotta Heritage Association was founded in 1991.

<sup>3</sup>The Grand Duchy of Finland was an autonomous area of the Russian tsardom from 1809 to 1917. Finland became independent on 6.12.1917. Turku was Finland's first capital, although it retained this status for a rather short time: 1809–1812. In 1812 Helsinki became the capital of the Grand Duchy of Finland. In 1917 it then became the capital of independent Finland.

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like an intimation of what is to come. Returning from overseas, standing on the ship's deck on a clear autumn morning, with Helsinki's familiar white silhouette rising from the waves, girdled by forest, the roofs gleaming in the first frost, he finds this view compares with the most beautiful in the world, and, setting foot on Helsinki's soil and seeing Engel's colonnades unfolding before him, he has called his city all those names that home-sickness has uttered to him. He has called it the Athens of the North where Apollo, god of light, could take up residence, fleeing the laurel groves for the lands of the Hyperboreans." (Koskenniemi, 1914.)

#### 4. Postscript: Never-Ending Sunday

The poet Lauri Pohjanpää published his novel *Song of a Summer's Night* before the war, in 1937 before Finland was divided. The book contains a description of a summer's evening, of a radiant sunset at the height of summer. The moment the sphere of life sinks below the horizon is a moment of magic. Within it there exists something ceaselessly transient and eternally enduring. Pohjanpää's text comes across powerfully: "Sunset. Its glow still lights up the southern sky and tinges the clouds with a dark purple. Beneath them the blaze of a yellow streak, the beautiful red-brown gleam of the pine trunks, the golden shimmering of a far-off beach. The area around the channel lies in deep-blue shade, the rock at its mouth flashes a blue redishness. In the west the sky is a creamy yellow band of cloud, and above the blue-green crowns of the forests there lingers a languid lustre, as if exhausted from the day's radiance, as the sun sets in the north-west as if into a fire. All of these tints and hues are reiterated as pastel colours in the calm waters, with light streaks here and there like silver threads. The nuances change with every blink of the eye – there is no more sensitive a mirror than a lake, it is like the human soul. Into the glow of the sunset a rowing boat appears, with red and white sides, and from the boat a song is heard, – in the middle it is golden and yellow like the boat of the blessed on its way to the island of the blessed." (Pohjanpää, 1937.)



Fig. 1. Never-ending Sunday.

In myself I dimly glimpse the summer sunsets of my grandparents and parents. It's as if inside me I can hear the ringing of those summer bells and their peals travelling across the open lakes. Then it was a summer Sunday, a never-ending Sunday. Bustle and anguish were nowhere near. Serenity and peacefulness prevailed. My mind drifted back to those tranquil waters. They were days of reverie, brimming with happiness. They were also a counter to daily routine: timeless and unchangingly everlasting. Let the poem that follows be a tribute to the summers lived by three generations:

A man looks into a window pane,  
His gaze is met by that of a boy.  
One of them is the future that has gone  
and the other a past yet to come.  
The boy of summers, straw and copper,  
still building away at his days.  
The man of memories,  
the bitter-sweetness of his moments.

The reflection begins to retreat,  
melts into nothingness.  
The boy fades away,  
merges into the man.  
He is alone  
and full of the boy.  
Like back then,  
on the opening pages of being.

Translated by Glyn Hughes

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# The formation of an e-portfolio indicator for Malaysia skills certificate: a modified delphi survey

Mohd Bekri, R.<sup>a\*</sup>, Ruhizan, M.Y.<sup>b</sup>, Norazah, M.N.<sup>b</sup>, Helmi Norman<sup>b</sup>,

Faizal Amin Nur, Y.<sup>a</sup>, Tajul Ashikin, H.<sup>c</sup>

<sup>a</sup>Faculty of Technical and Vocational Education, University Tun Hussein Onn Malaysia, Batu Pahat Johor, Malaysia

<sup>b</sup>Faculty Of Education, University Kebangsaan Malaysia, Bangi, Selangor, Malaysia.

<sup>c</sup>Department of Technical Education, Institut Pendidikan Guru Malaysia, Perlis, Malaysia.

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## Abstract

The use of e-Portfolios over paper-based portfolio which provide a more effective means of information storage has become very popular nowadays. However, assessment indicators for e-Portfolios can vary according to a particular educational system. This also implies for the field of Technical Vocational Education Training (TVET). For TVET in Malaysia, students would undergo a technical competence certification called the Malaysian Skills Certification Malaysia (MSCM), established by the National Occupational Skill Standard (NOSS). This certification ensures that TVET students achieve certain competency standards in their area of specification upon graduation. These students are required to create paper-based portfolios to demonstrate their knowledge and competence level. The problem is that current studies show that paper-based portfolios are problematic and e-Portfolios have the potential to address this problem. Nevertheless, recent studies show that there is a lack of an e-Portfolio indicator for TVET. In an attempt to address this problem, the study aims to investigate the factors and indicators of e-Portfolio in accordance to the standards of MSCM. A modified Delphi study was conducted with a panel of 11 experts who are competent and experienced in the use of portfolio and ICT in TVET. The study consisted of three Delphi rounds. In the first round, 17 indicators of a TVET e-Portfolio were identified via the literature. These elements were categorized into four main groups: (i) the recognition of prior achievements, (ii) virtual learning space, (iii) competency assessment, and (iv) operating system. In the second and third rounds, the elements from each previous round were assessed by the expert panel until a consensus was achieved. These findings were then analyzed using mean analysis and inter quartile range. The analysis indicated that the 17 indicators identified were important in assessment of TVET graduates. The new indicator for MSCM could be used to measure whether TVET students have achieved the level of knowledge and competency required by NOSS in order to be competent for the workplace.

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**Keywords:** E-portfolio, Malaysia Skills Certificate, Modified Delphi

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\* Corresponding author. Tel.: +0-000-000-0000

E-mail address: bekri@uthm.edu.my

## 1.Introduction

Electronic Portfolios or “e-Portfolios” are a collection of artifacts in the form of digital, interactive, systematic way to monitor students' knowledge and easier to use in publishing information on-line (Bullock & Hawk 2005; Handa et al. 2011; Kilbane & Milman 2005; Young & Morris 2007). It can be used to store information in digital form and can be

accessed regardless of place and time (DiMarco 2006; Ku & Chang 2011; Montgomery & Wiley 2008; Stefani et al., 2007). Halstead & Sutherland (2006) explained the benefits of converting portfolios electronically, which are: (i) the work of many students now are in electronic form, (ii) most of the students have access to the Web, and (iii) database available through the Web allows students to store information more easily.

To date, current studies suggest that e-Portfolios seems to work only as a repository of artifacts without connecting to the actual learning process (Ku & Chang 2011). As a result, although e-Portfolios are aimed in providing to assist learners through the use of technology, but the actual aims of e-Portfolios are not achieved. Zeichner and Wray (2001) describes seven questions in the development of e-Portfolios: (i) The purpose of the e-Portfolios?; (ii) Who makes the decisions? What should be included in the e-Portfolios?; (iii) How is the evidence in the e-Portfolios managed?; (iv) What are types of artifacts to be stored in e-Portfolios?; (v) What type of information to be made available by teachers during the process of teaching and learning?; (vi) How e-Portfolios are evaluated?; and (vii) What should happen to the e-Portfolio after it is produced?

When an educational institution chooses to use e-Portfolios in teaching and learning, it is important to understand and define the characteristics of e-Portfolio required to meet the needs of that particular institution. The aspects to be considered are: guiding, types of artifacts, evaluation, communication and collaboration, course management, hosting, learning outcomes, reflection, report, rubric, information sharing, templates and technology requirements. Other aspects that also worth considering during the e-Portfolio design process are: consumer characteristics, potential e-Portfolio, technology features and capabilities and usability of e-Portfolio (Jafari 2004).

Various e-Portfolio design models have been developed to be applied in education such as models developed by Ku and Chang (2011) and Balaban et al. (2011). Ku and Chang's (2011) developed an e-Portfolio design model to be used as a platform for learning and evaluation. There are three key elements of the model, which are: the exhibition space, learning management systems and social space. Meanwhile, Balaban et al. (2011) developed a model of e-Portfolios that are used as a platform for lifelong learning. The model consists of four key elements of the exhibition space, learning management system, social space and job application. In comparison, both e-Portfolio design models suggest that e-Portfolios should include aspects such as exhibition space, learning managements system and social space. The difference between the two models is that Ku and Chang's (2011) model did not include the job application aspect which indicate that e-Portfolios design models for different educational systems may be different and should be developed according to the needs of that particular educational system. Moreover, e-Portfolios should also be designed to meet the requirements and need of students in learning.

## **2. Background of research**

In the Malaysian Skills Certification, portfolios are used as a archives to evaluate the knowledge and performance level of students in which their use is paper-based and limited as a mere artifact storage. Nowadays, the use of a paper-based portfolio is become irrelevant for the Malaysian Skills Certification. This is due to the fact that paper-based portfolios are: (i) static; (ii) limited in allowing information to be shared with others; and (iii) the management, evaluation and updating of materials process is difficult and are not capable of improving professional skills (McAllister & Hauville 2010; Smyth et al. 2011; Stefani et al., 2007). An alternative tool to paper-based portfolios are e-Portfolis. e-Portfolios can be utilized to store and organize material more easily, facilitate information searching, enable sharing of information anywhere, anytime, as well as enhance the professional skills of graduates (Bhattacharya & Hartnett 2007; Halstead & Sutherland 2006; McAllister & Hauville 2010; Smyth et al. 2011). Since e-Portfolios are online, it offers a a means of a more secure data repository system and aid towards a greener environment as it can reduce paper usage. Therefore, e-Portfolios have a great potential in improving the quality of Malaysian Skills Certification and expand the usage of ICT in education.

However, assessment indicators for e-Portfolios can vary according to a particular educational system. This also implies for the field of Technical Vocational Education Training (TVET). For TVET in Malaysia, students would undergo a technical competence certification called the Malaysian Skills Certification Malaysia (MSCM), established by the National Occupational Skill Standard (NOSS). This certification ensures that TVET students achieve certain competency standards in their area of specification upon graduation. These students are acquired to create paper-based portfolios to demonstrate their knowledge and competence level. The problem is that current studies show that paper-

based portfolios are problematic and e-Portfolios have the potential to address this problem. Nevertheless, recent studies show that there is a lack of an e-Portfolio indicator for TVET. In an attempt to address this problem, the study aims to investigate the factors and indicators of e-Portfolio in accordance to the standards of MSCM. In order to prepare TVET students in facing the ever-challenging work market, the e-Portfolio indicator should be open, flexible and focus on the use of technology in teaching and learning process (Assessment and Teaching of 21st Century Skills-ATC21S 2011; Neal 2011). Moreover, the e-Portfolio should be designed according in aiming to upgrade the existing training system, to further enable the nation in producing a more competent labor force that are knowledgeable, competitive, innovative and competitive.

### **3. Methodology**

This study is quantitative research, where a modified Delphi technique is used in the creation indicator of e-Portfolio Malaysia skills certification system. Modified Delphi study approach was chosen to identify indicators of e-Portfolio required through the validation experts.

#### *3.1 Data collection method*

In the first round the researcher gathered information by doing a literature review of previous studies on the concept of a virtual learning and e-Portfolio model that has been applied in teaching and learning. The review was conducted to identify appropriate indicators in Malaysia skills certification. Next, the researcher identifies indicators for each factor to develop the questionnaire used in the modified Delphi study. The Delphi panel is a panel of experts selected by referring the list of specialties from the Malaysian Department of Skill Development.

In the second round, questionnaires (the factors and their respective items were given) were distributed to the Delphi panel. In this round the experts required to state their level of agreement with each item using a five-point Likert scale. The results of the second round is then brought to the third round. The process is the same in the third round, where the expert is required to state their level of agreement with each item. To enable the experts examine and answer these instruments, they will be given a period of two weeks in each round to interact with the instrument.

#### *3.2 Delphi Panel*

The Delphi panel consisted of 11 experts. The criteria used in the selection of experts are those who have experience in the issues discussed, capable of contributing opinions, capable of conducting assessments and decision-making to achieve the consensus (Pill 1971). Delbecq et. al (1975) indicate that two groups qualify as Delphi expert, which are: (i) the top-management – decision-makers who will use the results of the Delphi study; and (ii) professional staff in the relevant field. Thus, in this study, the selection of experts were based on the following criteria: (i) experts who are involved in the implementation of the Malaysian Skill Certification; (ii) experts who are knowledgeable in the curriculum of Malaysian Skills Certification; (iii) experts who are directly involved in portfolio management; and (iv) experts who are knowledgeable in e-learning. As such, the Delphi panel was selected from the Department of Malaysia Skill Development (DMSD). DMSD is a department under the Ministry of Human Resources that serves to coordinate and control the implementation of skills training to produce K-workers to the job requirements. It also functions in the research and development of occupational standards of competency and expertise to improve the quality of skilled human resources to contribute to economic growth.

#### *3.3 Research procedure*

The modified Delphi approach is used in producing e-Portfolio system indicators. The modified Delphi technique is a procedure to find a consensus among the experts by using a questionnaire that does involve face-to-face interaction (Wiersma & Jurs, 2009). The modified Delphi technique proposed by Wiersma & Jurs (2009) applied in this study, where the first round of interviews in the Delphi method is not needed and modified Delphi process started with a

second round of exploration questionnaires subject. This is because the issue in the first round of the Delphi method is sufficiently defined by the researchers.

In the first round, the first step taken researcher in conducting this study is by making a literature review on models of virtual learning, e-Portfolio models and analysis of documents related to skills education in Malaysia. This step is to aimed in creating a benchmark to directly identify the relevant variables and indirectly formed to be the domain of study. Next, the instrument in the form of questionnaires are produced. A panel of experts in the relevant field were selected, based on their qualifications to evaluate and provide feedback on the criteria required for each of the items selected. The experts selected are those that have experienced and responsible in the formation of the Malaysian Skills Certification System.

In the second round, a panel of experts selected by the Department of Malaysia Skill Development are given the questionnaire. The panel of experts is required to assess, indicating their level of agreement and comment related on the Malaysian Skills Certification portfolio. All questionnaires received back were analysed. In the third round, each expert provided a questionnaire based on the feedback from the second round of the consent of each item. Respondents were asked to review the assessment of all the items that have been analysed by the researcher. After considering all factors, the experts were asked to decide on the choices they made. They can maintain their choices or change any of the answers. The results were analysed and the findings the researchers conclude the agreement on the elements of e-Portfolio selected.

#### 4.Data analysis

Data obtained from the questionnaire results in each Delphi round was analysed using the Statistic Package for Social Science (SPSS). Results of the analysis are presented in the form of descriptive statistics of percentages, mean and median to represent the results of the expert panel consensus. Descriptive statistics are used to describe a variable phenomenon and it needs to be explained logically by using certain methods (Balnaves & Caputi 2001; Chua Yan Piau 2006; Vogt, 2007). One of the methods is by using a central tendency measurement. According to Asnul Dahar Minghat (2012), in the descriptive statistics based central tendency measurement per cent can used to seek the views of an expert panel about items of the questionnaire.

The mean scores reflected the order of prioritized items. The median score refected statement required to form questionnaires in each Delphi round. To reflect the degree of consensus panel of experts on the questionnaire items, the Inter Quartile Range (IQR) of 0-1 (high consensus), 1.01-1.99 (moderate consensus), and more than 2 (no consensus) were used in this study.

#### 5.Findings and discussion

Data analysis in the formation of indicator for e-Portfolio Malaysia Skill Certification are categories as the following: (i) review of literature (the first round modified Delphi) (ii) the second and third modified Delphi rounds.

##### 5.1 Findings of the first modified Delphi round: Literature review

In the early stages of a modified Delphi study, a literature review of previous studies and documents related to e-Portfolio was conducted to create a questionnaire that was used in the first Delphi round. The literature survey identified four main elements of e-Portfolios in education, namely: (i) the recognition of prior achievements, (ii) virtual learning space, (iii) competency assessment; and (iv) operating systems (Balaban et al. 2011; DiMarco 2006; Ku & Chang 2011). Table 2 shows the findings that have been classified according to their categories.

Table 1 Element and indicator of e-Portfolio

Element	Literatur Review	Indicator
Recognition of prior	(Bahril Balli & Wahid Razzaly	Personal detail

<b>achievements</b>	2011; Department of Malaysia Skills Development 2011; Noraini Kaprawi et al. 2010; Perry et al. 2009; Singh 2007)	Academic Qualifications Non-academic qualifications Prior experience Core abilities Declaration authorization
<b>Virtual learning space</b>	(Ku & Chang 2011; Nunez et al. 1998; Pereira et al. 2000; Punie 2007)	Exhibition Learning Management Learning assessment Personal space
<b>Competency assessment</b>	(Ministry of Human Resources Malaysia 2013)	Competency information Achievement record Achievement evidence
<b>Operating systems</b>	(Barrett 2010; Galatis et al 2009; Gibson & Barrett 2003; Sweat-Guy & Buzzetto-More 2007).	Information sources Information management Communication Reflection

## 5.2 Findings of the second and third Delphi rounds

In this round each expert is required to state their level of agreement on the indicators presented. Table 3 shows the modified Delphi findings for the second and third rounds. In the second and third rounds all of the six indicators personal detail, academic qualifications, non-academic qualifications, prior experience, core abilities and declaration authorization for recognition of prior achievements element achieved a high degree of consensus among the expert panel. IQR value of the item was 0 and 1, while the median was 4 and 5.

For the virtual learning space element, results of the analysis in the second and third round showed a high consensus and agreement among expert panels, with IQR achieving a value of 1 and the median is 4 and 5. The mean value of the virtual learning space indicators (learning management, exhibitions, learning assessment and personal space) in both Delphi rounds were high. In relation, the concept of virtual learning space should contain four elements such as the knowledge space, collaboration space, consultation space and experiment space (Nunez et al. 1998; Punie, 2007).

Here, it can be concluded that the structure of the virtual learning space should have three main environments, namely: (i) an environment that allows users to interact with each other; (ii) an environment that allows the user to interact with the source; and (iii) reflective space and social space. With the revolution of information and communication technology, TVET training institutions should create a learning environment that is more open and flexible to students. Virtual learning should be much more student-focused, where students actively solve the given problem through exploration, discussion and high thinking.

The next in the second and third elements competency assessment, the analysis shows that all three indicators of competency information, achievement record and achievement evidence reached a high consensus based on the IQR score which was 1. The median is 4 and 5 and the mean values for all three items are also high. In Malaysia, the National Occupational Skills Standards (NOSS) developed a competency profile chart for the Malaysia Skills Certification program. The main elements of the profile are the profile of core ability charts, chart paths for programs, matrix core ability, achievement record and evidence achievement for all work activities were evaluated (Ministry of Human Resources Malaysia, 2013).

All three indicators agreed by experts are important in assessing student competence. Competency assessment was used as a benchmark for identifying and evaluating the effectiveness of learning as well as improvements to the training needs in the workplace. Aspects of competency assessment refers to the knowledge, skills and behaviours that individuals should have in order to perform a task or take responsibility on their tasks. Nowadays, the industry requires competency assessment among technical resources that enable employees to be competent to the task and become more competitive.

Finally, research data modified Delphi for second and third rounds of the operating system element indicates the degree of consensus and agreement among the panel experts is high. The IQR score achieved was 0 and 1, while the

median is 4 and 5. The mean value was high for all four items: information resources, information management, communication and reflection – indicating a high level of agreement among the experts. Barrett (2010) states the e-Portfolio operating systems should contain elements of information presentation, information management, reflection, collection of artifacts, assessment, feedback, and social networks. Gibson & Barrett (2003) describes the required operating element in the development of e-Portfolios are communication, collaboration, reflection and information management. In the development of e-Portfolio operating system is very important, that the system developed can be used properly and meet user requirements, in this case the TVET students.

Table 2 Modified Delphi study for the first and second rounds.

Indicator	First Round				Second Round			
	Mean	Med	IQR	Level of Consensus	Mean	Med	IQR	Level of Consensus
<b>Recognition of prior achievements</b>								
Personal detail	3.37	4	1	High	4.39	4	0	High
Academic Qualifications	4.20	5	1	High	4.70	5	1	High
Non-academic qualifications	3.71	4	1	High	4.38	5	1	High
Prior experience	4.73	5	0	High	4.85	5	0	High
Core abilities	4.00	4	1	High	4.50	5	1	High
Declaration authorization	4.55	5	1	High	4.73	5	1	High
<b>Virtual learning space</b>								
Learning Management	3.97	4	1	High	4.35	5	1	High
Exhibition	4.64	5	1	High	4.57	5	1	High
Learning assessment	4.03	4	1	High	4.25	4	1	High
Personal space	3.98	4	1	High	3.36	4	1	High
<b>Competency assessment</b>								
Competency information	4.51	5	1	High	4.27	4	1	High
Achievement record	4.64	5	1	High	4.27	4	1	High
Achievement evidence	4.64	5	1	High	4.46	5	1	High
<b>Operating systems</b>								
Information sources	4.48	5	1	High	3.99	4	1	High
Information management	4.39	5	1	High	4.88	5	1	High
Communication	3.68	4	1	High	4.26	4	0	High
Reflection	4.21	5	1	High	4.54	4	1	High

## 5. Conclusions

The analysis of the literature review and descriptive analysis of the modified Delphi study has identified three elements and 17 indicators in the development of an e-Portfolio system for Malaysia Malaysian Skills Certification. It is categorized under four domains, which are: (i) Recognition of Prior Achievement (personal details, academic qualification, non-academic qualifications, prior experience, Core abilities and declaration authorization), (ii) virtual learning space (learning management, exhibition, learning assessment and personal space), (iii) competency assessment



(competency information, achievement record and achievement evidence) and (iv) operating system (information sources, information management, communication and reflection).

When an institution chooses to use e-Portfolios in teaching and learning, it is important to understand and define the concepts and indicators necessary to meet the needs of an institution (Jafari, 2004; Sweat-Guy, & Buzzetto-More, 2007). To produce an e-Portfolio system, it requires detailed planning to ensure that the resulting system meets the needs of users, as well as the educational institutions. This study provides an overview of the importance of an e-Portfolios indicator. Thus, it can be concluded that the modified Delphi study conducted produced indicators and items that could be useful for the implementation of e-Portfolios for Malaysia Skills Certification in the field of TVET.

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# The formation of knowledge and its active utilization in practices of public relations in organisations

Veyysel Çakmak<sup>a</sup>, Ercan Aktan<sup>b</sup>, Mahmut Mert Aslan<sup>c</sup> Ahmet Köse<sup>d</sup>

<sup>a</sup> Aksaray University, Ortakoy Vocational School

<sup>b</sup> Aksaray University, Vocational School of Social Sciences, Aksaray

<sup>c</sup> Selcuk University, School of Foreign Languages, Konya

<sup>d</sup> Anadolu University, Bachelor Student, Eskişehir

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## Abstract

Knowledge is the basic communication means of human being. It has reached today's world as the most important and influential means of communication although a part of it disappeared and another part was stored in a way and transferred from one generation to another through out the history. In the meantime, the drastic role of technology in forming and spreading the knowledge should never be ignored.

Public relations is an activity of a variety of recognition and publicity. If we take it in a broader way, we can say that it expresses the total of researches to know the target groups better so as to realise its purposes and also its all activities and applications in the direction of objectives of the organisation in order to introduce and advertise it to the whole public opinion.

The experts of public relations have to prepare plenty of information and also documentaries which are subject to them. They are constantly shared with the rest of the world on the web page of the organisation. As it is known, web sites and social network have become inevitable parts of all sorts of institutions nowadays.

In this work, we are going to investigate the notion of information management and obtained information with regard to this issue is going to be displayed at full length in the interest of internal corporate and usual corporate relations.

In this context, the relationships among information management, Internet and public relations are going to be brought up and their efficient utilization is going to be researched in terms of the organisation.

Formation, handling and especially share of information in business enterprises have no doubt great effects on its transparency, image and openness to the target groups. This situation introduces a positive effect in the process of the publicity of enterprise itself. In this study, we are going to dwell particularly upon the formation, handling, storage and distribution of information in terms of in-house (intra-company) and external public relations. In this context, a vocational school of a university which is worth to be examined from this angle is going to be taken on as a sample.

*Keywords:* Public Relations, information management, communication.

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## 1.Public Relations (PR)

Public relations (PR) on which there have been lots of definitions is basically an activity of publicity. Peltekoğlu who is one of the leading PR specialists in Turkey defines it as “a strategic communication means” which is realised or set up between the organisation and its target groups whose level of importance varies according to the consumers, distributors or employees of the organisations. It carries out the task of helping the organisations realise their purposes (Peltekoğlu, 2004;6). Public relations is a function and communication of the management. So it is also a way of influencing the public opinion. According to Buda ve Budak (1998: 8), it is a total of activities of a person or an organisation which aims to establish relations with the other people or organisations so as to make relations, to sustain and develop the available relations on the purpose of getting some interests. “Interest” that is mentioned here is rather different from the “material interest” that is used in the field of advertisement and propaganda. It will probably turn out to be a material interest in the long term. However, it is not the main target of public relations. The organisations which has made an “institutional image” in a long time will no doubt take many advantages of that image.

The applications of public relations can be mentioned in all places where there is a discrimination between the managers and employees or sellers and buyers because public relations which in essence depends on the organisational output is naturally an effort of organisation which tries to regulate that order and controls the related environmental factors at the same time. Taking the inevitable organisation-environment relations into consideration, public relations

can be seen as an instinctive and natural activity in every place where the organisation exists (Kazancı, 2009; 39). But it is often mixed with the other similar notions because of its inter-relational nature and multi-dimensional structure. Those similar notions are usually “advertisement”, “publicity”, “propaganda”, “human relations”, “communication”, “image” and so forth...

To specify where the activities should be directed to and which technics and strategies should be used in those areas are accepted as the keys to success in public relations. The target groups should be known and the organisation should introduce and advertise itself very well (Budak ve Budak, 1998: 149).

To know and determine in which areas the activities of public relations should be concentrated and which methods and means should be used to execute them will undoubtedly effect the level of success of the activity of public relations to a large extent. If the target group is known very well in the process of communication, the most convenient technics and means to be used can be modified and applied easily. Otherwise, all the efforts might be of no use. The activities to be carried out in that direction are divided into two categories: The first category contains a variety of recognising methods in public relations like citizens’ personal applications, the relations with the representative persons and groups, recognising through the technics of surveys, meetings, browsing the mass media, face to face relations with the public, referendum and public opinion researches. The second one contains face to face relations, the art of public speaking, plausibility, talking on the phone; printed media such as newspapers, magazines, brochures and manuals, notices, placards, rosettes, stamps, letters, annuals and books; audio-visual means such as radio, television, films, internet, intranet and other visual means; and the other means such as competitions, exhibitions, fairs, festivals, conferences, symposiums, seminars, organisation tours, panels, openings, anniversaries, welcome ceremonies, photographs, and sponsorships (Yavuz, 2006: 25-55).

As to computers, they are used as one of the means of both recognition and publicity. Those contains almost all means of communication.

As everybody knows, one of the productions of computer technology is the Internet. It is impossible to stay away from the computer technology and the Internet for the individuals of information society. Serious efforts have been made in order to advance and expand the use of the Internet in the areas like education, culture, health, public services, legislation and justice not only in the world but also in our country. People can actively and directly take part in the process of producing and sharing the information over the Internet so as to satisfy themselves and to put forward to their own ideas (Selvi, 2012: 208).

## **2. Information Management**

Information management is a total of theories and applications rendering production, depiction, evaluation, development and distribution of intellectual resources of the organisation within the framework of a specific plan. The information should be formed through activities or else it is not going to have a purpose and value. Those activities bring forward the necessity of knowing what sort of information should be used to run the businesses within the organisation. The information at issue may directly be the information of running that is needed in every level of developing work and actions of the organisation or to put it in another way, it may be the information of management needed to control and develop the activities. Most of those kind of information are formed in the documents which organisations have produced in the process of activities. Therefore, those first-hand documents are the most important institutional resources of organisations. From time to time, they can also be a part of the national archives just since they include institutional information. In other words, they are not only the actual memory of the organisations, but also the nation’s memory in later centuries (Özdemirci, 2001; 180).

Besides, all the organisations and institutions form the information producing documents within the framework of recognition and publicity while they are running their businesses. Information in question which were produced for the in and out of corporation take their places in the archives as the memory of the organisations and institutions. However, they make a great contribution to the memory of the country.

The answer of the question “Who produces the information?” can be “all employees”, especially the ones who can be defined as the “information workers” who intensively deal with the information. Most of them are white collar workers for instance medium and high level managers, researchers, instruction providers and appliers (Çapar; 2005: 50).

Not only the activities and means of recognising and publicity but also formation and sharing of the information in the organisations are carried out by the specialists of public relations. In addition to that, they are

responsible for doing the researches that the organisation itself need. They produce a great many of information while they are doing these businesses and all those information and documents are saved in their Internet sites as a part of their corporate identity.

Information management can be probed in the basic processes below: They are production, development, classification, protection, transmission, share, utilization and evaluation of the available information. Those basic processes demonstrate that information management operates in an unbelievably vast area in effect (Yalçinkaya, 2011: 158).

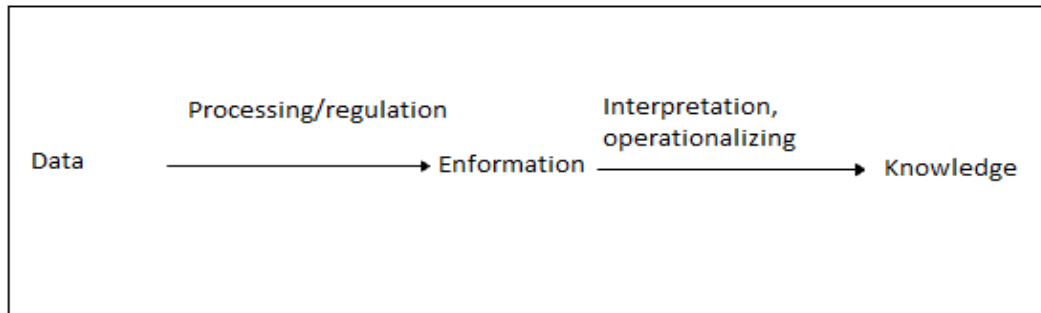
The main purpose of knowledge management is to reflect and inform the business about the scientific and technological innovation around the business with the conceptual development. To be informed in time about innovation and change has a great importance for educational institutions that produces and shares information. (Celep ve Çetin; 2003; 31) Following innovations and discoveries is the task of educational institutions. Schools that are incorporating with researchers can continue to play leader and interchanging roles as long as they follow innovations and changes in the community.

### 3. Formation of Information and Public Relations

Formation of information is related to data and knowledge. Information consists of objective realities regarding the facts and they are not made connected with one another yet. Data is the saving of the operations in an unconstructed form in accordance with purposes of the organisation. Data which are considered as not unassimilated the uncommented observations and uncultivated facts is saved by the technological systems in the modern organisations. For instance, 710x370 A41 is a datum, but it may mean nothing for most of the people. Whereas, information that was not put in an order may also be identified as the data. It has got a meaning for only the person who is relevant with it. Information which has got a much richer content than data is usually a written, oral or visual message (Barutçugil, 2002:57).

Güçlü and Sotirofski (2006: 354) developed a table which tells about the relationship among data, information and knowledge.

Figure 1: Formation of Information



Reference: Güçlü ve Sotirofski (2006: 354)

All those stages can be seen clearly when it is looked at the applications of public relations. When the example of brochure is taken in hand;

There are identifying sorts of data. After they are classified, ordered and added pictures, they turn into the brochures.

Brochures are short term and printed communicative means which consists of six or more pages and distributed to a target group for a particular purpose a certain time ago. The basic steps to follow to prepare a brochure are stated below:

- The purpose should be identified openly.
- A notion around the purpose should be developed.
- The content should be determined before.

-Information which will be given, formative features which will be designed, visual materials which will be used and also colour and white space should be identified.

-It should be printed in a way that it can be increased when it is necessary.

-It should be distributed (Peltekoğlu, 2004:247).

If the subject is taken in hand in terms of archives and public relations, it can be said that the public opinion perceive the archive resources as very important documents forasmuch as they are the evidence of great importance for the persons, organisations or nations. Besides, it should not be forgotten that the public relations provides with the value that the archives and the employees of it deserve. There are a wide range of means in public relations to introduce and advertise the institutions of archives to the public opinion, their vocations to the intra-company employees and their archives to the country and the whole world. However, the archivists should not ignore the measureable benefits and advantages brought by the mass media. Advertisement equivalents which are rendered by the reflections of mass media have been utilized for a long time (Ataman, 2006: 221).

The public relations which can not be ignored on account of its advantages in today's contemporary societies have moved up to a higher position nowadays than it was in the industrial and modern societies. One of the reasons of that escalation is the fact that people and organisations have needed much more exchange of information then ever before. People may be exposed to uncountable messages from different places in information societies which keeps on developing the information means and technics. Because this case causes the problems of not being understood enough and being misunderstood in terms of both of the resource and the receiver, some unwanted effects comes out unavoidably. The only way of understanding the demands of target groups and explaining itself to them by preventing those sorts of negative effects at the same time is definitely the public relations (Canöz, 2008: 357).

In this study, knowledge management of an educational institution was investigated in accordance with the public relations activities.

In this survey, document analysis method was used. According to Yıldırım and Şimşek (2005:187); the public, private record collection or of the analysis of written materials containing information about case or cases have to be investigated and examined in a systematic way at the first step. Movies, videos and photos may be used in document analysis. In addition, using qualitative data collection methods such as observation and interviews can contribute to the validity of the research.

In this study, knowledge management of an educational institution was investigated in accordance with the public relations activities. In this context, as a public institution, the University of Aksaray Ortaköy Vocational School was selected. There are 1,350 students and 40 academic and administrative staff at institution. Institution was examined in terms information management and public relations. At the end of study, documents that has been created by the institution as a public relations agency method were included in the study. Letters that are written by public institutions to individuals and organizations is called as "official letter". Besides ; student document , report, notices ,board decisions are documents created in public institutions.

In the Yağmurlu's study (2010), public relations communication tools are divided into two as recognition and promotion. These are written-tools , social-cultural tools and audio- visual tools.

In this study, according to Yağmurlu's study (2010) Aksaray University ,Ortaköy ,Vocational High School was examined with considering in recognition of public relations as in Table 1.

Table 1. Public relations tools

	Written tools	Social-cultural tools	Audio-visual tools
Promotion	Press release Press file book magazine annual Annual reports Brochures and manuals Letter (954) banner Bulletin boards poster banner Flyers Router and way showers	Press conferences Press releases Press trip Press Cocktail Ceremony (2) Conferences (3) Exhibitions Excursions (1) Events Competitions (3) Sponsorship / patronage	Visual materials prepared for Television Photo (3) Movies (2) Slides, pictures, power point, (4) The graphic design, corporate identity, logos, banners, business cards, Material intended for radio TV / radio interviews

Promotion	Wishes / Complaint boxes petition Application for information Surveys	Interview days Advisory Units interviews meetings	Telephone lines
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Reference: Yağmurlu, 2010.

The information and documents created in Vocational School were examined in terms of public relations At the end of review ; letters that belong to 2013 are the most important information-"as official texts" .According to Table 1; in order to perform in-house and inter-agency communication 954 texts has been written in this year. Two ceremony , three conferences ,one trip and three contests were made as socio-cultural tools at the institution.

On the other hand, three photo presentation that identifies the institution, two film screenings and four-slide presentation are done as audio-visual tools.

#### 4.Result

Corporate design and corporate identity consists almost visual element such as in-house publications, visual aids, architectural and decorative events, printed papers for external target audience , brochures, posters, announcements on billboards, clothes, attired tools, architecture and product-based visual design, corporate symbols. In addition, reports of corporate communications, annuals, advertising, publicity and the key elements of press, can be added to visual aids. (Sezgin, 2008).From social-cultural and audio-visual communication tools information about introduction of the institution is given.

When official texts that are created mostly at institutions are examined, the name of institution ,the official emblem of the institution and communication address of institution are seen in this document .

In terms of public relations, this communication tool reveals corporative identity of institution .

In this respect, 954 documents that were related to the information about Ortaköy Vocational School in terms of public relations activities were created in 2013. In addition to this, such as ceremonies, conferences, festivals and competitions and social - cultural activities are limited, and photos, movies and slide presentation have been found to exceed an average of 3 as well as.

According to this condition, It was identified that in the framework of information management that is developed public relations practices in social-cultural activities and audio-visual communication vehicles is very weak, in addition to this; except letters writing vehicles are inadequate.

Introduction and definition tools used in PR are required more intensive and efficient use for successful knowledge management and public relations activities

For a healthier conducting with the relationship between audiences and institutions transferring the message means of communication with the relevant stakeholders is very important.

From this point; Ortaköy Vocational School for different target audience , producing different knowledge context

And introducing this knowledge with using tools efficiently to reach the desired segments would be appropriate

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# The heritage central Asian Turkish music culture left to Anatolian music culture: similar elements in central Asian-Anatolian Turkish music cultures

Gulsen G. Erdal<sup>89</sup>

*\*Kocaeli University-State Conservatory, P.O. Box 41300, Turkey*

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## Abstract

In this research, it is aimed to present the elements which are thought to be left as a musical cultural heritage by Central Asia to Anatolian Turkish music culture within the context of similarities among the musical cultures shaped in the respective geography. It can be observed that Turkish music, which gained a new structure and identity, preserved the effects of Central Asia and brought them to the present despite the various musical culture elements it encountered in Anatolia. It can be noted that some similar elements which were in a sense conveyed as “a musical cultural heritage” from Central Asian Turkish music culture to Anatolian Turkish music culture and included in this origin served as a model in the context of music for acculturation between Central Asia and Anatolia. It is possible to list these similar elements as follows: “The Minstrelsy tradition”, the origin of which dates back to pre-Islamic period in the Central Asia and the name and function of which changed in Anatolian territories and which is in a sense a different form of Shamanism tradition; Rhythm similarities in musics; Modes as a method of processing musical scales in Turkish music system, their names and use; Musical instruments and similarities encountered in the names and structures of the instruments.

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*Keywords: Central Asian Turkish Music Culture, Anatolian Turkish Music Culture, Musical Cultural Heritage*

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## 1. Introduction

The Turks, who spent their life in a nomadic lifestyle in Central Asia, encountered various cultures as moving westward. The musical culture the Turks settling Anatolia, which they chose as their new homeland, brought from Central Asia showed a change through the cultures interacted. It can be said that music cultures of the Turks, whose music cultures were also influenced by the cultural environment they encountered in Anatolian territories as in many points, structured in this mosaic, contain a configuration synthesizing Central Asia as the origin and Anatolia as the homeland.

### 1.1. *Mıñıñmıñlı at oru bū*

The Turkic tribes and the Turkmen who came to Asia Minor (Anatolia) in the later 11<sup>th</sup> century encountered music cultures of other societies here, interacted with each other and enriched the cultural elements they brought from the territories they came from combining them with the cultures they encountered (Budak, 2006, p.139) . The cultural effects of Islamic circle and Shamanism, the cultural heritage of the nature faiths of the Turks in the Central Asia, were two important sources of the heritage they carried (Say, 2010, p.205). It is thought that musical interactions lie behind

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<sup>89</sup> Gulsen G .Erdal. phone.: +090-555 323-9672  
E-mail address:ggoksel@kocaeli.edu.tr

the similarities between the Central Asian Turkish music and Anatolian Turkish Folk music in the new homeland of the Turks. As the interaction in music is mutual, the Turks influenced as well as being influenced. For example; classical Chinese music influenced Turkish music and Turkish music also had an effect on China in a certain area. This interaction continued later on. (Baykara, 2001, p.201). It was stated that there were similarities in areas such as minstrelsy tradition, the origin of the instruments of Turkish origin, folk singing tradition, the modes used and their names (Gürdal, 2010). This study is limited to the examination of the origins of minstrelsy tradition, a Turkish origin instrument; lute and the folk singing tradition taking place in the Turkish world, in Anatolia and the Central Asia.

## *2. A journey from the Central Asian minstrel to Anatolian ashik*

### *2.1. Minstrel-bakshy tradition in the central Asia*

A lot of minstrels came to Anatolia from the Central Asia, Khorasan, Samarkand, Tashkent and other Turkish provinces in the great migration occurred from the Seljuk Empire in Iran, collapsed due to the attacks of Mongols to Anatolia. These minstrel philosophers brought The Central Asian cultures to Anatolia. They combined these cultures with the cultural heritages of various civilizations which lived in Anatolia (Kaygusuz, 2000, p.124-125). The word ozan (minstrel) is derived from the root of the verb “ozmak” meaning “to be ahead of”. As the letter g in the middle and at the end of the word is dropped in Oghuz language, the term ozgan turned into ozan. (Feyzi, Halıcı, 1992, p.7) The folk singers performing jobs such as medicine, witchcraft and musicianship in the position of the representatives of the communities in the Turks were called “Kam (Shaman)” in Altai Turks, “Baksı (Bakshy)” in Kyrgyz Turks, “Oyun ” in Yakut Turks and “Ozan (Minstrel)” in Oghuz Turks (Budak, 2006, p.16). The term ozan has been used in the sense of minstrel-folk musician in Oghuzs since time immemorial. After the 15th century, the Turkish term ozan was replaced by ashik in Azerbaijan and Anatolian geographies and by Baksı and Kam in Turkmen geography. The tasks bakshies and minstrels performed in Turkish geography seem similar. “The father of the lute playing minstrels” was Dede Korkut (Korkut Ata). He was also the inventor of the stringed instruments called kopuz (lute), tanbur (tamboura) and dombra. In Anatolia, Korkut Ata was a highly respected wise man. Kyrgyz bakshies used to ask for help from Korkut Ata when they started treatment or fortune-telling with magic and spell accompanied by lute. Minstrels also used to consider their own lutes as Dede Korkut’s lute and show respect to them, sleep on the waist of the lute and think that lutes had a divine power. Greeting confronts us as an important custom among the minstrels travelling from province to province, from beylic to beylic. Minstrel greeting putting one hand on the chest as in “bağır basma (embrace)” was attached importance as it showed the respect, unity and hierarchy in the society and Turkish customs in terms of social respectability and the fact that minstrels did not kneel down before the khan. This greeting type is stated to be also widespread in Anatolia today. (Ögel, 91, p.405). We also learn from the book of Dede Korkut that minstrels’ both playing and singing is a feature seen in the Central Asia and Anatolia. Minstrels both played and sang on the days of feasting and grieving and they emphasized the meaning and importance of the day. It is also stated that the capital of the minstrels is their lute and their mastership and the recompense of their work is their fame. The lute of the minstrel being invaluable also shows the importance attached to the lute (Ögel, 1991, p.407).

### *2.3. Ashik Tradition in Anatolia*

Minstrels, who have an itinerant and individual life style, are considered to be the ancestors of ashiks (Budak, 2006, p.17). Artun (2005, p.1) states that wandering poets singing and playing saz (a stringed instrument) and telling folk stories were called ashiks. The ashiks, which emerged after the Seljuks in the 15<sup>th</sup> century, and the ashik tradition, which arose with the new culture the existing cultural background encountered in Anatolia, tally with the national essence in terms of origin. The cultural change and development with the acceptance of Islam brought a new perspective to minstrels. The new ashik type based on Islamic essence replaced minstrels bearing the identity of the old culture. The replacement of term ozan with ashik due to the religious sufistic folk literature occurred by assigning a humiliating meaning to the identity of the minstrel singing epopee with his lute (Artun, 2005, p.3).

Ashiks (bards) replaced the minstrelsy tradition towards the middle of the 15th century. Bards are the continuation of this minstrelsy tradition. Ashik poetry was influenced by the Anatolian dervish literature patterns as of the 13th century. Ashik being furnished with extraordinary powers and the structure of “dolu içme” ceremonies (a religious oath-giving

ceremony drinking koumiss from sacred animal shaped containers called rhyton) tallied with the essence of the Central Asian belief systems. From these aspects, ashiks were differentiated from the lodge dervishes and minstrel- bakshies, wise men singing epopee. Therefore, ashiks the new version of minstrels in the Anatolian geography and ashik tradition acquired a new perspective and form regarding the sense of life (Artun, 2005, p.28). Ashik tradition is also continuing in Azerbaijani and Turkmenian territories other than in Anatolian geography. Ashik tradition started to live in a new structure with the structure and theme elements of the dervish literature and minstrel-bakshy tradition in Anatolia (Artun, 2005, p.31).

### **3. Instruments of Turkish origin from the central Asia to Anatolia**

Instruments of Turkish origin can be mentioned to have a history of over a millennium starting with their arrival in Anatolia from Oghuz tribes (Nas; Altun, 2009, p.421). Turkish culture dating back to equestrian nomadic savannah civilization is also considered as the main basis of the Turkish instruments (Ögel, 1991, p.4).

#### *3.1. Lute and its function in the Central Asia*

Lute is the leading in the known oldest instruments of the Turks. The term kopuz (lute) is of Turkish origin and gobyz (kopuz) is the name given to the bowed string instruments by the minstrels and shamans in modern Central Asia and Kazakhstan. The findings of Meragi show that Oghuz Turks used the term kopuz (gopuz) for the plectrum lute in pre-Ottoman periods (Feldman, 2012, p.170). Lute is a stringed instrument played with the help of a string, commonly used by the Turks dating back a long way. The one with a long fingerboard and neck is called “kolca kopuz”. It has two types as “Kopuz-ı ozan” and “Kopuz-ı rumi”. The lute which originally had three strings underwent a change; the lute played by minstrels was called “kopuz-ı ozan” and the one played by Western Turks as “kopuz-ı Rumi”. Kopuz-ı ozan is three-stringed and kopuz-ı Rumi is five-stringed. Kopuz-ı ozan means the lute of ashiks and minstrels (Reinhard, 2007, p.83). In Turkish culture, the lute or saz is a social instrument which relaxes souls, strengthens willpowers, creates unity in the society (Ögel, 1991, p.5). The lute, which has several types, was categorized as “çertme kopuz (lute played with fingers)”, “kolca kopuz (necked lute)”, etc. by Reinhard (2007, p.411). This type of lute formed by attaching frets on the neck of the necked lute was later called “bağlama”. Bağlama had several names such as kopuz, saz, sazılak, çöğür, kara düzen. Also, the term kopuz was replaced by the terms such as dutar, dambura, dombra in Turkmenin-Uzbek-Turkish cultural environments (Yener, 2009, p.695). The oldest lute was an instrument played with a bow. In shaman prayers, each part of the lute is described separately. Shamans also used to play the prayers of treatment, fortunetelling and magic with these stringed lutes.

#### *3.2. Transition from kopuz to bağlama in Anatolia and its function*

The lute used by the Turkic tribes in the Central Asia and containing multiple stringed instrument types with its history of about 2,000 years came to Anatolia through “itinerant minstrels” and continued its existence with the civilizations it represented (Yener, 2009, p. 695). The lute is distinguished with its fame and glory among the Anatolian stringed instruments. Its playing style is similar to “şelpe (tapping)” (performed by striking the strings with fingers), a present day bağlama playing technique. (<http://www.shazinem.com/muzik-enstrumanlari-ve-turleri/130945baglama.html#ixzz344euiN4B>.access.9.6.2014))

The lutes with a wooden body and a long neck were called saz or bağlama later on. Among the first written evidences in the 14<sup>th</sup> century regarding the arrival of the lute, which was very similar to the stringed instrument Oghuz bards played, in Anatolia from the Central Asia together with the bards in the 13<sup>th</sup> century are the mentioning of Turkish lute instrument in Uighur texts, the book of Dede Korkut, the literary work of Kaşgarlı Mahmut entitled “Divan-ı Lügati Türk”, collected poems of Yunus Emre (Yazıcıoğlu, ilknur,p.181), the epic Oghuz Turks wrote about the heroes of Dede Korkut and a poem of famous sufi poet Yunus emre (Reinhard, 2007, p.84). The origin of the term used as “playing the saz” in the Central Asian and Northern Turks and Anatolia today is “playing the lute”. The lute is a kamancha in the Central and Northern Asian Turks. Kamanchas made of pumpkin which were called “eğit” and “Yörük kemençesi” can be considered as the continuation of the lute. As a matter of fact, the lute was originally a kamancha played with a bow

(Ögel,1991, p. 293). There is a unity and similarities among the kamanchas stretching from Anatolia to the Northern Asia. The terms “İklığ”, “kıyak”, seen in the entire Turkish world are commonly encountered in Anatolia (Ögel, 1991, p.295). “İklığ” is known in Anatolia with its original form (Gazimihal, 1958, s.76). In the studies of M.R.Gazimihal, the origin of the instruments based on the bağlama family in Anatolia is observed to be the lute (Gedikli,1999, p.72). Today, the term kopuz is encountered in various places in Anatolia both in the sense of an instrument and in the other senses. Some of these can be exemplified as follows:

Kopuz ve kubuz – generally instrument in Alucra, Uşak regions

Kubur –single stringed lute in the villages in İçel region

Kövür – 8-10 or 12 stringed instrument in Gaziantep and its surroundings

Kobuz-Köylüce - hand harmonica (from the compilations of Karaçay-Tokat, 1933). Fuat Köprülü states that the term ozan is the name given to the minstrel musicians of Oghuz Turks and minstrels are a special community among the Oghuz Turks. They tell old Oghuz epics, Dede Korkut stories with their lutes in foreign places and write new poetry about new events ( <http://www.turkuler.com/baglama/tarih3.asp>)

### *3.3. The modes used in the Central Asia and Anatolia*

The term makam (mode) pronounced as “mukam” in Uighur Turks is of Arabic origin. It means location, position and degree. It refers to a complete systematized musical work in music (İnayet, 2007, p. 366). Modes and tempos (makamlar ve üstiller) are the basic musical patterns enabling the formation, performance and transmission of music culture specific to Anatolia (Güray, 2011, p.11). Rhythm design is shaped on the basis of tempo and melody design on the basis of mode. Although the names of the frets, which give their names to the Turkish modes, partly differentiated in Azerbaijani and the Central Asia, there are some common names such as segah, düğah, rast, çargah, uşşak, ırak, etc(Gürdal, 2010). Modes are encountered in Anatolia and Uighur Turks as well. Modes differentiating according to the cultural, regional and local characteristics exist in Anatolia as “uşşak” and in Uighurs as “oşşak”, as bayati in Anatolia and bayat in Uighurs and segah with the same name in both (İnayet, 2007, p.366).

### *3.4. Tradition Of Folk Song/Ballad In The Central Asia And Anatolia*

It is possible to find the origin of Anatolian folk songs in the countries of Turkistan and Kyrgyz (Gazimihal, 2006, p.121). It is possible to find the origin of Anatolian folk songs in the countries of Central Asian. Today, there are folk songs in the entire Turkish geography. The folk songs sung in the countries near the boundaries of Turkey resemble the Anatolian dialect. They are known as “mahni” in Azerbaijani Turks, “Türki-türk” in Kazakhs, “ır-türkü” in Kyrgyz, “halk koşuğutürki” in Uzbeks and “halk cırı” in Tatars. The Northern Turks used the term “yır” or “cır” coming from the same root for them (Özdemir, 2007, p.225). The creator of “folk songs” considered as decasyllabic folk poetry type are usually anonymous. One of the folklore literature types sung with a specific melody and anonymized in time is the folk song in Anatolia (Yıldız, 2006, s.64). “Bozlak” and “ağıt (elegy)” are two important folk song types in folkloric respect. They do not have modes. The melody structure in bozlaks is encountered in the pastoral melodies in the Central Asia even today. Elegy formed with hendecasyllabic and octosyllabic verses is the heritage the Turks brought from their first homeland the Central Asia (Reinhard, 2007, p.33-37). Shepherd folk songs, songs of mounted shepherds, songs of agriculturalists and hunters, wedding songs and elegies are the folk song types encountered in the Central Asia. Wedding songs and elegies are the types maintaining their identity in Anatolia as well as in all Turkish societies.

## **Conclusions and Recommendations**

The Turks spread over a wide geographical area migrating far from their homeland in the history. The geographical location where the nation lives is very important in the formation of the cultural geography. The birthplace of the culture is called the source of the culture. In this sense, the Central Asia constitutes the sources of Anatolian Turkish culture. Throughout the history, the cultures such as language, architecture, music were originated from these sources (Tanrıku, 2014, p.178). It is obvious that the minstrelsy tradition existing in the ongoing structure turned into the ashık tradition in the Anatolian Turkish folk culture and was fed from this essence, the modes and folk song tradition in

the Anatolian Turkish folk music originated in the Central Asia and they have structural similarities with the present day Anatolian Turkish folk music. It is also obvious that bağlama having its basis on lute, the main instrument of the Central Asian Turks, is the continuation of lute in the Anatolian Turkish folk music instruments. Thus, it has been observed that musical cultural heritage Anatolian Turkish folk music received from the Central Asia has been conveyed to the present day and in a sense is maintained today as well.

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# The historical development of the foreign language education in Ottoman Empire

Fuat Boyacioğlu<sup>a\*</sup><sup>90</sup>

<sup>a</sup> Faculty of Letters, Department of French Language and Literature, Selcuk University, Konya, Turkey

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## Abstract

The education in the Ottoman Empire as a public work had been realized since the Ottoman Tanzimat Reformation. The foreign language education after the Tanzimat has been carried out by the European methods while the education before the Tanzimat was based on the religious basics. In the rising periods of the Ottoman Empire, Arabic and Persian were taught whereas European languages especially French were taught in its period of stagnation and decline with the adoption of the European supremacy. The westernisation and modernisation movements such as Tanzimat and Islahat were launched firstly in the Ottoman military schools then, in the public schools. After the First Constitution in 1908 French teaching became obligatory and German and English teaching became elective in all Ottoman schools.

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**Keywords:** History of education; Ottoman Empire; Foreign Language Teaching History; Ottoman Schools.

## 1. Introduction

Throughout the history Turks have established generally multi-national empires. When they didn't make any discrimination of race, religion, language they became successful in the administration. The Turks didn't impose their language to the non Turkish communities and gave the freedom to them. Thus, they had a multinational structure. The Balkan and Muslim Arab communities are a good example in the Ottoman Empire. On the contrary, the Ottomans tried to teach and learn the languages of the communities under their domination, especially Arabic and Persian in their peak periods and the French, German and English in their periods of stagnation and decline.

Arabic being the language of Quran, became more important than Turkish language by the adoption of Islam by the Turks (932-1212). Although Arabic is the language of Islamic civilization, Persian became the cultural language because the bureaucrat class in the government had been Persian origin since the Abbasid period (750-1258). In the Great Seljuk Empire period the Persian language was the court language. The literature courteous was written in Persian. However, the public language was Turkish. The difference and the alienation between the court literature and the public literature, between the court language and the public language have been continuing for centuries. Omar Seyfettin, Turkish writer said in this matter: there are two important stages and influences in the history of Turkish Literature 1-Persian influence 2-French influence. He emphasizes the dimension of the superficial and blind imitation in Turkish literature (Ali Canip, 1935).

The Ottoman State continued the political supremacy until 1606 and its absolute military superiority against Europe until the Treaty of Karlowitz (1699) after which it began to lose more and more its political and military supremacy. The Ottoman administrators approving the superiority of the Europe had to send delegates to Europe in order to know it very well (Uzunçarşılı, 1998; Sander, 1987). The Ottoman rulers were considering as inferiority its representation before another State until this period. On the contrary, it regarded the delegates coming to the Ottoman State as a

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\* Corresponding author: Phone number: 0090 5336586002  
e-mail address: fboyaci2000@yahoo.com

symbol of respect for it. For this reason, the Ottoman State didn't want to establish a regular foreign affairs system for the diplomacy. After the Treaty of Karlowitz, the Ottoman statesmen begun to give a great importance to the diplomacy in the international relations because of the prominence of the international diplomacy in Europe (Akyılmaz, 2000). As a reason of the fact that the Ottomans could not learn a foreign language, we can enumerate these reasons: the Ottomans had the complex of superiority; they made a few trades with Europeans; they had self-enclosed, self-sufficient, religious and ideological feelings (Kara, 1994; Findley, 1996; Lyber, 2000).

The Ottoman Empire was constantly and militarily face to face with European countries during the wars. In XVIII<sup>th</sup> century, Ottoman armies were defeated not only by Europeans armies but also by Russian and Egyptian forces benefiting from European military techniques. This case necessitated that Ottoman military schools had been established accordingly with European techniques. In the XVIII<sup>th</sup> and XIX<sup>th</sup> centuries the experts coming from various European countries, recommended the military education in the European manner (Mustafa Ergün, 2013).

The loss of importance of the Mediterranean Basin because of geographical discoveries and the economical dissolution of Ottoman Empire and the capitulations enabled many foreign merchants to come to Anatolia and make commercial activities. The commercial relations had been executed relatively and equally until 1838's. But the Ottomans territories had been completely a European market after the 1838 Treaty of Commerce (Cengiz Poyraz, 2013).

We are going to study the foreign language education in two periods: The period between 1299 and 1773 before the foundations of the schools in the European manner and the schools period between 1773 and 1923.

## **2. The foreign language education before the moderns schools in Ottoman Empire (1299-1773)**

The education had been realised as a public service accordingly with the European methods in the schools period between 1773 and 1923 whereas it was carried out by the establishments affiliated to the religious foundations in the period between 1299 and 1773. The Ottoman Empire improved the education heritage and tradition that it took from Seljuk's and other Islamic states. In this respect, some basic exact sciences such as mathematics and astronomy besides theological sciences had been given in the education institutions of Ottomans adhering to the Seljuk traditions in its formation (Selim Hilmi Özkan, 1999). In this period, the Arabic education was given in madrasahs since the textbooks were written in Arabic. But the Turkish lectures were preferred. It can be said that the majority of students graduated from madrasahs in the classical Ottoman period knew Arabic and Persian as well as mother tongue (Ramazan Şeşen, 2002). During this period, the Infant's Schools, Madrasahs and Enderun Schools were giving the education service.

*Infants/Sıbyan Schools:* They were elementary training schools. In these schools called also as the local school, the prayers on the Islamic religion were memorized in Arabic, practising the prayer, psalmodying the sacred texts and writing in Arabic were taught to children (Oya Soner, 2007).

*Madrasahs:* In the Ottoman Empire, the first madrasahs had been established by the Ottoman sultan Orhan Gazi in 1331 in Iznik. The most well-known madrasahs were Fatih (1451-1481), Sulaymaniyah (1520-1566), the Hagia Sophia and Beyazıt Madrasahs. All Ottoman Madrasahs were educational institutions affiliated to the religious foundations. Mother language Turkish was not taught in these educational institutions. Arabic was holding the most important place in the education. The purpose of teaching Arabic was to understand Arabic textbooks and other resources. Therefore, Arabic grammar was taught firstly. These books had been written to teach the Arabic morphology and the syntax (Özcan Demirel, 2004). As an expression of respect to Muslim Religion, the Ottoman Empire took an extreme interest in Arabic. As a requirement of respect and interest in Arabic, it became the most important language in madrasahs. Even it was said that Ottoman Sultan Yavuz Sultan Selim was intending to make Arabic as the official language of the state.

*Enderun a special school in the Ottoman Palace:* Enderun School was established to train cultivated and experienced men for the services of the palace. In this school, Arabic and Persian other than Turkish were taught as a foreign language. One of features of these schools was to teach Turkish as a second language to devşirme/ Christian children conscripted to brought up for the janissaries in terms of language teaching (Özcan Demirel, 2004).

The Persian teaching begins to be taught in the Ottoman madrasahs by means of Grand Vizier Nevşehirli İbrahim Pasha. There was not much more attempt for the Persian teaching until this period was not well considered. However, the works "Masnavi", "Gulistan" and "Bostan" written in Persian were taught in the Ottoman madrasahs. Especially the darülmecnevis had been opened to read only masnavi (Osman Nuri Ergin, 1977). Although The Ottoman rulers had a great interest in Arabic and Persian they were aware that Turkish should be the state's official language. For this reason,

the Ottoman administrators wanted that Arabic had been taught in the madrasas as a means of the love and respect of religion and learning religious values instead of making Arabic the official language of the state (Selim Hilmi Özkan).

As the Ottoman classic period since XVII<sup>th</sup> Century couldn't produce information and follow developments in the world, they became inefficient. Ottoman Empire wasn't occupied in rehabilitating a lot the madarsas being the oldest educational institutions and begun to establish modern schools along with them. The dichotomy between Madrasa and school in Turkish history has emerged in this way. This duality had been terminated in 1924 by the law on Unity of Education (Giyasettin Aytaş, 1999).

### 3. Modern schools period in the Ottoman Empire (1773-1923)

We can enumerate several factors concerning the establishment of these modern schools: the dissolution of Ottoman Janissary military system, the defeats of the Ottoman army by European armies against which they triumphed until the Treaty of Karlowitz (1699), the influence of European military experts suggesting the military reformation on Ottoman Army.

The first serious attempt of the Ottoman modernisation was Nizam-ı cedid/New Order of the Sultan Selim III. Trained in the reformist tradition of the XVIII<sup>th</sup>, Sultan Selim III, while he was crown prince, corresponded with XVI<sup>th</sup> Louis, the last king of France before the French Revolution and received some advices from him. New Order Reform (Nizam-ı cedid) of the Sultan Selim III had been applied firstly in the military field. The European teachers and the specialists had been brought from Europe especially from France in order to give course (Kara, 1994; Lewis, 2000).

In addition to Arabic and Persian languages, the French language, took place in the Ottoman education system in the schools opened XVIII<sup>rd</sup> and XIX<sup>th</sup> centuries after the activities of the Bab-ı Ali Translation Chamber. In fact, in the Ottoman Empire, the first French-language education begins in İstanbul in 1669 in the School of Language for Boys (Dil Oğlan Okulu) built by Capuchin priests. It gets official status with its new name: *College of Capuchin Fathers of St. Louis*. Turkish and French were taught for three years in this school (Gündüz 1977; Frederic Hitzel).

#### 3.1 The military educational schools

In the duration passing until the declaration of Tanzimat the classic education institutions of the Ottoman State were the infants' schools, madrasahs and Enderun schools. These schools maintaining their existence since the foundation of the Ottoman State had completed anymore their life in the beginning of the XIX<sup>th</sup> century. Apart from that, the schools such as Ottoman Imperial Maritime Engineering School /Mühendishane-i Bahr-i Hümayun (1776), Ottoman Imperial Land Engineering School/Mühendishane-i Berri Hümayun (1796), Ottoman Medical School/Mekteb-i Tıbbiye (1827) and Military School/ Mekteb-i Harbiye (1834) had rendered service as education schools opened in the European style. After the declaration of Tanzimat, the education reforms had been performed (Poyraz and Öztop, 2013).

*The Imperial Maritime Engineering Schools/ Mühendishane-i Bahr-i Hümayûn (1776):* A serie of defeats of the Ottoman navy in XVIII<sup>th</sup> century and especially the incineration of the Ottoman Navy by the Russian Navy caused the opening of a military school upon the recommendation of the Algerian Hassan Pasha in the Imperial Shipyard. Baron de Tott in the school's opening has been a significant share of the recommendations. This school continued the choppy and mixed development in the periods of Sultans Selim I and Mahmut II. Since 1838, the compulsory foreign language in the school became English instead of French. In the school the British teachers begun to give courses. In 1910 this Maritime Engineering School was introduced into a new arrangement according to British Naval School system (Mustafa Ergün, 2013).

*The Imperial Land Engineering School/Mühendishane-i Berr-i Hümayûn(1796):* The Engineering School/ "Mühendishane-i Sultani" in 1791's and the Imperial Land Engineering School/Mühendishane-i Berr-i Hümayûn in 1796's were established in order to educate literate mathematician artillery officers. French military schools program had been applied in this school. The land and marine geometry and accounts and the war information and education about the geography fields were given to all military students. The artillery officers were usually trained in the Imperial Land Engineering School. Then the staffs of the Land Army were usually trained in this school. After the War College was opened in 1834, this school became the Engineer Corps School.

*Medical School/Mekteb-i Tıbbiye(1827) :*The XIX<sup>th</sup> century was a century when the important changes were



occurred in the medical field as in all scientific areas. The European medicine from the Renaissance already making a very significant development has left back the Eastern medicine. In Ottoman Turkey, an attempt to establish the modern medical school began in 1826 by the initiative of a medical chief physician Mustafa Behçet Efendi. This school was founded in order to cure the sick and wounded soldiers of the newly established. Sultan Mahmut II underlined the importance of learning French in his speech addressing to students in the opening of Medical School: "Here you will study the medical science in French. My purpose isn't your study only in French, but your learning the medical science and adapting gradually it into the Turkish language. Try to learn the medical science from your teachers"(Lewis, 1998). Thus, the foreign language education took place in the school programmes by the westernisation movement in the military schools in the Ottoman State and the French became the first European language to be taught.

The Islahat and Tanzimat reform movements gave acceleration to the foreign language education and this case was reflected on the education institutions. The fact that the education language was the French in these schools was resulting from the fact that the teachers giving courses were French teachers. In the university successively named Darülfünun (1846), Darülfünun-u Osmanî (1870), Darülfünun-u Sultani (1874) and Darülfünun-u Şahane (1900) the courses were taught both in French and in Turkish. In the school named Tıbb-ı Şahane, opened in 1839 the education language had been French since 1871. On the other hand, the education language was English in the school Mühendishane-i Bahr-i Hümayun because the teachers were English (Ergün, 2013).

### 3.2 The civil educational institutions and schools

The international relations in the Ottoman State were carried out generally by non-Muslim dragomen. Ottoman Muslims did not learn all the European languages, languages of the infidels according to them, especially during their heyday and their period of stagnation. In their relations with Europe, they used translators and interpreters belonging to non-Muslim communities, especially Greeks Phanariots until 1820-1830 years and then Armenians dragomen (Ekrem Aksoy, 2007). However, the fidelities of these Greek and Armenians dragomen could not be trusted sometimes. For this reason, the Bab-ı Ali Translation Chamber had been founded in 1821. The Ottoman Foreign Language School named "Lisan Mektebi" had been opened because the Bab-ı Ali Translation Chamber had lost in time the mission of teaching the foreign language in the administrative organisation of the Ottoman State.

*Bab-ı Ali Translation Chamber (1821):* It is deduced from the activities of the Bab-ı Ali Translation Chamber that one of European languages as foreign language was taught in addition to Arabic and Persian languages in the Ottoman schools opened in XVIII<sup>th</sup> and XIX<sup>th</sup> centuries. We can say that the French teaching was seen in the modernisation movements in the education starting in XIX<sup>th</sup> century. The morphology and the syntax of the Arabic, Persian and French languages were taught in the programmes of the schools named "Rüştiye" opened in 1838 and the schools named Mekteb-i Maarif-i Adliye opened in 1839. The tradition of a second foreign language and a third foreign language education had been sustained and continued always both in the classic period and the modernisation period of the Ottoman State.

The Ottoman Greeks were performing the translation and interpretation until the opening of the Bab-ı Ali Translation Chamber. The family Mavrocordato from Istanbul Phanar Quarter executed the translation affairs in the Ottoman State during one century (Ağıldere, 2010). During the revolt of Greeks against the Ottoman State, the Ottoman statesmen feel anxiety of the dragomen originated from Armenian and Greek for fear that they would divulgate the secrets of the Ottoman State and mistranslate deliberately during the translation (Genç, 2003; Ekrem Aksoy, 2007). This situation continued until the opening of the Bab-ı Ali Translation Chamber in 1821. This obligatorily founded translation chamber can be considered as the first institution teaching systematically the foreign language in the Ottoman State. Knowing a European language in the XIX<sup>th</sup> century would be an indispensable quality for the young Turks purposing to obtain a career in the Ottoman Government. For this reason, the Bab-ı Ali Translation Chamber would take place beside the Palace and the Army in order to promote and come to power (Balçı, 2008).

*Lisan mektebi/The Ottoman Foreign Language School (1864):* Due to the insufficiency of the foreign language education in the Bab-ı Ali Translation Chamber and the necessity for the staff knowing the foreign language a language school named Lisan Mektebi had been opened in 1864. Its study period was 4 years. It was the first school giving the foreign language education. The privileged foreign language in this school was French. Moreover the languages of the nations under the domination of the Ottoman State such as Romanian, Greek and Bulgarian etc. were taught in this school. In this school closed after a given period and opened again in 1892 by the order of Sultan II<sup>nd</sup> Abdulhamit. English, Russian and German languages in addition to French were taught in this school (Önen, 1971).

This Foreign Language School opened and closed several times had been definitively closed in 1892 by the common official message of the Minister of Foreign Affairs Mehmet Sait Pasha and Grand Vizier Cevat Pasha. The reason of closing this school was to not to obtain the required yield from this school. It was decided that another foreign language school will be opened in the name of Mekteb-i Ali-i Diplomasi. Thereafter, it was given up from this new school project.

*Galatasaray Sultani High School (1868):* Due to some failures in the foreign language teaching, it was decided to open a new school in Istanbul to teach a foreign language in a good level and to satisfy the need of the civil staff of the State. This is why, a school named Galatasaray Sultani had been opened in 1868. The opening of Galatasaray Sultani High School has been the first in this direction"(Genç, 2003). In this school, the education was given in French. This school where the French teachers also were working was well known in a short time in Europe with its foreign language education quality. Those who were graduated from this school knew perfectly French. In the fallowing years Arabic, Persian, Armenian, Latin, Greek, Bulgarian, English, German and Italian had been given as elective course in the school programme. Galatasaray High School became a turning point in the foreign language education in Turkey. It was the first State school where the education was given in foreign language. In this school, the Muslim and no-Muslim students were receiving together education (Özkan, 2010).

In 1874, three schools were founded by the initiative of Sultan Abdulaziz: Galatasaray Darülfünun-u Sultani Hukuk Mektebi (Law School), Galatasaray Mühendis Mektebi (School of Engineering) and Galatasaray Edebiyat Mektebi (School of letters). These three schools were united under the name of Mekteb-i Aliye-i Sultaniye (Great Imperial School). These schools were largely based on the model faculties of the Sorbonne programs, both in their administration and in their teaching. The education quality of Galatasaray Law School being comparable to that of Western universities was a major step in the development of Faculties of law in Turkey. Galatasaray Sultani High School has been a turning point from viewpoint of learning a foreign language in the Ottoman State. The foundation of Galatasaray High School in 1868 marked the peak of the Francophony in Turkey (Ekrem Aksoy, 2007).

### **III-The German teaching as a foreign language in Ottoman Empire**

The international relations in the Ottoman State had influence on the preference of foreign language to be taught in the schools. The Ottoman and French relations and the supports of French specialists in the different fields, played a great role on the preference of French language as foreign language in the Ottoman schools. The Ottoman and German relations developed in the different areas caused the preference of German language as foreign language in the Ottoman schools. In XIX<sup>th</sup> century, the Ottomans maintained balanced economical relations with Germans. These relations caused that the Ottomans came under the political and military influence of the Germans. The military officers and specialists tried to widespread the German language teaching as well as their permanent duty.

In the period of Sultan Abdulhamit II, the Ottoman State made more relations with Germany rather than France and England which tried to make political pressures and interventions to the interior affairs of the Ottoman State. Thus, the Ottomans developed the political, commercial and economical relations with Germans. Sultan Abdulhamit II demanded the military advisors from Germany to reorganize the Ottoman army declined after the Ottoman-Russian War between 1877and 1878 (Beşirli, 2004).

Especially the Ottoman relations with Germany and German language had been improved with the reorganisation activities of the Ottoman Army in XIX<sup>th</sup> century. Then, the cultural relations had been developed between Ottomans and Germans. In order to improve the German teaching, the German High School and Sank Georg Austrian high school had been opened. After 1908, teaching German as foreign language had been widespread in the Ottoman territories. Moreover the German Hospital, the German Archaeology Institute and Turkish-German Associations opened in Istanbul had improved Turkish-German relations. (Önen, 1974). German Teaching started to be given regularly in the Ottoman military schools after 1882. The German education in the Ottoman State had been realised mainly by the military officers and specialists such as Goltz Pasha charged by German Emperor Wilhelm I to reorganise the Turkish Army (Genç, 2003).

Baghdad Railway project had an important place in the development of Ottoman-German relations. The admiration of some people for Germany by the Ottoman-German military and commercial relations decreased partially the French influence. By the influence of Goltz Pasha, the German began to be taught as a foreign language in Galatasaray High School giving education in French (Önen, 1974). The Young Turks came to power after the Dethronement of Ottoman Sultan Abdulhamid II in 1908 and the proclamation of the Constitution. Their German admiration and partisanship

continued increasingly. The powerful States excluding Germany begun to make agreements among them in order to divide the Ottoman State. German Empire took the part of the territorial integrity of the Ottoman Empire. German supporters of the government have led to this situation.

After the Second Constitution, the Ottoman relations developing with the Germans increased the German teaching as a foreign language in the Ottoman schools. A great importance was given to foreign language teaching in the High Schools named Sultani increasing after 1908. It was adopted to teach German and English as an elective foreign language as well as French as obligatory foreign language.

During the First World War, the Ottoman and German relations in economical and political areas arrived to the culminating point. The fact that the Ottomans were sided with Germans during this war increased the desire of learning German in the Ottoman public opinion. In those years, it was seen that the German language teaching was given in Darülfunun/Ottoman University, even in Madrasas. By the letter of instruction published in 1916 the decision was taken to teach German as well as other foreign languages in the Foreign Languages department /Elsine Şubesi of Darülfunun (Önen, 1974). In 1915 German Prof. Dr. Franz Schmidt became the consultant of the Ottoman National Education Minister Şükrü Bey. Besides this Turkish-German co-operation strengthening with the commercial, cultural and military agreements, a Turkish-German Friendship Association had been founded by the support of Prof. Dr. Franz Schmidt (Turan, 2000).

After the beginning of the First World War, the disruptions and the interruptions in the foreign language teaching as well as in many areas had been occurred. According to Serves Treaty after the Mondoros Armistice signed after the First World War and in particular by the desire of Britain as an occupying power, the Ottoman government was obligated to close the institutions giving German education and send back Germans and German teachers and professors to Germany (Widmann, 1970).

## Conclusion

The Ottomans gave a great importance to the education language as well as the form and quality of the education. In the peak periods of the Ottoman Empire Arabic and Persian were taught in the classic schools such as infant's schools, Madarsas and Enderun schools. In its periods of recession and decline, they decided to reform and reorganise their education system after the Treaty of Karlowich. The European languages especially French as well as Arabic and Persian begun to be taught in the modern schools in order to make the international relations. The Islahat and Tanzimat reform movements gave acceleration to the foreign language education and this case was reflected on the education institutions.

French was taught as a foreign language in the military schools such as Ottoman Imperial Maritime Engineering School /Mühendishane-i Bahr-i Hümayun (1776), Ottoman Imperial Land Engineering School/Mühendishane-i Berri Hümayun (1796), Ottoman Medical School/Mekteb-i Tıbbiye (1827) and Military School/ Mekteb-i Harbiye (1834) in order to accelerate the military reforms. In order to train the statemen, official staff, dragomen knowing a foreign language the civil institutions and schools such as Bab-ı Ali Translation Chamber, Lisan mektebi/The Ottoman Foreign Language School and Galatasaray Sultani High School continuing yet its existence today were opened. It was aimed to teach German and English as well as French and to train the dragomen in these Ottoman Schools. Especially the Ottoman Sultans Mahmut II and Abdulhamit II gave a great importance to European language teaching as a foreign language in the Ottoman education system.

German teaching as a foreign language under the period of Sultan Abdulhamit II was given firstly in the Ottoman military schools, then in the other civil schools. It was understood that there were economical and political plans and interests behind the efforts of putting forward the German teaching against French and English teaching. The Ottoman and German relations in economical and political areas arrived to the culminating point with the First World War. The alliance of the Ottomans with Germans during this war and their powerful cooperation in military, educational and cultural fields caused that the German language and culture were spreading in the level of formal and non-formal education in the Ottoman State.

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# The impact of effective process of higher education on the quality of human resources in the Czech Republic

Radomila Soukalová <sup>a,91</sup>, Marcela Gottlichová<sup>a</sup>

<sup>a</sup> Tomas Bata University in Zlín, Faculty of Multimedia Communication, Zlín 760 01, Czech Republic

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## Abstract

The global economic recession with deepening regional and professional dissonances is significantly reflected on the labor market opportunities. University graduates, who should get the attention, are at the forefront. Within the labor market, typical for its constant transformation, preferred and employers' (ie. commercial and non-commercial subjects) sphere requirements conflict with the quality of the workforce. The most prominent is the educational system being the reflection of the graduates' quality and readiness for required skills. The study presents the specifics of tertiary education in the Czech Republic with the labor market opportunities for university graduates based on the market demand.

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*Keywords:* human resources; tertiary education; labor market; theory and practice

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## 1.Introduction

The Czech society, as well as many other countries of the former sc. *Eastern Bloc*, underwent numerous significant changes and transformations after 1989, which are reflected in the continually growing demands on expertise and readiness of all the members of the society being it the area of everyday life (technical, political, social and human) or conditions in the wider European as well as global context.

Especially the fitness to accept these constant and hardly predictable changes and transformations has been becoming the platform of a personal and civic life, as well as the fitness to manage one's orientation within the changes and namely to adequately adapt oneself to these. The antecedence of the newly forming democratic society is the ability to sufficiently dispose of the creative potential of all its members not only in relation to the economic growth, improving employment, social and individual prosperity.

Democracy needs critically and independently thinking citizens who realize their own dignity and who respect the law and the rights of another. It needs individuals able to take responsibility for themselves and for the communal decision-making.

New possibilities for social advancement predetermines above all education as it provides opportunities for development of all faculties to every member of the society by which this becomes the basic social, ethical as well as political requirement. Education and qualification thus represent the only source that the mankind will have in an unlimited amount, and human capital thus becomes the most precious wealth. The fundamental condition for achieving the given aim is to make the education process more effective. Then it is the higher education without whose development it will not be possible to significantly upraise the level of no other groups of human resources. Expansion, diversification, improvement and close relation of higher education with scientific research and economic practice (profit and non-profit sector) are becoming one of the most significant ways towards the nationwide prosperity today. The priority task is to provide graduates with such knowledge and skills to become employable and so that they are able to assert themselves in the rapidly changing requirements of the labor market. (Göttlichová, 2007)

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\* Corresponding author. Tel.: +42-060-677-7293

E-mail address: soukalova@fmk.utb.cz

A number of significant changes were reflected also in the education system. They consequently resulted in an unusual expansion of the structure of the provided education services in regards to the new opportunities in the choice of an education method as well as in the choice of individual types of schools. The most significant transformation of the Czech tertiary education as a whole since 1989 was establishing of self-governing mechanisms at universities, incorporating the sector of higher professional education, the possibility of private universities operations, marked growth of students and graduates, and other. The changes within tertiary education led not only to satisfying the growing demand for university education, but they were also a strong and powerful incentive for the further direction of the Czech economy to higher competitiveness, sustainable development, growth of the innovational potential, and at the same they accentuated the social, cultural and historical values.

## **2.Theoretical Background**

### *2.1 Human resources development*

The content of the concept of human resources is conceived in the Strategy of human resources development (HRD) for the Czech Republic in accordance with the prevailing current international practice. The given term is defined in the form of lifelong education and learning (formal and informal) including learning through experience (informal). The aim is namely to improve employability, to increase competences and performance of the individuals and teams. The strategy of human resources development thus includes a wide range of activities, opportunities and stimuli of the education system in the economic practice, public administration and in other sectors. Besides informal education aiming at certain target groups and being realized by other types of institutions standing outside the formal education system, and informal education (not controlled and coordinated by institutions) representing the process of acquiring knowledge, skills and forming attitudes within everyday life, formal education becomes the priority. Formal education is provided by education institutions whereas a school becomes a typical representative, and all this by necessity of clearly defined and legislatively determined objective, content, function, means and ways of evaluation (Strategie rozvoje, 2003)

### *2. 2 Tertiary education*

It is then particularly higher education without whose development it would not be possible to significantly upraise the level of no other groups of human resources. Reinforcing the importance of the whole tertiary education (ie. all the standard education following the matura exam which completes the secondary education in the Czech Republic), especially the higher education sector in continuity with the research and development, plays the priority role in the way to the nationwide prosperity. Higher education development, it means its expansion, diversification, improving and its close relation with the scientific research, as well as with the economic practice. The given fact is also proved by.

#### *2.2.1 Expansion and diversification of higher education*

Among the important aspects contributing to the expansion of higher education mainly opening a certain space allowing development of the private higher education sector belongs. The academic year 2000/01 becomes the milestone because next to 24 public universities, the sector is also entered by the first 8 private universities. While the number of public universities increased in the academic year 2004/5 to 25 and in 2007/08 the increase to 26 remains with no change also in the academic year 2012/13; the situation with private universities is completely different. Already in the academic year 2001/02 the number of private universities increased to 17, in 2002/03 to 27 and in 2004/05 to 36. In the academic year 2008/9 the number was 45 and with the exception of the academic year 2010/11, when the number reduced to 44, the given number of universities remained the same until the academic year 2011/12. In 2012/13 academic year, the number of private universities was 44 again. The increase was recorded also in the number of faculties at public universities. While in the 1989/90 academic year, we encounter the number of university faculties of 69, the (pre-revolutionary) year 1990/91 is presented by 82 faculties, 1991/95 by 95 faculties. In 2000/01 the number of faculties was 111 and with a gradual increase the number in 2012/13 reached already 141 faculties, which represents

the increase approximately by 50 %.

In the Czech Republic in the academic year 2012/13 26 public, 44 private and two state universities (University of Defence in Brno managed by the Ministry of Defence, and the Police Academy of the Czech Republic in Prague managed by the Ministry of the Interior) were executing their education activities. 24 public universities, three private universities (Jan Amos Komensky University Prague, Metropolitan University Prague and the University of Finance and Administration) and both the state universities are institutions of a university type (bachelor's, master's and doctoral programs). The other higher education institutions (two public and 39 private) are non-university type institutions (only bachelor's and master's programs). (Czech Statistical Service [online], 2014)

The increasing number of private universities, as well as the increase in the number of public university faculties, are the sign of another indicator which is diversification of higher education. The reflection of the increasing life standard in the higher, more complex and more differentiated consumption in continuity with multifaceted and diverse demand, the necessity of a wider and more complex offer and a higher differentiation of the market into sub-markets is reflected also in the direction of the market of education needs. That results in the need of a prompt reaction from the education institutions, ie. the ability to react with an offer of new products in a flexible way, being it for instance incorporation of new education programs or various other services thus filling the empty and not covered market gaps.

A significant role has also been played here by a gradual implementation of the structured study model within the sc. Bologna Process that represented dividing bachelor's, master's and doctoral programs, which consequently reflected in the substantial growth of the higher education supply.

### 2.2.2 *Quantity or quality?*

However, for the universities to fulfill all the requirements that are posed onto them, they must first of all develop and run activities supporting the quality of their activities and of their effective operation on the education market. The important factor of the effective university activities are ensuring the sufficient number of high-quality students and fulfilling the message of higher education within the society. The Czech higher education has currently been undergoing a long-term reform and due to the demographic crisis a gradual reduction in potential applicants for higher education has been taking place. This is proved by the statistical figures. In the academic year 1989/90 there were 113 417 students at the public universities (out of who there were 3 396 of a foreign nationality), in 1990/91 there was only a slight increase to 118 194 students, whereas the following two years marked a slight decrease (111 990, 114 185). The increase of students in the 1994/95 academic year was contributed by expanding the full-time study form with distance and combined learning (in total 133 342, full-time study form 121 613, distance and combined 14 953). Another considerable increase, although rather slow at first, then represents the above mentioned entry of private universities into the education market. In the 2000/2001 academic year the total number of students was 190 209 out of which 2 056 at public universities. We can notice the greatest expansion in the 2010/2011 academic year when the number of students represents the peak and at the same time the thought milestone in the number of university students (in total 396 047, out of which: 358 510 with the Czech citizenship, 37 557 with a foreign citizenship, 283 607 in full-time study form, 116 728 in distance and combined learning, 57 387 at private universities) in the Czech Republic. In the academic year 2012/13 we can already see the expected decrease in the number of university students (in total 381 272, out of which: 341 599 with the Czech citizenship, 39 696 with a foreign citizenship, 282 082 in full-time study form, 102 788 in distance and combined learning, 48 392 at private universities) in the Czech Republic. (Czech Statistical Service [online], 2014) The given decrease in the number of students, however, does not seem to be any dramatic and the tendency shows that the endangering decrease can be expected first in the private institutions and only then in the public ones, as well as in the combined learning in comparison with the full-time study form. It is, however, obvious that the total decrease in the number of applicants for higher education study is an unavoidable process. The overall tendency of the number of students evolution at the Czech universities is shown in Fig. 1, where the evolution of the number of university students since 2001 is apparent.

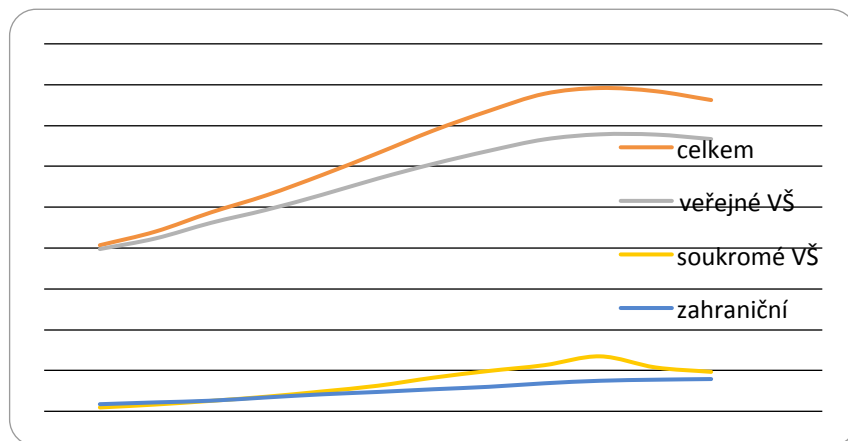


Fig. 1 – Evolution of the number of higher education students in 2001-2012, the numbers are given in thousands of persons  
( red line – summary of universities in Czech Republic, green line – public universities, dark blue line – private universities, blue line – foreign universities)

The expansion of higher education, which the Czech Republic had been undergoing since the 1990s, was the highest of any developed country in the world. This is also proved by the fact that 60 % of the population age goes to study at university and 7 % at other vocational institutions which are also a part of tertiary education in the Czech Republic. However, neither the economic situation nor the sufficient adaptability of universities to create primarily an appropriate high-quality offer responding to the market do not correspond to the given state of things. With regards to the demographic evolution and its prognoses it is currently necessary to orientate long-term intentions of universities to suspend the quantitative growth and pay more attention to the quality of higher education, ie. to increase competitiveness of universities especially within the European competition. (Fig. 2) (Soukalová, 2013)

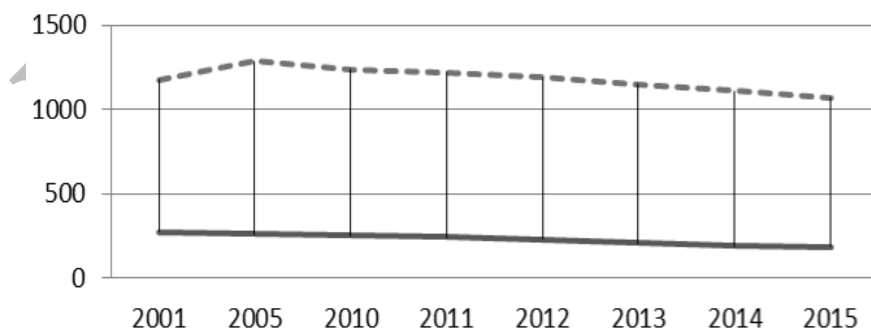


Fig. 2 Demographic evolution of the population at the age 18-26 (line - - - -) and 18-19(line .....), the numbers are given in thousands of persons



### 3.Problem formulation

Increasing the quality of higher education means the fundamental connection with the scientific research as well as with the economic practice. To make the education process effective, interlinking of the theory (universities) and practice (commercial and non-commercial subjects) is unavoidable, as well as it is important for the university students to be sufficiently practically prepared for starting their jobs in connection with the development of abilities leading to sufficient orientation in business processes. A significant role here is played mainly by the need to harmonize the offer of the structure of graduates with the labor market demand. Diversification of study offer is related to this, which, among others, aims at the development of professional study and practical teaching at universities with regards to the increasing employability requirements. Higher education thus represents a tool for its sustainability and renewal by orienting its attention towards development of competences in specific areas and contributes to the growth of knowledge and skills increasing the success rate of university graduates on the labor market. It is the employability and employment, ie. active participation of workforce in the social and economic activities that rank among the priorities of the human resources development. The objective of employment policy is to aim at achieving the equilibrium between the supply of workforce and their demand, at productive utilization of workforce and at ensuring the citizens the right for work. It is, however, essential that every student realizes their responsibility to ensure their future employability because the positive feature of the free choice of a study subject can on one side lead to the negative feature of the market glut in certain areas of work on the other side. This may result in unemployment, which is caused by oversupply. Those graduates with higher qualification, ie. those who will be able to prove their abilities, knowledge, skills, routines and experience needful for acquiring officially proven competence for exercising a certain profession or position based not only on their diploma but on the basis of their skills, will obtain a more favorable positions with their employers.

#### 3.1 Tertiary education and the labor market

An important aspect leading to simplification of the entrance of university graduates on the labor market is that their abilities, skills and knowledge, which are reflections of the education process, manage to meet employers' requirements as much as possible. The tertiary education system thus becomes an indispensable factor predetermining the future employability of university graduates. It is thus necessary that it is capable of a flexible reaction (and that it actually reacts) to the current as well as future needs of the labor market.

In spite of the fact that the results of the research performed as a part of the project called *Higher education systems and institutions. Development tendencies and social context (2013)* showed that in the Czech Republic in 2000-2010 the number of persons with tertiary education in all fields of study increased, the particular increase was not enough to offset economically active individuals with tertiary education with the number of vacancies requiring the tertiary education level. The greatest lack of economically active individuals (in comparison with the number of vacancies) with tertiary education was recorded in 2010 in technical sciences, production and construction where the number was lower by approximately 20 thousand than the number of the relevant vacancies. Among other areas with an oversupply of vacancies (for individuals with tertiary education) there were education and training, as well as natural sciences (mathematics and IT technology). In 2010 there thus was about 13 thousand vacancies more (only vacancies requiring tertiary education!) than the number of economically active people.

By 2020 the increase in the number of economically active individuals with tertiary education as well as of vacancies requiring tertiary education level should be continued. Such increase on the both sides of the labor market (supply as well as demand) should include all areas of education. The largest number should be noted for the social sciences, business and law. This increase will be influenced by the number of new university graduates, however, together with the number of individuals graduated from the given field of study who will retire among the economically inactive. "Due to the expected changes, the number of economically active persons with tertiary education should exceed the number of vacancies designed for them in all fields of education. Most of all it will be true for the individuals with a qualification in social sciences, business and law, the least for the individuals with a qualification in technical sciences, production and construction." (Lepič, 2013)

If we look at the development of the share of university graduates in the total economy on the time line (Fig. 1), even though there is an apparent increasing tendency: 1995/14,20 %; 2000/15,52 %; 2005/17,80 %; 2010/20,62 %, in the

overall context of the EU countries, the Czech Republic is so far in the background. In terms of the tertiary education requirements on the vacancies in a coherent view we can see that while in 2000 the vacancies with requirements of higher education on the labor market in the Czech Republic formed 24 %, in 2010 it was more than 28 % and in 2020 it should be a bit less than a third of all vacancies.

#### 4.Problem solution

The problem still remains lying in the fact that the Czech Republic in its system of production and transfer of knowledge draws from the old-fashioned industrial model for which it is typical that there is a constant persistence of relatively high level of separation of individual partners (academic sphere x commercial and non-commercial subjects) and this reflects in the incapability of interconnecting university research with the needs of the industrial companies practice. It is then especially the inability of constructive communication negatively reflected in the effectivity of cooperation of all the main subjects involved. One of the important data sources are *Employer surveys* as their opinion on the quality of workforce and requirements on university graduates contribute to identification of the problematic areas onto which the education system should focus its attention.

##### 4.1Research objectives and methodology

The objective of the carried out researches is to obtain a sufficiently reliable opinion of employers on the knowledge, abilities and skills (competences) preferences which they find as the priority ones in university graduates. The objective is also to obtain the information on what attitudes they assume towards the graduates, what is important for them when hiring a graduate, which is also related to employers' expectations from the education system. Speaking about the goal of the paper, we follow the development in the employers' requirements in comparison with the results of a research carried out in 2012 (latest published data) under the auspices of the National Institute for Education, School counseling facilities and Further education of pedagogical staff facilities, and at the same time in confrontation to the results of a test carried out by Tomas Bata University in Zlín at the same period of time.

##### 4.1.1 Nationwide research

The survey was carried out from November to December 2012 when 8 300 organizations had been addressed, whereas 543 completed questionnaires were sent back, out of which 333 were completely filled out (6,5 % return). Significant findings from the point of view of a university graduate were on one hand evaluations of the importance of competences of employees with university education, on the other hand the definition of preferences on which higher education should focus, as well as the reasons or obstacles for their acceptance.

The results of the survey clearly showed that in terms of “absolutely essential” competences the following stand at the forefront: *take responsibility* (91,6 %), *ability of problem-solving* (90,5 %) and *reading and understanding of work instructions* (90,2 %), in which we can see the representation of more than 90 %. The following necessities are equally significant: *skills in oral and written communication* (88,2 %), *ability to decide* (85,7 %) and *willingness to learn* (84 %). An important indicator here is an expansion of the requirements matrix from 2012 (compared to the original matrix from 2004) by the necessity of *skills in oral and written communication*, *ability of presentation and expressing one's own opinion* and *ability to solve stressful situations*. The newly established requirements were the stimulus for the creation of university educational courses focusing their attention on making communication and presenting skills more effective. In terms of the absolutely essential competences the following were least preferred: *proficiency in foreign languages* (54,9 %), which, however, offset the perception from the point of view of the importance of the given requirement (34,6 %).

The result values became the stimulus for the specification of identification of the key competences, on which universities should focus according to the employers' requirements. In these terms, these preferred requirements are emphasized: to be able to *take responsibility* (40,3 %), *to be able to deal with people* (39,2 %) and on the contrary the accentuated necessity of the competence to *be proficient in foreign languages* (37,0 %), consequently followed by others from the newly acquired abilities: *ability to solve stressful situations* (36,1 %) and *skills in oral and written*

communication (36,1 %), followed by the ability of *problem-solving* (35,0 %). The competence of *reading and understanding work instructions* (18,6 %) ranked at the lowest position of the key competences requirements.

An important benefit of the survey was also having found out the requirements for the corporate criteria for acceptance of university graduates for a job position. The following criteria ranked at the forefront: 1. *interest in the position* (10,1 %), 2. *willingness to learn* (8,6 %) and *required qualification* (8,6 %), 3. *flexibility* (7,1 %), *diligence* (7,1 %) and *communication skills* (7,1 %), 4. *capability of teamwork* (6,9 %), 5. *professional qualification and orientation within the particular field* (6,7 %), 7. *willingness to take responsibility* (6,3 %). At the bottom line we encounter the requirement for *proficiency in foreign languages* and the last position is taken by *the requirement for former experience and professional experience* (1,1 %).

For universities as well as for students themselves the reasons for the refusal to accept the graduates are very important. According to employers these are first reasons for refusal: unrealistic expectations of the salary amount, of working hours or the job title. Most of the employers believe that some positions cannot be taken by graduates as the particular positions require experience and applicants without experience cannot be hired for these positions. This is closely linked to a rather frequent reason of refusing an applicant-graduate, which is the lack of work and professional experience. Another limitation is then a longer time needed for incorporation and training of a graduate. Graduates with some experience are preferred by 86 % of employers (Doležalová, G., Vojtěch, J. 2013)

#### 4.1.2 Tomas Bata University (UTB), Zlín

Getting feedback from completed work internships of the university students and graduates at working positions is coming into the center of interest of the universities. Under Tomas Bata University in Zlín there had been surveys carried out to find out the requirements for competences of the UTB graduates and students according to their readiness. importance/quality. At present, the attention is aimed at feedbacks from the master's program students completed internships (6-week long ones) when for instance since this academic year compulsory internships have been established also for the bachelor's study programs (a 4-week long internship) based on the employers' requirements.

Table 1: The UTB students competences ranking according to their readiness importance/quality - 2012

	Importance	quality/ readiness
Active approach/interest in the position	1.	1.
Interest in new information /in learning	2.	3.
Competence of personal negotiation/effective communication	3.	2.
Professional knowledge/professional qualification	3.	5.
Teamwork/ability to cooperate	4.	2.
Independence/own invention	5.	4.
Communication in a foreign language	6.	4.
Soft computer skills	Matter of course	Matter of course

Also the results of the research test (see Chart 1) clearly showed that active approach of the students towards new

knowledge with the need of education is at the forefront of employers' interests, which directly corresponds with the results of the nationwide survey from the point of view of the required criteria of employers on university graduates. Relatively an equal concordance can be seen also in other preferred competences which are communication, teamwork and independence. Another concordance is found also in proficiency in foreign languages where on one hand it does not become the priority of the employers, on the other hand it does not meet their needs and ideas. Professional qualification is, however, still a problem as on the basis of students' readiness evaluation, professional qualification is still at the lower evaluation border.

#### 4.1.3 "Cooperation" project – a solution option?

The results of the survey clearly showed that the priority of university education and professional training is not only achieving a certain percentage of individuals with higher education but ensuring a proper quality of education and employability of graduates on the labor market. It has thus become a necessity to find a way of interaction between study areas and the market demand, eg. by means of cooperation of employers, education institutions as well as the public administration. The need for effective communication with the transfer of information, acquiring knowledge not only from the Czech but also foreign environment, but particularly the support of all the mentioned subjects involved and their mutual cooperation development – these were the main stimuli resulting in the project officially named *Cooperation of higher education, public administration, business and non-profit sectors for socio-economic development of the region (Kooperace vysokého školství, veřejné správy, podnikatelského a neziskového sektoru pro socioekonomický rozvoj regionu)*. The aim of the project is development of international cooperation and exchange of experience in the area of human resources and employment development on the basis of cooperation and interlinked activities of the academic sphere, non-profit sector, public and business sector under the partnership principle – a partnership whose members are Tomas Bata University in Zlín, the Zlín region, the town of Zlín, Chamber of Commerce and Business in Kroměříž, the Labor Office in Zlín and the Association of non-governmental organizations of the Zlín region. The task of the established partnership is to function as a platform for monitoring the needs of the target groups, monitoring effective distribution of sources, exchanging experience, creating expert studies, searching for innovative solutions, creating methodological suggestions, legislative proposals and above all as a platform for a constructive discussion on the options of socio-economic development of the region with the focus on employment and human resources development (Project of Cooperation, 2013). It is then possible to compare these results with similar studies have been realization. (Juříková, Jurášková, Tolarová, 2013), (Šviráková, 2014)

## 5. Conclusion

As was already mentioned, it is the constructive cooperation and communication of universities with the economic sector that may be the reflection of creating a better-quality curriculum drawn from the requirements of the practice sphere where also for instance a feedback in requirements and criteria of employers can become a significant benefit. What is important is the consequent reflection of innovated teaching and enrichment of the education program aiming at enhancing (such a problematic) quality of professional education, whether it is a form of participation of experts from practice in the teaching, or controlled professional internships in companies (public institutions). The students thus have the opportunity to gain the necessary amount of information and documents to be utilized within the education process. Professional internships may give students an insight into realistic conditions of employment, provide them with a complex set of theoretical and practical knowledge and skills, which may become the base for their future professional orientation. The economic subjects of commercial as well as of non-commercial types on the other hand gain the opportunity to realistically prove the level of knowledge, abilities and skills of the university students and thus gain awareness of their approach to work, which is ranked at the first position among the required competences. Based on the acquired information they then can present the university students an offer of employment, which represents an important positive for both sides. Mutual cooperation does not represent submission of universities to the political sphere and employers' interests but on the contrary it represents a really beneficial opening of the academic sphere to the employers' interests, general public and the regions themselves.

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# The impact of peace education programme at university on university students' intercultural sensitivity

Yaser Arslan<sup>a</sup>, Gizem Günçavdı<sup>b</sup>, Soner Polat<sup>c</sup>

*a,b,c Kocaeli University Faculty of Education Department of Educational Sciences, Kocaeli-41380, Turkey*

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## Abstract

The purpose of this study is to determine the impact of Peace Education Programme (PEP) that is applied to university students on their intercultural sensitivity. The participants of this study consist of 25 university students who took Peace Education course which was an elective course. This study is pre-experimental. Intercultural Sensitivity Scale developed by Chen and Starosta (2000) was used as data collection tool. Pre-test was applied to the students who chose this course before the programme started. Then, at the last week of the course, post test was applied. It was found out there was a significant difference between participants' pre-test intercultural sensitivity scores and post-test intercultural sensitivity scores ( $Z=-1.117$ ;  $p=0.00<0.05$ ). Also it was found out that there was a significant difference between participants' pre-test and post-test scores of interaction engagement ( $Z=-3.162$ ;  $p=0.00<0.05$ ) and their pre-test and post-test scores of interaction attentiveness ( $Z=-1.735$ ;  $p=0.00<0.05$ ) which are the sub-dimensions of intercultural sensitivity. However, it was found out that there was not a significant difference between participants' pre-test and post-test scores of respect for cultural differences ( $Z=-0.948$ ;  $p=0.07>0.05$ ), their pre-test and post-test scores of interaction confidence ( $Z=-1.189$ ;  $p=0.137>0.05$ ), and their pre-test and post-test scores of interaction enjoyment ( $Z=-0.85$ ;  $p=0.172>0.05$ ) which are the sub-dimensions of intercultural sensitivity.

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*Keywords:* peace education; peace education program; intercultural sensitivity; university students.

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## 1. Introduction

With globalization and transition to knowledge era, borders between countries have been removed. Because of the borders between countries have been removed, cultures have interacted with each other more than ever before. Along this interaction process, individuals who are representatives of various cultures have interacted with the people from different race, ethnicity, religious, sect, language, accent, and culture willingly or unwillingly. Unless this interaction process is peace oriented, intercultural conflicts may rise. For individuals from different cultures to live together in peace without conflict, it is important to be sensitive to others' cultural differences.

Intercultural sensitivity can be gained to individuals via peace education programmes. Peace education contributes to behave peace oriented, to be reconciliatory (Salomon, 2002); and develops intercultural understanding (Harris, 2002). Thus, in this study, peace education programme (PEP) was applied to the university students, and the impact of the PEP to the intercultural sensitivity scores of the university students was tested.

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\* Corresponding author. Tel.: +902623032479; fax: +902623032403.  
E-mail address: yaserarslan@yahoo.com

## 2. Theoretical framework

### 2.1. Peace education

Reardon (2002) defines peace education as developing reflective and contributing capacities for achieving and maintaining peace. Peace education which adopts an education understanding for more equitable and peaceful world and which is based on taking action in this direction (Wulf, 1999) is a process during which abilities as problem solving, cooperation, reflection, conflict solution and attitudes as love, respect, tolerance, and empathy are taught to individuals and students (Sagkal, 2011). Peace education aims to solve conflicts without violence, to build peace for mutual harmony, and to transform individuals' mental models (Reardon, 2002).

Peace education incorporates students and teachers into a process for change, contributes them to behave peace oriented, and contributes to be reconciliatory. This contribution continues permanently after peace education. Thus, this contribution makes possible atmospheres which are solution oriented, environments which result in a functional way of conflict without damage, and environments that don't have any violence elements. Therefore, this is seen as very important for education and instruction processes, development, and life quality (Salomon, 2002). Peace education is dealt with a peaceful pedagogy, and peaceful pedagogy consists of concepts as cooperative learning, democratic society, moral sensitivity, and critical thinking (Harris, 2002).

#### 2.1.1. The goals of peace education

According to Johnson and Johnson (2005), the primary purpose of peace education is to establish peace between humankind, interpersonal relationships, groups, countries, societies, and cultures. Harris (2002) lists the purposes of peace education as understanding the richness of the concept of peace, examining fears, gaining knowledge about security systems, understanding violence, developing intercultural understanding, promoting social justice with peace, encouraging respect to living, and ending violence. Moreover; Sommers (2002) lists the purposes of peace education as ensuring the students to assess disagreements with a more positive attitude; gaining cooperation oriented reflective thinking ways for problem solving; to handle in societal problems with a more universal perspective; ensuring enhancing tolerance for political, religious, and racist differences; gaining responsibility for decision making and reflective thinking; and ensuring people to find peace both in their inner world and in their society via all of these. Additionally, PEP's primary purpose is bringing methods and strategies which are requirements of living together in peace in societal life to the university students, in this study.

#### 2.1.2. The principals of peace education

Peace education programmes are formed based on some principals. According to Bar-Tal (2002, pp. 29-33); peace education is condition dependent and based on social agreement, serves as social platform, and it is an orientation, has to be open-minded and relevant, requires experiential learning and is instructor dependent. Danesh (2006, pp. 57-61) asserted that truly efficient peace education can only take place in the context of a unity-based worldview. Peace education can also best take place in the context of a culture of peace, peace education best takes place within the context of a culture of healing, and peace education is most efficient when it constitutes the framework for all educational activities. PEP that is applied to university students in this study was designed according to these principles.

#### 2.1.3. Peace education models

Peace education models in the literature can be listed as integral model (Brenes, 2004), learning to abolish war framework (Reardon & Cabezudo, 2002), flower-petal model (Toh, 2004), living systems model (Burns & Aspeslagh, 1996), integrative peace education model (Clarke-Habibi, 2005).

*Integrative model* builds on person's integration, balance, and harmony with himself, others, and nature (Brenes, 2004). Moreover, *learning to abolish war framework* (Reardon & Cabezudo, 2002) is a peace education model which focuses on the issues of the reasons of conflicts, conflict management, international law, and global disarmament. Toh's

(2004) *flower-petal model* includes dividing disagreements to parts; living with justice and compassion; building reconciliation, solidarity, and respect for cultures; supporting human rights and responsibilities; living in harmony with world; and enhancing inner peace. *Living systems model* handles in international system, peace, development, human rights, and nature in personal, societal, national, regional, structural, cultural, and global contexts (Burns & Aspeslagh, 1996). Additionally, *integrative peace education model* which was developed for Bosnia-Herzegovina and which was applied there had been developed based on the purposes and concepts of peace (Clarke-Habibi, 2005). PEP, which is the independent variable of this study focuses on the university students, and programme which is based on above models was designed with the purpose of ensuring intercultural sensitivity to the university students.

## 2.2. Intercultural sensitivity

Intercultural sensitivity which is conceptualized as an intercultural communication competence that prevents negative emotions as prejudice, anxiety, lack of confidence, and avoidance towards different cultural features (Fritz, Mollenberg, & Chen, 2002) can be defined as being sensitive towards cultural differences and viewpoints of the people from different cultures (Bhawuk & Brislin, 1992). Intercultural sensitivity is an ability that promotes and encourages appropriate behaviour, and develops positive emotion towards understanding and appreciating cultural differences (Chen, 1997).

Intercultural sensitivity is examined in two periods in Developmental Model of Intercultural Sensitivity. First period is an ethnocentric period, and in the ethnocentric period individual judges all humanity with own values, unconsciously. In this period; there are denial, defence, and minimization stages. On the other hand, second period is an ethnorelative period, and in the ethnorelative period individual experiences other cultural contexts. In this period; there are acceptance, adaptation, and integration stages. Briefly, in Developmental Model of Intercultural Sensitivity, individuals ignore others' cultures, or defend because of perceiving differences as threats, or think their worldviews are universal in spite of accepting differences in the ethnocentric period. However, it can be said that individuals enjoy cultural differences, change their behaviour as adapting different cultural atmospheres, and assess behaviour from a large cultural framework in the ethnorelative period (Bennett, 1986).

Chen (1997) acknowledges that intercultural sensitivity is a dimension of intercultural communication competence, and lists the components of intercultural sensitivity as self-esteem, self-monitoring, open-mindedness, empathy, interaction involvement, and non-judgment. *Self-esteem* expresses positive emotion towards respect the situational differences in intercultural interactions. *Self-monitoring* is a speaking and behaving in control ability when individuals meet limitations. *Open-mindedness* refers to the wistfulness of individuals to appropriately express themselves and accept other's explanations. Open-minded individuals recognize, accept, and value different thoughts and viewpoints, willingly. *Empathy* is an ability that is about to perceive and understand others. *Interaction involvement* is an ability of sensitivity for individuals' interactions. *Non-judgment* consists of listen to others sincerely, avoidance of making decisions quickly and creating values about others (Chen, 1997, pp. 6-9). These components have been handled in five dimensions in Intercultural Sensitivity Scale which is developed by Chen and Starosta (2000), and these dimensions are interaction engagement, respect for cultural differences, interaction confidence, interaction enjoyment, and interaction attentiveness. According to Chen and Starosta (1996), these components and dimensions ensure the individuals to show intercultural sensitivity during intercultural interaction. Individuals' intercultural sensitivity can be enhanced through various experiences and education programmes. And also, peace education can be handled in one of these education programmes.

## 3. Methodology

### 3.1. Model of the study

Single group pre-test post-test model which is a type of pre-experimental designs was used in this study. In the single group pre-test post-test model, independent variable is applied to participants, and measurements are carried out both before experiment (pre-test) and after experiment (post-test). If post-test scores is much more than pre-test scores, this is considered to result from independent variable (Karasar, 2008). Also in this study, with the purpose of examining the



change in university students' intercultural sensitivity scores pre-test was applied to the participants before starting programme, post-test was applied to the participants after the programme, and difference or lack of difference between pre-test and post-test scores were determined.

### 3.2. Participants

The participants of this study consists of 25 university students from different faculties who took and attend Peace Education course which was an elective course at Kocaeli University in Turkey in 2013-2014 academic year.

### 3.3. Instrumentation

While gathering data during this study, "Intercultural Sensitivity" scale developed by Chen and Starosta (2000) was used. There are *strongly disagree*, *disagree*, *uncertain*, *agree* and *strongly agree* options in the five-point likert scale for each item. Scale has seven items in the interaction engagement sub-dimension, has six items in the respect for cultural differences sub-dimension, has five items in the interaction confidence sub-dimension, has three items in the interaction enjoyment sub-dimension, and three items in the interaction attentiveness sub-dimension. Totally, there are five dimensions and 24 items in the scale.

### 3.4. Peace education programme

PEP was applied to participants within this study. PEP lasted 14 weeks and 28 hours. In this study, PEP's primary purpose was bringing methods and strategies which are requirements of living together in peace in societal life to the university students. With this purpose, a programme was designed to develop university students' physical, psychological, and social environments; viewpoints to individual differences; communication, empathy, anger management, problem solving, and peacemaking abilities. There were two-hour sessions for each week in the programme. The contents of the session, respectively as follows: I. The concepts related with peace education, II. The reasons that require peace education, III. Professional and characteristic features of the peace education teacher, IV. The purposes of peace education and examining curriculums via peace education lens, V. The content in peace education and examining curriculums in this respect, VI. Preparing learning environments in peace education and sample activities, VII. Communication skills and empathy for peace, VIII. Peaceful problem solving skills and sample activities, IX. Managing emotions in peace education, X. Anger and conflict management in peace education, XI. Peacemaking in peace education and sample activities, XII. Micro teaching practices based on peace education (two sessions).

## 4. Results

The main hypothesis of the study is "*H1. There is a significant difference between participants' pre-test and post-test scores of intercultural sensitivity.*" The sub-hypotheses are;

- "*H1a. There is a significant difference between participants' pre-test and post-test scores of interaction engagement sub-dimension.*"
- "*H1b. There is a significant difference between participants' pre-test and post-test scores of interaction attentiveness sub-dimension.*"
- "*H1c. There is a significant difference between participants' pre-test and post-test scores of interaction confidence sub-dimension.*"
- "*H1d. There is a significant difference between participants' pre-test and post-test scores of interaction enjoyment sub-dimension.*"
- "*H1e. There is a significant difference between participants' pre-test and post-test scores of respect for cultural differences sub-dimension.*"

With the purpose of testing the hypotheses, participants' pre-test and post-test scores of intercultural sensitivity scale were tested via Wilcoxon signed ranks test. Analysis results were given in Table 1.

Table 1. Wilcoxon signed ranks test results for participants' pre-test – post-test scores

Posttest Scores – Pretest Scores		N	Mean Rank	Sum of Ranks	Z*	P
<i>Intercultural Sensitivity</i>	Negative Ranks	10	12,1	121	-1,11	.012
	Positive Ranks	15	13,6	204		
	Ties	0				
interaction engagement	Negative Ranks	3	9,83	29,5	-3,16	.000
	Positive Ranks	19	11,76	223,5		
	Ties	3				
interaction attentiveness	Negative Ranks	7	9,5	66,5	-1,73	.000
	Positive Ranks	14	11,75	164,5		
	Ties	4				
interaction confidence	Negative Ranks	10	9	90	-1,19	.108
	Positive Ranks	12	13,58	163		
	Ties	3				
interaction enjoyment	Negative Ranks	11	13,86	152,5	-0,85	.057
	Positive Ranks	11	9,14	100,5		
	Ties	3				
respect for cultural differences	Negative Ranks	16	11,44	183	-0,94	.288
	Positive Ranks	8	14,63	117		
	Ties	1				

\* based on negative ranks

As a result of this study, there is a significant difference between participants' pre-test and post-test scores of intercultural sensitivity ( $z=-1,11$ ,  $p<0.05$ ). Thus,  $H_1$  is confirmed. When sum of ranks and mean rank are considered, it has been found out that the difference between pre-test and post-test scores is in favour of positive ranks score. According to this result it can be said that PEP helps participants' intercultural sensitivity scores increase.

Analysis results of the hypotheses related to sub-dimensions indicates that there is a significant difference between participants' pre-test and post-test scores of interaction engagement ( $z=-3,16$ ,  $p<0.05$ ), and there is a significant difference between their pre-test and post-test scores of interaction attentiveness ( $z=-1,73$ ,  $p<0.05$ ). Based on these statistical results,  $H_{1a}$  and  $H_{1b}$  were confirmed. Sum of ranks and mean rank indicate that the difference between pre-test and post-test scores is in favour of positive ranks score. This result can be interpreted as participants' interaction engagement scores and participants' interaction attentiveness scores were increased via PEP.

Analysis results of other sub-dimensions show that there are not any significant differences between participants' pre-test and post-test scores of interaction confidence ( $z=-1,19$ ,  $p<0.05$ ), pre-test and post-test scores of interaction enjoyment ( $z=-0,85$ ,  $p<0.05$ ), and pre-test and post-test scores of respect for cultural differences ( $z=-0,94$ ,  $p<0.05$ ). Based on these results;  $H_{1c}$ ,  $H_{1d}$  and  $H_{1e}$  were rejected. This finding can be interpreted as PEP didn't show the expected effect of increasing participants' interaction confidence, interaction enjoyment, and respect for cultural differences scores.

## 5. Conclusions

According to the results of this study, it is seen that there are significant differences between university students' pre-test and post-test scores of intercultural sensitivity, their pre-test and post-test scores of interaction engagement, and their pre-test and post-test scores of interaction attentiveness. And also these differences are in favour of post-test scores. These results can be interpreted as university students' intercultural sensitivity, interaction engagement, and interaction attentiveness levels can be increased with PEP. This result supports Harris's (2002) thought that intercultural

understanding can be enhanced via peace education programmes. In this sense, it can be suggested that PEP achieved its goal in general, and the programme can be used as a tool for building peace and enhancing intercultural sensitivity.

PEP which was applied to the university students didn't reveal any significant difference between pre-test and post-test scores of interaction confidence, interaction enjoyment, and respect for cultural differences. Thus, it can be said that PEP didn't show expected impact in terms of these sub-dimensions. Danesh (2006) suggests that there must be activities which are based on experiences in the peace education programmes. The reason of not revealing expected impact for these sub-dimensions can be that PEP doesn't have any activities which are based on experiences for these sub-dimensions. In this sense, it can be suggested that PEP must develop in terms of these ways.

PEP was applied to a group that consisted of participants who were the university students in this study, and programme achieved its goal in general. Some recommendations for future research can be conducting studies with various and larger groups, with different experimental methods which can also enable us to test the effectiveness of PEP in terms of these groups and methods.

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# The impact of progress testing of students on their results at final exam

Tomáš Moravec<sup>a</sup>, Petr Štěpánek<sup>a</sup>, Petr Valenta<sup>a92</sup>

<sup>a</sup>University of Economics, Prague, sqw. W. Churchill 4, 130 67 Prague 3, Czech Republic

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## Abstract

The paper analyses impacts of the system of progress testing of students in mid-term and at the end of semester on their knowledge of lectured topics presented at oral exams. The data was collected from progress computerized tests of all students of obligatory course Law basics at the University of Economics, Prague in the period of 2008-2014. The research confirmed the positive influence of progress testing of students on their final results. The analysis also proved that it is necessary to continuously modify certain number of questions in the entire set to keep the pressure on students to study and not to rely on the historical information from their predecessors. The paper examines what share of questions it is necessary to modify to keep the certain level of knowledge of students.

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*Keywords:* Progress testing; Computerized examination; Final exam; Knowledge of students

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## Introduction

The course Law basics is an obligatory course for all students of the University of Economics, Prague (UEP) and is assured approximately for more than 2 000 of students per school year. The main aim of this course is to provide students necessary basic knowledge of law especially in the field of the theory of law, theory of state, civil law and main principals of contract law. Special emphasis is put on business law at the national and also European level. This knowledge is necessary for further consecutive courses in all study programs at UEP and should be useful for students after finishing their studies at their work and also in a real life.

The knowledge of students is checked at final oral examination. To successfully pass the course students should be acquainted with basic terms of theory of law; they should identify the applicable legal provisions, know the basic types of contracts, determine the differences among types of business companies and identify the conditions for liability and the consequences of breaching obligations.

To ensure the high level of standard and the highest possible benefit of the course for students there are constantly considered its possible improvements. One of the improvements was the introduction of the system of progress testing of students which is done by computerized tests in the mid-term and at the end of the course. The benefits and limitations of progress testing of students, its computerized method and the analyses of the data gained so far are discussed further in the article.

## Literature Review / Research rationale

In the literature there exist many studies which examine the evaluation of students in general and the improvements in examination implemented by introduction of automated systems.

Rudman concludes that testing and teaching are not separate entities, testing still remains an integral part of teaching and students feel that frequent testing helps them retain more content, reduces test anxiety, and aids their own monitoring of their progress. Rudman also deals with question of using standardized tests and carries out the results of

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\* Corresponding author. Tel.: +420 224 095 227

E-mail address: valenta.pe@gmail.com

research in which he claims that students report a higher level of test anxiety over teacher-made tests (64%) than over standardized tests (30%).

The importance of continuous testing of students confirms Oagle who describes formative evaluation models in his work and proposes its improvements.

Horovčák et al. conclude that electronic version of testing presents modern and effective form of feedback from students to teacher and that electronic testing has its own unique place in the whole education process.

Stanescu et al. also prove the advantages of an e-learning tool that permits generation of questions from the certain bases of question defined previously.

Viciana et al. describe a computerized system that allows researchers creating, applying and tabulating surveys and paper instruments in an automatized way and consider them as a useful tool since it permits to input data with higher precision and no need for previous codifications. Dindar et al. also describe the role of multimedia in education and in testing of students.

Deep research of using multiple choices testing at entrance exam for University of Economics in mathematics which is also computerized was conducted by Klůfa who perceives multiple choices testing as optimal and objective for entrance examinations at University of Economics, Prague.

### **The context of the study and the research questions**

The main aim of the paper is to analyse available data from computerized system of testing and the effect of introducing the progress testing on the knowledge of students and to discuss further details. For this purpose the essay discuss following research question for the first.

Q1: Has the introduction of continuous progress testing positive influence to the knowledge of students and their evaluation at final exam?

At the same time we presume that students slowly share questions from the tests after their finishing and that the question basis is gradually spread among students. To confirm this presumption we will set a representative sample of questions and examine the correctness of answers to them in time. In this context we pose following research question

Q2: How does the correctness of answers to certain sample of questions changes in time?

According to us to keep the constant level of knowledge of students and thus constant average results achieved by them at their final exam it is necessary to continuously modify a question basis a and add a certain share of new questions to the whole question basis each year. To analyse this problematic following research question is discussed:

Q3: What share of questions is necessary to modify to ensure the constant level of knowledge of students?

### **The effect of introducing the progress testing**

The research was carry out by analysing the data collected from progress computerized tests of all students of obligatory course Law basics at the University of Economics, Prague in the period of 2008-2014. Table 1 describes the average results of students archived in each year after introduction the computerized progress testing in 2008. Average of results row shows the average of grades received by all students in each year at final oral exam. During the oral exam the overall knowledge of students is verified and students obtain their evaluation from grade 1 (excellent knowledge) to grade 4 (insufficient knowledge) which means failing the exam.

Table 1 Average result of students in each school year

School Year	Y08/09	Y09/10	Y10/11	Y11/12	Y12/13	Y13/14
Average of results (grade)	2.43	2.24	2.04	2.21	2.23	2.11
Change of the average grade	N/A	0.19	0.20	-0.17	-0.02	0.13

As indicated in the Table 1 we can see that average results (grades) of students had improved from average grade 2.43 in the school year 2008/2009 to 2.24 in the school year 2009/2010 and to 2.04 in 2010/2011. I the school year

2008/2009 the computerized testing system was introduced and checked during its initial phase and the system went into full operation in the school year 2010/2011. We can therefore conclude that one and two years after introduction of computerized progress testing the average grades gets improved approximately by 0.2 point of average grade in each year.

When examining the average grades in following years presented in the table we can see that the results became to oscillate. Especially in the school year 2011/2012 the average results gets worse by 0.17 point comparing previous year. Next year the results are nearly the same and in the current school year 2013/2014 average grade were 2.11. It is by 0.13 better than in previous year. We suppose that this asymmetry is caused by other factors which are discussed in following sections of the paper.

Derived from the Table 1 we can conclude that in all years after the introduction of computerized progress testing of students the average results of students are better than in the school year 2008/2009 when the computerized system of testing was only in its initial phase and the progress testing had no relevance at all in this year. The summarized data of average results of students at final exam in previous years which would be necessary for further analysis are unfortunately not available.

Nevertheless mentioned oscillations we can therefore formulate a positive answer to the question Q1 and conclude that the introduction of continuous progress testing has positive influence to the knowledge of students and their evaluation at final exam.

This conclusion also confirms the above mentioned statement of Rudman who claims that testing is very important part of the process of teaching students and that frequent testing helps students to retain more content, can reduce their anxiety at final exam and enables them continuous monitoring of their progress.

### Changes in correctness of answers in time

We presume that one of the reasons why the average results of students began to oscillate in last three years is the fact that question base is gradually spread among students especially through social networks, shared databases, smart phone applications and other arrangements for information sharing. In preparing for progress tests students therefore rely further more on questions which are available for them and underestimate their preparation by deep study. This has a negative impact on their results at final exam afterwards.

To confirm our presumption we have chosen a representative sample of twelve questions which are part of the test basis. These questions had been chosen from different areas of law which are presented during the course. Afterwards we have deeply examined the correctness rate of answers to each of this question in each school year in past four years when the computerized testing is applied and correctness rate data are available (the data concerning the correctness of answers are fully available since the school year 2010/2011).

Table 2 displays the correctness of answers to the representative sample questions in each year and the calculation of its linear trend in time for each question. Correctness of answers shows which share of students correctly answered each particular question and is stated as a percentage share of all answers to this question registered by the computer system in each year. Positive linear trend indicates that correctness of answers to particular question increases. On the contrary negative linear trend signalizes decreasing correctness of answers.

Table 2 Correctness of answers of students in each school year

	Y10/11	Y11/12	Y12/13	Y13/14	Linear trend
Q1	29.93	45.74	68.94	54.59	9.72
Q2	43.11	32.58	25.40	42.62	-0.86
Q3	31.73	39.67	39.64	57.92	7.85
Q4	77.15	76.20	77.02	77.50	0.19
Q5	60.85	70.47	71.98	91.78	9.43
Q6	47.78	61.35	54.10	60.93	3.22
Q7	32.24	32.07	31.42	29.79	-0.80
Q8	54.28	68.09	76.82	75.13	7.13
Q9	57.31	59.51	62.84	75.53	5.80
Q10	12.81	17.07	17.98	14.77	0.68
Q11	31.54	42.59	35.06	31.56	-0.75

Q12	45.26	49.46	72.25	73.50	10.75
Average	43.66	49.56	52.79	57.13	4.36

As it can be seen in Table 2 positive linear trend was registered in nine questions and negative trend in three of them out of twelve sample questions.

When deeply analysing the results we can see that in seven questions the Linear trend is higher than plus one and it means that considerable grow of correctness was recorded at these questions. For example we can point out at the Question five where the correctness continuously grows from 60.85 % in the school year 2010/2011 to 91.78 % in the 2013/2014. In no cases the linear trend below minus one was registered and it means that any significant drop of correctness of answers was recorded.

To summarize this results we can find that in seven questions out of twelve the correctness of answers increases. In remaining five questions linear trend oscillates around zero and the correctness of answers therefore remains relatively stable.

To confirm these results we have also calculated the average of correctness of answers to twelve sample questions in each school year which continuously grows from 45.26 % in 2010/2011 to 73.50 % in the school year 2013/2014. The linear trend for these average results is 4.36.

Concluded mentioned data we can answer question Q2 and state that correctness of answers to particular questions changes positively in time. We also continue to presume that question base of our test is gradually spread among students. We can therefore confirm the statement of Dindar who describes the increasing role of multimedia in education but in this case it is unfavourable to our system of testing students.

### Updating the question basis

To keep the constant level of knowledge of students we had decided try to modify a question basis and to add a certain number of new questions into it. For the first we would therefore verify the influence of these changes on the results of students at the final exam.

Table 3 Number of added questions in particular school year

	Y08/09	Y09/10	Y10/11	Y11/12	Y12/13	Y13/14
Average grade	2.43	2.24	2.04	2.21	2.23	2.11
Change of the average grade	N/A	0.19	0.20	-0.17	-0.02	0.13
Total number of questions	80	326	620	620	629	850
Number of added questions	80	246	294	0	9	221
Share of new questions	N/A	75.46%	47.42%	0.00%	1.43%	26.00%

Table 3 shows the average grade of students in each school year compared with the share of new questions added in appropriate year. The basis of questions consisted of 80 questions in the beginning and in certain years was occasionally extended by other new questions. For example 246 questions were added in the school year 2009/2010. Derived from the table we can see that in school years when new questions were added the positive change in average grade was registered. On the contrary in school years when no or minimal number of questions were added the change of average grade was negative. This analysis therefore proves that it is necessary to modify certain share of questions in the data basis each year to keep the pressure on students to study and not to rely on the historical information from their predecessors.

By further processing of available data we would liked to quantify which share of question basis it is necessary to add or modify each year to ensure a constant knowledge of students at the final oral exam which means to archive zero change of the average grade between two following years. For this purpose we will construct a simple linear regression in Chart 1.

Chart 1 Linear regression of change of the average grade and the change of new questions share

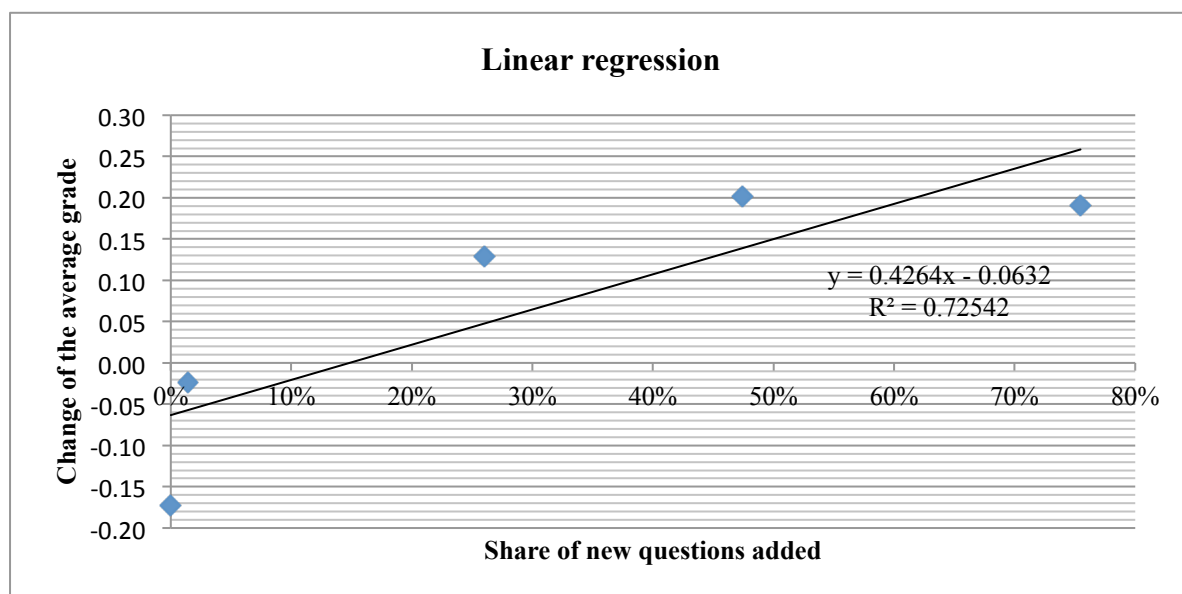


Chart 1 displays a simple linear regression of dependence of change of the average grade on the change of new questions share. As it is shown the positive statistical dependence was confirmed and we can do a simple calculation to set that to archive zero change of the average grade of students it is theoretically necessary to modify 14.83 % of the question basis. In answer to the question Q3 we can state that to ensure the constant level of knowledge of students it is necessary to modify 15 % of questions in the progress tests data basis.

### Limitations

Presented study has also certain limitations. In the lectured topics of law which are presented at the course there are from time to time made some changes which have to be implemented into the course and also into the questions of the test. These changes could slightly distort the results of the research and their further analysis would be necessary.

The computerized system designated to testing of students is continuously developed and new tools and functions could be added which could also influence the data. Together with this the time series of available data is relatively short and same indicators are available even from later period (e.g. the indicator of correctives of answers described in section five).

To ensure clearer feedback and less complicated process of analysing results a definite number of questions in the question bases should be set and when changing the questions in the basis old questions should be simply replaced by new ones. Each added question should have the similar level of difficulty as the previous one.

Computerized system of testing is without any doubts very helpful both sides for teachers and also for students and despite mentioned limitations will be further deeply analysed and continuously improved.

### Conclusion

We have analysed and answered all three research questions set at the beginning of the paper. We can summarize that progress testing forces students to prepare themselves for final exam continuously during the semester. The results of the tests which are available for students immediately after finishing the test give students appropriate and early feedback of the level of their knowledge and students can modify the methods of their preparation for final exam in due time. We have therefore confirmed results of available studies which consider progress standardized testing as a useful tool in the whole process of education.



It is necessary to continuously analyse available data and results of students at progress tests and at final exams at the same time. Computerized method of testing and the available data of correctness of answers to certain question helped us to confirm our presumption that it is necessary to continuously update the question basis and replace a share of questions by some other new questions. Computerized method of testing has also other advantages. It enables us to gain other useful data for further analysis for example in identifying of problematic lectures, parts of the course, misleading questions, differences among particular lecturers etc. At the same time it is the method more preferred by students and also helps to save time of academic staff spend on correcting of tests. There are also savings of material costs for example for paper and printing.

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# The impact of technology on education theory

Vít Dočekal<sup>a</sup>, Hana Tulinská<sup>b</sup>

<sup>a</sup> Palacký University, Faculty of Arts, Křížkovského 8, 771 47 Olomouc, Czech Republic

<sup>b</sup> Palacký University, Faculty of Arts, Křížkovského 8, 771 47 Olomouc, Czech Republic

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## Abstract

This text presents new possibilities for using technology in education within the context of critical theories of education. We try to view these theories, which focus on the risk of applying classical curriculum, in the light of new options that appear due to technological developments. With this development new consequences are beginning to emerge which could not be reflected in the theories due to the time in which they were developed.

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*Keywords:* curriculum; Freire; Illich; Knowles; personal learning environment; personal learning network; massive pen online courses

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## Introduction

The development of technology is bound up with education in two basic ways. First, it creates a need for training, such as training staff when new equipment arrives in an organization (Emad, 2010), but also with less formal and more educative effect on the development of computer skills in personal life. The second way in which technology is integrated into education is by opening up new possibilities that allow one to increase the effectiveness of the educational activity. At the same time technological changes express themselves in questions about the current curriculum and the methods by which it is implemented (Fung, 2005). Considering the speed of change seen over the last few decades is likely that some theories which arose before some of these changes in possibilities can take on new forms and acquire new tools to achieve the desired results. This paper aims to review some of these theories and provide them with new footholds which are to be found in new technologies. In doing so, we will focus mainly on Ivan Illich's theory of deschooling society, Malcolm S. Knowles's self-organized learning theory and the critical theory of Paulo Freire's pedagogy of the oppressed. The work is primarily focused on the consequences for adult education, but at some points the text does deal with education in general and thus also addresses the education of children and adolescents.

## Theories of education

### *Ivan Illich*

On the basis of his experience with various global models of education, in the 1970s Ivan Illich came up with the requirements of the deschooled society. In his theory he describes school as an oppressive system, which, despite some efforts at reform (higher funding or even the introduction of new methods and technologies in education) always tends to favor those who are already advantaged (Illich, 2001). Schooling as a whole, according to him, does not operate purely according to its formally established goals, but also conveys a hidden curriculum, hidden behind the knowledge transmitted. The content of this hidden curriculum is the creation and legitimization of the class structure of society

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\* Corresponding author. Tel.: + 420-585-63-3658.

E-mail address: vit.docekal@upol.cz

(Illich, 2001). He thus goes much further than thinkers like Jarvis, who see a function of the social system in the modality of education from above, which is approaches the classical curriculum (Jarvis, 1989). As one of the major conflict theorists, Pierre Bourdieu, sees the educational system in a similar way to Illich. Bourdieu likens school to Maxwell's demon, which in a thought experiment by the physicist J.C. Maxwell can distinguish fast from slow particles (Bourdieu, 1998). Likewise, school, despite its declared primary function of education, above all carries out the task of selecting and allows only those students who have a greater ability to continue in education to acquire symbolic wealth (i.e. the education required to understand information). In this way schools select those faster elements and thus confirm the social status of students, regardless of their potential (Bourdieu, 2008). The cards are thus already dealt, and school plays no role other than to represent justice in an unjust system.

The specific role of the school is also perceived by Illich, who points to the role of the school as an advertising agency for society that wants man to believe that they need society to remain just as it is. In effect, this function of school supports social polarization and mental passivity on the part of members of the society. In this way school encourages the perception of institutionalized rules as social norms (Illich, 2001). This approach to institutionalized education is one of the reasons why Illich proposes the elimination of the school system and its replacement by learning, which is not dependent on the general school system (Illich, 2001). This deschooling society begins with the removal of the cultural myth of education and then continues with the elimination of all core curriculum (Illich, 1976).

Illich sees the path from the world of institutionalized learning to lie in learning networks, which allow one to build on individually motivated learning instead of employing teachers who force students to find the time and the will to learn. Another possibility which learning networks reveal is connections with the real world (we also find this possibility, or rather necessity, in Freire). These learning networks rest on four basic possibilities for obtaining information (Illich, 2001):

1. Arranging access to educational objects (libraries, labs and museums as well as businesses or airports).
2. Skills Exchanges – a catalogue of people and their skills.
3. Arranging learning partnerships through communication networks
4. Arranging teachers of all sorts

Thus, the educational system in Illich's model breaks down into individually selected and configured combinations of the options above, which replace the need for a general curriculum.

#### *Paulo Freire*

P. Freire's concept responds to the education system that he describes, and which is called the pedagogy of the oppressed (Freire, 2000). This system, in which one meets with the narrator (teacher) expecting that the student will listen to the narration and mechanically remember it (Freire, 2000), prevents education in liberation and the achievement of the status of a complete and equal member of society. According to Freire, this approach needs to change to a dialogical approach. The dialogical approach overcomes the problem of the unavailability of information, which in the classical pedagogical approach the teacher transfers to the student and the student accepts uncritically (Freire, 2000). Here we can find similarities with Illich. Illich criticizes institutionalized education, among other things, for the fact that learning about the world is presented as more valuable than learning through the world, which reinforces the monopoly school has as the only institution with the authority to transfer knowledge (Illich, 2001). In both authors, we this meet with criticism of one-way communication, which in the process of education alienates individuals from their world.

The essence of Freire's proposal for the reformation of the educational approaches rests in reconnecting man to his own world. This is done through dialogue, followed by a reflection on his own world and a final action, which makes it possible to transform the world (Freire, 2000). This transformation is then capped off by the process of liberation. The moment a person obtains knowledge about themselves and their own world, s/he can make decisions about their own lives (Freire, 2000), just as much as the knowledge they need for a better understanding of the context of their world. Freire's model is an attempt at achieving liberation from the oppression of fixed curriculum which have little in common with the life of a particular individual. A person thus is not taught useless content (which often has oppressive potential), but rather content which can help to reflect on and transform the world – learning thus ceases to be an instrument for maintaining the status quo, and becomes an instrument of change.

Unlike the previous authors, Malcolm S. Knowles focuses primarily on adult education. At the same time he supports the theory that the foundation of good adult education is personality, which Knowles identifies as a self-directed person. This personality is a logical developmental element in human evolution – from the initially dependent personality of a child to an independent adult. Knowles points out that even when adolescents are already able to take on responsibility, despite this maturity the educational system keeps them in certain state of dependence. Everything changes with the entry into adulthood when individuals no longer feel themselves to be full-time learners (Knowles, 1980). Knowles here presumes a change in approach – whereas previously the role of educators of children and adults were perceived to be the same, that is to tell students what they should know – Knowles describes a different approach. The educator here does not act as the bearer, judge and authority (who gives students the answers), but more as a facilitator and consultant, focusing on the role of being an assistant in finding answers to the students' own questions (Knowles, 1980).

The question of self-directed learning and its use with adults is also addressed by Brookfield, who to some degree critically responds to Knowles's often excessively optimistic approach to adults. Among other things, he questions the tendency of adults to move towards a state of self-management (Brookfield, 1986). This challenge becomes a problem when thinking about educational networks and education outside educational institutions, as we have outlined above in relation to Illich. The question is to what extent we can rely on participants in the educational process as subjects fully competent to determine effective means of (self-)education. Brookfield also points to the fact that the transfer of control over education in the context of institutionalized education is a counterproductive and self-negating concept (Brookfield, 1986). Brookfield and in response to Illich, imagines a changed in the role for educators who move from Knowles's facilitator role (as a source of ways in which education can take) to the role of movers, which allows the formation of relationships in networks, i.e. a kind of mediator of transactions between entities/objects in education.

### **The relationship between technology and institutional education**

Having introduced the models and theories above, we would like to point out the possibilities that the authors mentioned may not have counted, considering the level of technological development. The question of whether it is necessary to control the learning process or whether it is possible to rely on the self-directed personality and what possibilities of such a personality has in guiding its own development. It is also questionable whether adult educators should enter into the process of learning as a mediator of contacts in educational networks. In response to more complex approaches, the issue of curriculum emerges. How can it be prescribed in such a way that it does not yield to the pressure of society, as formal education behave in Illich's view? How is it possible to provide learners with tools for discovering their own world, in a way which then leads to changing it? What role should or can an educator play?

The development of technologies brings with it the possibility of achieving some of the ideas presented above. This can be found, for example, creating a so called Personal Learning Environment. We will discuss what such an environment can look like and what it may include in terms of the previous section of this article.

### **Personal Learning Environment (PLE)**

We conceive of a personal learning environment as a virtual learning space connected with practice, its creation and use go hand in hand with a more or less conscious decision of the learner to take education into their own hands. This can be useful in both in institutional education, and in less formalized approaches to learning (Alharbi et al., 2013). This concept of the PLE is closely associated with the concept of self-organized learning, referred to as self-directed learning, advocated by Malcolm Knowles. The idea of self-organized learning, however, applies not only to andragogy, but to education in general. For example, in his book *Freedom to Learn* the American psychologist Peter Gray wrote that a desire for freedom is rooted human nature. We want to take advantage of help, but on our own terms. From birth we have a desire to explore the world around us, but this desire, according to Gray, is destroyed by schooling. It convinces us is that we are not competent, our questions are irrelevant and the goal of our life is to obey those who govern us (Gray, 2012). Learning is an active process controlled by the learner and motivated by curiosity. However, what is created, as Gray writes, is schools, which prevent self-regulated games and exploration. What is most important

is not what we learn in the classroom, but what is learned by following our own interests and goals with a deep passion. In this way we can discover what we enjoy most, which is according to Gray is the first step to finding a satisfying career (Gray, 2012). If school really destroys the desire for self-directed learning, it Brookfield's skepticism would be understandable. If we build on the thesis that an adult cannot automatically assume the characteristics of self-directed personality, then it seems clear that whether or not the efforts of teachers have lead the student to adopt such an approach will certainly have played a role in this. Here lies the answer to the question of how much the facilitation of the instructor is necessary in directing students towards self-directed learning and self-directed personality.

This brings us back to the vision of Malcolm Knowles. We see its advantage precisely in the creation of PLE. What does a PLE look like? Considering it from afar, PLE begins with opening a web browser, if not the computer itself. A PLE is not a specific piece of software or application. We see it rather as the space that the learner fills with different content based on their choice and judgment. It is filled by the path to the goal. Next, we will look at the path the learner can use.

### *Personal Learning Plan (PLP)*

In order for self-directed learning to live up to its name and in its content, that is for it to be directed, it seems appropriate to provide a curriculum model.

An example might be the Edventure design model. This calls for several steps. 1. The educational field. Setting concrete and clear tasks. 2. Objectives and time. Setting achievable and measurable goals for a particular period. 3. Motivation. Why do we want to be educated in a particular field? 4. Online Resources. Online courses, e-books, blogs. 5. Offline resources. Books, lectures, screenings, workshops or universities. 6. People Experts in a given field, academics, practitioners, community. 7. Tools. Equipment, software and other equipment needed for training. 8. Outcomes. A record of what has been learned. Blogs, e-portfolios, journals, or lectures (Edventure, 2014). Lesson plans and models such as Edventure have partially implemented certain rules, for example, quite similar to the known rule SMART(ER) – specific, measurable, achievable, realistic, time-bound, evaluated (this can be self-evaluated) reviewed.

Adherence to a plan in its simplest form (in summary) can be monitored by the learner him- or herself, but software and applications can also be selected that support and facilitate adherence. Comprehensive solutions for managing the learning environment can be offered by specific software for education, but, as of yet, we do not see this practice to be particularly widespread. What, however, is widespread and accessible is software for project management. Education is also a project, and therefore it is possible to use such software. The advantage is that such software is available in various forms as open-source programs and does not cost the learner anything. It allows learners in one place to set goals, plan, collect and sort documents, track their progress on a time-line or Gant chart and set individual targets on a calendar or to-do list, which, after linking to it with their email, will send reminders to learners.

Another option for administering one's educational progress is an E-portfolio. This is a summary of what we have progressed or are progressing through in the learning process, in whatever the form. Components can include be learning plans and goals, or visions. The learner can upload text documents, images, videos or other documents. An E-portfolio is an interesting tool in at least two respects. The first is self-reflection. It is basically a training diary to which the learner can come back and see what they have gone through as well as what to expect and what targets are set. The second aspect is the ability to facilitate job searches on the basis of a public e-portfolio, where a potential employer can quickly gain an overview of the education of the individual concerned, this leads to linking study results to the labor market (Cohn & Hibbits, 2004). On the other hand, this advantage also represents a pitfall due to the issue of the security if information disclosed on the Internet.

Blogs can also be useful in this area. Blogs are used to publish information such as diaries or portals. The learner may publish about the field which they are currently learning about. Likewise, they can follow other blogs to enhance and support their learning by sharing knowledge.

### *Personal Learning Network (PLN)*

Personal learning networks are sometimes perceived almost as a synonym with Personal learning environments. In essence, these are the links between different elements in a PLE. They thus form nodes in networks and connect people

with the same interest. This applies in particular to social networks, blogs and online communities. Thanks to this, education can be linked to the real world, with the actions and experiences of real people. The role of the educational network is then not only to provide support for students during and after the course, but also to stimulate students to share their knowledge and experience (Ivanova, 2009).

Facebook is often used to group people with the same interest. It thus forms a normal part of a PLE. Here, education may reveal important content, connect to the announced events and expand one's horizons by sharing information. The great advantage is the possibility of interaction. Learners can respond to the contributions of others and vice versa, they have the option to participate in chats and discussions. Establishing Facebook pages for universities, schools, departments, and educational centers is now a common practice.

The social network Twitter is characterized by short messages known as tweets. It differs from Facebook mainly due to the ability to search content using hashtags and keywords. Learners, for example, can search for #education. In this way they can open a network of posts that mention the keyword, as well as a network of people they can potentially follow. They thus attach the posts to certain people (or organizations or groups) on the wall of their profile. The user can create a list, such as Education, into which they can place the relevant content. Twitter can even be used by educators when they create a particular keyword for their group, e.g. #group123, and thus can help expand their network by including this word in their tweets. As can other members of the group.

Youtube is a social network for sharing videos. It long ago ceased to be a mere "storage space" for music videos, and has become a place which educators themselves have chosen as a place for education. Not only individuals, but also groups and organizations share their lectures here. In the Czech context, we should mention, for example, Charles University, which is a frequent contributor. Learners can subscribe to the content, which is automatically saved to their profiles and they can be informed about newly created content via email.

Although Facebook, Twitter and YouTube have likely become the most used social networks, they are far from the only ones. The social network Slideshare allows one to share presentations online. Others we should mention include Instagram, Pinterest and Flickr.

#### *Massive open online courses (MOOC)*

MOOCs are courses conducted in an online environment. Among the best-known providers are Udacity, Coursera or I-versity. MOOCs erase geographical barriers and anyone with access to the internet can learn at such places as "Harvard". The Courses are often offered by truly world-class universities. The courses cover various different areas and typically last several weeks. Each lesson includes its own video lecture. These are sometimes enriched with notes directly in the video or questions to check understanding. The lessons are generally also accompanied by study materials, wikis or links. Some of the most interesting features include discussion forums and online meetings. Students can discuss and address questions to each other and their educators.

#### **Conclusion**

Although Ivan Illich was not a direct supporter of technology, it is precisely technology that now makes possible the creation of personal learning networks in a personal learning environment on a global scale. This makes partly possible the emancipation of learners previously oppressed within the system of formal education. Learners can thus compose their curriculum themselves. A PLE does not allow for the mental passivity which is characteristic of classical lectures in formal education, because learners themselves actively seek, process and sort information. The Internet makes it possible to gain access to different types of education, a catalog of people and their skills, learning partners and teachers. MOOCs result in the disintegration of the curriculum between the institutions selected by students (educational nodes), which allows to weaken the power these institutions have in the case of a monopolistic institution. This does not result in one-way communication in the process of education and training so, in Freire's words, learners are not alienated from their world, because they themselves enrich and transform it for their own purposes. The hidden curriculum of formal education in school is thus disrupted. However, we believe that it is not completely removed, since it can be transmitted to another institution selected by the learner. Unlike in traditional schools, however, within the context of a PLE, this hidden curriculum constitutes only a particular part.

Ivan Illich was a supporter of the so-called deschooled society. Support for the creation of an independent PLE thus comes back to his ideas. In addition, now we can track such trends emanating from the learners themselves, not from the upper levels of the education system. One example is the project Uncollege, from which comes the "manifesto" *Hacking Your Education* by Dale J. Stephens (2013). The Czech projects Edventure and Mimo školu [outside school] are tied to this movement. These projects, like the name of the book, suggest how to learn on one's own. But as F. Dalecký writes in the preface of the book, the goal is not to convince learners to leave school but take responsibility for their education (Dalecký, 2013). Like Illich we see in the creation of PLE a certain liberation, emancipation in "Freire's" *Pedagogy of the Oppressed*. Education here is not dependent on the number of teachers – the learner is not a passive listener condemned to mechanical memorization to pass tests. In PLE we also find a place for the cherished dialogue, for which the school system has so little space. The role of educators in the context of PLE is changing. The educator is not as an oppressor, but a component in a network. Dialog also gets space in the discussion forums in which the original recipients of educational content become its creators and facilitators of its transmission.

We do not wish to present this article merely as a search for the connections between theories of adult education and technological progress. We would like to point to the fact that learners raise questions, which are worth investigating. Whether the ideal of self-directed learning is possible on a large scale and personal learning environment can contribute to this can only be determined through future research.

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# The importance of aesthetics in theological education: a philosophical reading of the recent discussions in the Turkish case

Rifat Atay\*

Akdeniz University, Theology Faculty, Antalya, 07070, Turkey

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## Abstract

When the quality of theological education is discussed within the theological circles, the problem mostly focuses on the ability of the graduates in terms of their ability to read, comprehend and interpret the religious texts. The implied conclusion is that they possess none of these outcomes; thus the curricula need be strengthened in that aspect. However, the most important point missing in the discussion is the aesthetic aspect of the theological curriculum, since the service provided by the theology graduates is aimed at humanity in general and aesthetics is the mian bond in human relations, especially religious. The paper will try to explain how and why aesthetics can play a vital role in theological education not only on the services provided but also in daily social relations of human beings.

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*Keywords:* Theological education; curriculum; aesthetics; fine arts; religion; Turkey

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## Introduction

The question of theological education has always been an important one in the history of Islamic civilization. The Prophet himself educated the companions around him first in Mecca in the House of Arqam (Dar al-Arqam), then in Medina in one corner of the Masjid al-Nabawi. The latter is most precisely called Ashab al-Suffa and is considered by some as the first University of Islam.

Throughout the passage of time, in the Islamic world, several educational institutions were developed and evolved from these humble beginnings. In the Ottoman times, *madrasas* were the main educational houses where the professional organized education was provided at several levels. It is a well-known fact that the newly established Turkish Republic entirely revolutionized Turkish society as well as many areas of public life. Within the higher educational system, theological education was left to the theology faculties, initially one in Istanbul and then in Ankara, some time later in other cities, now reaching to almost a hundred in numbers.

The question of fine arts, especially of music, in Islam has always been a controversial and critical one (Goodman, 2003: 34-37). Because of the emphasis on unity of faith (*tawhid*) and on ethical codes, there have been some ambiguities about the decree on painting and music. In painting, the tendency was developed towards more abstract branches of fine arts, such as miniature and calligraphy while in music, though religious music was considered as generally *halal*, permissible, the non-religious was thought to be either *haram* because of what it associates with like women and wine or due to what it inspires such as infidelity, ungodly thoughts and despair.

Although there was not much formal aesthetic education in Ottoman madrasas, there were many informal ways of improving one's thirst for fine arts. The most prevalent places for acquiring informal education of fine arts were takkes

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\* Corresponding author. Tel.: +90 242 310 6881; fax: +90 242 310 6889.

E-mail address: rifatay@akdeniz.edu.tr



and zawiyas, that are sufi *tariqats* in various ways and forms. One can claim that the *takkes* have operated as the informal fine art faculties and institutions of the Ottoman period (Ünver, 2002:199).

With the establishment of the young Turkish Republic, all sufi institutions, e.g. the *takkes* and *zawiyas*, and their associates were banned and abolished from public life on 30<sup>th</sup> November 1925. From then on, one can certainly conclude that the closure of the sufi institutions seriously undermined the informal education of fine arts. Approximately three decades later, the only partial exception was brought to *Mawlawis* by allowing them to conduct touristic celebrations of *sama* ceremonies (Atay: 2007, 8-9).

### Why are we in this state?

It is a general habit of the Islamic world to ask how and why they are in the state that they are when they face troubles by hitting hard to the face of reality. The usual answer to this very real and disturbing question is almost unanimously throughout the Islamic world runs usually in these lines: Because we are not good Muslims, because we detracted from the way of the Prophet and the Companions, because we do not read the Qur'an and follow the *Sunna* of the Prophet. Thus, to be able to get back to the track, the solution lies in sticking to the Qur'an and the *Sunna* at one's utmost power, which can be acquired through studying more of them. What is missing in this quick conclusion, however, is that knowledge does not always necessitates acting and acting in a nice and polite way, as the Turkish proverb professes, "diploma erases ignorance but stupidity remains perpetually." In the words of Whitehead, the founding father of the process philosophy, one "cannot be wise without some basis of knowledge;" but one "may easily acquire knowledge and remain bare of wisdom." (Whitehead, 1962:46). One can claim that many of the companions of the prophet did not have as much knowledge as many modern Muslims do; nonetheless all Muslims agree that the companions were far better Muslims than modern Muslims.

The Turkish theology graduates are often complained about their inability to read, comprehend and interpret the main religious texts. The implied conclusion is that they possess none of these outcomes; thus the curricula need be strengthened in those aspects. Out of such laments came some proposals by the end of Summer 2013 vis-à-vis theology curricula by some members of the Turkish Higher Educational Council, the highest authority to decide on these issues. A casual look at the Table 1. below will show that the proposed changes endeavor to meet those criticisms by increasing the level of theological knowledge not of wisdom.

Table 1. A comparison of the last three theological curricula (Proposed changes are in bold).

<i>2009 Curriculum with Preparatory Arabic Language</i>	<i>Credit</i>	<i>The Proposed Curriculum I</i>	<i>Credit</i>	<i>The Proposed Curriculum II</i>	<i>Credit</i>	<i>HEC (YÖK) General Assembly Curriculum Proposal</i>	<i>Credit</i>
Qur'anic Recitation and Tajwid I-VIII	16	Qur'anic Recitation and Tajwid I-VIII	16	Qur'anic Recitation and Tajwid I-VIII	16	<b>Qur'anic Recitation and Tajwid I-VIII</b>	<b>18</b>
Arabic Language and Literature I-II	4	Arabic Language Rhetoric I-II	4	Arabic Language Rhetoric I-II	4	Arabic Language Rhetoric I-II	4
Basics of Islamic Faith	2	Essentials of Faith	2	Essentials of Faith	2	Essentials of Faith	2
Basics of Islamic Worship	2	<b>Essentials of Faith I-II</b>	<b>4</b>	<b>Essentials of Faith I-II</b>	<b>4</b>	<b>Essentials of Faith I-II</b>	<b>4</b>
History of Tafsir and Its Methodology I-II	4	Qur'anic Sciences and Tafsir Methodology I-II	4	Qur'anic Sciences and Tafsir Methodology I-II	4	Qur'anic Sciences and Tafsir Methodology I-II	4
Tafsir I-II	8	<b>Tafsir I-V</b>	<b>10</b>	<b>Tafsir I-V</b>	<b>10</b>	<b>Tafsir I-V</b>	<b>10</b>
Hadith Methodology and History I-II	4	Hadith Sciences and Methodology I-II	4	Hadith Sciences and Methodology I-II	4	Hadith Sciences and Methodology I-II	4
Hadith I-II	8	<b>Hadith I-V</b>	<b>10</b>	<b>Hadith I-V</b>	<b>10</b>	<b>Hadith I-V</b>	<b>10</b>
Ottoman Turkish	2	Ottoman Turkish	2	Ottoman Turkish	2	<b>Ottoman Turkish and Turkish Islamic Literature</b>	<b>4</b>
Turkish Islamic Literature	2	Turkish Islamic	2	Turkish Islamic	2	<b>Combined with</b>	

		Literature		Literature		Ottoman Turkish	
Turkish Religious Music (Theory)	2	Religious Music	2	Religious Music	2	Islamic Arts and Religious Music	2
Turkish Islamic Arts and Its History	2	Islamic Arts	2	Islamic Arts	2	Combined with Religious Music	
Islamic History I-II	5	<b>Islamic History I-II</b>	<b>4</b>	<b>Islamic History I-II</b>	<b>4</b>	<b>Islamic History I-II</b>	<b>4</b>
History of Islamic Civilization	2	Islamic Civilization	2	Islamic Civilization	2	Islamic Civilization	2
Life of the Prophet	3	<b>Life of the Prophet I-II</b>	<b>4</b>	<b>Life of the Prophet I-II</b>	<b>4</b>	<b>Life of the Prophet I-II</b>	<b>4</b>
Introduction to Islamic Law	2	<b>Removed</b>		<b>Removed</b>		<b>Removed</b>	
Islamic Law Methodology	3	<b>Usul al-Fiqh I-II</b>	<b>4</b>	<b>Usul al-Fiqh I-II</b>	<b>4</b>	<b>Usul al-Fiqh I-II</b>	<b>4</b>
Islamic Law I-II	8	Fiqh I-IV	8	<b>Fiqh I-III</b>	<b>6</b>	Fiqh I-IV	8
History of Kalam	3	<b>Removed</b>		<b>Removed</b>		<b>Removed</b>	
Systematic Kalam I-II	6	Kalam I-III	6	Kalam I-III	6	<b>Kalam and Islamic Sects</b>	<b>6</b>
History of Islamic Sects	3	<b>Islamic Sects of Faith</b>	<b>2</b>	<b>Islamic Sects of Faith</b>	<b>2</b>	<b>Removed</b>	
Sufism I-II	4	Sufism I-II	4	Sufism I-II	4	Sufism I-II	4
Research Methods	2	<b>Removed</b>		<b>Removed</b>		<b>Removed</b>	
History of Philosophy I-II	4	<b>Introduction to Philosophy</b>	<b>2</b>	<b>History of Philosophy</b>	<b>2</b>	<b>Removed</b>	
History of Islamic Philosophy I-II	4	Islamic Philosophy I-II	4	Islamic Philosophy I-II	4	Islamic Philosophy I-II	4
Philosophy of Religion	3	<b>Philosophy of Religion</b>	<b>2</b>	<b>Philosophy of Religion</b>	<b>2</b>	<b>Removed Initially, Added Later</b>	<b>2</b>
Logic	2	Logic	2	Logic	2	Logic	2
Essentials of Islamic Ethics and Its Philosophy	2	Essentials of Islamic Ethics	2	Philosophy of Ethics	2	<b>Removed</b>	
Psychology of Religion	3	<b>Psychology of Religion</b>	<b>2</b>	<b>Psychology of Religion</b>	<b>2</b>	<b>Psychology of Religion</b>	<b>2</b>
Sociology of Religion	3	<b>Sociology of Religion</b>	<b>2</b>	<b>Sociology of Religion</b>	<b>2</b>	<b>Sociology of Religion</b>	<b>2</b>
Religious Education	2	Religious Education	2	Religious Education	2	Religious Education	2
History of Religions I-II	4	History of Religions I-II	4	History of Religions I-II	4	History of Religions I-II	4
Counselling and Communicatin in Religious Services	2	<b>Removed</b>		<b>Removed</b>		<b>Removed</b>	
Rhethoric and Vocational Practice	2	Rhethoric and Vocational Practice	2	Rhethoric and Vocational Practice	2	Rhethoric and Vocational Practice	2
Graduation Thesis Techniques	4	<b>Graduation Assignment</b>	<b>2</b>	<b>Graduation Assignment</b>	<b>2</b>	<b>Graduation Assignment</b>	<b>2</b>
Selective Courses 1-16	32	<b>Selective Courses 1-12</b>	<b>24</b>	<b>Selective Courses 1-12</b>	<b>24</b>	<b>Selective Courses 1-12</b>	<b>24</b>
Applied Information Technology	4	<b>Removed</b>		<b>Removed</b>		<b>Removed</b>	
Compulsary Service Courses	4 each		4 each		4 each		4 each

It can be read clearly from the table that the aim of the proposed curriculum change was to increase the credit and numbers of, what I shall call, the purely theological courses such as Tafsir, Hadith and Fiqh. On the other hand, since the

number of credits are limited and the Bologna Process requires the reduction rather than the increase of the credits in addition to varied courses, the only way to increase those desired credits was to appropriate them from others. The table witnesses this solution even though it runs counter with the spirit of the Bologna Process. The courses related to thought, philosophy, culture and arts were proposed either by total annihilation or partial reduction in credits and combination by other courses by the proposers. More specifically from an aesthetic perspective, one proposal suggested the combination of Ottoman Turkish and Turkish Islamic Literature into one course with the same credits (4) and Islamic Arts and Religious Music were also combined into one course with a half-reduced credit of only 2. The problem with the first combination is that the fate of either course is left to the mercy of the lecturer; depending on her/his expertise s/he may choose to focus on or teach one or the other by resulting the definite loss of some literary taste on the parts of the students. As to the latter, it is almost tantamount to the demolition of aesthetics in theological curriculum since it first combines two equally important subjects into one, then with a second strike, tries to finish off the arts by reducing their weight to two credits. One last point about the proposed changes to be remarked is on selective courses, which were reduced to 12 from 16 in numbers and to 24 from 32 in credits. This reduction also means less variety in available course, thus negatively affects the quality of education.

The proposals caused public outrage both within and outside the academia. With mounting pressures from the media and the academia, the Council eventually decided to scrap the proposals all together and by following the orders of the Law 2547, left the issue to the faculty committees all together. However, the proposers are still in their posts so is the director himself. It is almost certain that they withdrew the proposals not because second thoughts but out of public pressure; thus, the changes can be brought back when the tides reside and the time is right. Moreover, there is nothing to prevent some faculties from already attempting to follow these changes. Therefore, these seemingly hypothetical proposals need careful, critical examinations as of their direct relevance to the problems in hand.

## The Way Out

It is time now to examine the role and function of the theology faculties. They mainly cater for three institutions, which are the Religious Affairs Department (RAD), the Ministry of Education (MoE) and the universities. The graduates who opt to enter to the RAD can choose from four main areas of profession: *mufti*, *preacher*, *imam*, *muazzin* and the *Qur'an* teacher. Those who wish to join the MoE can work as teachers either in mainstream public or private schools, ranging from primary to high school, in Religious Education classes. The other schools run by the MoE are Imam-Hatip Secondary and High Schools that can employ theology graduates in several basic theological sciences such as *fiqh*, *hadith*, *tafsir* and the *Qur'an*. Last but not least come the academia as employment opportunity for those qualified theology graduates who would like to further their studies. Without further ado, one last point should also be remarked here at this stage and it is the fact that some quite serious number of theology graduates do not actually hold a public office but prefer to work in private sector in various areas, e.g. management, production, human resources, etc. Although they do not officially represent theology or Islam in general in any office, they still represent religion and as a result could benefit as much as public office holders from a more aesthetic-based theology curriculum.

Let us have a closer look to the usual profession that the theology graduates prefer, starting with RAD, as of their relation to aesthetics. The general rule is that all the duties in RAD somehow carries significant importance about having a well-trained voice since they all are somehow correlated with voice. Thus the Prophet used to say to Bilal al-Habashi the *muezzin* "Comfort us Oh Bilal," meaning "do give a nice call for prayer so that people come to mosque happily right away." Not only him but there were other companions with comforting voices whom the Prophet used to ask to recite the Qur'an in order to listen to their reading and enjoy it. It should also be noticed that when the means to call for prayer was discussed among the companions, the customs of the Jews (horn), the Christians (bell) and the Zoroastrians (fire) were all rejected because they were already associated with another religion. Then the *adhan* was revealed in dream not only to the Prophet himself but to some of the companions as well (Bukhari, 2009). Compared with the other options, the effect of *adhan* as a means is far more superior than the others discussed since it is human voice in its purest form. However, it should be noted that this is a double-edged sword due to the fact that if it is not performed properly it would also have negative effects on the hearers. Hence there are several stories circling around, both positive and negative, related to the effects of *adhan*, some are moved by it to convert to Islam while others salvaged their own religious

tradition for it was performed so badly. A simple search on the internet will yield hundreds of results, even a zealot atheist like Sam Harris would confess his blog that he is moved by the *adhan* (samharris.org/blog, 15.06.2014).

The arguments for *adhan* is almost equally valid for prayer as well; the only difference between the two is that the latter is particularly aimed at believers whereas the former is open to the participation of any by passer. It should also be pointed out that in three out of five daily prayers, including the Friday and *eid* congregations, the Qur'anic recitations must be made aloud. Even this proves the central importance of musical education in theological curricula. In that sense it is almost unanimously agreed that the Qur'an as a whole has a unique central place in Islamic arts, as Michon rightly emphasizes: "Recitation, the art which manifests the sound and modulations in Arabic of the verses of the Koran in time; calligraphy, the art which transcribes visually the vocables and fixes them in space ... with these two modes of expression we find ourselves at the very source of the art of the Muslims, the source from which the artists of Islam have never ceased over the centuries to draw their inspiration" (Michon, 2011: 128). As another testimony to this remark, I should also point out that the Qur'an talks to its non-Arab interlocutors through its musical character.

The rest of the three duties in RAD, namely, *mufti*, *preacher* and the *Qur'an teacher*, are less voice-centred but more knowledge-based and public related. Having a well-trained voice that enables one to beautifully recite the Qur'an means added bonus in these duties but not necessary. The same argument actually is valid for the other professions that the theology graduates may choose, that is teaching in schools and faculties and researching. Here comes another aspect of fine arts that needs utmost care in theological education: the education of the soul, that is, ripening, fine-tuning and perfecting of emotions and feelings, in other words, the teaching of patience. The situation of the theological curricula, both in practice and proposed, is well illustrated almost a hundred years ago in the United States on the other side of the Atlantic: "A people may be scientifically well educated, intellectually well educated, yet they remain spiritually illiterate. Arts, if I understand it, depends upon feeling, not upon knowledge. Art comes out of the response of the emotions to the things about one: then, when an expression is formed, external knowledge begins to play a part" (Claxton, 1921: 28).

It is not knowledge that matters much, it is the action, or rather feeling, that counts. Some basic common sense knowledge is certainly required for one to be able to act as moderate human beings do, but the essential element is reaction. The latest research in philosophy suggests that we act on emotions first, then rationalize that action later. The question is not how much we know but how better we act or rather react on certain situations. It is not a matter of belief versus unbelief; it is rather humane acting versus inhumane acting. There seems to be a mistaken connection between religiosity and knowledge. More knowledge does not necessarily make one a better human being, a better believer or more religious. Religiosity is a matter of feeling rather than knowledge. Thus the theological curricula needs to be more focused on emotional education than on informational education. In this aspect the arts has vital significance for the arts is not solely art but rather a serious way of educating people through patience, focusing, politeness and interaction both by people and nature.

It should may be asked at this stage what type of a human being Islam proposes and who embodies that type. The short answer to this question is the perfect human being (*insan al-kamil*, in Sufi terms), who was vividly personified by the Prophet himself. It was also best expressed in the famous Gabriel Hadith, as it is known, that explains three components of the faith of Muslims: *iman*, *Islam* and *ihsan* (Bukhari, 2009). It is understood from the hadith that an action of a Muslim represents *Islam*, while the reason behind that action amounts to why s/he does it whereas how s/he does that action forms its *ihsan* aspect. In other words, this triangle can also be read as believing, acting and acting aesthetically, which was thoroughly exemplified by the Prophet and his closest companions. "*Ihsan* is a revelation of *iman* at the level of ethics and aesthetics." (Koç, 2008:7). Any theory of Islamic aesthetics should be based on *ihsan*. Whitehead calls this as "the most austere of all mental qualities; ... It is an aesthetic sense, based on admiration for the direct attainment of a foreseen end, simply and without waste." (Whitehead, 1962: 19).

Several studies in Turkish religious education system suggest that having a good character and being a righteous educator appears to be as first priorities of all parties involved in the sector, that is, students, teachers, administrators (Öcal, 2002:129-138). Whitehead believes that "the function of the scholar" should be "to evoke into life wisdom and beauty," (Whitehead, 1962:147) and "religious education is an education which inculcates duty and reverence" (Whitehead, 1962:23). To be able to achieve duty and reverence in religious education, theology faculties should offer basic and advanced education in aesthetics. As the basic education, every student should gain enough credit in the History of Turkish Islamic Arts and applied fine arts. Then, to further advance these skills, they should pass compulsory

music credits plus some branches of plastic arts (Aritan, 2003:376-378). Hence it can be possible to create a culture that is based on the “activity of thought and receptiveness to beauty and human feeling.” Otherwise the present curricula in theology faculties will yield a “merely well-informed man” who is “the most useless bore on God’s earth” (Whitehead, 1962:1)

## Conclusion

To be able to move and reach beyond the boundaries of mosque and reach out the message of God to all human beings, fine arts is the most indispensable means one cannot do without. Without fine arts, the effect of theological education is reduced by as high as 70-80%. The lack of knowledge in other areas of theological domain can be tolerated by the success of fine arts. If an imam or a teacher can either vocally or aesthetically impress his audience, they would easily pardon his defects in the areas of pure theological knowledge. Certainly, one cannot deny the importance of basic theological knowledge since it is necessary for one to be able to lead prayers and enlighten society. The point here is to put the priorities right and have a balanced education on the whole.

The problem with most of the contemporary Islamic movements is that they either totally dismiss the importance of fine arts or unwillingly approve of its necessity. Consequently, it is not surprising to find very harsh and extreme interpretations of Islam in many of the contemporary movements. To be able to better understand and follow the way of the Prophet, theological education should give considerable emphasis on fine arts, since it is wisdom that matters first, not knowledge, as the sufis like Rumi and Yunus Emre have shown us much clearly not only theoretically but also practically. Unless we comprehend, implement and realize a fine arts-based theological education, the ground under the feet of the theologians will keep eroding to the extent that even they loose their own foundations.

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# The importance of family and kinship in Turkish literature : family and kinship tie in Sâmiha Ayverdi's works

Meva Apaydin

*Bülent Ecevit Üniversitesi, Zonguldak, Türkiye*

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## Abstract

Family and kinship are one of the most important values of cultural heritage in our literature . Therefore ; Sâmiha Ayverdi , who is one of the most important women writers from the Republican Period , gives an important place to the family and kinship tie in her works . Ayverdi , whose sufistic side outweighs , tries to instill people to shape in Islamic style in her books . Considered the importance family and kinship tie in Islam , the question that why she uses these terms so often is answered in that way .

In that research , we have focused on the use of these terms in her works such as ; Human and Demon , Fire Tree , Mesihpasha Imam , The Last Range , the Sun Not Going Down in search of family and kinship tie in our society by detecting the frequency of the use of words and word – comparison.

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*Keywords:* Kinship , Family , Literature, Sâmiha Ayverdi

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## 1. Introduction

Kinship ties is very important in Turkish society . It is one of the most delicate indicators of family , spirituality and culture . With Turk' s becoming Muslim , important changes have developed in our kinship system and also our traditional understanding has taken its shape in that way . Developing and shapening , our society has always kept kinship alive and impressed our human relations on a large scale . When compared with it , family union has protected its importance and the family has been cherished since the very early Turks .

## Sâmiha Ayverdi

Sâmiha Ayverdi was born in Şehzadebaşı , in Istanbul , on 25th of November , in 1905 . Having read sophisticated books such as Kısas-ı Enbiya and Servet-i Funun even at a little age as ten or twelve , she took education from history , philosophy , spirituality , mysticism and literature . In addition to it , she was also into fine arts , took special courses from French and protected her love of education and self-development throughout her life .

The person who profoundly influenced her life and improved her world of thought and spiritual side was Ken'an Rif' ai , who was the sheikh of Umm-i Ken' an Dervish Convent . She was impressed by the great philosophers such as Mevlana , Hafız- ı Şirazi , Sadi , Muhiddin- i Arabi . In addition to it , she also kept abreast of thought and literary movements of the West . Sâmiha Ayverdi ; who devoted her all life to putting into practice the realities that she believed , educated people in styles of religious sciences , kept the Turkish Islamic culture on behalf of Allah ; passed

away on 22th of March , in 1993 , then , she was burried into the South side of Ken'an Rif' ai's tomb in Merkez Efendi Haziresi and Ken' an Rif' ai was Ayverdi' s teacher . Her zeal in the branches of religion , spirituality , history , philosophy , literature and fine arts during her period of education joined with spiritual and mystic wealth after her religious affiliation to Ken'an Rif'ai Dervish Convent and this affiliation reflected to Ayverdi's works . The writer , witnessing the periods of Abdulhamid II , Second Contitutional Era , Committee of Union and Progress , Years of Truce and Republican Period in Istanbul in her life time period , she chose especially these synthesis in her novels . That' s why Sâmîha Ayverdi chose the themes of love of Istanbul , Ottoman lifestyle , westernizing , religion and spirituality in her masterpieces .

### *1.1.Familial And Kinship Nouns That Are Frequently Used In Sâmîha Ayverdi*

As one of the most important women writers from the Republican Period in Turkish Literature , she was a philosopher , who was born in Istanbul , and she grew up in mansions with the influence of Ottoman Empire . Having preferred a lifestyle with her family and kins instead of having an individual life , she produced her works in that atmosphere .

Family and kinship ties has an important place in her works . This preference parallels with her point of view on Islam . Overweighing her spirptual side , Ayverdi tries to instill people to take shape in Islamic style . Considered the value of family and kinship ties in Islam , the question that why she frequently used these notions is clearly answered .

In this research , we have focused on the use of the nonuns related with family and kinship in her books : İnsan ve Şeytan , Ateş Ağacı , Meshpaha Imamı , Son Menzil and Batmayan Gün .

When these works which we will evaluate are cerafully examined , it is easily noticed that the word which she used most is 'father' . This word meaning ' the person that who has a daughter or son , male parent , begetter of offspring' in the dictionary of Turkish Language Association is used 528 times with inflectional suffixes in these books . The writer used this word 'baba – father' so many times as the symbol of ' the leader of the family and protectionalism' .

'There are some knowledge which are thought to people by their parents , traditions and books that we think that we already know them , however , the moment when we virtually learn them for sure we notice that we didn't really know their meaning beforehand .' (Ateş Ağacı, p. 115 )

'When Aliye saw the cries running down from her father' cheeks without stop , she she flinged out of seating embraced him by budging up to him in her seat . (Batmayan Gün, p. 95 )

'When my eyes got accustomed to the sombreness , I noticed tere was a man with very black complexion and drew near my nanny because I had never seen an Arabic before that moment . ( İnsan ve Şeytan, p. 46 )

The word 'father' is followed by the word 'girl' . This means 'female child' in Turkish dictionaries . That word which was used in 307 times in all of these five books generally means ' daughter' . Apart from those uses , girl is also took place with the maning of ' young lady' .

'The girl , listening to her father with indifferet weariness in betle browed and tired attitude , stood up and took a bottle from the table , shook it and had the old drink it .' (İnsan ve Şeytan, p. 122 )

'Despite all their wrechedness and desperations , he had such lithe and occupied wife and daughter , they were unable to see other people out of from their house because of caring for the patient .' (Mesihpasa Imamı p. 166 )

'As the young girl know that the painter , Hasim , hops from one emotion to another one , and does the thing that he didn't want to do a few minutes ago , so s he doesn' t find it strange then they – one front and the other back – walked through the darkness of the hall .' (Son Menzil, p. 181 )

The third noun which Ayverdi used most after 'father' and ' girl' is 'child' . The 'child' , fruit and indispensable member of the family , is the heritor of the human being . The child who will shape the society for it is used totally 273 times in those books . The noun , 'child' , which is depicted as 'the little male /female offspring , soın / daughter in terms of descent' is also the symbol of the next generation .

'Many of us , have , in our opinion , meaningful and ostentatious pealsures such as making ovens or houses with muddy soil or whipping his / her wooden horses , tough they are considered as ridiculous things .' (Ateş Ağacı, p. 76 )

‘When I was a little child , if I couldn’ t recognize my mother’ s or nanny’ s handkerchieves and scarves from their colour or shapes , I would detect them from their smell’ . (İnsan ve Şeytan, p. 176 )

‘With great pleasure , the child would breath deeply hte smell of fuel or phosphor filling his nasal passages as soon as the oil lamp was lit since the smell that announcing the good news from the light was a rescuer from the woman that the child was watching her sillhouelette in dark throughout his nightmares to bring him back to his books .’ ( Mesihpasa Imami, p. 202 )

After these words there comes the noun ‘wife’ in terms of frequency of use . It means ‘dame , woman lady’ in our society . It is used 260 times in Sâmiha Ayverdi’ s works and defined as ‘ the woman who is married to a man , married woman , woman’ in Turkish Dictionary .

‘Kadriye , my aunt’ s dauhter ... My friend from my childhood - Kadriye -... My fiancee , Kadriye , who is my wife and finally my children’ s mother .’ (Ateş Ağacı, p. 120 )

‘By thinking from the point of emotion’ s of a man - Husnu’ s emotions - , Sezai Bey has clearly recognized the young dactor’ s interest in his daughter , but in order to put an end to this matter , he maade up this lie by disuniting the wife and the husband .’ ( Batmayan Gün, p. 187 )

‘Ilyas Bey , never marrying after his wife’ s death , accelerated his heart that was addicted to enjoyments and amusement while letting himself to the world of pleasure giving the management of the house to Şöhret and his daughter .’ ( Son Menzil, p. 52 )

The word , ‘son’ , which is used totally 233 times withinflectional suffixes , means ‘ male child’ . Also , its use such as ‘my son’ ‘ the boy’ , ‘your son’ , ‘my child’ are seen, too .

‘He used to say : ‘My child ! Reading or writing just kills illiteracy , not ignorance . They are not enough to be accepted as a human .’ Then , he would show his wholw talent tp inculcate all of his knowledge namely for my morality as he charged himself in my cultivation . (İnsan ve Şeytan, p. 52 )

‘It is strange that behind that aegis which also shieds to both father and son , there was a third refugee whom neither father nor son knows , however , she with her very young and fresh mood would hide herself behind that shield whenever her bright yet inexperienced eit intuits the timas of danger .’ (Mesihpaha Imami p. 231)

When we count the number of the words by adding the inflectional suffixes , it is clear that there are 117 mothers , 90 uncles , 89 sisters / brothers , 78 family , 74 nephew / niece , 42 relatives , 33 mamas , 33 brother in law by marriage , 27 offsprings , 26 sons / daughters , 25 aunts (father’ sister ) , 21 mother in law-dame’s mother , 21 brother in law- dame’s brother , 21 aunt in law uncle’s wife , 17 aunt(mother’s ssister ) , 11 elder brothers , 11 sister in law ( a man’ s wife’s sister ) and 7 times spouse are used .

### 3. Conclusion

The position of the family and kinship is very important in Turkish society .Therefore ; the quatity of the words which are used in these masterpieces are a lot . This sitiation , seen in Ayverdi’ s works , is a proof showing how much importance and value she gives to the issues of family and kinship .

The information which we have got shows that the familial notions are followed by kinship nouns and many of them constitutes of ‘ daughter’ and ‘son’ . In addition to it , the word ‘father’ ranks as one of the mostly used nouns and rhe word ‘ kari – wife , woman’ takes the third rank with other meaning of ‘mother , mama’ in terms of the frequency of use . In this research including examples of five frequently used words shows that familial and kinship intercouses which glorifies any society is really precious in Sâmiha Ayverdi’ s works and these notions are the basic elements feeding the plot/themes of the books . According to Ayverdi , the family constituting the social- basic intercouses is profoundly important for the development and spirituality of humanity . It is of course natural that we frequently see the words of family and kinship in Ayverdi’ s works thatrearching for the development of the society in her own roots , not in Western world .

When we take into consideration the knowledge which we have gotten , it can easily be said that Ayverdi is one of the most important writers who pioneered to the notions of family and kinship as well as Turkish spirituality and sufism .



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# The importance of teaching methodology in higher education: a critical look

Daniel Carlos Gutiérrez<sup>a</sup>, Elia Guadalupe Villegas<sup>b</sup>.

<sup>a</sup> Universidad de Sonora, Bv. Luis Encinas, Hermosillo, Sonora 83000, México

<sup>b</sup> Universidad Nacional Autónoma de México, Av. Universidad 3000, México D.F., 04510, México

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## Abstract

This text talks about teaching methodology in the field of higher education institutions and reflects on the loss of importance of this area, like other areas of humanities and social wins. This in a Mexican context where policy reforms are based on the requirements of the business and economic world, from logic of capitalist production. In other words, it raises questions about how education tends to decrease production, ignoring its social function: the intellectual development of a society.

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*Keywords:* methodology, higher education, teaching.

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## Introduction: From where do think the loss of importance of methodology and teaching?

How to understand this shift or minimizing the importance of methodology and teaching? From where to reflect the loss of importance of methodology in the intellectual training of university? In the search for arguments to answer these and other questions, we can say that it is possible to address this issue as part of a multi-causal phenomenon is not limited to the contexts of education (where both the mean and higher education is involved) but that is part of related economic and political dimensions processes.

It seems that as a specific problem is not related to these dimensions, it is very far from having any type of relationship and might also think that this is a purely pedagogical problem, as to how to teach research techniques or, to a matter of conceiving the methodology according to particular perspective, i.e., to raise this issue as a problem of techniques and tools and not as a problem of method (commonly methodology only associated with instrumental aspects of the research process ) as part of an articulated process .

However, this problem is immersed within a broader process involving displacement, minimization and even the disappearance of subjects related to philosophy (ethics, logic ), History and other subjects in the field of Humanities

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\* Corresponding author. Tel.: 6621710990; 5534282962  
E-mail address: dcgutier@sociales.uson.mx ; eliagvillegas@hotmail.com

(For example you can see the guidelines of the Comprehensive Reform of higher - RIEMSER Media Education). So that the subjects related to these fields of knowledge have been considered unnecessary because it is not directly linked to the sphere of economic production company, obtaining profits. In other words, not being associated with the market.

These ideas come from economic processes, typical of the neoliberal stage of capitalist development (standardization processes to streamline the production world, introduced system-wide) globalization. From central to peripheral economies, local governments then become guiding public policy of economic, political, educational, and so on. It is articulate social processes to the market dynamics. So that education is part of the fabric of systemic strategies. It can be seen from the perspective of the link that has the dynamics of production with the political direction of society, education and culture and, in general, all areas of society. This is the context in which to locate our problem of reflection.

In education, the problem is presented as a series of transformative politics: several education reforms, changes to plans and curricula that meet the needs of the world of production, quantitative evaluation processes (through indicator matrices), incentive programs, etc. In this sense what prevails in the academic reforms are political decisions, to realize, in terms of educational and pedagogical models and content guidelines imposed by the logic of the market (see for example the implementation of the competency model as a driver for Comprehensive Reform Superior- RIEMSER - Media Education and the adoption by many Institutions of Higher Education -HEI; recently Pact for Mexico, at the initiative of President Enrique Peña Nieto involving the constitutional reform of Article III and thus a series of, even unweighted, changes in education . Moreover, the excessive growth of private universities from the 90s of last century.

So that the context in which the methodology its teaching and its importance in the academic and intellectual training, and not just for the training of scientists is located, can be seen from a related logic with an articulated process: market dynamics - control and direction of social - training skilled workforce according to standardized criteria.

### **I. - Linking economic processes under the guidance of education**

Since 1982 the world has changed drastically, were set aside Keynesian formulas hitherto subsisted, in which the role of the state played a central role in the organization and management of social processes. Formulas that allowed face the consequences and aftermath of the economic crisis of 1929, which in one way or another it possible to consolidate the global hegemony of the United States became a new model of accumulation, which was given to the market and not the State the lead for the organization of social life on a global scale paper.

The changes resulting from this model were in all spheres of social life, from the world of production to the sphere of public life, to health, culture and education course.

On the one hand , production processes were standardized , international standards were established whose purpose was not only to streamline and accelerate the recovery of profits, but mainly standardize and simplify the production process where skilled labour was not as important as that a series of labour , replaceable , docile and undemanding in terms of salary skills (e.g., unions themselves became the less spaces of resistance to these changes or in legitimizing instances of economic processes ) .

In this context, two aspects are central. First, the need to accelerate the accumulation of wealth and, secondly, modify the schemes relating to the workforce. Hence the imperative to standardize the profiles to form the new type of worker required by this economic model, a convenient ideology to accumulation scheme. It was treated by multiplying the market action and limit state intervention, because the market is not corrupt and the state itself.

The production processes require competent staff in specific stages. The core competencies required for the

standardization of production are defined. Hence the structure of the core competencies model is exported to other spheres of social life, so relevant to education. You have to remember multiple assessments and recommendations the Organization for Economic Cooperation and Development (OECD) has been formulated to Mexico as a result of joining this organization and that have guided the changes and reforms in the education sector. Of the most recent, the Cooperation Agreement Mexico - OECD Improving the Quality of Education in Mexican Schools (2010), Education at a Glance (2012), OECD Perspectives for Change (2012), among other guidance documents.

These circumstances have had at least two important implications for education. First, move the training process for institutions of higher and higher in order not to sacrifice profits secondary education. Through incorporation into the curricula of the idea of internships, entrepreneurial programs responsibility to educational institutions to train future employees according to the competency model moves.

Put another way, what has been discussed is that institutions of higher education and media absorb the cost of training for the formation of labour force according to the needs of businesses, i.e., the market. The second transformation plans, curricula and content according to this logic.

The problem is not professional practices, entrepreneurs or programs, but the bias standardization gives only benefit the market. As most of the graduates of universities (and public baccalaureate) are formed under the same powers, become interchangeable and expendable parts. Under these implications have been made various changes and reforms in the middle and higher education system.

These are some of the reasons why some subjects of Social Sciences and Humanities and teaching (methodology, philosophy, logic, history, arts and other cultural expressions) are unnecessary to the market and therefore can be expendable. Thus, the methodology only technical aspects necessary backing required to produce quantitative, descriptive knowledge. It matters only what fits the competency model. Then, the methodology is useful for opinion polls, market research, trends and consumer behaviour, political orientations, and so on. Nothing else comes into the scheme and can minimize or even eliminate shifting of academic and intellectual development of students.

Although very brief way, the above are observation points where we can reflect and explain what has been happening with teaching methodology and little importance is given to the training of students. We can summarize the above in the following aspects:

1. The processes of the neoliberal stage of capitalism have required rebuilding the workforce from logical standardization with certain powers in specific segments of the production process, from manufacturing to consumption.
2. The responsibility for job training has been fully transferred to educational institutions, which has meant shifting the costs to the financing of public education.
3. Own market interactions have built a legitimizing discourse for educational institutions, expressed in the competency model, professional practices, entrepreneurs and programs linking Business College.
4. Market needs do not require a critical training in the sense of imaginative thinking, creative but pragmatic graduates with skills, usefulness and immediate application, while the competition model has been transferred from the world of production to academia.
5. These educational processes have formed a pliable, flexible, expendable, standardized workforce.
6. The teaching methodology is the predominant regards training manuals based on and limited to teaching technical and instrumental resources, but do not seek explanations quantitative data.

According to the above, it is possible to approach to understand the logic of the transformations and changes that have generated plans and curricula, the importance of the methodology and its teaching and relationship with economic processes and the displacement, minimization of secondary and higher education.

## **II - . Policy and teaching methodology**

It seems an exaggeration to speak of a relationship between the political process and the importance of methodology and teaching. However, there is a relationship, but certainly not directly but as a result of political decisions materialized in the form of government programs.

It is reasonable to think that the year 1982 marked one of the first steps in the development stage of global capitalism in the sense that gives De Sousa (2005, p. 260 ) "Globalization is a set of policy decisions both identified over time and in relation to its authorship . The Washington Consensus is a political decision of the central states, such as the decisions of the states that adopted demonstrating autonomy and a more or less relative selectivity". The fact is that these events from the world begins to change depending on the decisions that were traversed by economic interests. It is understood that the globalization process is proposed to refine a model of accumulation for the benefit of the core states.

It should distinguish globalization as an ongoing process of product development incorporating science and technology to social processes, changes that have occurred in the economic progress. In both processes the changes have occurred on a global scale. The first will continue on the ruins of the neoliberal stage.

In the field of politics is where decisions have given more emphasis to introduce the changes necessary for the development of the neoliberal model. Says David Apter (1971) that no modernization efforts of economic processes can occur without the corresponding political modernization of the countries. That is, without the introduction of mechanisms to control and direction that enable the social introduction of economic innovations. This process of introduction of neoliberal strategies is given as a kind of paradox, because while the policy is necessary for the implementation of the model, while it is relegated to the background in order to limit the state's participation in the processes economic.

The result of this paradox was the subjugation of politics to private interests, or economic interests. Public life was subordinated to the action of the privatization process. In other words, these are interests that dominate the field of public life. Each time the privatization effort invades social spheres, as health and social security education and culture.

In Mexico, for two examples, public health has been changing the popular insurance, a responsibility of the state to an individual problem, not part of institutional responsibility and other, subject recruitment, those who can do, insurance medical expenses that offer private health care. Another case is that of education, through the growth of the supply of private education and the rise of public education services (as reflected in the fees and administrative services). Both health and education have been transformed from state responsibility for raw material market.

Governments (mainly from 1988 to date) have defined strategies and public policies to realize these processes, while they have transferred their political and social forces of the market (Hertz, 2002) responsibility. This means that the policy has been subordinated to economic processes. These are the underlying circumstances of the crisis of politics: public administration under the logic of the private. So that policy decisions are oriented to bring to market all spheres of public life that can be highly profitable, as in the case of education.

To illustrate transcribe a note from the mexican newspaper La Jornada (Thursday January 3, 2013, p.4 ) states that "Suddenly , public education has become a new market, thanks to the reforms implemented over the past decade An investor conference ... stakeholders in the education sector for profit (Capital Round table for- profit education Private Equity conference) , in July last year, said that education is now the second largest market in the United States , valued at \$ 1.3 trillion ... Indicates that are expanding opportunities in the education sector profit -oriented , thanks to initiatives promoted in Congress ... "

In our country, under the pressure of international organizations ( IMF, World Bank and OECD), which highlights the diagnoses, guidelines and agreements in relation to education, the OECD has proposed guidelines to "improve the quality of education " that since the nineties have been given (see for example the Cooperation Agreement Mexico -

OECD, Improving the Quality of Education in Mexican Schools , OECD, 2010, which is one of the underpinnings of educational reform Raised by the President Enrique Peña Nieto and approved by the Congress ) have become guiding government policies .

Two points can be highlighted from the introduction of such strategies for education, in this case for higher education (e.g. the establishment of the Comprehensive Program for Institutional Strengthening ( IIFT ), which has involved the management resources through the implementation of indicators or Incentives Program Teaching Performance representing , through the assessment of teacher productivity, financial compensation), one of them is the political control of the institutions through allocation of resources and funding, without which public universities could not function, the other aspect is the financial control of institutions by the federal education authorities. It is clear that the problem did not have any assessments or financial control, but the political bias that have been given.

On these approaches, essentially political, have boosted academic reforms within universities and institutions of higher education, seeking to establish the competency model and management guidelines as the preferred option for the transformation of the plans and programs of study and modifying its contents. And this comes from the logic of wealth accumulation model to guide policy decisions and the nature of government programs.

So, you can locate some central features that give meaning to political -education- teaching methodology for:

1. The neoliberal policy has subordinated the interests of the market.
2. The State, understood as government becomes an instrument to guide the privatization impulses in all areas of social life.
3. Education has become a vehicle for market consolidation in a twofold way: it has turned education into a commodity and has become a space for forming docile, flexible workforce with the basic skills required by production processes.
4. Movements have arisen academic reform oriented policy decisions to stimulate and shape the processes of transformation of education.
5. Have moved all content and assignments that are not functional or can be linked with market needs.
6. Politics has become the means and scope to boost privatization currents.

### **Final comments**

From here, it can locate at least three central aspects of the importance of the methodology:

1. The declining importance for the low value and character that has been awarded the management of a set of techniques, tools and instruments taught easy application, making it unattractive to students.
2. The contents of the materials related to the methodology have been limited to instrumental techniques and management tools cut qualitative or quantitative. This has involved recognizing only the empirical dimension of the research process. So that the method and the method is confronted.
3. The teaching methodology is to be characterized as a practice based on manual and often taught by teachers with an inadequate profile to provide content related to the epistemological dimension of the process of knowledge generation. Correspond to consider the epistemological and methodological dimension as a basic articulation in the production of scientific knowledge (knowledge object reconstruction and its empirical verification).

Finally, after the foregoing it should ask the question what will happen when the constraints imposed by the economic model change and needs to solve the new problems of the world are other societies? It is highly likely that this trend will continue to increase, future generations (in the short term according to the idea of Braudel) confronted with the problem of the loss of scientific vocations.

From this perspective the loss of importance of teaching methodology and represents a problem in the future if universities are neglecting teaching thinking and thereby build the resources to explain the emerging problems , to produce knowledge that respond to emerging problems they present to future generations .

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# The importance of working integrated learning and relevant laboratory experiments in engineering teaching

Dorina Ionescu

*\*Mechanical Engineering Technology Departmen, Faculty of Engineering & Built Environment, Doornfontain campus, Johannesburg 2000, South Africa, +27 11 559 6509; dorinai@uj.ac.za*

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## Abstract

The shortage of highly skilled engineers in South Africa is of public knowledge and became one of government's priorities. Although the engineering student numbers increased dramatically over the last 10 years, as high as 290% compared to 1988 figures<sup>(1)</sup>, the number of Engineering graduates is very low compared to the industry needs. A major reason for the poor performance of the engineering students is the lack of engineering infrastructure at high school level. Also, many engineering students lack basic self-study skills which for engineering studies are essential. In a study carried out at the University of Johannesburg by Ionescu<sup>(2)</sup> over a sample of 114 mechanical engineering technology students, it was found that the lack of proper career advising at high school level for many students results in the wrong choice for tertiary education. However, once in the system the industrial exposure through work integrated learning and a proper choice of laboratory experiments for the engineering modules can increase the ability of the future engineer to understand his/her profession and successfully finish his/her engineering studies.

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*Keywords:* Engineering Education; Work Integrated Learning; Laboratory Experiments

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## Introduction

South Africa as a developing country saw in the last ten years a sharp increase in the industrial investments, especially in companies involved in engineering work. The engineering manufacturing and mining fields are seen as top revenue generators and job providers. Although there is a general drive to facilitate the access to engineering education of an increased number of high school senior certificates holders, the number of technical university graduates is low compared to the entrance numbers. The low number of engineering graduates impacts negatively on the engineering manufacturing expansion. The inability of the majority of engineering students to finish their studies and obtain the engineering qualification is due to several factors, some going back to the high school education. In a study carried out at the University of Johannesburg<sup>(2)</sup> over a sample of 114 mechanical engineering technology students it was found that the lack of career advising combined with the very poor technical infrastructure at high schools level, plays a major role in the poor performance of the engineering students. Based on the findings there are several steps that can be taken to alleviate to a certain extent the failure rate. On very important step is to familiarize the future engineer with his/her profession through industrial exposure and another important step is to introduce relevant laboratory experiments for the engineering module, to facilitate the proper understanding of the theory.

## High school challenges

Although the majority of the engineering students are from rural areas, the study carried out on a sample of 114 mechanical engineering technology students yielded very encouraging results, to the credit of our very poor and

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undereducated rural communities. It was found that in South Africa the parental attitude toward tertiary education is very positive as compared to a study done by Felder RM and others<sup>(3)</sup> at the State University of North Carolina, where a poor parental attitude impacted negatively over the number of black American engineering students. However the ability of a South African child to enroll for tertiary education is restricted sometime by poverty or tradition in the case of female child. Table 1 reflects the statistics regarding the career choice for the mechanical engineering technology students. Although only 21 % of the students had a family role model, 67 % were supported by their families to fulfil their dream of becoming an engineer. This clearly shows the parental positive attitude toward engineering education.

Table 1. Career choice statistics <sup>(2)</sup>

Reason for studying engineering								
Family role model			Family support toward engineering studies			Career choice advice during high school		
yes	no	na*	yes	no	na	yes	no	na
24	80	10	76	35	3	77	36	1
21%	70%	9%	67%	31%	2%	67%	32%	1%
Bursary offer only for engineering studies			Will be easy to find a job					
yes	no	na	yes	no	na	* na = no answer		
27	77	10	65	40	9			
24%	67%	9%	57%	35%	8%			

A challenge faced by the young engineers to be, is the inability of many high schools due to scarce material resources, to meet the modern education demands. Table 2 shows the problems faced by high schools learners who opted for engineering career.

In a similar survey carried out in 2005 on a sample of 418 mechanical and industrial engineering students by D. Ionescu and others <sup>(4)</sup>, the findings were very close to the 2014 ones, except for two important issues. The engineering subjects offered at high school level increased from 14 % to 26 % but unfortunately the computer literacy offered at high school level decreased dramatically from 54 % in 2005 to only 41 % in 2014. This is a very worrying situation as the computer literacy is essential for a modern engineering education. Another change is the number of students choosing the high grade mathematics and physical science which increased from 51 % in 2005 to 81 % in 2014. This change is not as positive as it looks, as the high grade mathematics and physical science modules were changed to be more accessible to the average student and the old “standard grade” of these modules was not offered any more at high school level. These changes did not have any positive impact on the quality of high school graduates as can be seen from the national statistics released by the minister of education in 2012<sup>(5)</sup>.

Table 2. High school challenges statistics <sup>(2)</sup>

High school challenges								
HG mathematics HG physical science (offered at school)			SG mathematics SG physical science (student choice)			High grade mathematics and physical science teachers employed at the school		
yes	no	na	yes	no	na	yes	no	na
92	20	2	28	76	10	70	21	23
81%	17%	2%	25%	67%	8%	62%	18%	20%
Engineering subjects offered at school			Access to computer literacy at school			Some of the students are from technical colleges, which explains the “na” regarding high school subjects		
yes	no	na	yes	no	na			
30	80	4	47	64	3			
26%	70%	4%	41%	56%	3%			

Figures 1, 2, and 3 show the South Africa's national senior certificate (NSC) statistics over a period of four years<sup>(5)</sup>. As can be seen from the graphs in figures 1 and 2 there is a steady decline in the number of full time students who entered the senior certificate examination but a sharp increase in the part-time students. The part time students represent the students who failed the previous year examination and those who are not full time high school students for various reasons. However, in the end, only 79% (196,090) of the total students enrolled in 2011 were able to write the exam.

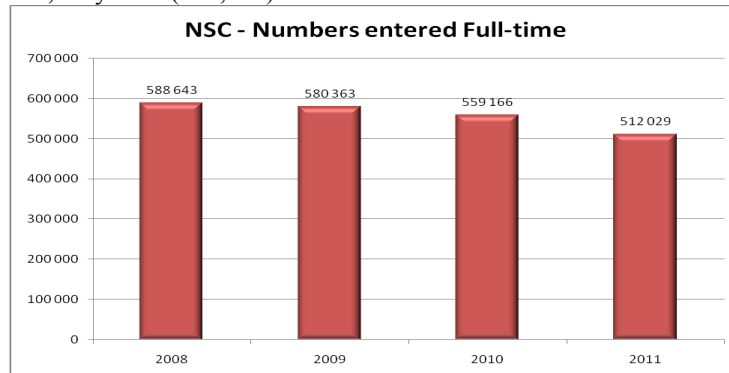


Fig. 1. Enrolments NSC Full time candidates 2008 – 2011<sup>(5)</sup>

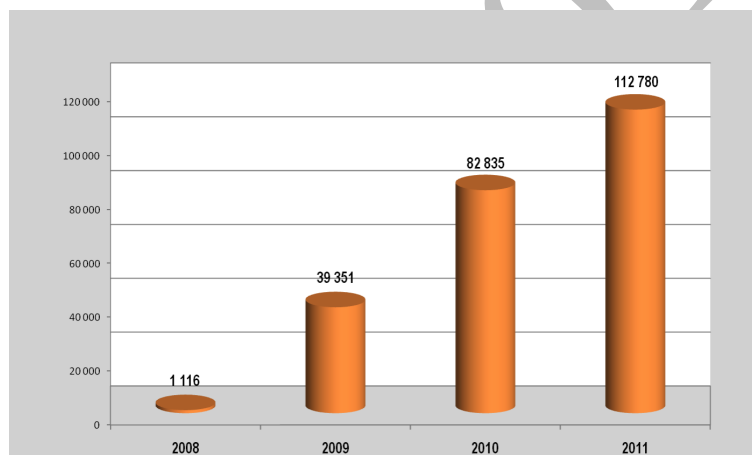


Fig. 2. Enrolments NSC Part time candidates 2008 – 2011<sup>(5)</sup>

The most worrying statistics are presented in figure 3 where in 2011, 46.3 % of the students obtained 30 % in the mathematics examination and 53,4 % in the physical science examination respectively. Although the most recent statistics (2011 – 2014) are still being processed, the statistics from 2008 – 2011 apply to the current situation (with a certain degree of approximation), as different official reports released and the 2013 senior certificate results show that the situation did not improve, o contrary in some fields worsened.

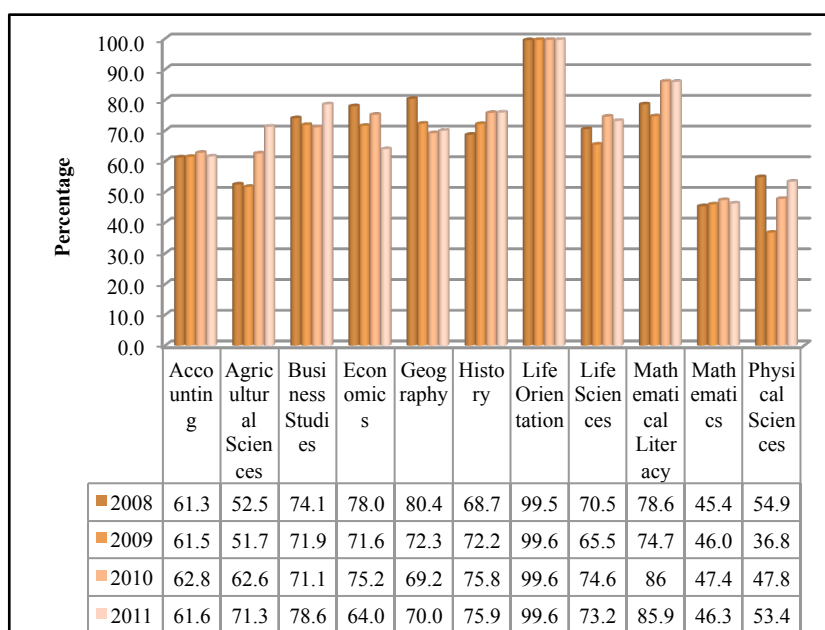


Fig. 4 Candidates' performance in selected subjects 2008 – 2011  
(at 30% level) <sup>(5)</sup>

### University teaching challenges

The statistics in figures 1, 2, and 3, show that there is much work to be done in the future to improve the quality of the incoming engineering students. Due to lack of material resources at their school, the new engineering students are unprepared for university level teaching. Also their self-study, library use and research skills are inexistent, as shown in table 3 (sample of 114 students) <sup>(2)</sup>.

Table 3. University teaching challenges statistics <sup>(2)</sup>

University of Johannesburg teaching methods as compared to high school								
Very different teaching method			The student is unable coop and feels left out			Self-study time in the library		
yes	no	na (no answer)	yes	no	na	never	everyday	average 3 times/week
99	17	0	62	47	5	34	20	60
87%	13%	0	54%	41%	5%	30%	18%	52%
The ability to access the library database via computer			Study method (only before tests and exams)			The student has difficulties in understanding some subjects		
Yes	no	na	yes	no	na	yes	no	na
85	24	5	17	92	5	71	39	4
75%	21%	4%	15%	81%	4%	62%	34%	4%

Although the ability of the new students to self-study and solve problems by themselves or in working groups, are strongly encouraged at the university, due to poor high school teaching the students are unable to do so, hence a very high rate of drop-out especially in the junior years. Although 54% of students felt that they cannot keep the pace with the teaching rhythm and 62 % have problems understanding some engineering subjects, 34% of the students never study in the library where learning material is available, only 18% study every day and 15% study only before tests or exams.

There is a tendency of perpetrating high school learning methods by limiting oneself to learning material and text book recommended by the subject lecturer. The catastrophic unpreparedness of the engineering students is reflected in the fact that although 81 % of the students study over the duration of the semester, the drop-out rate is very high.

### Understanding engineering modules through relevant laboratory experiments

Beside the poor high school preparation of the students for tertiary engineering education, a bigger problem yet, is that many of our students lack completely “hands on engineering” knowledge. For this reason, the work done by the students in the laboratories is absolutely crucial. Table 4 shows the students opinion relative to the laboratory work integrated in the theoretical module<sup>(2)</sup>. Although the laboratory relevance for engineering modules varies from 79% to 87 %, mainly due to the lecturer’s teaching method, 79 % of students agree over the relevance of the laboratory work.

Table 4. The importance of the relevant laboratory experiments <sup>(2)</sup>

The relevance of laboratory experiments in engineering modules								
The students struggle to handle the laboratory equipment			The laboratory experiment is relevant for all mechanics of machines modules			The laboratory experiment is relevant for all strength of materials modules		
yes	no	na (no answer)	yes	no	na	yes	no	na
6	94	14	92	8	14	98	2	14
5%	83%	12%	81%	7%	12%	86%	2%	12%
The laboratory experiment is relevant for all fluid mechanics modules			The laboratory experiment is relevant for all thermodynamic modules			The laboratory experiment is relevant for all mechanical engineering manufacturing modules		
Yes	no	na	yes	no	na	yes	no	na
98	2	14	99	1	14	90	10	14
86%	2%	12%	87%	1%	12%	79%	9%	12%
The integration of the laboratory experiments into module enhanced the students understanding of the module and their academic performance								
Yes	No	Na						
90	10	14						
79%	9%	12%						

In South Africa, the Engineering National Diploma programs have the work integrated learning module as part of the qualification. The National Diploma students spend 12 month working in industry before they can graduate, thus giving them an important cutting edge on the labour market. The whole year spent in industry is even more relevant considering the fact that 96 % of the students do not have family / friend running a business in the engineering field. As can be seen from table 5, the experiential training plays a crucial role in helping the students to develop a general understanding of the engineering subjects and overcame the hurdles of problem subjects. Unfortunately the student placement in industry, especially for P1 training is a huge problem that our Faculty is trying to address, via cooperative education and active involvement of industry Advisory Committees, in all aspects of engineering department activities <sup>(6)</sup>. Due to a total lack of basic engineering skills of the majority of our students, the placement of P1 students is very difficult as the industry tend to see them as a liability. The P2 placement is easier because the company use the student as a technician while training, thus adding value in the working place. The industry prefers students who completed their two years of academic training and offer them P1 and P2 training over a whole year, with the idea of employing the young graduate after the completion of the experiential training. Over a whole year, the company can assess the student’s ability to successfully integrate in the working environment <sup>(4)</sup>.

Table 5. The importance of work integrated learning in training the future engineers <sup>(4)</sup>

Experiential training, first phase (P1) and second phase (P2) a total of 24 students		
After P1 or P2 work integrated learning the general understanding of engineering	After P1 or P2 work integrated learning the students’ academic performance was enhanced	Did the student have any family member / friend running an engineering business?

profession was enhanced								
yes	no	na	yes	no	16%	yes	no	na
16	3	5	13	5	6	1	23	0
67%	12%	21%	54%	21%	25%	4%	96%	

### Conclusions and Recommendations

Considering the challenges faced by the future engineering students, action should be taken starting from the high school right through the tertiary education. Based on the students response to the survey there are several steps that should be considered in order to improve the engineering education in South Africa.

- Develop from high school the learners ability for self-study,
- Encourage learners to use the school library facilities where existent,
- Expand the high schools engineering books library database
- Introduce engineering workshop classes at high school levels,
- Bursaries and study loans to be extended for controlled environment P1 training payment, to reduce the “bottle neck” created by P1 placement.
- As the Engineering Faculty organizes each year the Open Day, when high school learners visit the University and all departments present their program giving career choice advices, the mechanical engineering department representatives should start an intensive career advice program in the high schools.

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# The institutional program for scholarships for initiation in teaching in Brazil - and a teaching program in music - the relation between theory and practice

Laude Erandi Brandenburg

Doctorate in Theology - Faculdades EST, Teacher in Area Religion and Education, Rua Amadeo Rossi, 467 – Bairro Morro do Espelho  
93220-030 – São Leopoldo/RS - Brazil

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## Abstract

This article presents the Institutional Program for Scholarships for Initiation in Teaching (Pibid), in Brazil, with its characteristics and organizational forms and analyzes it from the perspective of a Licentiate Program in Music which recently began its participation in this scholarship program. It seeks to analyze the possible difficulties which could present themselves throughout the process. To analyze the subject documents and legal orientations will be used such as the presidential decree instituting the Pibid and the current Pedagogical Project of the Licentiate Program in Music. Besides this the theoretical referential is based on Tardif, Keil and Vygotsky.

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*Keywords:* Pibid; Teacher Formation; Theory and Practice.

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## Introduction

The teaching formation programs, the licentiates, are little sought after programs, or, at most, less sought programs than other bachelor's programs. Obviously this has to do with the lack of social and financial recognition of this so necessary and important social task. One of the criticisms made of the formation is that students from the licentiate programs go out ill prepared for work in the schools, with little practical knowledge for an efficient work. The main criticism, therefore, consists in the lack of coherency between the epistemological knowledge taught in the undergraduate programs and the practical capability in carrying out the teaching roles. Even though all the Licentiate programs include internships in their curricular organization, for some reason, this has not had the desired effect. Within this context, a program arises in Brazil which seeks to diminish this existing gap between theory and practice, between epistemological and didactical knowledge. Thus, in the first part of this paper, the Program is presented, with its characteristics, goals and organizational forms. Next, there is an analysis of this Program from the perspective of the Licentiate program in Music of the Faculdades EST in São Leopoldo, RS, Brazil.

## 1. Getting to know the Programa Institucional de Bolsa de Iniciação à Docência (PIBID) [The Institutional Program for Scholarships for Initiation in Teaching in Brazil].

The Institutional Program for Scholarships for Initiation in Teaching in Brazil – PIBID – was instituted by Federal

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Corresponding author. Tel.: (055) 51-21111400; fax: 055) 51- 21111411.  
E-mail address: laude@est.edu.br

Decree N. 7,219, of June 24 of 2010, and executed through the Coordenação de Aperfeiçoamento de Pessoal do Nível Superior – CAPES [Coordination of Personnel Improvement of Higher Level Education]. This federal organ, which originally financed betterment at the Master's and Doctoral levels, turns also toward “fomenting initiation in teaching, contributing to the improvement of teacher formation at the higher level and to the improvement of the quality of Brazilian fundamental public education” (Art. 1) To begin the analysis, it is important that the goals of the Program be known.

### *1.1. Goals*

In Art. 4 (Ordinance Nr 096, of July 18 of 2013) the goals of the Initiation in Teaching Program are expressed:

- I – encourage the formation of teachers at the higher level for basic education;
- II – contribute to the valorization of the teaching profession;
- III – elevate the quality of the initial formation of teachers in the licentiate programs, promoting the integration of higher level education with basic education.
- IV – place licentiates in the daily life of the schools of the public education network, propitiating for them opportunities for creation of and participation in methodological, technological and practical teaching experiences with innovative and interdisciplinary characteristics which seek to overcome the problems identified in the teaching-learning process;
- V – encourage the public schools of basic education, by mobilizing their teachers as co-trainers of futures teachers and making them protagonists in the initial formation processes for the teaching profession;
- VI – contribute to the articulation between theory and practice which is necessary for the formation of teachers, elevating the quality of the academic actions in the licentiate programs.
- VII – contribute so that the licentiate students can place themselves in the school cultures of the teaching profession, through the appropriation of and reflection about instruments, knowledge, and peculiarities of the teaching job.

The first goal externalizes the problem expressed above in the introduction with regard to the low demand for licentiate programs. With the amount of the scholarships, the students can qualify their study, as well as finance part of the credits. With the designation of funds for teacher formation, one can perceive the existence of public policies and the interest in the teaching profession at the level of society. This interaction that is so necessary between the basic schools and higher education begins to take place, since the fragmentation of the knowledge and the separation between Higher Education and the social reality caused a great distancing of the university in relation to the society as a whole.

Within these goals, some aspects stand out related to the quality of the initial formation, which make a relation between the daily life of teaching and the academic study, which create a balance between theory and practice, which provoke the insertion into the public school and , with this, become the school, educational and formational contexts of the new generation. With this type of proposal, a possible tendency to be incorporated into the way of being a teacher will be that there will be a greater connection between the school concepts and the daily life concepts. (L. S. Vygotsky, 1993, p. 259.)

One factor which motivates the quest for improvement in the teaching performance is the low indexes attained by Brazil in international evaluations and which put it within the last places in quality of education.

### *1.2. Principles which arise from the creation decree of the Program.*

Brazil is characterized as a multi-ethnic country because of the existence of different social classes and a great cultural diversity. Art. 6 of the decree deals specifically with this diversity and indicates the target public of the institutional projects in question: “The PIBID will tend to the higher level formation of teachers to work at the infant, fundamental and middle school levels of basic education, as well in the education of people with disabilities, youth and adults, quilombola [African-Brazilian slave descendant] communities, indigenous people and education in the rural areas.” Thus the principle of respect for diversity comes to be an orientating factor for the work of the teacher. This principle impacts the formation foreseen in the projects of the courses (programs) involved in the Program.

The public school in Brazil, by its own vocation, constitutes itself as the space by law for the schooling of children and adolescents in situations of social vulnerability. From within itself strategies can arise for seeking their rights or, at least, for analyzing the possible causes of the risk of social exclusion and for strengthening for confronting the risks of vulnerability. Keil (2011, p. 23) points out that one of these strategies of confrontation of the historical conjuncture is

the local development. Besides this he affirms that this development has as its center the individuals and the environment. Thus, the school could be a space in which the more vulnerable social classes could become aware of themselves and strengthen themselves as subjects with rights and implement the development of this conception. "Principles such as solidarity, cooperation, unconditional hospitality, autonomy among others, are threads and the needle which weave it" (Keil, 2011, p.23). Due to this, the school has, or should have, as its main target this age group of children and youth with their specific needs and with their possible vulnerabilities.

Public policies have been put forth in favor of children and adolescents with the goal of protecting them from vulnerabilities. And the public schools are propitious spaces for executing and weaving these policies and for the development of concepts of citizenship that are not simply theoretical. This process was put into motion in the year of 1990 when the Statute of the Child and of the Adolescent [Estatuto da Criança e do Adolescente (ECA)] – Law n. 8,069 was approved. As of this law a new background for infancy and adolescence arises. "Children and adolescents are sociological types elevated to the category of juridical types, therefore, detainers of rights foreseen in laws and with public and social policies with very specific cuttings." (Silva, Souza Neto, 2009, p.11). Faced with the advance coming from the public policies, this theme is also necessary in the analysis of the social issues in the public school. New languages enter at least the theoretical focus of the subject. The issue of social vulnerability, and because of it, the themes of human rights, become part of the new vocabulary. And thus the Program fulfills what is foreseen in art. 7 of the decree "the PIBID must be exclusively executed in schools of basic education of the public school networks, being forbidden the placement of scholarship students in activities of administrative or operational support". Thus, the public school becomes a formation agent and abandons the passive status that was attributed to it before.

## 2. Music in the school

In dealing with the subject of the territoriality of Music, it is necessary to point to the problem of Musical Education in the Brazilian school or to the mandatoriness of the content of music in basic schooling coming from the Law 11,769 of 2008. As to the applicability of the legislation, the long time of absence of Music as a part of the formal school curriculum makes it difficult for it to be truly inserted or reinserted within the daily school life. Another issue is related to the reason for which the return of Music as a curricular component in the school is considered necessary. Does it have a role to fulfill? What would it be? In some teaching systems new legal possibilities arise to increase the presence of Music in the school. But, at the same time, there is a need to delimit the intentionality of its presence. At this moment of returning to the school, there is a need to justify the task of Music in the school. Upon entering the school world, the Music teacher is required to justify his or her presence. The school still strongly maintains the territorial reserves of specific fields. That is why the first could be an epistemological motive and not a didactic one per se. To say that Music is an area of knowledge that is as necessary as the others could be a simple apologetics for the area. But if Music is not defended, there will also not be the space which still needs to be conquered in the Brazilian schools. One begins with the presupposition that "Music in the school contributes to the development of a potential that every subject is capable of" (Santos, 2009, p. 193). The methodologies to reach this goal, obviously, are differentiated among the teacher formation programs in the Music Licenciates throughout the nation, but the challenge is the same for all.

The teaching of music in Brazil was absent from the schools for a long time, with the exception of one or another school which had human resources on their staff prepared in the area, but working in Visual Arts or, even in other areas of knowledge. This situation brought about informality to the area.

In dealing with Music Education, one of the elements of the educational problem has to do with the professional formation of teachers for this area. The first question which arises is what type of formation is necessary: a generic formation for the four dimensions of the Arts curricular component or a specific formation in each one of the typologies? Besides this, since Music was excluded from the formal school space, a parallel "market" arose made up of Music Schools which have their own demand. One needs to consider that the programs in the area of teacher formation, the licenciates in general, have been the target of criticisms of educational analysts because of the excessive existence of theoretical disciplines and too little practical orientation acquired in these programs. These criticisms point to a real situation: beginning teachers arrive in the classrooms, with, at the least, doubts as to the "routine" procedures to be carried out in their professional activities. This is a problem which most of the professionals in the areas considered technical do not have.

This discrepancy between the so called educational theorizations and practice points to a dichotomy between epistemology and didactics. Even though a practice without a theory which orients it does not exist, many times the



activism demanded by the daily teaching life of the teacher impedes an awareness of the causes and consequences of this practice. Or the theoretical dominion of the concepts and conceptions is not translated or transferred to the teaching task. Thereupon, a separation arises between theory and practice or a dichotomy develops between the epistemological field and the didactic field. And the result appears in the failure to learn or the lack of zest of the children and youth for the school. In the area of Music the situation is aggravated due to the need to deal with the four dimensions of the Art component previously mentioned.

Knowledge and action form a conceptual unit. They are, therefore, inseparable. This should be a referential for all the areas of knowledge taught in the school, but it is also essential for the area of Music. In this way one arrives at the necessary theoretical referentials, the analyses which need to be done and the possible practical framework for its pedagogical execution, that is, the know-how to be developed in the process of teaching formation for Music.

Upon entering the school doors, Music shows the fulfillment of what is said by Tardif (2008, p.25): "...the formation of teachers is a collective responsibility of the whole teaching profession, as well as of the school authorities: establishments, school commissions, etc. A program is vigorous and its formation of quality when this set of collective actors works together and shares a common vision of teaching and of the work of the teachers". In this way, the public school no longer simply receives teachers whose preparation is deficient, but takes on a preventative and formative role.

In continuity with this recognition of Music in the school, a resolution emitted by the Municipal Council of Education and which foresees the specific space for Music (CME, 2012), appears in the municipality where the Faculdades EST is situated, that is, São Leopoldo, RS and which is the geographical space in which the PIBID is carried out. This resolution foresees the presence of Music as a curricular component in Infant Education and Fundamental School, including the work of teachers with specific formation in Music.

### **3. The PIBID at the Faculdades EST**

"Here is the first responsibility of a true team of teacher trainers: to define the program in which it wants to work, enunciating its creed in terms of formation for teaching, that is, their ideals, values, ambitions" (Tardiff, 2008, p. 19). Among these ideas is the methodological principle of the theory and the practice which is an essential factor. The program project for the Licentiate Program in Music of the Faculdades EST calls for "an academic formation which propitiates the establishment of relations between theory and practice". Since, as Tardiff affirms, (2008, p. 21), "one of the main problems with teacher formation is the fragmentation of the programs, their fractioning into disciplines and fields, their division into disparate activities." To avoid this fragmentation the program tries to unite theory and practice from the first semester on through internships, an aspect which the PIBID also develops, and through constant dialog with the different professionals who seek the integration among the different curricular components. Beyond this an attentive Structuring Teacher Nucleus can help, through constant accompaniment and analysis of how the program is working.

Among other criticisms of the graduates from the Licentiate programs is their difficulty in the area of oral and written communication. In this sense the institutional PIBID/EST project foresees improvement courses in the Portuguese Language for its scholarship students since it believes that a music teacher needs to have dominion of his/her language. As the Pedagogical Project of the Licentiate Program foresees: "the encouragement of reading, writing and rational logic for the knowledge, analysis and interpretation of the social issues should be part of all the units of teaching in a Program/Course". In practical terms and in keeping with this demand, the group is challenged to maintain a field diary and register in it impressions, feelings, anxieties, experiences. Besides this, the group has weekly meetings at the program center to exchange ideas, recount the happenings of the week and plan meetings and work activities. In these meetings the minutes are written up by the scholarship students themselves in order to develop this communicative skill and to be able to officially register school activities.

In terms of the profile of the graduates the PPC says: "He/She should also, besides exercising musical teaching in regular school situations, tend to people with special needs – be they physical, and/or mental and/or emotional -, and in non-governmental organizations and other spaces of promoting citizenship and social well being" (Pedagogical Project of the Program, p. 17). In this sense, art. 6 of the decree which institutes the PIBID, also finds a parallel in the referentials of the course program. With the goal of getting to know the impacts on the life of the scholarship students as well as on the schools where they work, the PIBID will be the focus of Research Projects of professors involved in the Program. They will seek to investigate if there are limiting elements and if so what they are, if the different levels of knowledge and the different stages of advancement of the scholarship students in the program interfere in the

performance and how this happens.

For the initial procedures and to minimize possible negative impacts upon approaching the teaching practice, the counsel is to, where appropriate and if necessary, work in pairs for teaching work in the classroom in the first months of the project, especially for those who are closer to the beginning of the program and have not carried out supervised internships. For carrying out special projects the work in pairs has been recommended to have a greater reach. In the institutional accompaniment of scholarship students we seek a participative and group pedagogical style in which the students appropriate for themselves all the documents of the institutional process of the PIBID. The documents are studied and their contents are shared in the meetings. The steps taken in the practice in the schools are evaluated and the next steps planned. As Tardif says (2008, p. 24): "A quality program should have spaces and moments in which the trainers and the other actors may reflect and work together on their formation project".

Toward this end, the goals of the PIBID and the licentiate program project itself are organized to work in the direction of a shared reflection, in which the scholarship students receive the challenge to position themselves facing reality, the theory studied in class and the practices exercised in the classes and to seek pertinent procedures together.

According to international research, we think that the transmission/acquisition of school know-how (which encompasses knowledge, but also values and competencies) and the management of interactions in the classroom constitute the two most important tasks of the teacher. In the first, the teacher situates him/herself in the order of didactic competencies: he must transpose and teach the curricular contents, cover the program, assure him/herself that the various elements are assimilated, facilitate the retention of the material, conceive of situations of problem resolution, actively supervise the development of the class, evaluate the assimilation of the material, etc. The second task is about competencies specific to the conduct of the class: he/she must organize the groups, establish rules and procedures, react to unacceptable behaviors, link the activities, etc. These two competencies constitute the center of teaching in class and should, therefore, form the base of a referential of competencies in the programs for initial formation" (Tardif, 2008, p.37).

This contribution of Tardif leads to the analysis of two factors: the epistemological and the didactic, fundamental aspects which can serve as criteria for the accompaniment of the initiation into teaching incremented by the PIBID. Toward this end, the scholarship students receive accompaniment of the Licentiate in Music Program coordinator who monitors the development of the epistemic part of the musical school content and the PIBID institutional coordinator and Didactic professor accompany the part of the teaching planning and practice.

#### 4. Conclusion

Since the application of the program is recent there are still no evaluative aspects to be reported. However, some hypotheses can be put forward as to possible difficulties to be confronted. One of them has to do with the permanence of the students so as to develop a sequence and continuity, thus reaching fidelity with the Program. This is one aspect which is being worked out after two students, with acceptable justifications, asked to cancel their participation. It is also necessary to have a constant interaction between the institutional coordination, supervisors of the schools and the students so that the goals can be constantly cross checked with the practice. Therefore, the scheduled meetings, in the schools in which the students work as well as in the forming/training institution and the constancy of their being carried out can minimize possible negative impacts.

However, the first impressions communicated in the group already confirm that the PIBID can have an excellent scope as an aggregating element in teacher formation, especially in the challenge of connecting theory to practice. To get to know the school culture from the beginning of the program, be it through internships or through work within the PIBID, can help test the real interest in becoming a teacher. Maybe this can be an element which can help avoid that people without a liking for teaching go on to exert the teaching role only because they have the formation and nothing better has shown up for them to do for their survival. The hope is that this contact with the practice from the first semester on, as in the case of the foreseen supervised internships, or through the PIBID, may develop people more focused on reality and with sufficient knowledge that conveys the conviction that they truly want to be teachers.

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# The investigation of attitude and readiness of information and communication technologies pre-service teachers toward web based learning

Mustafa Yağcı<sup>a</sup>, Didem Alsancak Sırakaya<sup>a</sup>, Gül Özüdoğru<sup>a93</sup>

<sup>a</sup>Ahi Evran University, Faculty of Education, Computer Education and Instructional Technology Department, Kırşehir 40100, Turkey

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## Abstract

The present study aims to investigate attitudes and readiness of Information and Communication Technologies pre-service teachers toward web-based learning. In the study group of the research are 165 pre-service teachers. The study was conducted in the survey model. As data collection tools, 'Web-based Teaching Attitude Scale' and 'Readiness and Expectation Scale for e-Learning Process' were utilized. In analysis of the collected data, descriptive statistics, t-test, and ANOVA analysis were conducted. As a result of the research, it was found that attitude levels of pre-service teachers were lower than median; and their readiness levels were above the median. Moreover, in terms of gender, there was no significant difference between attitude and readiness scores. While there was no significant difference among attitude scores in terms of number of years in education, there was significant difference in readiness scores.

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*Keywords:* web-based learning; attitude; readiness

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## 1. Introduction

In the current information age, fast-paced developments experienced in the information and communication technologies have reflected on education area like all areas of life. Along with the technological innovations, countries have started to rearrange their education programs and policies (Çetin and Günay, 2011). In this scope, the internet, one of the significant technology advancements, has started to be used a resource with priority to fulfill education need and life-long learning demand. Internet environment enabled educational institutions to transfer their activities onto the web environment independent from spatial and temporal conditions due to the advantages of the internet (Demir, Kaymak and Horzum, 2013). At this point, one of the new learning – teaching models developed recently by educators was web-based teaching model (Çetin and Günay, 2010). Web-based teaching was defined as a learning environment in which the educational content is presented through a web browser (Karataş, 2008).

Through web-based teaching, learners are enabled to have access information from anywhere and on anytime by means of computer and internet technologies (Yiğit, Yıldırım and Özden, 2000). Besides the internet-based education applications, web-based teaching has also enabled developing interaction and communication, creating discussion platforms, and taking advantages of chat programs (Cömert, 2012). Moreover, it is possible to fulfill learners' personal learning needs and to develop their motivation by means of web-based teaching (Yeniad, 2011). Visual structure,

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<sup>93</sup> Corresponding Author. Tel: +90 386 2805135  
E-Mail address: gerturk@ahievran.edu.tr

communication and interaction capabilities and personal education opportunity can be considered as advantages of the web-based education (Alessi, & Trollip, 2001, referenced by Arkün, Baş, Avcı, Çevik and Gürcan, 2009). Additionally, web-based teaching have advantages without spatial and temporal dependency such as ability to work with materials enriched with audio and video animation, self-learning, self-regulation, and time management (Tüysüz and Aydın, 2007). Moreover, Cook (2007) enumerated the advantages of the web-based teaching as reusability of resources and materials, flexible scheduling, updateability of resources, personalized teaching, new teaching methods, evaluation and documentation. In addition to its advantages, web-based teaching exhibits several disadvantages as well. Some of these disadvantages are social isolation, cost, technical problems, and weak educational design (Cook, 2007).

Although there are numbers of advantages, online learning is required to have readiness characteristic so that students can utilize from these advantages similar to ones in the web-based learning environment (Yurdugül and Alsancak Sırakaya, 2013). In these environments, it is important for students to have readiness in terms of technical skills, motivation, and access to technology in the context of the efficiency and productivity of the process. In web-based systems, interests, expectations and required competencies of students may differ according to the conventional education (Frith and Kee, 2003). Hence, it was stated that readiness in distance learning, web-based learning, blended learning and online learning is a factor that must be taken into consideration (Usal and Bayrak, 2005; Tezer and Biçen, 2008; Demir Kaymak and Horzum, 2013).

When it is considered in terms of web-based education environments, besides the readiness, attitude is another variable that must be considered. It is important taking sensual characteristics such as attitude into consideration to create learning experience (Küçükahmet, 1997). As it is same with the conventional education environments, success of the web-based education environments depends on attitude of students toward web-based teaching (Erdoğan, Bayram and Deniz, 2007); and it largely affects learning process (Alomyan & Au, 2004). Along with the changing student roles, it is important for students to develop positive attitude toward this environment and to embrace them as part of their learning culture (Erdoğan, Bayram and Deniz, 2007). In the literature, students' attitude toward web-based teaching has been focused and its significance has been emphasized through researches (Kurubacak, 2000; Manzares, 2004; Özgür, 2011; Uzun, Özden and Yıldırım, 2013).

Application of web-based learning environments in education and number of studies in this subject has been increased significantly. Essential reason behind the expansion of web-aided education is their contribution to the learning-teaching environments (Yağcı, 2012). While effects of the web-based learning environments are being investigated, characteristics of environments and learners are required to be considered for successful results. In the web-based teaching environments, learners' characteristics are the factors to be considered. Readiness, attitude, gender, learners' grades are some of the factors to be considered. In terms of effectiveness and productivity of the process, it is important for learners to have positive attitude and to be at certain readiness level.

Attitude and readiness of pre-service teachers studying at the department of computer and teaching education toward web-based teaching are important since they are more related with technology compared to the other departments and they would take role in expansion of technology usage in the institutions where they perform their occupation. While pre-service teachers are in the user position regarding web-based learning environments during their undergraduate education; they will be designer and applier position for these environments in the future. Therefore, their high level of attitude and readiness toward web-based teaching would increase their potential to use these environments in their own courses.

The purpose of this research is to investigate attitude and readiness of pre-service teachers at the department of Computer Education and Instructional Technology toward web-based learning. Within this framework, following purposes were responded:

1. What are the attitude and readiness levels of pre-service teachers toward web-based learning?
2. Do the attitude and readiness levels of students toward web-based teaching vary significantly based on gender?
3. Do the attitude and readiness levels of students toward web-based teaching vary significantly based on their grade level at the school?

## **2.Method**

In the present study, attitude and readiness levels of pre-service teachers toward web-based learning were investigated. Since an existing condition was investigated, a survey model was used. The survey model is appropriate approach for studies aiming to describe a circumstance which existed in the past or still present (Karasar, 2009).

#### *Participants*

The study group of the research was consisted of 165 pre-service teachers at the department of Computer Education and Instructional Technology in the Faculty of Education at the Ahi Evran University during spring semester in the educational period of 2013-2014.

Table1. Gender distribution of the pre-service teachers

Gender	f	%
Female	94	57
Male	71	43
Total	165	100

When Table 1 is considered, it can be seen that 94 of pre-service teachers were female (57%), and 71 of them were male (43%).

Table 2. Distribution of pre-service teachers according to their grade level

Class	f	%
1	43	26.1
2	43	26.1
3	41	24.8
4	38	23.0
Total	165	100

When Table 2 is investigated, it was seen that the number of first grade students were 43 and they constitute 26.1% of general population; the number of students on the second, third and fourth grade were 43 (26.1%), 41 (24.8%) and 38 (23%) respectively.

Table 3. Distribution of pre-service teachers according to type of high schools where they were graduated from

Type of the high school	f	%
General high school	18	10.9
Occupational high school	106	64.2
Science high school	1	0.6
Anatolian high school	27	16.4
Other	11	6.7
Undeclared	2	1.2
Total	165	100

When Table 3 is investigated, it was observed that the number of graduates from general high schools were 18 (10.9%), from occupational high school were 106 (64.2%), from a science high school 1 (0.6%), from an Anatolian high school 27 (16.4%), from other type of high school were 11 (6.7%), and the number of undeclared were 2 (1.2%).

#### *Data Collection Tool*

As data collection tools, demographic information form, 'Web-based Teaching Attitude Scale' developed by Erdoğan, Bayram and Deniz (2007); and 'Readiness and Expectation Scale for e-Learning Process' developed by Gülbahar (2012) were utilized.

**Demographic Information Form:** At this section, gender, graduate level and graduated high school information of pre-service teachers were acquired.

**Attitude Scale for Web-based Teaching:** ‘Web-based Teaching Attitude Scale’ developed by Erdoğan, Bayram and Deniz (2007) consists of 26 items whose validity and reliability analyses were performed, and in five-scale Likert form. It is composed of two dimensions called “Web-based Teaching Efficiency” and “Resistance against Web-based Teaching”. The overall Cronbach’s Alfa internal consistency coefficient of the model was determined as 0.917.

**Readiness and Expectation Scale for e-Learning Process:** ‘Readiness and Expectation Scale for e-Learning Process’ was developed by Gülbahar (2012) and its validity and reliability analyses were performed while it was formed in five-scale Likert structure. It was totally consisted of 26 items in five dimensions: “Personal Characteristics” in 4 items, “Access to technology” in 4 items”, “Technical Skills” in 8 items, “Motivation and Attitude” in 4 items and “Factors effecting success” in 6 items. The general Cronbach’s Alfa reliability coefficient was found as 0.93 for the scale.

The data collection process was performed based on voluntary participation for the spring semester of the educational year in the period of 2013-2014 and distributed in the printed form.

### Data Analysis

In the data analysis, SPSS (Statistical Package for Social Sciences) 20 package program was employed. Skewness and kurtosis values of application data were investigated and it was seen that it presents normal distribution. Skewness and kurtosis values were in the range of 0.04 and 2.57. Description and correlation analyses were performed. Descriptive analyses were also employed in analysis of demographic data and in calculation of measurement tool scores. Correlation analysis was performed to investigate relationship between readiness and attitudes of pre-service teachers.

### 3.Findings

In this section, findings supporting purposes of the analysis were included.

1. To determine attitude and readiness levels of students toward web-based teaching, average scores were investigated in terms of total score and factor score. The relevant data were exhibited on Table 4 and Table 5.

Table 4. The attitude level toward web-based teaching

	Min	Max	$\bar{X}$	S.S
Efficiency of web-based teaching	1.00	4.65	3.40	.60
Resistance against web-based teaching	1.67	5.00	2.85	.61
Total score	1.77	4.23	3.21	.35

When Table 4 is investigated, it was observed that average score of students toward web-based teaching were found as 3.21. When average scores were taken into consideration for average scores, efficiency of web-based teaching, the average score for sub-factor was found as 3.40; and resistance sub-factor against web-based teaching was found as 2.85. Based on these findings, it can be said that students’ attitude levels are on the median level due to both sub-factors and general total.

Table 5. Readiness level toward web-based teaching

	Min	Max	$\bar{X}$	S.S
Personal characteristics	1.00	5.00	3.33	.84
Access to technology	1.00	5.00	4.12	.88
Technical skills	2.00	5.00	4.49	.61

Motivation and attitude	1.00	5.00	3.67	.78
Factors affecting success	1.00	5.00	4.19	.72
Total score	2.19	5.00	4.06	.57

When Table 5 is considered, it can be seen that readiness average score of the students toward web-based teaching was found as 4.06. When the average scores were considered in terms of sub-factors, it was found for personal characteristics as 3.33; for access to technology as 4.12; for technical skills as 4.49; for motivation and attitude as 3.67; for factors affecting success as 4.19. Based on these findings, it can be said that both for sub-factors and for general total, readiness levels of students were in the range between median level and high level.

2. To determine whether attitude and readiness levels of students toward web-based teaching vary according to gender significantly, t test was applied. The analysis results were summarized in Table 6.

Table 6. Attitude and readiness level according to gender

	Gender	N	$\bar{X}$	Ss	Sd	t	P
Attitude toward web-based teaching	Female	82	3.24	.33	150	1.20	.232
	Male	70	3.17	.36			
Readiness toward web-based teaching	Female	86	4.06	.54	150	-1.33	.185
	Male	66	4.13	.61			

There were no significant difference between attitude levels of students toward web-based teaching and their gender ( $t = 1.20$ ,  $p > .01$ ). Similarly, there was no significant difference found between readiness of students toward web-based teaching and gender ( $t = -1.33$ ,  $p > .01$ ). According to these results, it can be said that there was no significant difference in attitude and readiness levels of female and male students toward web-based teaching.

3. To determine whether there is significant difference between class year of students and their attitude and readiness levels of students toward web-based teaching, ANOVA analysis was performed. The analysis results were exhibited on Table 7.

Table 7. Attitude and readiness level according to grade level

Dimension	Grade level	N	$\bar{X}$	SS	sd	F	P	Significant Difference
Attitude toward Web-based Teaching	1	36	3.1271	.29289	.11	4.267	.006	2-4
	2	40	3.9067	.56331	.05			
	3	40	4.1317	.60198	.06			
	4	35	4.1451	.60296	.09			
Readiness toward web-based teaching	1	37	4.0655	.48632	.13	1.457	.229	
	2	41	3.1051	.34434	.04			
	3	41	3.2861	.36539	.05			



As it can be seen from Table 7, according to the results obtained from variance analysis, there was significant difference was found between grade level of students and their attitude scores toward web-based teaching [ $F(3-151) = .006, p < .05$ ]. To determine the origin of this difference, the Bonferroni analysis was performed and as a result of the analysis, it was revealed that attitude levels of the 4th grade students were higher than the 2nd grade students.

Regarding the readiness scores of students toward web-based teaching, there was no significant difference according to their grade level [ $F(3-151) = .229, p > .05$ ]. In other words, readiness levels of students toward web-based teaching did not present variation according to their class years.

#### 4. Result and Conclusion

Attitude levels of pre-service teachers toward web-based teaching were found at the median level in terms of both sub-factors and general gross total. The similar results were also obtained in the study of Uzun, Özden and Yıldırım (2013). Moreover, in the study of Yakın and Tınmaz (2013), the positive attitude of pre-service teachers toward e-learning explains this findings as well. Additionally, in the study conducted by Yeniad (2011), it was found that students have positive attitude toward web-based education process.

Readiness of pre-service teachers toward web-based teaching was found in the range between median and high levels in terms of both sub-factors and general total. In the study of Hung, Chou, Chen and Own (2010), readiness levels of students toward online learning was determined high. Stokes, Cannavina, and Cannavina (2004) researched readiness levels of medical school students for web-based learning environments; and it was found that there was no sufficient readiness level.

There was no significant difference between attitude levels of female and male pre-service teachers. In their study, Yakın and Tınmaz (2013) found that attitudes of pre-service teachers toward e-learning do not exhibit difference based on gender. Chen and Tsai (2005) found significant difference between attitudes of university students toward web-based learning in the favor of female students.

Similarly, regarding the readiness levels of female and male pre-service teachers toward web-based teaching, there was no significant difference. Other studies investigating readiness levels of female and male students toward online learning revealed that there was no difference among them (Hung and et al, 2010).

There was significant difference was found regarding attitudes of pre-service teachers toward web-based teaching on the grade level. It was found that attitude level of the 4th grade were higher than the ones in the 2nd grade. This finding confirms the results of Yakın and Tınmaz (2013). It was found that attitude levels of the senior students toward e-learning were found higher than the first grade. It can be said that this is an expected result because along with the years at school, students gain more technological experience and sufficiency, which enhances their attitude levels.

Among the readiness scores of the pre-service teachers toward web-based teaching, there was no significant difference at the grade level. In the literature, there are different studies revealing various findings. In the study of Hung and et al (2010), it was reported that there was significant difference in online learning readiness levels of students among according to their grade level.

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# The investigation of the relationship between ADHD and visual-spatial functions

Selin Alpanda\*

*\*Altis Communication and General Consultancy, 34718 Koşuyolu Kadıköy İstanbul*

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## Abstract

The purpose of this study was to investigate the visuospatial functions in children, 7-15 years of age, diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). Within the framework of this overall purpose of the study, Benton Face Recognition Test and Benton Judgment of Line Orientation Test were carried out to evaluate the visuospatial perception skills. Rey-Osterrieth Complex Figure - Copy and WISC-R cube design subtests were applied to evaluate the visuospatial construction skills. Within this scope, thirty five children diagnosed with ADHD by a psychiatrist or neurologist and thirty nine normally developed children with no health problems were examined. The results of the study indicated that the comparison between the children diagnosed with ADHD and normally developed children revealed that there was a meaningful difference in the dorsal surface visuospatial perception, regarding being diagnosed with ADHD or not. However, within this skill, the children diagnosed with ADHD were found to spent less time than the children not diagnosed with ADHD.

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*Keywords:* Type your keywords here, separated by semicolons ; Visuospatial perception; attention deficit hyperactivity disorder; neuropsychological tests

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## 1. Introduction

Brain does not include different centers for each function. For example, there is not a separate center to identify faces we know, to concentrate when we focus on something, or to call to mind a word etc. Connection networks bridging various zones in the brain carry out cognitive functions (Madi, 2011).

Attention Deficit Hyperactivity Disorder (ADHD) indicates more frequent and severe hyperactivity- impulsivity by comparison with ones in similar development period (DSM IV, 1994). As well as it's not accepted that there is a center for attention system, it's also considered not related to all parts of brain (Güneş, 2004). Findings of studies on attention and brain show that there is a complex neural system related to attention. For instance, a higher-level emotional cortex such as inferior temporal cortex functions to recognize emotions and to get details of each sensory stimulus by the way posterior parietal cortex operates to pay attention for conducting in time and space. In addition to these, prefrontal cortex runs for operating higher-level mental activities such as regulating attention, focusing, keeping attention, inhibiting unrelated stimulus (Güneş, 2004).

Children with ADHD may have difficulty with visual spatial functions. Visual spatial functions consist of visual spatial sensation and visual spatial configuration. Brain includes "what" and "where" pathways representing these two sensation types. Oksipitotemporal (ventral) pathway identifying subjects is important for recognizing shape, color, and properties of subjects by projecting it from oksipital cortex to temporal cortex. Oksipitoparietal pathway, which is

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\* Corresponding author. Selin Alpanda. Tel.: +902163689001; fax: +902163689005  
E-mail address: selin.alpanda@gmail.com

defined “where” pathway, transfers data from oksipital cortex to parietal cortex. Oksipitoparietal pathway is involved with places, parts, and positions to other ones of subjects. Although brain includes two different pathways that are related to what/ where the forms are, we perceive them as a whole. As “what” and “where” pathways and data converge in prefrontal cortex, perception of forms as a whole takes place. Thus prefrontal cortex has a role to perceive visual characteristics of stimulants, and place they occupy as a whole (Karakas, 2008).

Despite there are various studies on ADHD and executive functions, it's not found out any study presenting relationship between ADHD and right hemisphere. In a study titled *Investigating Relationship Patterns of Attention, Executive Functions and Metacognition Performance in Subtypes of ADHD*, it's found that cognitive disorders in ADHD may result from disorders in functions of a common and complex neuroanatomical network system including front parietal zones and their subcortical projections (Soysal, 2007). According to Erdoğan & Bakar (2007) 7 studies of 12 shows that total children with ADHD's brain volume (especially on the right part of brain) is %3-5 smaller than the other ones (as cited in Mostofsky, Cooper, Kates, Denckla & Kaufmann, 2002). Literature indicates that ADHD is in relationship with prefrontal cortex functions (Semerci & Turgay, 2008). Hence it's not presented attention affects and discrepancies on visual spatial functions. In this study, the purpose was to exhibit visual spatial differentiation levels according to development periods, and to investigate relationship between ADHD and visual spatial functions on the basis of findings in researches setting out activations in parietal lob, and volume change on the right hemisphere.

In this study aiming to investigate visual spatial functions of 7-15 year-old children with ADHD, these questions were answered:

- How are 7-15 year-old children according to ADHD and visual spatial functions?
- Do ADHD levels of 7-15 year-old children differentiate into age and gender?
- Do visual spatial functions of 7-15 year-old children differentiate into age and gender?
- Do visual spatial functions of 7-15 year-old children differentiate into their ADHD diagnosis?

## **2. Method**

### **2.1. Model**

This research targeting to examine relationship between ADHD and visual spatial functions was designed with relational screening model, which is one of the general screening models. In this research, Personal Information Form, Benton Facial Recognition Test, Benton Line Orientation Test, Rey Osterrieth Complex Figure Test, and Wisc-R Block Design Test were used.

### **1.2. Participants**

Research sample was composed of children with ADHD. Study group of the study consisted of 35 7-15 year-old children with ADHD who went to Istanbul Çapa Faculty of Medicine Child Psychiatry Service and private practices and didn't take medication. Research was conducted between July 2010 and October 2010. 39 7-15 year-old children without any mental symptom who went to Istanbul Çapa Faculty of Medicine Neuropsychology Service was randomized as into control group. Research group and control group were conducted according to some demographic variables such as age, gender, and educational level.

### **1.3. Tools**

#### **1.3.1. Personal Information Form**

Personal Information Form developed by the researcher questions demographic variables of children such as age, gender, and educational level.

#### **1.3.2. Benton Facial Recognition Test**

It's measured how facial recognition skills of children by this form. It's expected children to pick the same face, which was shown to children before, between six pictures in six items of used short form. After first part of the form, it's asked for children to find 3 poses on different light, shade, and side view of the same person. This test is related to oksipitotemporal (ventral/ “what”) pathway and sensitive to right posterior association cortex disorders. It's examined

visual spatial sensation skills by this test.

### **1.3.3. Benton Line Orientation Test**

The purpose of this test is comparison of angular positions of 11 lines numbered and put in order on a hemicycle. Test includes 30 items. Before administrating the full test, it's passed a set of 5 practice items. The test consists of line segments of varying spatial orientation, which must be matched with a set of longer lines on a response card. It's posed which lines fit asking 2 lines looking at the picture including 11 lines. After practice items, it's passed full test. At this point, parts of 2 lines of 11 are submitted and it's asked which line parts fit the lines. This test is related to dorsal (oksipitoparietal/ "where") pathway. The test sensitive to disorders behind of right hemispheres is used for diagnosing perceptive disorders.

### **1.3.4. Rey Osterrieth Complex Figure Test**

Rey and Osterrieth Complex Figure Test is a test measuring the coordination between space perception and visual skills. This figure named as 'drop' is a basic version of the figure developed by H. Lambelin. The figure needed to be copied and a blank page is given to participants and the duration of copying is recorded. 3 minutes after finishing the copy, children are asked to redraw the figure again. So, immediate visual memory is tested. After 20 minutes, children are asked to draw the figure with what is left in their minds in order to evaluate long-term visual memory. Scoring is done according to correctly-placed components.

### **1.3.5. Wisc-R Block Design Test**

In this study, an improved version of Wechsler Intelligence test for Children, which is a sub-test of WISC-R, is used. The test was developed by Wechsler in 1949. For the purposes of the study, 'cubical forms' part is taken from WISC-R's performance section. The test consists of 9 blocks (cubes) colored red on two sides, white on two sides, and red/white on two sides. There are 11 figures to be done. Participant is asked to make figures within requested time. This sub-test is thought to measure performance speed, visual perception and motor coordination skill, non-verbal reasoning skill, analytical thinking skill, three dimensional thinking ability and perceptual organization capacity (Sancak, 2006).

## **3. Findings**

### **3.1. Findings concerning ADHD**

%47,3 of the Participants who joined the study are diagnosed with ADHD. %52,7 of them are defined as normally-developing.

- A significant relationship is found between ADHD and age. Among 7-15 year-old children, %32,3 of them is diagnosed with ADHD before the age of 9; %61 of them is diagnosed after 9 years.
- It is indicated that there is significant relationship between ADHD and gender at .01 level. Findings show that %62,2 of male population and %24,1 of female population are diagnosed with ADHD.

### **3.2. Findings considering visual-spatial functions of 7-15 year-old children**

Minimum and maximum scores of visual-spatial perception and configuration test are compared. Participants' visual-spatial mean score ( $X=27,30$ ) is higher than the median (18); their visual-spatial (Wisc-r) mean score ( $X=12,09$ ) is lower than the median of the scale (31). Participants' line orientation mean score ( $X=17,45$ ) is higher than the median (15); mean score of face recognition test is higher than the median (27).

- There is no significant correlation between 7-15-year-old children's ages and the time period they do visual-spatial configuration test.
- There is positive correlation between 7-15-year-old children's ages and visual-spatial configuration test scores. Accordingly as the age rises, visual-spatial configuration skill rises .
- The negative correlation between ages of 7-15 year-old children and wisc-r test on visual spatial configuration is found significant at .01 level. Accordingly as the age rises, visual-spatial configuration skill decreases.
- There is no significant correlation between 7-15 year-old children's ages and Line Orientation Test.

- There is positive correlation between 7-15 year-old children's ages, visual spatial configuration perception and face recognition test at .01 level. Accordingly, as the age rises, face recognition skill rises or vice versa.
- The time period children aged 7-15 do visual-spatial configuration test does not exhibit significant difference with ages (below and above 9 years old).
- There is significant difference between visual-spatial configuration tests of 7-15 year-old children and their ages (below and above 9) at .05 level. Accordingly, children above 9 got higher scores than children below 9.
- Significant difference between wisc-r test scores on visual spatial configuration and ages of the children (below and above 9) exhibit at .01 level. Accordingly children above 9 got lower scores than children below 9 years old.
- There is no significant difference between visual spatial configuration perception and Line Orientation Test scores considering the age (below and above 9).
- There is significant difference between visual-spatial perception, face recognition test scores and age variable at .05 level. Accordingly, children above 9 years old got higher scores than children below 9.
- Significance differences between the time period 7-15 year-old children do visual-spatial configuration tests and gender exists at .05 level. According to findings of the study, male children do the test faster than female children.
- Visual-spatial configuration tests do not exhibit significant difference according to children's gender.
- Wisc-R test scores on visual-spatial configuration perception of children aged 7-15 years does not exhibit significant difference with respect to gender.
- Judgment of Line of Orientation Test scores of children aged 7-15 years does not exhibit significant difference with respect to gender.
- Significant difference is not noted in face recognition test scores on visual-spatial configuration perception of 7-15 year-old children and gender.

### **3.3. Findings on the differentiation in visual-spatial functions of children aged 7-15 years and children with ADHD**

- The time period 7-15 year-old children do visual-spatial configuration tests with respect to having ADHD exhibit significant difference at .01 level. According to the findings, children with ADHD use less time than children who do not have ADHD.
- Visual-spatial configuration tests of 7-15 year-old normal children and children with ADHD do not show significant difference.
- Wisc-R test scores on visual-spatial configuration perception of children aged 7-15 years does not exhibit significant difference among children with ADHD.
- There is significant difference among 7-15 year-old children with ADHD and with no ADHD with respect to Line Orientation Test scores at .05 level.
- 7-15 year-old normal children and children with ADHD do not exhibit difference with respect to face recognition test scores.

## **4. Discussion**

Children with ADHD can have difficulty in responding to possibly dangerous stimuli. This is because they have difficulty to gather information and stimuli coming from the environment. In other words, it is hard for them to transfer the information collected at the hindbrain to frontal lobes. Nowadays, training programs to increase the attention span are prepared with the help of various tests evaluating attention deficiency. However, there is insufficient number of studies exploring hindbrain. So, we can say that all parts of brains of children experiencing both academic difficulties and visual-and spatial incapacities must be examined. Karakaş and et al. (1999) argued that parallel systems selectively scattered around the brain work together. Therefore, results of cognitive procedures that require planning and attention can be considered close to each other.

Delay in visual-spatial skill development might affect the attention performance of a child. This might also result from the impulsivity of children, which causes attention deficit. According to Kirby and Williams (2000); psychologists define spatial ability as transformations generated as a result of figure out and storing forms in mind. Recognizing an

acquaintance's face, finding directions in map and figuring out how a seat will stand in a different place can be considered as examples for such ability. Spatial skills are of great importance to understand forms in our daily lives and academic studies. But, they haven't been investigated deeply as verbal skills. Mental imagery is seen as a powerful memory technique. According to Pavio (1971)'s studies; remembering a word is a good technique to visualize an object. An image is as powerful as 1000 words. For Brooks (1968); an image can involve a lot of information and it can be related more effectively. In addition, imagery forms a code for verbal information facilitates recalling and prevents overloading to verbal system. In a study named 'Relationship Patterns of Attention, Executive Functions and Metacognition with respect to Subgenres of ADHD', ADHD is reported to be seen 1/2 to 1/10 times more among male children than female children. What causes such finding is unknown. The study included 39 normally-developing children and 39 children with ADHD. Researchers found significant difference between normal children and children with ADHD with respect to age and gender.

In another study, when Judgement of Line of Orientation Test scores are examined, it is shown that participants labeled under different subtypes of ADHD exhibit lower performance than their peers (Soysal, 2007). In parallel with this finding, when children with ADHD and the other children are compared, significant difference is shown with respect to dorsal path visual-spatial based cognitive functions. However, significant difference is not shown between normally-developing children and children with ADHD as to their ventral path visual-spatial based cognitive functions.

In a study on ADHD, Wisc-r Intelligence scores are examined and children with ADHD and normally-developing children exhibit significant difference considering Wisc-r cubical pattern sub-test (Soysal, 2007). Children aged below 9 got lower scores than children aged above 9 in Wisc-r Cubical Figures sub-test. These findings might indicate that education system focuses more on two dimensional visual activities.

Visual-spatial configuration test scores do not exhibit difference in children with ADHD and normal children. But, children with ADHD are observed to use less time than normally-developing children.

In summary, findings indicate that ADHD group seems to be different from control group in right hemisphere based, neuro-psychological visual-spatial test. Considering that findings are affected by age, ADHD group and control group can be distinguished from each other.

Sub-types of ADHD can be counted as factors affecting the findings. However, findings overall emphasize that supporting visual-spatial skills are quite important in future research. Moreover, findings underline the importance of neuro-psychological evaluation results that give us safe and solid findings for education, treatment and preparation of neuro-rehabilitation programs.

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# The issue of need analysis and assessment of quality in teaching English for medical purposes

Petra Zrníková\*

*Institute of Foreign Languages, Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava, Malá Hora 5, Martin 030 01, Slovakia*

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## Abstract

The purpose of the paper is to discuss the current state of issues and to present the results reporting the situation at Jessenius Medical Faculty in Martin. A brief history of ESP and the importance of teaching English for Slovakia are introduced at the very beginning. Next, the theoretical background including the definition, principles and approaches to ESP/EMP, trends in need analysis and assessment of quality in language teaching are explained. The analysis of the course-design of particular medical faculties in Slovakia compared with Czech academia and academia in Arabic countries are at the center of our attention.

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*Keywords:* English for specific purposes, English for medical purposes, course-design, need analysis, assessment of quality, proficiency in language skills, communicative competence

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## 1. Introduction

English for specific purposes (ESP) started to be an independent field of study in the second half of the 20<sup>th</sup> century when the World War II was over and the Anglo-American culture began to spread around the world. Other important aspects influencing the origin of ESP as a field of science are the concept of communicative language teaching and development in linguistics. Moreover, to speak a foreign language was a sign of good social position in those times.

For Slovakia the need to speak English rose in 1989 when the Soviet Union was broken down, and later in 2004 when the country became a member of the European Union. Nowadays, communication in English represents an inevitable part of one's education in order to be able to develop international co-operation in the field of science and research, to exchange knowledge and experience in conferences as well as to apply for study programmes and internships abroad. Therefore, improving quality of teaching English and enhancing the level of one's language skills should be one of the main educational goals of the medical faculties in Slovakia.

## 2. The principles and approaches to English for Specific Purposes

According to Hutchinson & Walters (1987), ESP is not about teaching the specific variants of English at all. When comparing ESP and General English, the key difference lies in using specific terms and applying specific macro- and micro-composition rules in writing instead. However, it is not meant to be an "artificial" language of science or particular profession. Specific communication (more precisely here communication in Medical Studies) is a common everyday matter based on the general rules of a language too. Thus, in this way English for Medical Purposes (EMP) can be viewed as the process of enhancing medical terminology deriving from the knowledge of general rules of the language. As it is shown in the figure 1, ESP is a branch of English as a Foreign Language (EFL), which is placed slightly above General English (GE), and English for Medical Studies (also known as English for Medical Purposes)

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\* Corresponding author. Tel.: +421-43-263-3215; fax: +0-000-000-0000 .  
E-mail address: zrnikova@jfmfmed.uniba.sk

represents just one of the branches of the tree preceded by English for Academic Purposes (EAP) and English for Science and Technology (EST).

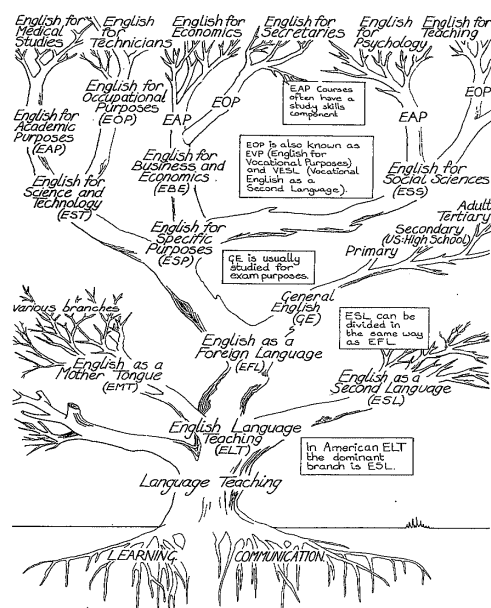


Fig. 1. English Language Teaching Tree by Hutchinson & Walters (1987, p. 17)

There is similar attempt by Dudley-Evans & St. John (1998) to say what ESP is and what is not, as well as to design a diagram of particular branches of ESP. In their work they emphasize the role of register analysis, discourse analysis, textual linguistic, pragmatics, functional-notional approach, genre analysis and many others, which contributed on the ESP theory development in their specific way. The essential characteristic common for all of them is the fact that there is always a particular text written according to specific requirements and needs of the environment, which it is aimed for.

The trends in need analysis reported by Mohammadi & Mousavi (2013) summarized the situation in teaching ESP in the 70's and 80's of the 20<sup>th</sup> century. At first, target situation analysis mainly used for investigating necessities was dominant. Later the focus was turned towards the learner's preferred learning styles and strategies. The shift from what to teach (content-oriented approach) towards how to teach (learning-centered approach) has become significant for further development of ESP. Nowadays, thanks to need analysis carried out in interviews, questionnaires or any other form, the teacher can obtain very valuable professional and personal information about the learners, their motivation to learn and use the language, their lacks and needs in communicative skills development, their expectations of course-design, and their everyday contact with the language (e.g. watching movies, reading book, informal communication with friends, formal communication for academic and occupational purposes, etc.). The similar categories might be used in the quality assessment of language course provided by the students during or at the end of the course in order to show the teacher how effectively he/she meets their needs.

To sum up the issues of definition, principles and approaches to ESP, the viewpoint by Molhim (2011, p. 3) is presented: "It is also noticeable that almost all ESP definitions are circled around two areas: the ESP participants or learners' needs (e.g. medial English) and the language used in real-life context (e.g. hospital); the two features of ESP are closely related to every aspect of ESP teaching in order for a utilitarian purpose to be achieved. What seems problematic in describing ESP is the meticulous effort in deciding the kind of discourse, such as vocabulary jargon or register that is to be taught and to reflect accurately the communicative purpose in a specific context the learners need (e.g. patient-nurse talk). Discourse diversity can be so overwhelming and confusing to ESP course designers as the

learners' needs analysis can yield a large numbers of needs, purposes, discourse, etc.” In addition, it is important to keep in mind that what works in one group of learners does not have to work in another.

### 3. Purposes Survey of teaching EMP in Slovakia and abroad

If the non-native speaker graduates poor in their English proficiency decide to work abroad, it can end up with such scandalous articles as published in the British newspapers in 2011-2014 (e.g. The Daily Mail, February 2014, The BBC News, January 2013, The Telegraph, January 2013). The increased number of cases when the insufficient communicative skills of a health professional coming from (as well as out of) the EU led to serious, even fatal consequences in patient's condition, provoked the British government to call for re-establishment of testing English proficiency of incoming medical staff in job interviews in order to ensure patient's safety.

Considering this issue, the approach to English language teaching at the faculties of medicine in Slovakia will be introduced in this section, namely the Jessenius Faculty of Medicine in Martin, the Faculty of Medicine in Bratislava (both belong to Comenius University in Bratislava), and the Faculty of Medicine in Košice (Pavol Jozef Šafárik University in Košice). Then the comparison between Slovakia and Arabic countries will be made because both of them have to cope with similar problems in teaching EMP. And finally a pilot project, which is currently running in Czech academia, will be introduced as the example of increasing the quality of language education and ensuring better communicative skills of the students and graduates.

A brief outline of the situation in language education is needed before analyzing the particular faculties of medicine. Generally speaking, the teachers at tertiary level expect the students to have basic knowledge of grammar and to be able to speak out their minds clearly. They rely on the fact that most of their students will achieve B2 level in General English at a high school, but it can be level B1 when English is chosen for the final leaving exam as the second foreign language, and in rare cases level C1 is achieved by the students leaving the bilingual grammar schools. Unfortunately, in many times the reality is completely different and the teachers at tertiary level face inappropriate use of grammar rules, lack of vocabulary, mistakes in pronunciation made by their students in the 1<sup>st</sup> grade. On the other hand, there are ambitious students who are aware of the importance to speak English at the highest level as possible if they want to achieve success abroad or in the science. To meet the needs of those some medical faculties offer the course of Medical English at the level C1. The issue of language proficiency becomes more complicated when speaking about nursing, public health and other programmes of study. Thus, this contribution deals with the students of General Medicine only.

At the Jessenius Faculty of Medicine in Martin ([www.jfmed.uniba.sk](http://www.jfmed.uniba.sk)) the students of General Medicine are taught English language as a compulsory course in the winter and summer term of the 1<sup>st</sup> year. In the 4<sup>th</sup> year the students of General Medicine can choose the course “Foreign Language for Specific Purposes” focused on communication with a patient and clinical disciplines.

The Institute of Foreign Languages has responded to the complaints on insufficient language proficiency of the non-native English speakers in several ways. The need of teaching EMP was emphasized and the future perspectives were outlined on the Pedagogical conference held at the faculty in December 2013 (<http://pedagogika.jfmed.uniba.sk/>, Mokřý, 2014). One of the issues mentioned in the presentation were the goals oriented to development of all four communicative competences (Bujalková, 2013):

- reading comprehension skill – searching for relevant sources of information, getting particular information and its critical evaluation and application;
- academic writing – to compose a formal letter, annotation, abstract, paper, essay;
- presentation skills – to compile a specific topic from various sources in the form of a paper as well as in the form of PowerPoint presentation followed by an oral performance;
- the skills of critical thinking – active listening, giving reasons and arguments, expressing own opinions, comparing advantages and disadvantages of particular phenomena in medicine.

The most significant success of this academic year can be regarded a membership in the international system for certification and accreditation for language education at universities known as UNICert® III (level C1 in CEFRL) around the Europe. From the academic year 2014/2015 the course of English (or German) for medical science is ready for the students of the 2<sup>nd</sup>-6<sup>th</sup> grade, graduates and doctorate students of the faculty. The course is designed to enhance the participants' knowledge acquired in the compulsory course, to develop reading comprehension of scientific and

research papers, to learn to communicate with specific groups of patients (e.g. children and the elderly), to distinguish between medical and non-medical terminology, to learn how to analyze the data of the experiments and to present the results to the audience, to discuss up-to-date medical issues, etc.

While the UNICert® III course had been designed the need to innovate the content of the compulsory course of English language in the 1<sup>st</sup> year (level B2) occurred, what is a prerequisite for the course at the level C1. The main change will be in using the short authentic texts presenting rather general kind of information, but attractive to the new generations of the students, which will be more resistant to changes in course of time instead of the current textbook containing long, boring and out of date texts. The students' presentations on the topic of their choice will be kept because it seems to be a good tool for practicing their presentation skills and speaking, and moreover, it makes the study atmosphere friendlier, supports peer-to-peer learning and motivation, and brings in new knowledge. Also the new textbook will be written providing the teacher enough space for developing his/her creativity and innovative approach by means of using various topics and texts in the lessons (e.g. the news in medicine, the latest research published in the journals and the Internet).

At the Faculty of Medicine in Bratislava (<http://www.fmed.uniba.sk>) English is taught in the winter and summer semester in the 1<sup>st</sup> year of the study too. Also all four communicative skills are developed. To prepare own project and its oral presentation is a part of student's final assessment as well. However, more emphasis is put on grammar which is taught from the semantic-functional approach.

Since the academic year 2011/2012 English and German courses in UNICert® system (level C1) have been offered as a response on the needs of students and graduates because the compulsory two-semester long course didn't meet the demands of praxis. In the first year neither English language course, nor German language course was taught because of the little interest of the students or insufficient level of their language skills (level B2 was required). In the previous academic year the students enrolled for English only, and in the current academic year German has become more popular, because of the rising trend of applying for a job in Austria or Germany among the graduates in Slovakia (Jamrichová, 2012).

The questionnaire of need analysis disseminated among the participants at the beginning of the course revealed that some of the topics weren't covered in the syllabus for compulsory lessons at all (e.g. intercultural aspects), so it was necessary to implement them in the course curriculum. Based on the experience in the pilot course a handout aimed on practicing creative writing has been made because writing skills turned out to be the least developed in the course participants who took the final certificate exam. The average successfulness was 76 % in comparison with 92 % achieved in reading comprehension. Other change was needed for the minimum limit of the certification exam. It has been reduced from 240 minutes to 200 minutes. When asked for feedback, the participants said that the course is a great thing, which they miss in the field of language certificates for specific purposes because it increases their competitiveness abroad (Jamrichová, 2012).

At the Faculty of Medicine in Košice teaching English is provided by the Faculty of Philosophy (Petruňová & Timková, 2013). The students of General Medicine in the 1<sup>st</sup> year of their study are attending the compulsory lessons of English language aimed on enhancing knowledge in grammar and pronunciation, on communication skills development and medical terminology. In the course of their study (from the 2<sup>nd</sup> to 5<sup>th</sup> in winter term) the students may enrol for some of the following complementary courses:

- "Medical communication for General Medicine" to learn how to communicate with the patients and their relatives, the colleagues and other health professionals in medical and hospital environment, forward a short message, write a medical report, fill in the forms, give a presentation on particular medical topic, etc.);
- "Academic Writing in English" base on applying own experience in composing formal or informal letter such as application, complain, CV, motivation cover letter, announcement, note,
- "Presentations in English" to develop fluency and accuracy in their oral performance.

Besides developing language skills and transferring medical knowledge the language teachers in Košice support creativity, autonomy and co-operation in learning, because they believe that these abilities are closely related to development of individual's intelligence. Instead of traditionally oriented "reading and word-by-word translating text approach", in which the teacher plays a role of a dictionary, they highly recommend to use the semi-controlled activities, such as (Bednáriková & Kolaříková, 2013):

- brainstorming and mind maps when presenting new vocabulary;

- practicing pronunciation of the words starting with *au-, eu-, ae-, bi-, di-, ge-, hypo-, hyper-, ph-, ps-, pseudo-*, etc. (because the students are prone to apply the rules of Slovak pronunciation – i.e. “read as you see it”) in a way that students read the non-existing words composed of these problematic groups of phonemes (e.g. pheuloses, augnosis, psychametry);
- using the selected words in a role-play dialogue;
- giving one-minute presentation, i.e. to speak for 1 minute on a given topic without stopping, applying particular grammatical rule or specific vocabulary;
- a competition in guessing and defining medical terms from the list;
- making a dialogue between a doctor and a patient, in which the medical terms are substituted by the non-medical ones.

Next, the comparison between Slovak academia and the academia in Arabic countries will be drawn because the teachers have to cope with similar problems. As reported in Ibrahim (2010), Molhim (2011), and Ghalandari & Talebinejad (2012) the state of things in teaching ESP at the universities is not very favourable. They complain of average, or even very low level of communicative skills of the students when beginning their university studies. This state of things makes the teachers to substitute medical education by completing and enhancing knowledge of General English, and this leads to low level of communicative competence and lack of courage to use the language in the professional life after completing the studies. The other problem is that the students put more energy in searching for the ways how to avoid their duties and pass the course with minimal effort than in increasing own motivation when enlarging their theoretical knowledge and communicative skills; that's the reason why teaching EMP is restricted only to memorizing the lists of vocabulary and particular grammatical phenomena, translating texts from/in L1-L2. In order to change the situation the relevant and long-term linguistic and pedagogic research providing the teachers with theoretical background as well as the data verified in the experiments (e.g. textbook analyses), and taking into consideration the requirements of modern education of ESP and EMP are very necessary.

The role of language education for specific purposes at the tertiary level is influenced by many other factors, and so is the attitude of the language teachers and students. It is the topic itself, which deserves to be presented in separate piece of paper, so it won't be explained in more details for now. Up to this point, the comparison of education environments which are too far from each other from the geographical, historical and cultural point of view has been made. Next example of academia will show that even the close connection between two countries doesn't have to mean a thing. Despite the fact that there is a lot of common features in development of the Slovaks and the Czechs, in terms of following the trends set by the most developed academia in the world, the Czech society is definitely more progressive than Slovak one.

Though the teachers in Czech academia have to deal with the similar problems as stated above, a group of tertiary teachers has decided to run a unique project called *IMPACT – Innovation, methodology and quality of language education and professional education in foreign languages for specific purposes in the tertiary sphere in the Czech Republic* (2012 – 2015) to improve the situation. “The main objective of the project IMPACT is to transform the quality of foreign language education in the Czech higher education environment. The uniqueness of the project lies in presenting a wide range of the latest educational approaches and tools having yet to be methodically elaborated in the Czech Republic” (<http://impact.cjv.muni.cz>). The teachers from all around the country are offered free participation in seminars, methodical workshops, course and rich variety of interesting events guided by the experts from the Czech Republic and abroad. The project should result in higher compliance with needs of labour market and supporting competitiveness of the Czech graduates in the world.

Similar attempts were discussed in Slovak academia some time ago too. There are the language teachers as well as the teachers of medical studies who do feel the need to educate themselves in pedagogy and language for specific purposes. Unfortunately, there are also those who do not attach importance to this field, and their power is stronger at the moment. And what makes the current situation even worse, it is the trend of reducing the amount of language lessons (from two semesters to one) and the category of the course (from compulsory to optional) by the management of the medical faculties. Therefore, in next section of the contribution the students' viewpoints will be demonstrated based on the two kinds of feedbacks.

#### 4. Assessment of the quality of education and the need analysis

It is a part of academic culture at well-developed universities to ask students for their need analysis at the beginning of the course as well as for their feedback at the end of the course. Slovak academia is trying to do so, but there is a long way to go. In this section, firstly, the data concerning language teaching obtained in the faculty-organized feedback will be analyzed. Secondly, the results from the feedback carried out in particular group of students will be included in order to illustrate their needs in more details. Of course, some drawbacks of the assessments will be mentioned too.

The report called *Students' Assessment of Subjects and Teaching Process* published by the Jessenius Faculty of Medicine in Martin includes the data from both semesters of the academic year 2012/2013, respectively. The faculty questionnaires were disseminated twice – once by the representatives of each grade in March 2013, and then on the enrollment day in September 2013. In the winter term 115 (74 %) students out of 156 took part in the survey, and in the summer term it was 138 (86%) students out of 161.

The common assessment scale of students' performance was used, i.e. A-FX (excellent – failed), plus X ("I don't know/I miss this information"). The students of the 1<sup>st</sup> grade assessed the quality of teaching the courses of "Foreign language 1" (FL 1) and "Foreign language 2" (FL 2) in 7 categories:

- in general – meeting their expectations, attractiveness, managing the content, forming their relationship towards their future profession;
- the conditions of education – the number of students in the group, the technical and material equipment, up-to-dateness and accessibility of the study materials and textbooks;
- the course organization – the requirements for completing the course, the syllabi, classroom management, comprehensibility of the contents, meeting the goals, the balance in difficulty between teaching process and the examination;
- self-evaluation, own opinions and comments – their active participation, activity of the students in the group, working atmosphere in the group;
- knowledge and readiness of the teacher – knowledge from the field of study, readiness for the classes, using ICT;
- teacher's pedagogical skills – clarity and comprehensibility of the lecture, checking the students' comprehension of the topic, motivating the students to enlarge their knowledge and understanding the topic, making positive working atmosphere, following the time schedule and content plan;
- teacher's attitude to the students – his/her approach to the students, giving space for asking questions and expressing students' opinions, being objective in knowledge assessment, teacher's verbal and non-verbal communication skills.

As the conclusion the overall assessment of the course as well as the overall assessment of the teacher made by the students is included in the report. Also they were given space to express their suggestions and opinions, to comment on any of the seven categories both in positive or negative way in more details on the passed courses if they wished.

The following table 1 and table 2 displays the results for each semester. The values in percentage for particular groups of grades can be interpreted as satisfactory (A – C), 2) unsatisfactory (D – FX), and none (X).

Table 1: The Assessment of the Quality of Education.

FL 1, WS, 2012/2013	A-C	D-FX	X
In general	58%	41%	1%
The condition of education	90%	9%	1%
The course organization	77%	13%	10%
Self-evaluation	84%	16%	0%
Teacher's knowledge and readiness	79%	19%	2%
Teacher's pedagogical skills	74%	25%	1%
Teacher's relationship to students	85%	15%	0%

The overall assessment of the course	65%	35%	0%
The overall assessment of the teacher	85%	15%	0%

Table 2: The Assessment of the Quality of Education.

FL 1, WS, 2012/2013	A-C	D-FX	X
In general	90%	10%	0%
The condition of education	79%	20%	1%
The course organization	84%	15%	1%
Self-evaluation	84%	16%	0%
Teacher's knowledge and readiness	84%	16%	0%
Teacher's pedagogical skills	78%	22%	0%
Teacher's relationship to students	86%	14%	0%
The overall assessment of the course	82%	17%	1%
The overall assessment of the teacher	72%	18%	0%

For the course FL1 taught in the winter term (WS) 3 531 answers were collected in total. In more details, they are composed of: 1066 (A), 994 (B), 672 (C), 324 (D), 174 (E), 215 (FX), 66 (X). The students' in their comments and suggestions called for reduction of the length of the course from two semesters to one semester only (1 student), 6 students would cancel the subject at all, and 7 students said that the current textbook is bad and also the teacher's relationship to the students is awful. For the course FL2 in the summer term (SS) was collected 4143 answers including: 1258 (A), 1151 (B), 891 (C), 389 (D), 251 (E), 180 (FX), 13 (X). In the comment was just one note from a student complaining on English, which was horrible and for nothing at all.

In the first category "in general" the students assessed FL 2 better than FL 1. The value of 90% can refer to two facts: the students got used to the teacher and his/her system of teaching and managing classes, or to the possibility to negotiate the content of the lessons by the means of their presentations which are part of their final grade. Probably that's why the category "course organization" was given 84%. The attractiveness of the lessons was raised up by the fact that it was a student who had chosen the topic of his/her presentation and managed its content and post-activity (e.g. quiz, video, crossword, discussion, comprehension tasks, etc.). On the contrary, the students were less satisfied with "the conditions of education" (from 90% to 79%). In this category belongs using ICT, but also the textbook which might be the main cause of their criticism. For example, in the FL 2 in English the students have to read the authentic, but out-of-date articles about cancer (1990) or AIDS (1991) (Poláčková et al., 1996, pp.111,120). When it comes to assessing the teacher, the students were satisfied in 70-80% in average considering all three categories in both semesters.

Data in this kind of feedback may be easy to process, but the grade assigned by the student to each category and afterwards turned to percentage seems to be too general. They tell nothing about the true needs of students in terms of language needs, and thus it is almost impossible make conclusions aimed on the improvement of teaching process or teacher's relationship to students. Another drawback of the feedback is the fact that it does not differentiate between languages (English or German), nor the teachers of the subject. Thus, in terms of students' satisfaction, it makes the results vaguer, giving low possibility to solve the particular problems in language teaching in order to meet the real students' needs. The faculty management is aware of the negatives and it is constantly searching for the solutions. It has to be said that such assessment does not have a long tradition in Slovak academia among various faculties and universities. It will take lot of time to get the students used to express their opinions without fear of being punished by the teacher in the examination, and at the same time to get the teachers used to face the students' appraise as well as their criticism.

The shortcomings stated above led to the idea to provide the students of particular groups (those I was teaching in) the space to express their opinions and needs in learning EMP. At the end of the winter term in the academic year 2012/2013 47 student in total were asked to give their opinions about the activities, extra study materials and overall course organization and studyload in their own words anonymously, i.e. no structured questionnaire wasn't provided, that's why only the most important points will be mentioned

At the first place, I would like to comment on the atmosphere in classes. One of the pieces of the instructions given for this feedback collection was dedicated to the atmosphere and our relationship. I was doing my best to ensure them they won't be punished for their words, and it won't have any (especially negative) impact on their final grade. Their praise of the friendly, non-stressful atmosphere, when they were looking forward to our lessons, gives evidence for it. In this way, they didn't consider preparation for the lessons too time-consuming, because as they reported they have achieved sufficient level of General English at the high school. This might be the reason, why they preferred discussions, group work, interactive tasks and listening comprehension tasks instead of reading and translating the texts in the textbook or grammar exercises. They claimed that reading and translation can be given as homework for self-study time. They noted that they have acquired most of the study content at the lesson already, so studying for tests didn't take long time. However, the length of a class, which is 90 minutes, seemed to be too long for some of them.

The students appreciated the idea of giving presentations on the topics of their choice, which were introduced and assessed as the extra activity to the standard syllabus in the winter term. It was intended to be a five-minute presentation, so the students' hadn't been asked to make PowerPoint, what turned out as a drawback retarding the comprehension of the unknown medical topic. On the other hand, the students were missing games and quizzes to enhance their vocabulary and knowledge, describing pictures, guessing games, crosswords. They were given opportunity to use them when having their own presentation. Also they were asking for watching videos or movie from the medical environment or about health issues. To meet their wish a documentary movie promoting healthy lifestyle and bad impact of fastfood on the human body was chosen in the summer term. To avoid the common misinterpretation of the lessons when the movie is implemented as a teaching tool ("it's just a movie, its content won't be tested, so there is no need to pay attention"), it was followed by the post-activity, an essay writing.

The same was done at the end of the winter term 2013/2014. This time it was only 23 students who were asked for their opinions, because fewer students have been admitted for study this year. The students appreciated the friendly atmosphere again, which allow them to revise their knowledge of biology and to acquire English medical terminology. Also they were glad that speaking activities were emphasized instead of grammar exercises. They asked for reading texts presenting the news in medicine (e.g. new technologies, ways of treatment, research studies), applying patient's medical records and doing role-plays at the lessons. They criticized the out-of-dateness of the coursebook which contains a lot of text ("too difficult and useless"), long lists of vocabulary and the overall graphics and layout of the book. On the contrary, there were students who would like to use the book more frequently at the lessons.

Absolutely new issue in the student's feedback, which wasn't commented on in the previous academic year by any of the student positively or negatively, was a cloze-test reading comprehension task. The option with randomized words as a kind of hint was used in the mid-term test and the written part of the final examination in both academic years. However, this time the students have found it to be the most difficult task of the test. Moreover, they believe that it is unfair to let them read an un-known text because there is no chance to study for this

In the same way they commented on the complementary up-to-date texts found in the Internet. The students complained on unknown words of General and Medical English which retarded their comprehension a lot, and thus the texts were found difficult and the whole reading process was too time-consuming to them. As they noted down, because of this they didn't manage to get ready for next lesson properly. They believe that English course at the medical faculty should be more relaxing, in other words „subject to pass” easily.

## **5.Conclusion**

To sum up, the theoretical background to ESP and EMP as the fields of study was explained at the very beginning. Within this framework the principles and approaches to them were outlined. The need analysis and the assessment of quality of teaching EFL were in the center of our attention in the following section. The core of the paper was built up by the analysis of three medical faculties with the longest tradition of education in Slovakia. Their approaches to



language teaching, course design and future perspective were introduced. The situation in Slovak academia was compared to Arabic countries and the Czech Republic. The analysis resulted in detection of the identical problems which the teachers at tertiary level have to cope with. Generally speaking, the long-term linguistic and pedagogic research providing the language teachers theoretical background for their professional development as well as the experimental studies showing the relevant and valid data, assessing the quality of textbooks in terms of the requirements for modern English language teaching for specific purposes is missing at the medical faculties.

Both, the results of the quality assessment and comparison of academia around the world have revealed a lot about Slovak academic culture and students' language needs. The shift in didactic approach of the teacher and more efficient forms of receiving feedback is very necessary to find as soon as possible, otherwise Slovak graduates won't be able to keep steep with the standards of the well-developed economies around the world.

Insufficient level of communicative competence of the 1<sup>st</sup> grade students, non-attractive study material, unfriendly and stressful atmosphere at the lessons, traditional role of the teacher as "the authority who knows everything", unwillingness to discuss different viewpoints as well as to negotiate the content of the lessons in order to meet the student's needs is the biggest problem. Regrettably, very slow progression in this sphere results in very strong belief that course of EMP is nothing more than a "by-product" in comparison to the medical courses. The teacher should not be surprised then if the student is searching for ways how to make his/her duties easier or to avoid them at all because his/her main motivation is just to pass the exam doesn't matter what assessment grade s/he will be given or how much of the language s/he will be able to use in the future. On the contrary, the students have to realize their own role in the teaching/learning process, i.e. to be reading to take responsibility for the inputs and outputs, to be active, motivated for life-long learning, and to forget to look back for the excuses, such as the insufficient proficiency of GE acquired at high school.

Definitely, the solution lies in more detailed need analysis of the students directed by the teacher of the course, or the head of the foreign language department. Of course, it has to be followed by transformation of the results in teaching process, and the consequences concerning the particular teacher should be made, otherwise the need analysis does not have a point. The goals of the course should be realistic and adequately difficult, not to be too demotivating. The balance between General language (giving instructions, advice, arguments, describing, listing, reasoning, etc.) and medical terminology should be found. Implementation of ICT in language teaching as well as the traditional teaching methods needs to be used to ensure the wide scale of techniques assessing the students' performance and overall level of communicative competence.

The following comment of a student gives evidence that English for specific purposes deserves its position in the curriculum of medical faculties in Slovakia and around the world: "I think that English is important in many field of life and also in medicine. Learning English should be compulsory at medical faculties because it would definitely help future doctor, not only when they are studying, but also later when they start working in hospital. One of the reasons is that almost all the newest inventions and researches in medicine are published in English. In my opinion, it is important to understand this, and to be able to learn something new. Another thing is that there is high probability that young doctors will travel abroad for a work... English is a language spread worldwide, so it is the basic knowledge doctors should have when they want to communicate with their colleagues or patients."

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# The male identity in professions in the field of education: a qualitative investigation

Francesco Iovine\*

*\*University of Salerno*

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## Abstract

This paper intends to analyze some aspects related to the perception and representation of education-related professions for what concerns the male audience.

According to statistics, work in the field of schools and education appears to be a domain composed of mostly female workforce, confirming a society structure as has been traditionally and historically configured and based on gender duality and on a subsequently rigid role separation. In such separation some differences going back to an old biological as well as anthropic-cultural paradigm keep having a large weight and seem to justify the different levels of aptitude towards child care, and especially towards infants, that are seemingly recorded in men and women.

According to such a stereotyped view, child care should be a prerogative of women only, thus legitimating the scarce male responsibility in this field. But what do men think about it? In the following work some professional working in the field of education have been interviewed. It is therefore possible to read the orientation of three educators and detect how their masculinity and subjectivity have had an impact in the determination of their gender and professional identity while enforcing their respective educational roles.

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*Keywords:* education and gender, discrimination in education, teaching profession

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## 1. Introduction

The initial assumption that inspired this investigation is the observation that in Italy educational professions are characterized by a significant disparity between genders. On the basis of data concerning the only act of signing up for degree courses in the pedagogical field it appears that male students between the academic years 2000/2001 and 2010/2011 make up just 13.20% of total enrollments. (Mapelli, Ulivieri Stiozzi, 2012) The trend reversal, however small, relative to the academic year 2010/2011, with a share of 15,584 units, 474 members more than academic year 2009/2010, is related to degree courses belonging to “non-pedagogical” fields of the Faculty of Education. For example, this occurs in both undergraduate programs in Communication Sciences, University of Udine, where the males were the majority (respectively 64.50% and 60.61% of the total). In addition, male students accounted for more than 30% of the total members in both the three-year courses in Psychological Sciences and Techniques hosted at the University of L'Aquila (42.72% and 34.67%) and in both the degree courses of Science of Public Communication Business and Advertising at the University of Trieste (30.86% to 31.15% and the master's degree). (Ibid, p. 220)

Why male students seem to be the minority in education-related professions is considered in some hypotheses that lead back to the ideological construction of gender identity. In our era an old-fashioned prejudice still persists about characteristics that are allegedly typical of males, while the female profile is (still, allegedly) characterized by qualities related to care and affectivity. This cultural background is reflected in the employment data. Our society is still too characterized by an occupational segregation of men and women. The first are present in large numbers in the scientific and technological sectors, and underrepresented in the humanities and in the field of social development. In the case of women, instead, they are over-represented in education, which is still a stronghold of the female workforce. Specifically

in the school system, the lower the level of education, the lower the number of male teachers. This is easily verified in the segment of nursery schools and primary schools, educational levels associated with primary care which do not enjoy the social prestige and authority that used to belong to elementary school teachers in the past. For nearly a decade, in Milan there was a further increase in the feminization of primary education: from 94.8% in 2000 it has gone to 96.2% in 2009. (Idem)

## ***2. A qualitative investigation***

In order to achieve a deep understanding of the perception of male identity within education-related professions, I have conducted three interviews, one in person, one by telephone and one by the popular social network Facebook, to people engaged in social and educational services, trying to investigate the current world view (Weltanschauung) regarding masculinity. I have chosen a few tracks and their sub-themes, through which I have gathered testimonials, explicit and implicit opinions, and ways of looking at:

- the motivations that have prompted commitment to education-related professions;
- the qualities both personal and professional a male educator should have;
- prejudices about the alleged poor attitude to education and care typical of males;
- their way to live masculinity;
- what should be solid and what instead dynamic in gender roles;
- the interaction between public and private behaviors/attitudes.

Trying to avoid the risk of a forced convergence of thought, during the interviews I have given space to the more subjective aspects, with an emphasis not on mere ideological constructs, but rather on individual experiences, accompanying each of the interviewees on the path of reflection and interactive reworking of their experience.

It was my care not to adopt an interpretative synoptic paradigm, which could have been useful only if I had meant to track down an artificial objectivity for the drawing up of statistics and quantitative patterns. Therefore, I chose to commit to the analysis of the personal sphere and remained anchored to the strength of the biographic element. From the stories I gathered, several types of masculinity were revealed, each of which is reflected in their owner's way of interpreting and practicing his or her profession.

During the interviews, I tried to create a climate of trust and empathy, avoiding interruptions, and I gave special inputs to the interviewee to walk him through the outlined tracks. With these premises, I chose not to be not neutral and did not operate as if it was a questionnaire, pretending that the significant relationship (Furlotti, 1998) between interviewer and interviewee was not itself a major part of the interview, since establishing a true communication is a necessary precondition to qualitative research. (Merrill, West, 2012) The active involvement of my subjectivity was part of the method. The track was used in a flexible manner, so as not to meaninglessly repeat a sort of vocal questionnaire, structured by standard questions that would not leave the interviewees free to express themselves, as they would not have been allowed otherwise to pick priorities and preferences according to their unique individual subjectivity.

## ***3. Alfonso, the idealist of solidarity***

The first interviewee is Alfonso Di Bartolomeo, a sociologist aged 39, who in 2000 started a process linked to social policies and all services related to law 328 [Act No. 328 of 2000 - Framework Law for the implementation of the integrated system of interventions and social services] and among his various experiences he recalls a commitment at the "Centro aiuto minori" held by the Court of Salerno for minors; the foundation of the "Superabile Onlus", of which he is president, with almost 10 years of experience as a socio-educational center aimed at people with disabilities and with which he handled the socio-educational center of the city of Pagani, in the province of Salerno; the coordination of socio-educational centers of Nocera Inferiore, Scafati and Sant'Egidio del Monte Albino (also in the province of Salerno). In addition, he used to deal with services for the elderly, such as that of "house care for the elderly" back when he was the coordinator of the group of social enterprises "Gesco".

Besides the tasks of management/coordination, for about 6 years Alfonso played the role of a social worker in the project "specialistic assistance to schools" aimed to students with disabilities. Its field of professional action is directed to "vulnerable groups".

Alfonso says right from the start that «there is a strong woman component in the educator role», but he does not

mean to reduce the issue to a gender dispute. Professional success, in fact, is not linked to University education, but to life history, professional experience, and above all education received at home. If we add the element of kindness of heart, all of that together makes you a «very good educator».

There is a good number of women graduates, I mean in the faculty of Educational Sciences, then [the] path to becoming educator [...] is not theory, but fact, in that it is made especially [...] of practice that begins before [...] the University. As for males, given their concentration, I mean in Pagani and Nocera Inferiore, I do not know many, but because of this concentration, you choose him for quality, that is, in the sense that quality is what characterises the male educator. I don't mean that he's superior to a woman, it is not easy, it is not easy to be an educator. It's easy to walk the theoretical path, what you do at the University, then you live it every day by working, by practicing, doing volunteer work, trying to help people, doing assistance and then later doing your job that is trying to transmit to them the fundamental elements, cognitive elements that may be crucial [...] because, let's say, it is linked to the personality, the type of family, the type of education that was given, then surely there is University education, then later if you are a good person, if you have the basic elements such as solidarity and the desire to help others, then you become a very good educator.

A first element on which to reflect it is the low value attributed to the degree, the achievement of which is only the first step in the path leading to the entrance into the world of educational services. The weight of the theoretical background it is strongly subordinate to the practice and the constellation of experiences, both work-related and not. Who has a better aptitude towards education usually has the most success. Those who practice this profession must have personal characteristics differing from those needed to work in other sectors. A significant influence is attributed to the person's family and the education imparted by those who are considered «the first educators». The familiar experience conditions the professional success of people committed to social and educational services. Having a degree is not enough to be educators, but a solid family orientation and a personal history based on the internalization of good principles are needed. This facilitates the development of a sense of solidarity, also explicit in the context of daily and personal experiences, addressed particularly to vulnerable subjects, which include people with disabilities, the elderly and minors.

Although the risk of making the mistake of reviving old traditional views and of limiting the good male educators to those who adhere to a given ethic or political ideal based on selflessness is always present, the practical experiences seem to reinforce such belief.

I hinted at politics before because it almost looks like all good male educators I know are left-wingers or coming from the former left wing, which is mistakenly confused as displaying peace flags, loving each other, freely smoking weed, eliminating corruption from the face of the Earth. Now that is an ideal [...] but among the educators I know, the best are those having a good family education. Those who got enrolled in the University (*he slams his hand on the table*) only to get their degree in Educational Sciences, honestly, I know them, they end up... end up selling furniture, and I also know some who graduated in Sociology before me who got a job in transportation companies [...] "I'll just give private lessons to earn my 80 euros but I still want to continue doing my job", that's what makes a good educator.

Referring to sexual orientation, that is determined by a biological factor because «you were born a female, you were born a homosexual [...] that is not a fault», it is not choice or a life path. Historical, social, cultural, environmental, familiar and relationship-based forces do not have a say in sexual identity, which is created by genetics.

It is curious that Alfonso, although he declares himself not a religious person and unaffected by the christian and catholic rules, still uses concepts as "sin" and cites religious quotes.

Today gender is divided in male, female, and homosexual [...] which is something that unfortunately is not accepted in most cases, I don't know why, actually it is fully normal, it's fully normal [...] it's normal!

The important is that the fundamental qualities... it's genetics: you were born homosexual or you were born a male or female. So you were born homosexual, you find out. I'm glad you find it out less in modern times [...] in a less dramatic way than it happened back then. I know tales of people who killed themselves when [they] discovered themselves to be homosexual, when it's normal: if you're homosexual, no problem [...]. It's not like we have to share our sex life. Because that's where the problem is, there is great ignorance about homosexuality or being male or female, because you're always looking at sex, but are we supposed to go around fucking each other every day then? [...] I'll say it again: you were born male, female, you were born homosexual, it's not a sin, not a fault. What matters is that your life path goes on normally, I mean males be males, women be females, be females, homosexuals be homosexuals, I mean without being mean, without hurting other people, without being mean, always looking at the common good, I mean, can you be like, the way he used to say... who was it? Pope Francis saying "who am I to judge?" Seriously [...] we can

only judge when someone hurts someone else! And we link that to the role of the educator: you can be a good educator, you can be not as good, but if you help, if you help yourself, if you're trying to help, or to [get] a disabled boy to learn you're already doing a great job, then we would need a whole lot of educators like this [...].

Even on such a wide and articulated topic Alfonso can't help connecting the base constitution of a subject with his educational potential. In full harmony with the philosophy of helper professions, the sociologist believes that helping others is «crucial» and that it can suggest whether an educator is good or not. Intentions, especially if noble ones, are what matters, and they're dominant compared to theory and operational competences.

Homosexuality is accepted without conditions. The stigma only hits evilness.

Alfonso draws a scheme of actions in which to operate: a family that orients, interventions aimed to the specific situation and lots of dedication. His profile could be defined as an idealist of solidarity.

The way he strives towards common good and his pro-social attitude look like they are stimulated by politic and solidarity-based reasons. He incarnates the kind of sociologist who does not stop at watching society and describing it, but that with his work he tries to improve not only the users he deals with, but society in its general sense, feeling called upon to intervene even in daily situations.

#### **4. Antonio, the missionary**

The interview to a younger subject, Antonio Ferrara, born in 1986, who has recently turned to educational practices, can outline an identikit mirroring the idea that Alfonso has of an educator meant as «a good person». It is necessary to anticipate that this interview has been conducted through Facebook, so the limits of the material did not make a deeper analysis possible, but still it offered interesting ideas for research.

After obtaining his degree in Educational Sciences at the University of Salerno, Antonio obtained the professional qualification of Social Animator in 2013. He currently works as «home educator for the assistance to non-self-sufficient minors within the project “Home Care Premium” promoted by the zone plan by zone S2 ex S3 Cava – Amalfi Coast».

About the reasons who pushed him to start an educational path in the field of pedagogics, Antonio reveals his missionary aptitude: «I chose to study Educational Sciences since I had in mind to do a job which allowed me to help others». His intent is going in the contrary sense of masculinity intended by ideological and stereotyped concepts, since he does not go after prestige, money or authority, but he chose to become a “crocerossino” (member of the red cross). This generates that «every profession requires determined features from the one practicing it. This is why I believe that a male educator owns features, that he acquired, elaborated and developed throughout his study and work path, features that are different from those owned by people working in completely different fields. To be an educator means to be an example for the others, to be a good host to the pupil, to inspire trust, to have patience and respect, to be humble and coherent with what you say and do».

Central aspect of an educator's mission is to favour the development of the pupil by offering him directly a virtuous model of behaviour. This is the dividing line between the expert of educational processes and any other professional: the educator cannot split theoretical wisdom from good practices, and cannot look the other way from the pupil's gaze, for whom he must become the hypostatization of the pupil's ideal type. He is exposed in such a way that gives him the moral obligation of maintaining a correct behaviour that can be of practical example.

As we speak about the alleged «greater aptitude towards education owned by women compared to men», Antonio acknowledges that it «must be» a «common prejudice, because women have taken care of their children or other children's education forever. In my brief – for now – work experience I must say I did not feel much of this difference because I was accepted as an operator just as much as others were». The certainty that this is a stereotype has matured inside him also because of his personal condition of a man who has chosen to help others by educating. In his rapport with the user pool, he found a preference shown by children towards same sex educators: «male children tend to look for male educators, while female children for female educators».

Antonio tells a story, which he perceived as uplifting feedback, and which suggests that his aptitude towards educations might have romantic or sentimental roots: «I remember a boy, who was about to leave the community, who asked me to speak in private and told me that he was very happy to have met me and even if we hadn't gotten much

time to spend together, he felt he could trust me. He wished he could meet a boy, a friend he could trust as much as he could trust me. These words of his greatly pleased me because I think earning the trust of boys that most of the times have experience of abandonment behind them is a gratification for the work I've done».

In his words, masculinity is then perceived and concretised as far from chauvinistic or patriarchal concepts, openly revealing its attributes of fragility and care, which are not exclusive to the feminine: «To be a male means in the first place to acknowledge yourself as human, blessed with intellect and feelings; recognize your strength but your weakness also; be dominant but not domineering; take care of close ones not only catering to economical or material needs, but also sentimental needs; to have your presence felt in happy as well as unhappy moments in life».

In agreement with the *modus operandi* of Alfonso's, who can tell a good educator from his behaviour in his or her private and professional life, Antonio also believes that you can't stop being an educator: if you are, you keep being it even if far from your working contexts. Traces of what you do on the field remain in daily activities and private ones. «I think it's difficult to completely separate the professional dimension from the private one because those who are educators are such in their own life when they give the good example, when they're coherent, caring, humble, people inspiring trust, points of reference for those who surround them. Still it is advisable that the educator cuts out his or her own spaces and moments of rest, thus avoiding to bump into high-stress periods that can lead him to burnout».

Reflecting on data inherent to violence on women, perpetrated by men, in the majority of cases husbands, mates, boyfriends, former mates, relatives or friends, and acknowledging that there are statistics suggesting that men are usually more violent than women, Antonio holds that «man is not violent by nature, because within him are mechanisms who push him to keep what good they have, their health, even at the expense of the good and health of others, but also because of cultural elements that incentivate violence, in particular on women, only as a way to affirm one's masculinity, the arab culture coming to mind».

These statements hold different cultural aspects worth working on. First and foremost, violence would be born by *physis* and be part of the natural economy of species to guarantee self-preservation, by expliciting a vision adhering to the Freudian theory of the subconscious of impulses, as discussed in *second topics*<sup>94</sup>.

On the other hand, it is acknowledged that violence can be the result of social-cultural constructions, agreeing with the conundrum of male supremacy that is ensured through subordination of the female. The example utilized, which describes a surely controversial reality, namely the Arab one, indicates that after all in our culture the gravity and urgency to fight misogyny is not very perceived. The cases of women being killed in the West is overshadowed by a generalization and a "sidetracking" phenomenon provided by the Arab culture.

Speaking of homosexuality, Antonio's thought is definitely straightforward in manifesting a rigid closure, by negating civil rights to same sex couples: «My opinion on this topic sprouts from my Christian-catholic beliefs, which is

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As Sigmund Freud theorises, the human psyche has two main impulses – “*Trieb*” in German – *thanatos*, the death impulse (*Todestriebe*) or aggressivity, and *eros*, the life impulse (*Liebestriebe*) or sexuality, both useful to the economy of species. These two impulses, in perpetual conflict, would regulate the psychic life and its working order: *thanatos* with its tension towards (self)destruction, and *eros*, expression of libido, would guarantee self-preservation of the I. The psychic instance, localized in the subconscious in which *eros* and *thanatos* are contained is the *Es*, the reservoir in which such impulses tend to the immediate achievement of pleasure and egoistic needs, ignoring the *principle of reality*, logical thought and every sort of ethical and moral inhibition. The *Es*' counterpart is the *Superego*, the psychic instance that contains the deepest prohibitions, behavioural codes and values. It's where the subconscious sense of guilt takes form. The *Ego* is the psychic instance called upon to mediate between the pulses of *Es* and the moral censorship activity of *Superego*, regulating the balance between the pulse for pleasure and the principle of reality. For further information see FREUD S. [1920], *Al di là del principio di piacere*, in *Opere di Sigmund Freud (OSF)* vol. 9. *L'Io e l'Es e altri scritti 1917-1923*, Bollati Boringhieri, Torino, 1986.

why I oppose homosexual unions as much as I oppose adoptions by homosexual couples. I believe that, to be brought up well, a child needs a father and a mother».

Antonio immediately warns that his answer is influenced by his creed, and his position is actually concordant with the official position of the Catholic church. From that we could infer that his faith orientates his thought and his actions. This would explain his rigid opposition to adoptions by homosexuals, ascribed to the wellness of the child who would need a male and a female, not promiscuous parents. He thinks the same about gender roles:

«Personally I believe gender roles should be well-defined so as to give and guarantee a solid and stable point of reference to the child (in case of families) or pupil (in case of educators)». He elevates the nuclear family model to a model to be implemented in the educational offer, by implicitly evoking the threat of liquid society that can only be defeated by ensuring stability and solidity to the pupil. Antonio's profile can be defined missionary-romantic-traditional.

### **5. Aniello, the professional**

Another young educator interviewed is Aniello Mazzeo, born in 1986, who after obtaining his degree in Educational Sciences and his master's as Professional Educator, both at the University of Salerno, he dived into the working world through various experiences, among which traineeship, volunteer work and ordinary working contracts.

Chronologically, he can boast a first experience in Salerno, city in which he was raised, in secondary and primary schools; then he was enrolled in the association "Mentoring USA/Italia – Onlus" within a project regarding school dropouts, for about 10 months. Afterwards he had a three-month experience in the association "Gruppo LOGOS Onlus", in Salerno, as facilitator in a group of self-help addressed to anonymous gamblers, then people addicted to gambling. After this experience, Aniello moved to the North of Italy where he was an intern for about a month in Novate Milanese, province of Milan, at a kindergarten run by the cooperative "Koiné Sociale Onlus". He is currently working, and has worked for a short time, about a week, for the cooperative "La nuova famiglia", located in the province of Monza, at a community providing hospitality to disabled subjects from 25 to 65 years.

In his case as well his opinions reflect his professional experiences, which reconfirms the dominance of practice upon theory. He acknowledges that his opinions are just opinions and not general rules, and in almost every answer of his he specifies that it's his personal point of view, by reiterating expressions such as "as far as I know", "in my judgement (10 times)", "I've seen now", "the way I see it" (2 times), "I noticed", "I think" (5 times plus 2 times "I believe"), "based on what I've seen", "in my opinion".

At first approach, when asked whether his supervisors or coordinators have shown particular expectations due to his being a male, Aniello speaks about a topic that is dear to who deals with *gender studies*: male authority. From his words you can infer that it is a key component in education-related professions, and a clear distinction is shown between male and female identities.

It happens in research – let's say in the job market – that there are particular requests for what regards the male field, I mean a specific figure of male educator for specific environments, for example, like for example in communities of drug addicts or for what concerns anyway communities for abandoned minors or people with serious disabilities, so the male figure is specifically... specifically the male educator is required, as far as I know, in these communities... so anyway the male figure in specific social-educational environments is required to have even more authority and physical strength, in my judgement, so it's okay to have a specific request for a male educator [...].

In explaining his rapport with children, motivated by the question «so you were not afraid of showing signs of affection and emotivity even through physical contact with kids, weren't you?» Aniello tends to shift the topic from an emotional level to the professional level as if he meant that the two dimensions live on different levels, and he neglects the importance of rapport.

No, with children anyway I've had a good rapport, not only sentimental let's say, but also professional anyway because anyway I was in a professional traineeship there, it was educational, so anyway I was perceived by the children as, uh, I mean, a sort of...elder brother, obviously they were children with immense difficulties at home, like for example school dropouts, separated parents and situations of uneasiness in the family, so let's say the children would perceive me, perceive me as a – I won't say father-like figure – but still as a point of reference and support.



The rapport with kids, among which «the males grew fonder than the girls, let me tell you», is defined as good and the fact that his figure was perceived as an elder brother indicates that still the relationship aspect which Aniello does not valorize has played a major role.

On the idea that women can be better educators than men, at first Aniello sees the topic as multidimensional, by listing different variables that “in his own opinion” concur to educational success:

no, I think it depends on the individual, on the environment you're in, who you deal with, what the user pool is composed of, and so there are many factors, let's see, for what regards our sector so you should not generalise, in my opinion you should not generalise on who's better and who's not, it depends of course from the professional experience you have under your belt, it depends on the user pool you deal with, it depends whether there is rapport with peers or not, that also [...] if it's good it depends a little bit from the environment you're in as well, if they put you at ease or, anyway, let's say, there are evident difficulties such as limited resources, money or let's say [...] lower [...] life quality, culture, society [...] I think anyway the difference let's say of services [...] I can say between North and South [...] there's the economic crisis here as well but I noticed that here the families, let's say the community in general, spend a minimum of resources to have the boys engage in activities.

Speaking more in general, about female aptitude to education and care, Aniello agrees with the common opinion stating that women have a greater aptitude to education. It is worth noting that this opinion is coming from a professional, which makes us think: should this widely accepted idea by educators themselves move us to consider it as more than simply a prejudice but instead as an accredited hypothesis, or should we ask ourselves questions about the educators, about their education and its subsequent limits? Shouldn't the awareness that in education different variables are to be considered imply that the matter is less biological – women could be more inclined to educate – than we might think? Shouldn't educators, be they male or female, be the first to operate towards a reworking of prejudices and dominant beliefs? Our witness' answer does not seem to deviate from common thinking:

maybe, uh... no, I think women notwithstanding the maternal instinct and things like... um, let's say they might be a little bit more inclined compared to us men towards things like education, anyway the [...] the strictness, I won't say strictness but anyway [...] in determinate things, but anyway I'm telling you, I can't see a man in determined environments as bad, for example drug addictions, disability, or even minors because anyway the male figure in my judgement can be useful in determined cases [...].

The conversation seems to lead us back to another prejudice, which I explicit to him as a question: «are men more indicated to *manage* disabilities or drug addiction compared to women?»

In determined cases that come to be, for as far as I have seen, yes. I mean that anyway if there are difficulties anyway, let's say, in the family or in relationships anyway, fights, conflict, as far as it comes to determined environments where if you find yourself working with them there are fights or conflict, or difficulties, the male figure will emerge anyway in fights in my judgement more than the woman, I'm not implying that the woman has lower expectations or can't manage a fight, but man, also because of his role, can help more, supported by women, as far as it concerns dispute resolutions. [Answering the question «because of his authority?») maybe [man] is seen as a father-like figure anyway so anyway stronger, I'm not saying, I'm not saying a woman can't manage those difficulties, right, but maybe a man, the figure of man maybe I won't say can intimidate but anyway for as much as it concerns the management of determined environments, like drug addictions, can anyway have an impact [...].

The indirect concluding proof of such a match, in this perspective, between masculinity and authority/strength/hardness/impetuosity comes from the subsequent answer to the question «what if you have to deal with children, teenagers, young adults?» in which you can infer the equality of gender in the educational intervention, again considering the other variables already mentioned before:

In my opinion it depends, because it kinda depends who you're dealing with, how the user pool is composed [...] you said teenagers so I think anyway teenagers, be they male or female, anyway, anyway is a difficult problem to manage so I don't feel like, anyway, sub-specifying woman or man who can better cope with the situation. You need to see the environment where this conflict, this difficulty is generated and the operator based on the experience [...] he has and see a bit how to deal with this difficulty, this conflict [...].

This point of view reveals the idea by which the necessity for a male educator is inscribed within contexts in which you deal with a difficult user pool, such as abandoned minors, serious disabilities and drug addictions, subject grouped into a single category that supposedly needs the male intervention. Here Aniello reinforces his previous statements, especially the one by which «the male figure in specific social-educational environments is required to have even more authority and physical strength, in my judgement, so it's okay to have a specific request for a male educator».

A recurring expression is «conflict management», indicating that the educator is not seen as a figure aiming to favour, in the etimological sense of “*educēre*” – to pull out – of development and creation of mental, social and behavioural faculties of an individual, in the perspective of humanization. He is more like a sort of mediator, or to say it Aniello’s way, a facilitator, role that he played during his experience in the self-help group for gambling addicts. If the educator is someone intervening in conflict management, it comes natural that those who are the targets of the educational intervention are living a difficulty chained to a conflict, and require negotiation, which implies that the actors of the conflicts are two or more, which requires an interpersonal mediation to solve the situation or cause.

Aniello believes that «it depends a bit who you’re dealing with». The theme of conflict management is recurring even while speaking of female educators:

in general... dunno... let’s say [...] it’s not like um... not like she’s overwhelmed, in the conflict or unpleasant situation that can arise, but anyway in certain environments, I’ll say that again, maybe especially in dealing with drug addictions there can be a, a, a greater impulsiveness, violence coming from the users maybe the male figure is a bit more advisable but not because of physical strength, more than that because of a sort of, anyway, experience which a male educator can have compared to a woman, not like a woman can’t manage this conflict [...] anyway [...] a sort of authority that anyway can be created, a sort of respect, you know if you see a male figure, among men you don’t generate conflict straight away, you try a bit of mediation, you don’t want to get to brute force, I think [...] maybe man is in... in, intrinsically he can manage this little conflict situation better [...] anyway always speaking of drug addiction, the male figure I repeat can be a bit more of help compared to, not because a woman can’t impose herself [...] but because in my judgement a man is seen with more respect, sort of, for what regards problems [...].

Again, a mostly traditional view of gender roles arises, since man is yet again seen as carrier of authority, more expert than a woman in dealing with difficult or dangerous situations, a figure that can obtain respect more easily. Thanks to these elements, even in difficult situations you would avoid escalating into violence, like saying that if you are dealing with a man you are going to think twice before resorting to violence. This way a picture is drawn that is stereotyped and patriarchal of gender differences. Hints at the emotional dimension are absent or almost absent, it is only considered under explicit stimulation – the question about whether it is better to have a female educator instead of a male one in the case of affect-deprived children – : «um...let’s say a woman for what regards familiar conflicts and let’s say above all if you’re dealing with minors maybe you can deal with I mean greater sensibility compared to man in most of cases can maybe cope better with the situations you’ve just, you’ve just listed».

It is necessary to clarify that the word “sensibility” was spoken by me, the interviewer, more than once, and which most probably was borrowed from the interviewee, who does not seem to spontaneously employ terms that refer to the emotional sphere. This hypothesis is reinforced when he is asked if «the male educator should have personal and professional features which are different from the one in possess of a male working in other professional contexts».

Obviously every sector requires different worker activities, competences, experiences, let’s say [...] doesn’t matter if male or female, in my opinion, so it’s normal that you can’t compare a male engineer to a male educator or to a... to a boy who studied economy, then marketing, then in commerce compared to an educator [...] anyway there are different environments, the experiences that come to be are anyway different, forbidden things, conflicts are also different, of a different nature [...] you can’t do these, a difference in my judgement.

Education-related competences are as such equaled to technical competences belonging to any other professional field. There is no trace of emotional quotient, and when Aniello is openly asked if a man working in the field of education who has developed a greater sensibility, emotivity and empathy can keep using them in his private life, the answer is negative:

No, I think you must separate your work from your private life anyway, the familiar life you have [...] I don’t think you can do it [...] if one has good qualities anyway even positive personality traits and has to make usage [use] of them like as you do while you work [...] then it’s normal that conflict resolution between two disabled boys you can’t of course let it influence your outcome let’s say of personal knowledge of your personality [...] it depends on the situation, as far as I know obviously, then it’s normal that if you have positive qualities like [...] you’re a good listener, you’re empathic, you can dialogue then you must also use them in the environment in which, for example, you and I are in, like the field of education.

The abilities of creating dialogue, listening and generating empathy are seen as positive personality traits, and they therefore depend on the private dimension of the subject’s and do not have a part in the setting of an educator. In his case there does not seem to be an opening or an interest in that sense. As previously noticed, Aniello separates technical-educational competences and private behaviour, and there seems to be no exchange between the two levels. As a proof,

when I ask him if his professional path has enriched him in sensibility or empathy compared to people of his same age but working in other fields, a somewhat puzzled answer comes:

um...no, as far as it concerns me I employ a lot the theme of dialogue anyway and so... even the fact that [...] even a bit of empathy but it's normal that in our field you have to know how to behave anyway and so there's a sort of dialogue anyway and confrontation, always, not only when it comes to conflict resolution in our working field, but also in what regards anyway, a sort anyway [...] living and so also a conflict management notwithstanding the... the unpleasant situation you can come to generate, so no, I can't see why you would have this separation.

In Aniello's opinion, to be a good educator you don't need to reinforce and develop personality traits related to your emotional quotient – sensibility, empathy, pro-sociality, comprehension – but you need to be apt to dialogue, which is first. The professional and rational dimension seems to prevail, through a process of negotiation/sharing finalized to conflict resolution. The profile with which he introduces himself is that of a “professional” meant as one who works for a retribution. There are no other motivations or interests.

Dialogue becomes again the main element because it is said that it's always about conflict resolution. In the case of feminine «a woman maybe she has more sensibility compared to man in determined cases, that's for granted [...] it's normal that it's always about education, the respect that your family has... has taught you, in my opinion».

## 6. Conclusions

From these three profiles a concept emerges that we could define “relativistic” of the educational practice, since there is no hint to possible strategies, behaviours or guidelines that can be generalized. Everything depends on the specific situation and context. A common variable is the dominance of practice upon theory; theory does not have any impact on the validity of an educator, who gathers experience from the field, with human rapport-based tools in the case of Alfonso and Antonio, with dialogue/negotiation-based tools in the case of Aniello, to be better able to carry out his or her tasks. A degree would only be a starting point, a key to the profession, that needs practical experience far more than theoretical concepts.

Gender duality is conceived as a fundamental structure education as well as society can't do without. All three the interviewees hint at the importance of role separation, but only Alfonso, a spurious educator, being a sociologist working for “common good”, is open to role versatility. All three value the importance of having to dive into a real context more than contemplate some ideal that can be learned from books.

Little merit is attributed to degree courses in the pedagogical field, so it is legitimate to ask whether or not the educational choice is determined mainly by factor such as personality, the maturation of a pro-social behaviour, the preference towards a study course who is not seen as too hard, the second choice after failing the admission to another preferred degree course and/or other elements, and finally whether or not the educators learn and take a step forward on their own, or they are the result of an aimed and effective education themselves.

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# The meaning and educational value of imagination through Dewey's concept of experience

Jung-son Kwon<sup>a</sup>, Hoy-yong Kim<sup>b</sup>, Jong-guy Kim<sup>c</sup>

<sup>a</sup>Jung-son Kwon, Pusan National University, 2, Busandaehak-ro 63beon-gil, Geumjeong-gu, Busan 609-735, Korea

<sup>b</sup>Hoy-yong Kim, Pusan National University, 2, Busandaehak-ro 63beon-gil, Geumjeong-gu, Busan 609-735, Korea

<sup>c</sup>Jong-guy Kim, Pusan National University, 2, Busandaehak-ro 63beon-gil, Geumjeong-gu, Busan 609-735, Korea

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## Abstract

The aim of this study was to shed light on imaginative education by inquiring the meaning of imagination through Dewey's concept of experience and to find some methods for imaginative education to encourage students' self-directed learning. For these, first, the conceptions, constructs, and features of educative experience that could be interpreted as Dewey's education were investigated. Next, the meaning and value of imagination in educative experience were discovered in the process of doing. Though Dewey's meaning of experience is a situation by itself, yet it would be explained by three rhythmic developmental phases: primary, reflective and consummatory ones. The reflective phase could not become the educative experience as an experience by itself. But it would act as very important intermediary to help the primary phase reach out to the consummatory phase by understanding the primary phase and imagining the future situation. In other words, the experience cannot turn into the consummatory phase unless it goes through the reflective phase. From the three rhythmic developmental phases, the imagination is the required ability at the reflective phase. Finally, the imagination is core ability to help that educational process and activity have value or be meaningful things connecting with each other closely. In conclusion, the imagination is the intermediation and necessary factor to let experience have educational value. In other way, the imagination could be emerged while teachers encourage students to get educational experience. Therefore, it could be one of best way of the imaginative education that teachers provide students with the structured experience as educational experience.

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*Keywords:* Dewey's concept of experience, imagination, educative experience

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## Introduction

Now days, tremendous knowledge and information has been pouring out. In addition, society and circumstances are changing rapidly, and because of this mainstream, Knowledge that seemed to be unchangeable has been changed and we assume that its phenomenon will be increased more speedily. First of all, human beings are requested to have 'thinking ability' that works out a solution to new challenge of situation different from before that time. Therefore, from the past till now, there is an idea that the concept of learning is gaining certain, fixed information and knowledge, but suchlike thought about learning might be turned away. So today, 'imaginative education' is needed to bring up a creative talent required from society, or to cultivate thinking ability. The aim of this study is to shed light on the educational value of the imaginative education by inquiring the meaning of imagination through Dewey's concept of experience and to raise necessity of imaginative education to encourage students' self-directed learning.

## **The Meaning of Knowledge from Dewey's viewpoint**

At present, education is predisposed to point ostensible result, as a result there is learning to inculcate of knowledge habitually and mechanically by discipline, gives a prize or punishment. Generally, the meaning of good learning under such influence is that students gain more knowledge that means a fact proposition or statement expressed by language or a symbol.

On the other hand, Dewey emphasizes that education should focus on making the student feel the meaning of truth and principle through their experience (Dewey, 1916). In Dewey's viewpoint, knowledge does not indicate only an abstract concept or fact. Rather, knowledge is itself that the human being acquires the meaning from his/her experiences. According to his perspective, an issue about knowledge is connected with all of process to solve problems raised up in life. If Dewey's perspective is accepted, the meaning of knowledge should include all of things from logical proposition to contents empirically observed. And, at this time, there is a gap between logical proposition and contents empirically observed and the gap can be filled with 'imagination.' While contents of knowledge deal with what happened in the past which is completed and evident, imagination renders something that may happen in the present and future understood based on contents of knowledge, and imposes meaning, therefor induces new knowledge.

## **Changing idea of imagination**

From Plato and Aristotle's days to the early 20<sup>th</sup> century, possibly till today, it is considered important to understand abstract thought and concept in education. The other way, it is considered inferior to take images or imagine something. So, till early 20<sup>th</sup> century, image is considered as instrument to help person who could not understand abstract concept. And imagination's position has become different in modern times by educational philosopher(e. g. Pestalozzi and Froebel) who emphasized sense-experience, but still it is understood as a function to build an image that connect abstract concept and perceptual thing from sense-experience at most.

But imagination defined by Dewey include concept of deep thought more than mere awareness. Dewey (1916) mentioned "appreciative realization" which could not be distinguished from the work of the intellect and understanding. Appreciative realization is referred to as "experience", so if the mechanism of experience is understood, it is identified that imagination acts in the process of both knowledge generation and proactive thinking.

## **The Mechanism of Experience & Reflective Thinking of Dewey**

In Dewey's perspective, some experience as appreciative realizations might be qualified to called 'an experience' that makes students feel vivid meaning by themselves. 'An experience' means that the material experienced runs its course to fulfillment, or a piece of work is finished satisfactorily(Dewey, 1934). Such experience is a situation itself, but it could be structuralized with these three rhythmic developmental stages: primary, reflective, and consummatory stage. Reflective thinking acts as intermediation to make primary stage become consummatory stage by understanding primary stage and guessing how situation will change. In other word, experience could not be completed without reflective thinking stage. And reflective thinking needs 'Imagination'.

## **Conclusion: The Meaning and Educational Value of Imagination based on Dewey's Experience**

Until 20<sup>th</sup> century, imagining is considered, at most, as having an image about abstraction by distinguishing between abstraction (theory) and reality (practice). Whereas, in Dewey's perspective imagining is like thinking about something or situation. That is, imagining is guessing about the things to come or want to occur in the future. Finally, having an imagination means that people will be got a culture of clear thought (Takaya, 2004), and it is actually different from habitual thing, fancy, or mechanical thing. Imagination by Dewey could be the medium to help students understand a symbol (e.g. a letter, concept) as appreciative realizations (an experience). That is, imagination is a catalyst for reflective thinking that helps students' interests and attention be connected to new knowledge with logicity and systemicity. Imagination makes people find another possibility about something or situations getting out of conventional thoughts, and open ways to experience more and more. Therefore, we need to stop using teaching and

learning methods that indoctrinate with fossilized knowledge, but start to foster the will (e.g. imagination) that our students are willing to face knowledge with enthusiasm by themselves.

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# The mechanics of rigid bodies in mechanical engineering education

Billur Kaner <sup>a</sup>

<sup>a</sup> Yildiz Technical University Mechanical Engineering Faculty Yildiz/Istanbul 34349 Turkey

## Abstract

The mechanics of rigid bodies is the foundation of most engineering sciences and is an indispensable prerequisite to their study. Course in the mechanics of rigid bodies, the engineering student the ability to analyze any problem in a simple and logical manner and to apply to its solution a few, well-understood, basic principles. Therefore has an important place in engineering education. The mechanics of rigid bodies is subdivided into statics and dynamics; the former dealing with rigid bodies at rest, the latter with rigid bodies in motion. In this paper, the mechanics of rigid bodies consist of statics and dynamics is discussed at universities of mechanical engineering in Turkey. The needed for statics and dynamics courses programs are evaluated, by considering the International accreditation criteria.

## Özet

Rijid cisim mekaniği, birçok mühendislik bilimlerinin temeli ve bu çalışma alanların vazgeçilmez ön şartıdır. Rijid cisim mekaniği derslerinin amacı, mühendislik öğrencilerine her problemi basit ve mantıklı biçimde analiz edecek özelliği kazandırmak ve çözümler için az sayıda, iyi anlaşılmış temel ilkeleri uygulatabilmektir. Bundan dolayı, mühendislik eğitiminde önemli bir rolü vardır. Rijid cisimlerin mekaniği iki alt gruba ayrılır: statik ve dinamik. Statikte durgun rijid cisimler, dinamikte hareketli rijid cisimler yer alır. Bu çalışmada, Türkiye’deki üniversitelerin makine mühendisliği programlarında rijid cisimler mekaniği bilgilerini içeren statik ve dinamik derslerinin programları ele alınarak incelenmiştir. Uluslararası akreditasyon kriterleri de dikkate alınarak makine mühendisliği için ihtiyaç duyulan statik ve dinamik ders programları değerlendirilmiştir.

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**Keywords:** The mechanics of rigid bodies, statics, dynamics, mechanical engineering

## Giriş

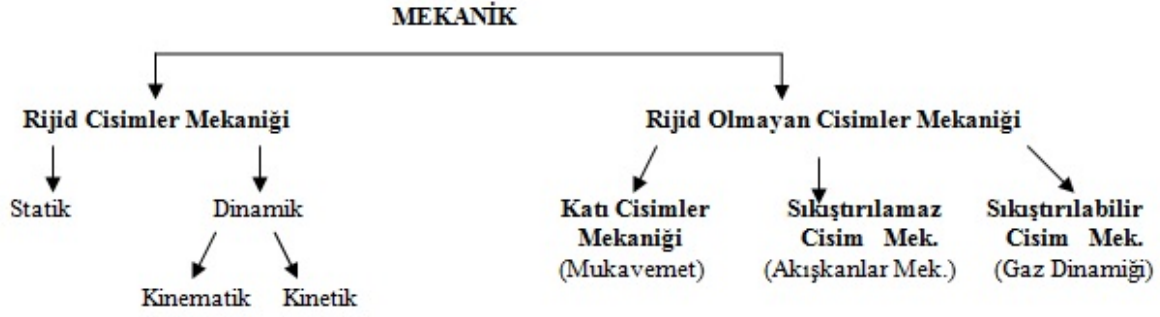
Mekanik; çeşitli kuvvetlerin etkisi altındaki cisimlerde denge ve hareket şartlarını inceleyen ve açıklayan bilim dalıdır ve mühendislik eğitiminin temelini oluşturur. Gözlemlerle elde edilen sonuçları başlangıç olarak ele alıp, fiziksel bir olayı tanımlayan çeşitli etkenler arasında değişmeyen bağıntıları, yani olayın yasalarını belirlemeye çalışır. Önerilen yasalar çeşitli varsayımlara dayandırılır ve bunların doğruluğu ya da geçerlilik sınırları deneylerle araştırılır (Beer F.P. , Johnston E.R. , 2004).

Mekanik, ilk bilimdir. Geçmiş çok eski çağlara dayanan statik, bilimsel temellere dayandırılışı yeni sayılabilir. Örneğin, paralel kenar ilkesi Simon Stevinus (1548-1620) tarafından önerilmiştir. Dinamiğin geçmişi, statikten de daha yenidir. İlk bilimsel çalışmalar Galileo Galilei (1564-1642) ile başlamakla birlikte, günümüze kadar uzanan ciddi temeller Isaac Newton (1642-1726) tarafından atılmıştır. Newton’un 3 temel yasası üzerine kurulan mekanik; D’Alembert(1717-1783) Lagrange(1736-1813), Hamilton(1805-1865), Jakobi (1804-1851) başta olmak üzere çok sayıda araştırmacının katkılarıyla geliştirilmiştir.

Mekanikte incelenen cisimler,

- Rijid (şekil değiştirmeyen) cisimler
- Şekil değiştirebilen cisimler

diye ikiye ayrılır. Rijid cisimler mekaniğinde yapılan idealleştirme, dış etkiler ne olursa olsun, cismin geometrisinde bir değişiklik olmadığıdır. Ayrıca mekaniğin kapsamı içinde katı sıvı gaz cisimleri inceleyen şekil değiştirebilen rijid olmayan cisimler mekaniği de mevcuttur. Mekaniğin çeşitli alt gruplarını kısaca tanıtmak istersek, aşağıda sunulmuş olan şemayı verebiliriz.



Rijid cisimlerin kuvvet etkisindeki davranışını ele alan bilim dalına rijid cisimler mekaniği denir.

- Rijid cisim statiği
- Rijid cisim dinamiği.

Rijid cisim statiği, duran dengede olan cisimlere etkiyen bağ kuvvetlerini araştırır ve denge koşullarını inceler. Rijid cisim dinamiğinde ise hareket denklemleri kullanılarak cismin hareketi incelenir. Dinamik, kinematik ve kinetik diye başlıca ikiye ayrılır. Kinematik; hareketi oluşturan sebepleri, yani kuvvetleri, göz önüne alınmaksızın hareketin incelenmesidir. Kinetik ise bir cisme etkiyen kuvvetler, cismin kütlesi ve meydana gelen hareket arasındaki bağıntıyı inceler (Hibbeler R.C., 1978).

## **RİJİD CİSİM MEKANİĞİNİN MAKİNA MÜHENDİSLİĞİ EĞİTİMİNDEKİ YERİ**

Mühendis teriminin İngilizcesi “engineer” sözcüğü makina anlamına gelen “engine” sözcüğünden türetilmiştir. Makina mühendisliği, terimin belirttiği gibi mühendisliğin merkezi bir konumundadır. Makina Mühendisliği (Mechanical Engineering) terimi de mechanical (mekanik) ve engine sözcüklerinden oluşmuştur. Bu da makine mühendisliği ve mühendisliğin merkezinde mekanik bilim dalının olduğunu gösterir. Dolayısı ile bir makine mühendisliği eğitiminde; maddenin rijid hali ve üç halinde (katı, sıvı ve gaz halleri), statik (sükunet) ve dinamik (hareket) durumları temel prensiplerle ilgili derslerde sırayla verilmektedir. Mekaniğin dallarının her biri makine mühendisliği eğitim planındaki ders içeriklerinde öğretilir. Öğrenci, makine mühendisliği eğitimini tamamladığında mekanik bilim dalını teorik ve uygulamalı olarak öğrenmiş olur. Mekaniğin, herhangi bir nedenden dolayı eğitim yılları içerisinde iyi sindirilememesi durumunda, genç mühendislerin uygulamada hep bir eksik ve ürkeklik hissetmeleri kaçınılmazdır (Omurtag H.A., 2011).

Mekaniğin temel prensipleri ders planlarında, rijid cisim mekaniği bilgilerini içeren derslerde ilk olarak anlatılır. Rijid cisim mekaniği, çoğu mühendislik bilimlerinin temeli ve o çalışmaların vazgeçilmez ön şartıdır. Rijid cisim mekaniği derslerinin amacı, mühendislik öğrencilerine her problemi basit ve mantıklı biçimde analiz edecek iktidarı

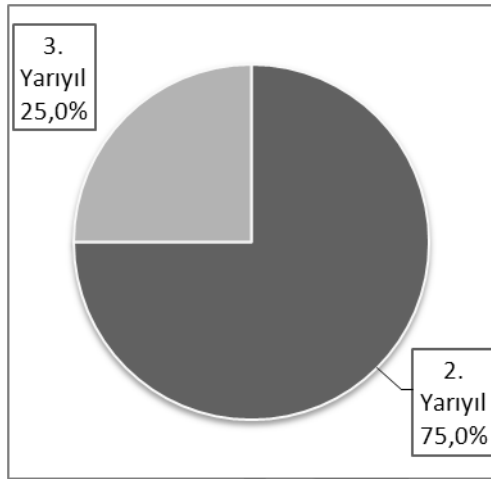


kazandırmak ve çözümler için az sayıda, iyi anlaşılmış temel ilkeleri uygulatabilmektir. Ve mühendislik uygulamaları için gerekli olan esasları hazırlamaktır. Bu nedenlerle; Türkiye’deki üniversitelerin Makine Mühendisliği Bölümleri incelendiğinde; rijid cisim mekaniğinin “statik” ve “dinamik” dersi adı altında iki ayrı zorunlu temel mühendislik dersi olarak eğitim planlarında yer aldığı görülmektedir. Yurt dışı üniversitelerin Makine Mühendisliği bölümlerinin de eğitim planlarında benzer durum söz konusudur. Mühendislik eğitiminin ilk dönemlerinde bu temel mekanik bilgilerine sahip olan öğrenciler, daha sonraki dönemlerde mukavemet dersi ile katı cisim mekaniği, akışkanlar mekaniği dersi ile sıvı mekaniği prensiplerini tanır. Diğer mühendislik derslerinde de bu temel bilgileri kullanmaya devam ederler.

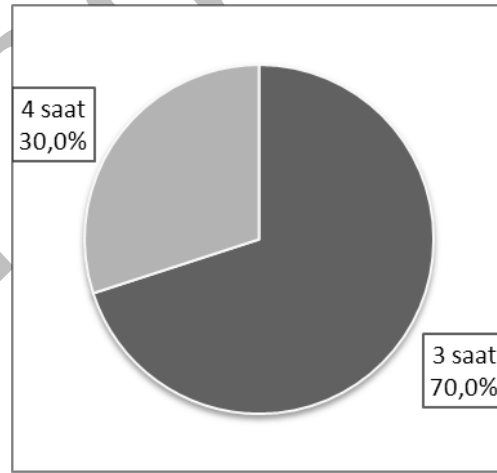
#### *Rijid Cisim Mekaniği; Statik Dersi*

Mekaniğe giriş olan statik dersi, öğrencilerin mühendislik kavramıyla ilk tanışmalarını sağlayan derstir. Günlük hayatta sıkça gözlemlediğimiz pek çok fiziksel olaya artık bir başka bakış açısıyla yaklaşmaya, mühendislik formasyonu ile zihinlere aktarılmaya çalışılır (Omurtat H.A., 2011).

Statik dersi, %75’ inde ikinci yarıyıl, %25’ inde üçüncü yarıyıl olmak üzere zorunlu ders kapsamında Türkiye üniversitelerinin Makina Mühendisliği Bölümlerinin ders planlarında mevcuttur (Şekil 1).



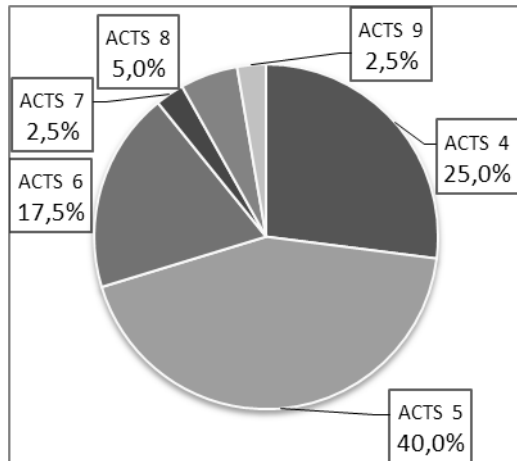
Şekil 1. Statik dersi dönem dağılımı



Şekil 2. Statik dersi haftalık saat dağılımı

Statik dersi makine mühendisliği bölümlerinin eğitim planlarının %70’inde haftada 3 saat ve %30’unda haftada 4 saat (Şekil 2.) olarak mevcuttur.

Statik dersinde ACTS dağılımı ise, 4 ile 9 kredi arasında değişmektedir (Şekil 3).



Şekil 3. Statik dersi ACTS dağılımı

Tablo 1. Ders Planında Haftalık Konu Dağılımı:

1. hafta	Mekanîğe Giriş
2. hafta	Maddesel Noktanın Statiği: Düzlemde Kuvvetler
3. hafta	Maddesel Noktanın Statiği: Uzayda Kuvvetler
4. hafta	Rijit Cisimler: Eşdeğer Kuvvet Sistemleri
5. hafta	Rijit Cisimler: Eşdeğer Kuvvet Sistemleri
6. hafta	Rijit Cismin Dengesi
7. hafta	Yayıllı Yükler: Merkezler ve Ağırlık Merkezleri
8. hafta	1. Yılıçi Sınavı
9. hafta	Yapıların Analizi
10.hafta	Kiriş ve Kablolardaki Kuvvetler
11.hafta	Sürtünme Kuvveti
12.hafta	Rijit Cisimler Sisteminin Dengesi
13.hafta	Yayıllı Yükler: Kütlelerin Eylemsizlik Momenti
14.hafta	2. Yılıçi Sınavı
15.hafta	Virtüel İşler Metodu
16.hafta	Final Sınavı

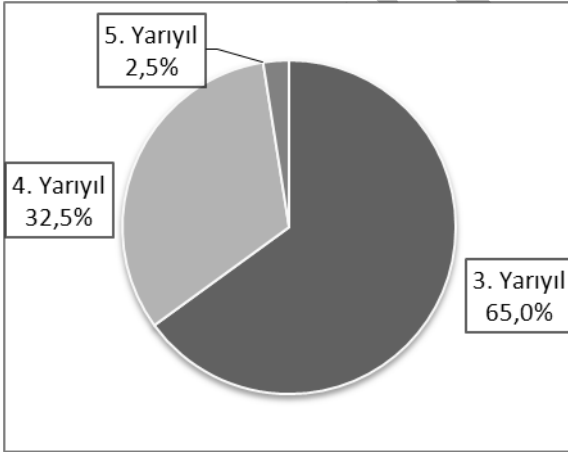
Ders Öğrenim Çıktıları:

- Öğrenci vektör cebri, kuvvet ve moment tanımını hakkındaki bilgilerini mühendislik problemlerine uygulamaya başlar.
- Öğrenci maddesel noktanın, rijid cismin ve rijid cisimler sisteminin dengesi hakkında bilgi kazanır ve ilgili problemleri çözebilir.
- Öğrenci statikçe belirli taşıyıcı sistemlerin statik dengesi (çubuklar, kafesler, çerçeveler, kablolar, makineler) hakkında bilgi sahibi olur.

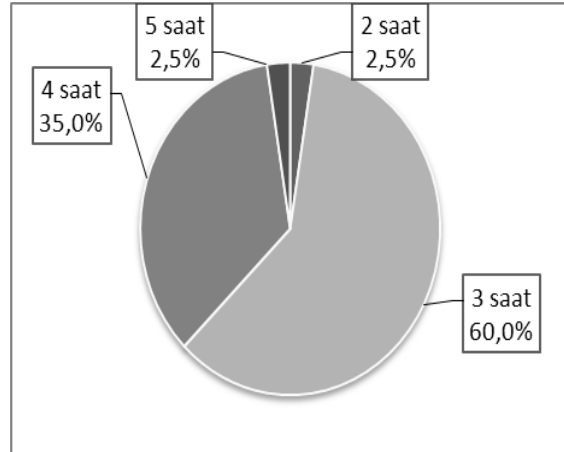
Mühendislik eğitiminde, cisimlerin hareketinin incelendiği dinamik dersinin öğrenilmesi genellikle statik dersini izler. Dinamiğin iki farklı kısmı olan kinematik ve kinetik tam olarak kavranması mühendislikte analiz için en yararlı ve en güçlü araçlardan biridir. Makinalar , yüksek hızlarda ve kayda değer ivmelerde çalışmaya başladıktan sonra hesaplamaların statik ilkeler yerine dinamik ilkelerine dayanarak yapılması gerekli olmuştur. Günümüzün hızlı teknolojik gelişmeleri mekanik ilkelerinin, özellikle de dinamiğin giderek artan uygulamalarını gerektirmektedir. Bu ilkeler, hareketli cisimlerin, darbe yüklerine maruz sabit yapıların, robotik cihazların, otomatik kontrol sistemlerinin, ulaşım araçlarının, pompa, türbinler, vinçler,...vb. makine tiplerinin analiz ve tasarımlarında temeldir (Meriam J. L., Kraige L.G., 2008).

Dinamiğin öğrenilmesi, fizik ve matematik arasında sürekli dönüşümlerle cisimlerin hareketlerinin tanımı, anlaşılması ve problemlerin analizi için gereklidir. Dinamik dersini iyi özümleyemeyen öğrencilerin karşılaştığı en büyük zorluklardan biri bu dönüşümü serbestçe yapabilme yetersizliğidir.

Dinamik dersi; %65 oranında üçüncü yarıyıl, %32.5 oranında dördüncü yarıyıl, %2.5 oranında beşinci yarıyıl makine mühendisliği bölümü eğitim planlarında mevcuttur (Şekil 4). Dinamik dersinde haftalık ders saati dağılımı 2 ile 5 saat arasında değişim göstermektedir (Şekil 5).

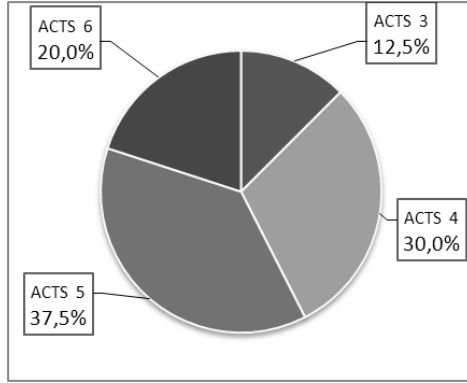


Şekil 4. Dinamik dersi dönem dağılımı



Şekil 5. Dinamik dersi haftalık saat dağılımı

Dinamik dersinde ACTS dağılımı ise, 4 ile 9 kredi arasında değişmektedir (Şekil 6).



Şekil 6. Dinamik dersi ACTS dağılımı

Tablo 2. Ders Planında Haftalık Konu Dağılımı:

1. hafta	Dinamiğe Giriş- Maddesel Noktanın Kinematiki
2. hafta	Maddesel Noktanın Doğrusal Hareketi
3. hafta	Maddesel Noktanın Eğrisel Hareketi
4. hafta	Maddesel Noktanın Eğrisel Hareketi
5. hafta	Rijit Cismin Kinematiki
6. hafta	Rijit Cismin Kinematiki
7. hafta	Rijit Cismin Kinematiki
8. hafta	1. Yılıçi Sınavı
9. hafta	Maddesel Noktanın Kinetiki; Kuvvet, Kütle ve İvme
10.hafta	Maddesel Noktanın Kinetiki; İş, Enerji ve Momentum
11.hafta	Maddesel Nokta Sistemlerinin ve Rijid cisim Kinetiki
12.hafta	Rijit Cismin Düzlemsel Hareketi; Kuvvetler ve İvmeler
13.hafta	Rijit Cismin Düzlemsel Hareketi; İş ve Enerji
14.hafta	2. Yılıçi Sınavı
15.hafta	Rijit Cismin Düzlemsel Hareketi; İmpuls ve Momentum

Dinamik dersi haftalık konu dağılımı, üniversitelerin ilgili bölümlerinde incelendiğinde konu anlatım sırasının ekoller arasında bazı farklılıklar gösterdiği belirlenmiştir. Dinamiği temelde kinematik ve kinetik olarak ikiye ayırıp, önce kinematik tanımlamalarla maddesel nokta ve rijid cisimde hareketleri tanımlayıp gruplandırıp daha sonra kinetik eşitliklerle derse devam edilmektedir. Ana başlıklarla; Maddesel Noktanın Kinematiki, Rijit Cismin Kinematiki, Maddesel Noktanın Kinetiki, Rijid Cismin Kinetiki sırası takip edilmektedir. Diğer ekolde ise; önce Maddesel Noktanın Hareketi kinematik ve kinetik analizi yapılarak incelenmektedir, daha sonra Rijid Cismin Hareketi Kinematik ve Kinetik analizi yapılarak derse devam edilir. Ana başlıklarla; Maddesel Noktanın Kinematiki, Maddesel Noktanın Kinetiki, Rijit Cismin Kinematiki, Rijid Cismin Kinetiki sırası takip edilmektedir.

Her iki anlatım sistemi tarafımdan tecrübe edilmiştir. Yukarıda 15 haftalık konu dağılımı verilen plan konu akışı olarak öğrenci tarafından daha anlaşılır bulunduğu ve derste zaman kazandırmış olduğu gözlemlenmiştir.

Ders Öğrenim Çıktıları:

- Parçacık hareketini çözebilmek için uygun eksen takımını seçebilmek ve kullanabilmek
- İvmeli hareket eden eksen takımında dinamik modeli kurabilmek

- Enerjinin/Momentumun korunumu gibi integral formdaki hareket denklemlerini parçacık ve rijit cisim için kullanabilmek
- Düzlemsel harekette, rijit cisim için model oluşturabilmek ve analiz edebilmek

## SONUÇ VE TARTIŞMALAR

Ülkemizdeki Makine Mühendisliği bölümleri öğretim planları incelendiğinde statik dersinin ağırlıklı olarak 2. yarıyılıda, dinamik dersinin ise hemen sonraki 3. yarıyılıda olduğu görülmektedir.

Her iki ders de genellikle haftada 3 saattir ve ACTS değerleri 5'dir. Bu bilgiler ikinci bölümde grafiklerle detaylı verilmiştir. 1. yarıyıl planındaki temel derslerden hemen sonra mühendisliğin temel dersi olan statik ardından dinamik dersinin verilmesi çok uygundur.

Makine Mühendisliği bölümleri öğretim planlarında sürekli iyileştirmeye gidilerek, ders sayısı ve kredi saatleri açısından çağdaş ve uluslararası ölçütlere uygun bir içeriğe sahip olacak şekilde düzenlemeler yapılmaktadır. Ülkeler arasında sınırların kaldırıldığı bir Avrupa'da üniversite öğretiminde kalite güvencesinin sağlanması zorunlu duruma geldiğinden Bologna süreci çerçevesinde üniversitelerin başarısı ve verdikleri diplomalar Avrupa ölçeğinde karşılıklı tanınmayı öngörmektedir. Bologna süreci kapsamında, Almanya'daki köklü üniversitelerin Makine Mühendisliği Bölümlerinin ders planları ile Türkiye Üniversitelerinin Makine Mühendisliği Bölümlerinin ders planları karşılaştırıldığında ders adları, içerik ve kredilerinin pek farklı olmadığını görmekteyiz (Rende, H., 2011). Bu durum, statik dersi içeriği teknik mekanik 1, dinamik dersi içeriği teknik mekanik 2 adı altında olsa da rijid cisim mekaniği derslerinde de bulunmaktadır.

Rijid Cisim Mekaniği makine mühendislik eğitimi içinde hak ettiği ilgiyi görüyor mu? Bu sorunun cevabı "evet" ise, iki alanda ciddi ilerleme sağlandığını düşünebiliriz. Birincisi mesleğin önemli bir parçası olan mekanik problemlerini algılamaya ve bunları mühendislik bakış açısıyla yorumlamaya hazır öğrenciler yetiştirmekteyiz. İkincisi ise, mekanik problemlerini çözebilmek için gereksinim duyulan matematik altyapı ve kıvrak düşünme yeteneği kazandırılmıştır.

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# The need for teaching local arts as an elective course: the art of tile making in Kutahya

Nida Bayindir<sup>a</sup>, Levent Sevi<sup>b</sup>, Aynur Cukurcalioglu<sup>c</sup>, Ahmet Sami Yucel<sup>d</sup>

<sup>a</sup>Associate Prof. Dr., <sup>b</sup>Lecturer, <sup>c</sup>PhD candidate, <sup>d</sup>Master's Student, Dumlupinar University Education Faculty Elementary Teaching Department, Kutahya 43100, Turkey

## Abstract

This research will be beneficial in revealing that regional local arts, if taught as an elective course in secondary schools, will both contribute to students' development and prevent local arts from disappearing. Information about tile-making, a local art of Kutahya, is presented and opinions of secondary school teachers about the subject are sought through a survey. The sampling is composed of 137 secondary school teachers in Kutahya during 2013-2014 education period. The majority of teachers think tile-making elective course will be beneficial for both the student and the region and students will be eager to choose a local arts elective course.

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**Keywords:** Local Arts, Elective Courses, Kutahya, Tile-Making

## Introduction

Education is a process of changing behaviour in an individual as desired (Demirel, 2006: 6). At the end of education process, besides improving academic success of students, it is aimed to help them explore their talents and interests by reinforcing their spiritual, mental and physical development. In this context, according to MEB (Ministry of National Education) syllabus code, upon the Regulatory Board's decision, it was decided to start elective courses from 5th and 6th classes beginning from 2013-2014 education year and to conduct these courses fractionally (<http://tegm.meb.gov.tr/>). Elective courses not only contribute to students' cognitive, affective, physical and social developments but also help them develop their own interests and skill and meet their own needs (<http://yegitek.meb.gov.tr/>).

As a part of new education system in Turkey, there are no elective courses at primary school level, but elective courses are applied in 5th and 6th grades fractionally at secondary level and in 10th, 11th and 12th grades at high school level. Because the scope of this research is limited to the elective courses at secondary level, weekly course schedule published by MEB was studied and it was seen that the elective courses at secondary level are grouped under six categories: Religion, Ethics and Values, Language and Expression, Foreign Languages, Physical Sciences and Mathematics, Arts and Sports, and Social Sciences (<http://ikgm.meb.gov.tr/>); however, it was noticed that there is no elective course in which local arts, music and cultural values are emphasized.

Teaching local arts, abundant and full of cultural diversity in every corner of Turkey, as elective courses will not only provide students with opportunities for hobbies and potential future careers but also be a means of passing these arts on to the future generations. Some of the famous local arts and cultural heritages of Turkey that could be presented as elective courses are pottery in Nevsehir and Canakkale; tile making in Kutahya and Iznik; filigree in Mardin; meerscham in Eskisehir; sericulture in Bursa; clarinet in Trakya (Thrace); oilwrestling in Edirne; zeibek folk dance in Ege (Aegean Region); jet stone decorations in Erzurum; carpet and rug making in Usak and Balikesir; wood, stone and copper decorations and kemancha training in Trabzon; knife making in Kastamonu and Denizli Yatagan, etc.

It is proposed in this study to give world famous tile making training in and around Kutahya as an elective course at schools at secondary level.

In this context, in terms of the historical background of tile making, it is claimed in some resources that the name came from China with reference to Chinese who promoted porcelain to the world (Encyclopedia of Islam, 1993: 329). In some other resources, tile making is claimed to originate in Central Asia starting with Uyghur Turks, continuing with Karakhanids and Ghaznevids and brought to Anatolia by Seljuks (Kutahya Encyclopedia, 1999: 67). Tile decorations were used enormously in architectural works (Aslanapa, 1993: 147) and the art of tile making showed a rapid development in Anatolian Turkish architecture (Yetkin, 1986: 1).

Art historians also admit that the art of tile making belongs to Turks (Atalay, 1983: 5). The artifacts unearthed in archeological excavations in Central Asia, especially in Tufan, Ashkar and Kocha Regions around the city of Kashan prove that Turks used tile making as an art branch before 8 BC. (Kucukyilmazlar, 2006: 3). Today, ceramic industry exists in many European countries and some of the production is conducted in the name of tile making; however, none of it bears the characteristics of genuine Turkish tile making; every piece is decorated by hand, underglaze decorations are only done with brush, figures are unique, diverse, authentic and endemic only to Turkish tile heritage.

China tiles are produced by shaping, decorating, glazing and baking the paste composed of a mixture of such agents as kaolin, clay, chalk and quartz at certain ratios (Atalay, 1983: 6-8). In this respect, with its rich clay resources, Kutahya was a centre of tile production in Phrygian, Hellenistic, Roman and Byzantine times (Bilgi, 2006: 9). In the Ottoman times, tile making concentrated in and around İstanbul, Iznik, Kutahya and Bursa. These centres were always supported by the court (Kutahya Encyclopedia, 1999: 67; Bayezit and Ishik, 2012: 893).

The tile pieces displayed in various museums around the world date back to 16th century, which was the development age of Iznik tile art. Initially, compared with Kutahya, being close to Istanbul was a great advantage for the art in Iznik. Starting from the 14th century onwards, tile making in Kutahya was only secondary to the art in Iznik. When the Ottoman State went into decline during the 17th century, tile making in Iznik was negatively affected by the process and struggled to survive but, since the art in Kutahya didn't depend on the court as much as Iznik, it continued and even strengthened its existence (Kutahya Encyclopedia, 1999: 68-70).

Today in Kutahya, together with the traditional way of production, modernized methods are also used to satisfy the touristic demand (Bilgi, 2006: 15).

Considering the above mentioned process in which tile making continues to be carried out only in Kutahya with its historical prominence, this research aimed to reveal the factors in teaching tile making in Kutahya as local arts elective course.

## Method

This is a survey study with a sampling composed of 137 secondary school teachers working at the schools of MEB (Ministry of National Education) during 2013-2014 education year. The questionnaire was analysed by experts and accepted to have content validity.

After completing the implementation of data gathering tool, the questionnaires were transferred to SPSS program. The first stage of the analysis was conducted on the likert type items "completely adequate", "adequate", "partly adequate" and "completely inadequate". Their frequencies and percentages were computed. The research is limited to the questionnaires, statistical methods and tools involved within.

## Findings

The following are the research results of the study conducted to determine the need for teaching local arts as elective course.

**Table 1- Gender**

SMEAN (Gender)

		Frequency	Percentage	Mean	Standard Deviation
Valid	Male	65	47,4		
	Female	72	52,6	1,52	0,50
	Total	137	100,0		

According to the table, the participant 137 teachers are 52,6% female and 47,4% male.

**Table 2. Professional seniority**

SMEAN (Seniority)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5years	11	8,0		
	6-10years	36	26,3	3,18	1,28
	11-15years	38	27,7		
	16-20years	20	14,6		
	21years and above	32	23,4		
	Total	137	100,0		

According to the table, 26,3% of the participant teachers have 6-10 years and 27,7% have 11-15 years professional seniority, so more than half of the participants are teachers for 6-15 years.

**Table 3- The case of having a workshop or an art room at schools**

SMEAN(Item-1)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	56	40,9		
	No	81	59,1	1,59	0,49
	Total	137	100,0		

According to the table, 40,9% of the participant teachers stated that there are workshops or art rooms at their schools, whereas 59,1% said there aren't any at their schools.

**Table 4- The case of entering an elective course**

SMEAN (Item-2)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	57	41,6		
	No	80	58,4	1,58	0,49
	Total	137	100,0		

According to the table, 41,6% of the participant teachers revealed that they were entering an elective course, whereas 58,4% stated that they weren't.

**Table 5- The factors in determining an elective course**



SMEAN(Item-3)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Students demand	57	41,6		
	Parents demand	65	47,4	2,37	1,30
	Principal demands	1	,7		
	Facilities	14	10,2		
	Total	137	100,0		

As seen in the table, according to the participant teachers, the factors in determining an elective course are 41,6% students demand and 47,4% parents demand.

**Table 6- The case of theoretical knowledge about tile making of Kutahya**

SMEAN(Item-4)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	56	40,9		
	No	81	59,1	1,59	0,49
	Total	137	100,0		

According to the table, it was determined that 40,9% of the participant teachers had theoretical knowledge about tile making of Kutahya whereas 59,1% didn't.

**Table 7- The case of practical knowledge about tile making of Kutahya**

SMEAN(Item-5)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	33	24,1		
	No	104	75,9	1,75	0,42
	Total	137	100,0		

According to the table, it was found that 24,1% of the participant teachers had practical knowledge about tile making of Kutahya whereas 75,9% didn't.

**Table 8- The case of contribution of local arts elective course to the student and the area**

SMEAN(Item-6)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	123	89,8		
	No	14	10,2	1,10	0,30
	Total	137	100,0		

According to Table 8, while 89,8% of the participant teachers thought that local arts elective course would contribute to the student and the area, only 10,2% didn't think so.

**Table 9- The case of entering local arts elective course**

SMEAN(Item-7)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	57	41,6		
	No	80	58,4	1,58	0,49
	Total	137	100,0		

According to Table 9, while 41,6% of the participant teachers stated that they were willing to enter local arts elective course, 58,4% stated that they weren't.

**Table 10- The case of contribution of local arts elective course to economy**

SMEAN(Item-8)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	127	92,7		
	No	10	7,3	1,07	0,26
	Total	137	100,0		

According to Table 10, 92,7% of the participant teachers thought that local arts elective course would contribute to economy whereas 7,3% didn't think so.

**Table 11- The case of local arts elective course offering students a chance to choose a career**

SMEAN(Item-9)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	125	91,2		
	No	12	8,8	1,08	0,28
	Total	137	100,0		

According to Table 11, 91,2% of the participant teachers stated that local arts elective course would offer students a chance to choose a career while 8,8% stated that they wouldn't.

**Table 12- The case of local arts elective course contributing to students' cognitive and social development**

SMEAN(Item-10)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	134	97,8		
	No	3	2,2	1,02	1,46
	Total	137	100,0		

As seen in Table 12, the biggest difference in the questionnaire was seen in this item with 97,8% of the participant teachers stating that local arts elective course would contribute to the students' cognitive and social development while 2,2% stated that it wouldn't.

**Table 13- The case of preference of local arts elective course by students**

SMEAN(Item-11)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	129	94,2		
	No	8	5,8	1,05	0,23
	Total	137	100,0		

As seen in Table 13, 94,2% of the participant teachers thought that students would be willing to choose local arts elective course whereas 5,8% didn't think so.

**Table 14- The case of local arts elective course contributing to institutionalization of tile making profession as formal education**

SMEAN(ITEM-12)					
		Frequency	Percentage	Mean	Standard Deviation
Valid	Yes	113	82,5		
	No	24	17,5	1,17	0,38
	Total	137	100,0		

As seen in Table 14, while 82,5% of the participant teachers thought that local arts elective course would contribute to institutionalization of tile making profession, 17,5% didn't think so.

## Conclusion

Among the total 137 participant teachers, more than half were teachers for 6-15 years, 59,1% stated that there weren't workshops or art rooms at their schools and 58,4% revealed that they didn't enter an elective course while 58,4% said that they didn't want to enter an elective course about tile making. While 47,4% thought that elective courses are determined according to parents demand, 59,1% said that they didn't have any theoretical knowledge about tile making and 75,9% stated that they didn't have any practical knowledge about tile making. Just as 92,7% believed that tile making elective course would contribute highly to the economy of the area and 97,8% thought that it would contribute greatly to the students' development levels, 94,2% were in the opinion that students would be willing to choose this elective course and 82,5% thought that it would also contribute to institutionalization of that profession. It is clear that reluctance of teachers to enter tile making elective course mostly arises from their being deprived of theoretical and practical knowledge about the art. On the other hand, the teachers still believe that local arts elective course will contribute to the student as well as the economy of the area.

## Suggestions

All in all, the benefits to be gained from teaching local arts as elective course should be explained to educational stakeholders, schools should complete their physical infrastructures according to the local arts of that area, teachers should be provided with in-service training for local arts education, and even additional values gained from the outcomes of that elective course should be used for the benefits of students and school.

## Questionnaire

## ANKET

Bu araştırma INTE(Uluslararası Eğitimde Yeni Ufuklar) Paris Konferansında Kütahya çiniciliğini dünyaya tanıtmak ve sürdürülebilirliği açısından eğitimle ilişkilendirmek üzere hazırlanmıştır. Katıldığınız için teşekkür ederiz.

### KİŞİSEL BİLGİ FORMU

- 1- Cinsiyetiniz. ☐ Erkek ☐ Kadın  
2- Mesleki kıdeminiz. ☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21 ve üstü

### MADDELER

1-Okulunuzda sanat/atölye odası var mı? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
2-Seçmeli derse giriyor musunuz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
3-Seçmeli dersin belirlenmesindeki faktörler nelerdir? <input type="checkbox"/> Öğrenci İsteği <input type="checkbox"/> Öğretmen İsteği <input type="checkbox"/> Veli İsteği <input type="checkbox"/> Müdür İsteği <input type="checkbox"/> İmkanlar <input type="checkbox"/> Diğer(.....)
4-Kütahya Çiniciliği hakkında teorik bilginiz var mı? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
5-Kütahya Çiniciliği hakkında pratik bilginiz var mı? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
6-Yerel sanatlar seçmeli dersinin öğrenci ve yöreye katkı sağlayacağını düşünüyor musunuz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
7-Yerel sanatlar seçmeli dersine girmek ister misiniz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
8-Yerel sanatlar seçmeli dersinin ekonomiye katkı sağlayacağını düşünür müsünüz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
9-Yerel sanatlar seçmeli dersinin öğrencilere bir meslek olabileceğini düşünür müsünüz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
10-Yerel sanatlar seçmeli dersinin öğrencinin bilişsel ve sosyal gelişimine katkı sağlayacağını düşünür müsünüz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
11-Yerel sanatlar dersinin öğrenciler tarafından tercih edileceğini düşünür müsünüz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır
12- Çinicilik eğitiminin örgün olarak mesleğin kurumsallaşmasına katkı sağlayacağını düşünür müsünüz? <input type="checkbox"/> Evet <input type="checkbox"/> Hayır

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# The neuroscience literacy of teachers in Greece

Deligiannidi, K. and Howard-Jones, P. A.

*Graduate School of Education, University of Bristol, BS5 8HZ, United Kingdom*

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## Abstract

There is concern amongst neuroscientists and educators about the prevalence of neuromyths in education, which are often associated with poor or unevaluated practices in the classroom. The present study surveyed 217 primary and secondary school teachers in Greece. Analysis revealed that Greek school teachers held many misconceptions about concepts related to brain-based educational programs that have been observed elsewhere in Europe. These include believing that differences in hemispheric dominance (left brain, right brain) can help explain individual differences amongst learners, and the effectiveness of teaching to learning styles. However, international comparison with other studies also revealed some interesting differences reflecting the influence of cultural forces on teachers' ideas about brain function. For example, teachers in Greece appear to possess a more complex construction of the mind-brain relationship than observed in the UK and Netherlands, with most considering that this relationship is mediated by the soul. A relationship was also observed between attributing educational outcomes to genetics and a belief in a biological limit to student achievement.

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**Appendix B.** *Keywords:* Brain; neuroscience; neuromyth; genetics; teacher training

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## Introduction

As the dialogue increases between neuroscience and education, there is a growing concern about the prevalence of neuromyths in many schools. In 2002, the Organisation for Economic Co-operation and Development (OECD) defined “neuromyth” as “a misconception generated by a misunderstanding, a misreading, or a misquoting of facts scientifically established” (OECD, 2002). These myths are related to the practices of teachers and are often promoted by brain-based programmes and books marketed to teachers that are intended to inform their teaching strategies.

\* Corresponding author. Tel.: +0-000-000-0000

E-mail address: k.deligiannidi@gmail.com

There is good reason, therefore, to consider these misunderstandings contribute to poor practice in the classroom. Studies have found high levels of neuromyths amongst teachers in the UK, Netherlands, Portugal, Brazil, China and Turkey. Beyond the impact of commercial brain-based programmes in promoting myths, it seems likely that cultural contexts will influence the types of myth that become prevalent in a particular country. For example, only half of the UK population report any affiliation with any religion (Park, Clery, Curtice, Philips, & Utting, 2012) and here, only 15% of trainee teachers believed that the mind results from the spirit, or the soul, acting on the brain (Howard-Jones et al., 2009). In Brazil, however, whose people demonstrate notably high religious involvement, a small survey of teachers (N=42) showed 43% believed the mind was the result of supreme action of the soul over the brain (Bartoszeck and Bartoszeck, 2012). Greece stands out amongst European states in terms of the religiosity of its people (Hirschon, 2009), and so in our study we might expect similarly high levels of teachers who believe in a religious aspect to the mind-brain relationship. In scientific and philosophic terms, our understanding of how the mind is related to brain is intimately related to other concepts such as free-will and the malleability of our neural and cognitive abilities. It seems likely, then,

that beliefs in neuromyths in Greece may reflect the specific contexts found within Greece and the Greek educational system. However, to date, no research has been undertaken to investigate the prevalence of neuromyths amongst Greek teachers. The present study aims to investigate this issue and shed light on the role of cultural contexts in the beliefs that teachers acquire about the brain. More specifically, the study sought to determine the knowledge and misconceptions about the brain amongst Greek school teachers, and their beliefs regarding biological concepts that may have implications for their practice in the classroom.

Based on tentative findings from the UK study of trainee teachers, it was hypothesized that teachers who agreed that subgroups of teachers as defined by their response to the two questions regarding biological limit to achievement (agree/disagree) would significantly differ in the percentage of educational outcome they would attribute to genetics. We were concerned with this relationship, since it sheds light on how ideas about biology may influence teachers' attitudes in the classroom in terms of how much they expect to achieve from their students. The two hypotheses related to these questions were directional, i.e. we expected to see greater attribution to genetics would be associated with stronger beliefs in the biological limit of students.

## **Method**

### *Participants*

Participants were 217 teachers employed in Athens and the Peloponnese region of Greece (155 females and 62 males) included 102 primary school teachers (47%) and 109 secondary school teachers (50%) and 6 teachers who worked in both types of school. The mean level of teaching experience within the sample was 15.1 (SD 9.3) years with a range 1-33 years.

### *Procedure*

The translation and suitability of the survey was first validated through preliminary interviews with three teachers and piloting with five teachers not included in the final survey sample. A total of 15 schools were recruited to take part in the study by phone and email, and the head teachers of participating schools circulated electronic or print copies of the survey to their teachers asking them to be completed and returned to the researchers. The research was presented as a study of how teachers think about the brain and its influence on learning.

### *Instruments*

Participants were asked to complete a survey used in a previous study of UK trainee teachers (Howard-Jones et al., 2009). This consisted of 40 assertions (15 correct and 16 incorrect factual assertions, and 9 open to subjective opinion) to which participants were asked to respond agree, don't know or disagree and is provided in Appendix A. Of these 40 assertions in our survey, 38 statements were originally created by combining assertions used in a study of public neuroscience literacy Herculano-Houzel (2002) with ideas that have arisen in interviews with educators (see Howard-Jones et al., 2009 for further details concerning the underlying rationale for including these statements). The survey included the two additional statements of subjective opinion ("There is a biological limit to what some individuals can achieve in their education", "There is no biological limit to what any individual can achieve in their education") that Howard-Jones et al. (2009) used in a follow-up survey to explore ideas around genetic determination. Related to this issue, respondents were asked what percentage of educational outcome they attributed to a student's genes, their educational environment and their home environment. Participants also provided background information for the purpose of characterizing the sample (type of school, years of experience, gender, age, etc.)

## Results

The summary of responses of our sample of teachers to our 9 statements of subjective opinion is shown in Table 1. Summaries of responses to assertions related to general knowledge and educational issues regarding the brain are shown in Tables 2 and 3.

Table 1. Beliefs of our sample of Greek teachers regarding 9 statements that might be regarded as open to subjective opinion, including the mind-brain relationship, the impact of developmental difference on moral responsibility and belief in a biological limit to achievement.

	Response as percentage % of sample			
	Agree	Don't know	Disagree	No response
The mind is the result of the action of the spirit, or of the soul, on the brain	72	16	11	1
State of mind is a reflection of the brain state in a given moment	41	51	7	1
If there are ways to study brain activity, the mind can be studied through them	58	35	6	1
The mind is a product of the working of the brain	56	27	15	2
Without a brain, consciousness is not possible	71	18	11	0
Intuition is a "special sense" that can't be explained by the brain	46	24	28	2
Individuals are not responsible for behavior associated with a developmental difference in brain function	44	36	19	1
There is a biological limit to what some individuals can achieve in their education	13	22	63	2
There is no biological limit to what any individual can achieve in their education	19	20	55	6

Table 2. Responses of our sample of Greek teachers to general assertions regarding the brain (C = correct statement, I = incorrect statement). It should be noted that some scientific evidence supporting one statement (marked C\*) has recently been found, raising questions about the correctness, or otherwise, of this statement.

	Response as percentage % of sample			
	Agree	Don't know	Disagree	No response

Brain activity depends entirely on the external environment: with no senses stimulated, we don't see, hear or feel anything (I)	25	11	61	3
Emotional brain processes interrupt those brain processes involved with reasoning (I)	44	36	19	1
Cognitive abilities are inherited and cannot be modified by the environment or by life experience (I)	4	2	94	0
Learning is not due to the addition of new cells to the brain (C*)	31	49	20	0
One's environment can influence hormone production and, in turn, personality (C)	79	18	2	1
We use our brains 24 hours a day (C)	76	12	12	0
To learn how to do something, it is necessary to pay attention to it (C).	76	3	20	1
Learning occurs through modification of the brain's neural connections (C)	59	38	3	0
Performance in activities such as playing the piano improves as a function of hours spent practicing (C)	90	3	7	0
It is with the brain, and not the heart, that we experience happiness, anger, and fear (C)	70	9	20	1
Hormones influence the body's internal state, and not their personality (I)	25	17	57	1
Memory is stored in the brain much like as in a computer. That is, each memory goes into a tiny piece of the brain (I)	59	29	11	1
We mostly only use 10% of our brain (I)	45	44	11	0
Memory is stored in networks of cells distributed throughout the brain (C)	51	44	5	0
Keeping a phone number in memory until dialing, recalling recent events & distant experiences, all use the same memory system (I)	12	47	41	0
When we sleep, the brain shuts down (I)	5	6	89	0

Table 3. Responses of our sample of Greek teachers to assertions regarding the brain that are related to educational practice (C = correct statement, I = incorrect statement).

	Response as percentage of sample			
	Agree	Don't Know	Disagree	No response
Children are less attentive after sugary drinks and snacks (I)	48	29	22	1
Omega 3 supplements do not enhance the mental capacity of children in the general population (C)	11	38	50	1



Extended rehearsal of some mental processes can change the shape and structure of some parts of the brain (C)	52	40	7	1
Environments that are rich in stimulus improve the brains of preschool children (I)	97	0	2	1
Individuals learn better when they receive information in their preferred learning style (e.g. visual, auditory, kinesthetic) (I)	97	3	0	0
Short bouts of co-ordination exercises can improve integration of left and right hemispheric brain function (I)	56	40	4	0
Regular drinking of caffeinated soft drinks reduces alertness (C)	39	25	36	0
Differences in hemispheric dominance (left brain, right brain) can help explain individual differences amongst learners (I)	71	24	5	0
Learning problems associated with developmental differences in brain function cannot be remediated by education (I)	29	13	57	1
There are no critical periods in childhood after which you can't learn some things, just sensitive periods when it's easier (C)	60	15	24	1
Vigorous exercise can improve mental function (C)	65	15	20	0
Individual learners show preferences for the mode in which they receive information (e.g. visual, auditory, kinesthetic) (C)	97	2	1	0
Drinking less than 6-8 glasses of water a day can cause the brain to shrink (I)	12	65	23	0
Exercises that rehearse co-ordination of motor-perception skills can improve literacy skills (I)	72	21	6	1
Production of new connections in the brain can continue into old age (C)	55	31	13	1

The mean percentage of educational outcome that participants attributed to genetics, home environment and school environment were 27 (SD= 13.2), 33 (SD=14.4) and 36 (SD=13.6) respectively. The mean percentage of educational outcome attributed to genetics that participants who agreed (N=131) and disagreed (N=29) with the statement “There is a biological limit to what some individuals can achieve in their education” was 29% (SD 12%) and 23% (SD 12%) respectively. An independent samples one-tailed t-test revealed this difference to be significant ( $t(158)=2.26$ ,  $p=0.012$ ). The mean percentage of educational outcome attributed to genetics that participants who agreed (N=41) and disagreed (N=161) with the statement “There is no biological limit to what any individual can achieve in their education” was 25% (SD 11%) and 29% (SD 13%) respectively. An independent samples one-tailed t-test revealed this difference to be significant ( $t(158)=1.79$ ,  $p=0.038$ ).

## Discussion

The research revealed that Greek participants held many neuromyths and misconceptions about the brain that have been recorded elsewhere in Europe. These include almost three-quarters (71%) of teachers believing that differences in hemispheric dominance (left brain, right brain) can help explain individual differences amongst learners, and the great majority (97%) believing in the effectiveness of teaching to learning styles.

However, as expected, most Greek teachers possessed a complex construction of the mind-brain relationship that included a more “mysterious” approach than recorded in the UK study of trainee teachers. High levels of religiosity characterize a large proportion of the Greek people (Hirschon, 2009) and the majority of this population are Christian

Orthodox. According to the Greek Orthodoxy ‘the man’s soul is in the image of God, the soul gives life to the attached body, the soul is all through the body, both the whole man and the body itself can be regarded as in the image of God’ (Hierotheos, 2006:118). The ontological aspect of the soul in Greek Orthodox tradition is considered a very important aspect of faith, and is very related to the concept of a human individual as a spiritual, biological and intellectual being reflecting the image of God. In addition, as described by Xrisostomos (1998:126), the soul is considered to be related to three interlinked cognitive abilities: the senses with which the external world can be perceived, and the biology and the spirituality of the mind. The perception of such an indissoluble relation of brain, mind, spirit and soul with God may explain some of the results we report here.

In summary, since many of the myths we report here are directly related to practice and to brain-based learning programmes with an unscientific basis, we conclude that the knowledge and practice of teachers in Greece would benefit from more accurate knowledge of the brain, as might be received from teacher training and in-service professional development. This may be an important first step for future efforts in Greece to enrich education with insights from neuroscience. Comparison of our results with international data sets suggests cultural factors influence teachers’ understanding of the brain, and better understanding of these factors would be a valuable target area for future research.

**The complete set of statements used in the questionnaire. Participants were asked to indicate their agreement with these statements as agree, don’t know or disagree.**

The mind is the result of the action of the spirit, or of the soul, on the brain  
 “State of mind” is a reflection of the brain state in a given moment  
 If there are ways to study brain activity, the mind can be studied through them  
 The mind is a product of the working of the brain  
 Without a brain, consciousness is not possible  
 Intuition is a “special sense” that cannot be explained by the brain  
 Individuals are not responsible for behavior associated with a developmental difference in brain function  
 There is a biological limit to what some individuals can achieve in their education  
 There is no biological limit to what any individual can achieve in their education  
 Brain activity depends entirely on the external environment: with no senses stimulated, we don’t see, hear or feel anything (I)  
 Emotional brain processes interrupt those brain processes involved with reasoning (I)  
 Cognitive abilities are inherited and cannot be modified by the environment or by life experience (I)  
 Learning is not due to the addition of new cells to the brain (C\*)  
 One’s environment can influence hormone production and, in turn, personality (C)  
 We use our brains 24 hours a day (C)  
 To learn how to do something, it is necessary to pay attention to it (C).  
 Learning occurs through modification of the brain’s neural connections (C)  
 Performance in activities such as playing the piano improves as a function of hours spent practicing (C)  
 It is with the brain, and not the heart, that we experience happiness, anger, and fear (C)  
 Hormones influence the body’s internal state, and not their personality (I)  
 Memory is stored in the brain much like as in a computer. That is, each memory goes into a tiny piece of the brain (I)  
 We mostly only use 10% of our brains (I)  
 Memory is stored in networks of cells distributed throughout the brain (C)  
 Keeping a phone number in memory until dialing, recalling recent events & distant experiences, all use the same memory system (I)  
 When we sleep, the brain shuts down (I)  
 Children are less attentive after sugary drinks and snacks (I)  
 Omega 3 supplements do not enhance children’s mental capacity in the general population (C)  
 Extended rehearsal of some mental processes can change the shape and structure of some parts of the brain (C)  
 Environments that are rich in stimulus improve the brains of preschool children (I)  
 Individuals learn better when they receive information in their preferred learning style (e.g. visual, auditory, kinesthetic) (I)  
 Short bouts of co-ordination exercises can improve integration of left and right hemispheric brain function (I)  
 Regular drinking of caffeinated soft drinks reduces alertness (C)  
 Differences in hemispheric dominance (left brain, right brain) can help explain individual differences amongst learners (I)  
 Learning problems associated with developmental differences in brain function cannot be remediated by education (I)  
 There are no critical periods in childhood after which you can’t learn some things, just sensitive periods when it’s easier (C)  
 Vigorous exercise can improve mental function (C)

Individual learners show preferences for the mode in which they receive information (e.g. visual, auditory, kinesthetic) (C)  
 Drinking less than 6-8 glasses of water a day can cause the brain to shrink (I)  
 Exercises that rehearse co-ordination of motor-perception skills can improve literacy skills (I)  
 Production of new connections in the brain can continue into old age (C)

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# The opinion of teachers on the participation of immigrant associations in schools: a qualitative research in Spain.

Soriano-Ayala, Encarnación<sup>a</sup> and González-Jiménez, Antonio José<sup>b95</sup>

<sup>a&b</sup> University of Almería, Faculty of Education. 04007, Spain

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## Abstract

This research was conducted in Spain. We used the ethnographic method and have interviewed more than 20 teachers. We wanted to know the opinion of teachers on the participation of immigrant associations in schools. The teachers say that these associations can participate in the school curriculum through parent associations, tutoring and guidance, department, transversal axes and curricular documents. They can also participate with the actors of the educational community (teachers, students and immigrants natives and immigrants and native families). For example with immigrant children, immigrant associations can design activities mediation between immigrant students and teachers, school guidance and school integration.

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*Keywords:* Education Intercultural; teachers; curriculum; education community and educative agents.

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## 1. The Socio-cultural perspective of Education

Education should be understood as a collective project, within a reflexive and intentional social framework aiming at a better future for the different ethnic and cultural groups that form society. Therefore, it is urgent to broaden the concept of education currently held and to seek solutions to satisfy the educational needs of the population from different ethnic groups and cultures (Banks, 1988 and Soriano-Ayala, 2005). It has to be said that a certain resistance to change is perceived in the educational system. It has undergone reforms that have avoided social theories of great relevance, such as the Habermas' dialogical focus, to a certain extent. What is really necessary within the present context of an information society, marked by globalization and new migrating movements, is for learning to become an intrinsically social process and we agree with Vila's (2004) opinion who states that for learning to take place in schools, they should carry out their work in continuity with other educational agents. Not only that, it should be the school that plays a backbone role to become the centre of such educational agents as the family, the media, the neighbourhood, the district, associations, places for leisure, etc.

We must reflect on the impossibility of maintaining an individual school where only the teachers who favour learning and the students who learn with a mono-cultural focus exist. An educational egalitarian response must be given to the current changes occurring in society (Moom, 2011 and Mo and Lin, 2013). Schools in a plural society must open their gates to the members of the community, thus, not only is the participation of families important and necessary in this multicultural society, but also the participation of immigrants' associations in the schools of Southern Spain to achieve the school integration of children with different cultural referents.

It is, therefore, desirable that schools should become actual learning communities in multicultural contexts where a genuine correlation is established between what happens in the classroom, at home, in the neighbourhood and the

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\* Corresponding author. Tel.: +34 950015755 ; fax: +34 950015755  
E-mail address: ajgonzal@ual.es

information acquired through the Internet and mass communication media (Gay, 2010). Schools should cease to be monolithic and anchored in the past and start to be coherent with the reality it exists in.

## 2. Methodology

This qualitative research is based on the ethnographic method. Ethnography is a method of study in which a researcher lives with the subjects being studied and participates as a member of that group. Researchers use ethnographic techniques of observation and qualitative analysis to study distinctive social, cultural and ethnic groups, but these techniques also are applicable in studies of schools, various types of organizations and urban and rural communities. With these techniques, researchers produce descriptive, richly detailed studies. This investigation, we need to know the opinion of teachers about new forms of collaboration in schools. Exactly how could participate immigrant associations in schools. This research was carried out in Spain. We have interviewed over 20 teachers. The selection was made through an intentional sampling according to the following criteria:

- One head teacher and one teacher from each Secondary School and Infant and Primary School located in geographical areas with the highest immigration rate in Southern Spain. There had to be at least one immigrants' association in the neighbourhood.

The drafted interviews were categorized and codified to be computerized at a later stage using the programme AQUAD version 5.7. The final category template drawn inductively from the interviews is as follows:

Table 2. System of categories of the participation proposals of the Immigrant Associations in education centers.		
Curriculum		<ul style="list-style-type: none"> <li>- Intercultural activities with native parents</li> <li>- Intercultural activities with immigrant parents</li> <li>- Association of immigrant parents</li> <li>- Tutoring activities</li> <li>- Orientation department</li> <li>- Cross-cutting studies</li> <li>- Curriculum documents</li> </ul>
	Immigrant Students	<ul style="list-style-type: none"> <li>- Welcoming activities</li> <li>- Mediation between immigrant student and teachers</li> <li>- Immigrant integration</li> </ul>
Educative Agents	Native Students	<ul style="list-style-type: none"> <li>- Acceptance of the immigrants</li> <li>- Understanding of other cultures</li> <li>- Cultural coexistence</li> <li>- Action proposals</li> </ul>
	Immigrant Families	<ul style="list-style-type: none"> <li>- Changing of attitudes toward the education system</li> <li>- Advising</li> <li>- Mediation between the center and families</li> </ul>
	Native Families	<ul style="list-style-type: none"> <li>- Changing of attitudes</li> <li>- Encouragement of coexistence</li> <li>- Approaching immigrant families</li> </ul>
	Teachers	<ul style="list-style-type: none"> <li>- Availability of cultural resources</li> <li>- Education of the other cultures</li> <li>- Mediation with immigrant parents</li> </ul>

## 3. Results

The most frequent obstacles presented by the teaching collective are the lack of time to search for materials and resources from the culture of the immigrant students, the lack of knowledge of the cultures coexisting in the classroom, the lack of participation and connection of immigrant parents with teachers and the lack of information regarding the personal circumstances (economic, social, family) of the immigrant pupil. In the words of a teacher:

*"Teachers often do not know the other cultures and do not have the time to search for materials. It is also difficult because teachers are not familiar with the customs and culture of their pupils, which hinders their awareness. For example, I remember how in the beginning the feast of the lamb and the fact that some children would miss school during this feast came as a surprise to us, some types of behaviour seemed strange to us. Today it seems like a normal event".*

### 3.1 Proposals for the participation of immigrants' associations in schools according to the teachers interviewed.

The present proposals or ways of participating have been organized according to a potential participation in the curriculum and with members of the educational community.

#### *Areas of participation within the curriculum*

There are no unanimous opinions on the curriculum areas in which immigrants' associations could participate. Some proposals with regard to participation through the curriculum are as follows:

- Parents' associations. They point out that immigrants' associations could participate in these associations through the proposal of various intercultural activities or start their own immigrant parents association, which from our point of view would encourage segregation amongst the parents.
- Tutoring and Guidance Department. The teachers we interviewed indicated to us that the participation of immigrants' associations would be an invaluable instrument to propose intercultural activities to the tutors and to the Guidance Department.
- Transversal Axes. Teachers suggest that immigrants' associations could collaborate in transversal axes, specifically in Education for Peace and Friendly Coexistence designing and developing activities.
- Curricular Documents. Another possibility for the participation of these associations would be, according to the teachers, in the design of friendly coexistence commissions, within the Centre Educational Projects and Guidance Projects and in Tutorial Action.

#### *Participation with the agents of the education community*

##### *Immigrant students*

Teachers agree on a series of proposals for the participation of associations with immigrant students. These intervention proposals have been grouped in four areas:

- School guidance. They suggest that associations should collaborate in reception activities as immigrant students arrive at the beginning of term in order to explain to them how the school works.
- Mediation between immigrant students and teachers. The teachers propose that immigrants' associations should work as mediators with regard to the variety of obstacles teachers encounter in teaching immigrant students.
- School integration. Teachers suggest that immigrants' associations design activities to encourage the integration of boys and girls from immigrant families, such as:

1. Spanish language courses. One teacher specifies the following guidelines that are relevant to learning Spanish:

*"Many children cannot speak Spanish when they arrive and the associations should try to help us to teach them. The sooner the child learns Spanish, the sooner he/she will be able to integrate in society and in the school. An example would be revision lessons, Spanish lessons... Immigrants who are not enrolled in the school could come here to teach Spanish."*

2. Activities to encourage self-esteem and a change in the attitude of immigrant pupils. This type of activities caught our attention due to its aims. Teachers support the idea that the activities organised and implemented by the associations would increase the self-esteem of the students and change their attitudes because they would feel that their collective is valued and can make relevant contributions to the school, that is, they would not view themselves as an ethnic minority subjected to the rulings of the autochthonous collective. The relevance of self-esteem and a change in the attitude of immigrant students is explained by a teacher along these lines:

*"It is important for students to see that their culture is valued, for example, the association could come to the school and carry out some activities on their culture, then the immigrant student would see that his/her culture is valued because the local students ask about, participate and are interested in it. In fact, if we make this sector the protagonist, the predominance of the Spanish culture takes second place. It is a referent because*

*immigrant students will realize that they are people who come to school not only to receive but also to give. Thus, they will not regard themselves as intruders who come here to take, who know nothing and just obey rules, they will see themselves as people who can make a contribution”*

3. Friendly coexistence activities among the various immigrant collectives and the local students. Thus, is this type of participation based on friendly coexistence described by two teachers:

*“The greater the participation of associations in schools, the higher the level of integration of immigrant students will be. Contact between “different” people is very important, it changes our stereotypes and behaviours, it also teaches us to speak well of immigrants to other people in our group.*

*...the participation of associations will encourage a change in the attitudes of local children to immigrants. I think that knowledge and an approach to alien cultures is a powerful tool to change attitudes. Moreover, immigrant students would also change their attitudes to Spaniards because they would see that their culture is appreciated by teachers and classmates.”*

4. Remedial education activities. The associations should organize remedial tuition for students with remarkable learning gaps.

#### Autochthonous students

Teachers agree on the idea that immigrants’ associations must organize activities aimed at local students so that they come to accept immigrants as ordinary citizens, learn about their culture and customs. A friendly coexistence is encouraged as well as the knowledge of each others’ cultures and a change in attitudes and prejudices can be brought about in both parties for a better relationship between them... Two teachers manifest this participation proposal in the following words:

*“Of course they need to participate in schools so that the local students will look upon immigrants as ordinary people and not as aliens. An immigrant may have lived in Spain for 15 years and still be regarded as an alien; I think this is a problem that exists in the Spanish society. Associations have to collaborate so that autochthonous students can regard immigrants as people like themselves with the same feelings and not just as immigrants, that is, they should be regarded as individuals and not as immigrants...”*

*“Associations can participate in schools and this will make Spanish students understand their culture and respect it. This will help immigrant students to integrate to the extent in which local students understand them and regard them as closer to them. What is always repeated is that when alien students have just arrived they are all rejected and when local students get to know them, they begin to accept them. Rejection generally means lack of familiarity”*

Some of the proposals of the teachers to be put into practice by the associations with regard to local students are as follows: 1) Oral expositions by the managers of some associations to explain their life stories as immigrants, i.e., why they emigrated, the economic, the social and work characteristics in their countries, their first years in Spain... Teachers defend the idea that this type of activity in which an immigrant narrates the circumstances of his/her emigrating process helps to bring about a change in the attitude and prejudices of local students with regard to immigrants. 2) Activities which encourage integration and friendly coexistence amongst students from various cultural groups, local ones included. 3) Activities that explain and disseminate the main features of their culture.

#### The Families of Immigrant Students

According to the teachers, the participation they offer the associations with regard to immigrant families focuses on two fundamental aspects:

1. A change in the attitude of the families to the Education System. Some of the tasks established by the collective to achieve this objective are the following:

- To explain to parents how important it is for their children to finish their mandatory studies, and in their case, to continue studying.
- To inform parents of those aspects related to the education that their children are receiving.
- To teach parents to instil in their children study habits and responsibility for their learning.
- To explain to the families aspects related to the culture of the host country.
- To advise parents on the importance of their attendance to tutorials to inform the teachers of the problems affecting their children and to obtain information on their progress at school.

2. A bridge linking the schools and the families of immigrant children.

Teachers stress that a change in the attitude of immigrant families for them to take an interest in their children's education should be accompanied by an increase in their participation in the schools. Some of the proposals for this purpose are listed below:

- Parents can participate in the schools giving talks to local students on aspects related to their countries.
- Families can acquaint local children with their mother tongue.

#### Autochthonous Students' families

The intervention proposals devised by the teachers to be put into practice by the associations have been grouped under two aspects:

- A change in attitudes. Teachers point out that immigrants' associations should carry out awareness raising activities to eradicate the attitudes and prejudices that local families have to the presence of immigrant pupils in schools.
- Encouraging friendly coexistence and bringing local and immigrant families closer. Some of the activities they propose should be carried out by immigrants' associations to aid friendly coexistence and a closer relationship between immigrant families and local ones. In the words of one of the teachers interviewed:

*"It would be desirable to build a link between the parents. It is important that they should know and respect their different cultures. I believe this is the most relevant problem. The different customs, religions, views on life should become familiar to the locals and then they will be able to embrace what is good about them and reject those aspects that are negative"*

#### The teaching collective

Teachers appreciate that immigrants' associations can do much to support their teaching. The proposals for different areas are exposed below:

- Providers of intercultural resources. Teachers suggest that the associations should be in charge of providing typical materials from the pupils' countries. In the words of a teacher:

*"The associations could bring literature from their countries for the teachers to use, also writers and things they make. If we have Moroccan pupils, we could work with Moroccan associations so that they can bring in items. Romania has this periodical I have told you about and in the latest one they enclosed a book by Romanian poets in Spain that we can use"*

- Teaching the different cultures. This collective also supports the idea that associations should teach the main aspects of the culture of immigrant students. One teacher explains the cultural benefits that can be reaped from the participation of associations:



*“We would be interested in the participation of associations to learn about the culture of immigrant pupils. In teaching we have to start from the knowledge and experiences of the children so that their education can advance in a positive way, therefore we are interested in learning about their culture”*

- Mediators between teachers and immigrant parents. A fundamental aspect that all teachers stressed throughout the interviews is the urgent necessity for the associations to develop functions to encourage a closer link between immigrant parents and school life.
- Advice about the characteristics of immigrant students. In this aspect, they point out that once immigrants' associations have developed a closer link with the families of immigrant pupils, it should be them who inform the teachers of the circumstances surrounding the children.

#### **4. Discussion**

The results of this investigation show that to maximize an inclusive school that encourages interculturalism and integration between immigrant and local children and young people, it is necessary to open the schools to allow in and involve new educational agents: immigrants' associations which will contribute to the present academically monocultural schools the entry of other cultures, and their curricular involvement in a scenario that welcomes culturally diverse pupils (Picower, 2011 and Mo and Lin, 2013).

Teachers express their reasons and coincide with immigrants' association in pointing out that the latter must attend to local and immigrant families. To local families because they appreciate that these families present negative attitudes to their children sharing a school with immigrant boys and girls, and to immigrant families because they lack motivation towards and interest in the education of their children.

Teachers, who so far in the Spanish context, have not worked with or approached immigrants' associations to request their participation in schools, perceive how this participation should be (Soriano-Ayala, González-Jiménez y Cabellero Cala, 2014). They understand that associations could make relevant contributions to the curriculum, proposing and jointly designing curricular documents, intervening in specific education contexts for a peaceful coexistence and in tutorial activities Teachers state, as immigrants have done, that associations can intervene with immigrant students in welcoming activities, as mediators between them and the teachers, helping them to integrate in the school, increasing their self-esteem and improving their self-concept, reinforcing their learning and facilitating friendly coexistence. Teachers and immigrants believe, moreover, that they can work with local students towards a change in their attitude. This also applies to their families. With immigrant families, they would play a significant role showing them the relevance of the school and their children's education.

#### **5. Conclusions**

We understand that education is above all a collective project, a collaboration between all those involved in the life of a child or a young person: teachers, families, cultural centres, cultural associations, and according to our investigation, immigrants' associations in the local area. Education is an eminently social process and we agree with Vila (2004) when he says that for this process to be complete there should be continuity, communication and action between educational agents and schools so that the whole responsibility should not fall entirely on schools and one of these agents within a multicultural context are immigrants' associations. On the other hand, coinciding with Flecha and Puigvert (2008), we appreciate that existing resources should be utilized and an open attitude to negotiation and collaboration with others is fundamental in the classroom. The collaboration of immigrants' association in the classroom and in the school would aid dialogical learning which would transform the school and its environment. It would be ideal to establish learning communities with the collaboration of immigrants' associations in these multicultural education environments, to fight situations of inequality that can affect children and young people facing the risk of being excluded (Sleeter, 2013, 2014).

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# The perceptions of school counselors about the counseling and guidance programs of vocational high schools

Hayriye Torunoğlu<sup>a</sup>, Dilek Gençtanırım<sup>b</sup>.

<sup>a</sup>Ahi Evran University, Faculty of Education 40100, "Kırşehir", Turkey

<sup>b</sup> Assis. Prof. Dr., Ahi Evran University, Faculty of Education 40100, "Kırşehir", Turkey

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## Abstract

The aim of this study is to determine the opinions of school counselors about the Counseling and Guidance Program implemented at vocational high schools in Turkey. The sample group of the study consists of eight school counselors working in five vocational high schools in Kırşehir, Turkey. They were chosen by "Simple Random Sampling" method. The data is collected by a semi structured interview form prepared by researchers. Qualitative research method is used in the study and the data obtained is analyzed through content analysis method. As a result, opinions of school counselors about the positive and negative sides of counseling and guidance program implemented at vocational high schools are revealed and school counselors give suggestions for negative sides of the program. Also school counselors' opinions about a counseling and guidance program specific to vocational high schools are presented.

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## Introduction

As the needs and developmental features of preschool education, elementary education, secondary education and university students differ from each other, the counseling and guidance services offered vary accordingly (Yüksel-Şahin, 2012). Considering adolescence, it is a tumultuous stage in human development. As teenagers enter high school, they face the emotional changes that come with the challenges and pressures of approaching adulthood (DaGiau, 1997). High school years are full of growth, promise, excitement, frustration, disappointment and hope. It is the time when students begin to discover what the future holds for them (ASCA, 2013). Therefore, the students' academic, vocational, emotional, social and personal development and harmony should be attended to considering their age and developmental tasks (Ersever, 1992).

As students begin separating from parents and exploring and defining their independence, high school is the final transition into adulthood and the world of work. Students are deciding who they are, what they do well, and what they will do when they graduate (ASCA, 2013). In Turkey, secondary education lasts for four years and it is composed of general and vocational and technical high schools. Vocational high schools offer a program to students aiming to prepare them for future life, business spaces and higher education (Alkan, Doğan & Sezgin, 1994). According to the Ministry of Education Statistics in 2011-2012, as vocational and technical, there are totally 5501 high schools and 2.090.220 students attend to these schools (MEB, 2012). These schools need counseling and guidance at most because they are outnumbering and different from the other schools in terms of their structural properties. Their program consists of both general and vocational lessons. In contrast with general high schools, they have to attend to all general lessons as

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\* Corresponding author. Tel.: +90-544-761-1407.

E-mail address: hayriyeturunoglu@gmail.com

well as vocational lessons. Like the other general high schools, counseling and guidance has a crucial need in vocational high schools.

This study is carried out with school counselors because in high schools counseling and guidance programs coordinators are school counselors. School counselors are individuals with undergraduate or graduate degrees in psychological counseling and guidance (PCG) (Ergene, 2011). They help all students in the areas of academic achievement, personal/social development and career development, ensuring today's students become the productive, well-adjusted adults of tomorrow. Secondary school counselors are professional educators with a mental health perspective who understand and respond to the challenges presented by today's diverse student population. They do not work in isolation; rather they are integral to the total educational program (ASCA, 2013). In collaboration with principals, teachers, other school professionals and parents, school counselors share the challenge of preparing students to meet the expectations of higher academic standards and become productive and contributing members of society (Dahir and Stone, 2012). Secondary school counselors enhance the learning process and promote academic achievement.

The study aims for school counselors to assess the counseling and guidance programs they offer at their schools in every respect. It also focuses on the suggestions of counselors about the drawbacks. It is considered important to determine the opinions of implementers about the program of vocational high schools. By this way, it is thought that the difficulties which implementers face can be found out and enhancing the effectiveness of studies can make a contribution to this subject. The results of the study will be guiding for the implementers and preparers of the program and this study will shed light on literature.

The following questions were investigated on the basis of these purposes:

1. What are the positive features of the program you offer at your school?
2. What are the negative features of the program you offer at your school?
3. If you have stated any negative features, what are your suggestions for them?
4. How do you find the program in terms of vocational, personal and educational domains of counseling and guidance?
5. If you have an opportunity of developing a program specific to vocational high schools, how would it be?

## Method

Qualitative research method is used in this study which aims to evaluate guidance program applied at vocational high schools through evaluations of school counselors working at these schools. Qualitative research method is an approach that allows you to examine people's experiences in detail, by using a set of research methods, such as in depth interviews, focus group discussions, observation, content analysis, visual methods, life histories and biographies (Hennink & Bailey, 2010). In this sense, in this study, it is aimed to determine whether the guidance program applied at vocational high schools is appropriate for the structure of vocational high schools or not. Within this scope, the study is conducted through taking the opinions of school counselors.

### *Sample Group*

The sample group of this research consists of eight school counselors working at vocational high schools in Kırşehir during 2013-2014 academic year. They are voluntary for the interviews and chosen by purposeful sampling method. When the school counselors' period of services is in question; four counselors have 5-10 years of job experience; three counselors have between 10-20 years of job experience and one counselor has a job experience more than 20 years. When the counselors period of services at vocational high school is considered; three school counselors have 1-5 year of experience; four counselors have 5-10 years of experience; one counselor has more than 15 years of experience at vocational high school. One of the counselors is female and seven of them are males.

### *Data Collection Instrument*

A semi-structured interview form is developed by researchers. There are five open-ended questions regarding counseling program applied at vocational high schools in this form. In the process of the preparation of the interview form, questions based on literature are written at first by researchers. These questions are submitted to five academicians from Educational Sciences for their opinions in terms of content validity and appropriateness. Questions are reorganized and put into their final form within the bounds of academicians' feedbacks. Before application, interview form is applied to 3 school counselors and one academician from Department of Turkish Language in order to test comprehensibility and application time of questions. As there are no difficulties faced during the pilot study, the questionnaire is used in its final version in the study.

### *Procedure*

Interview form is prepared and then necessary permissions for application of form are taken from Directorate of National Education in Kırşehir. After permission is received, researchers interviewed with the volunteer school counselors and these interviews with each person took nearly one hour. During interviews school counselors are not voluntary for voice recording so their answers are noted down. Data obtained from interviews are computerized and made ready for analysis.

### *Data Analysis*

In this research content analysis method, which is a type of qualitative research, is used. Content analysis has the aim of getting rid of subjective factors during understanding and evaluating a discourse. The powerful side of this method is to reveal latent and covered content of discourse, rather than what is expressed, captured easily at first glance and exhibited and easily detected content. In this context, the message, it is a "second reading" to determine the factors that affect the individual invisibly. The common side of content analysis techniques is that they are based on the principle of deduction-inference. In all, there is a purpose of making an interpretation with observed and described items in messages. There are generally two different approaches in the process of implementation of the categorization of content analysis. The first approach, which has a specific area of a category system, taking into frames accordingly resorts to grouping. However, in the second approach categories are not determined before. Categories are determined

after discussing and reviewing message items. The first of these approaches is called "close approach" while the second one is called "open approach" (Henry & Moscovici, 1968; Bilgin, 2006). Open approach is used for categorization in this study. The features observed in answers of counselors given to questions of the questionnaire are recorded one by one and by determining their differences and similarities to the other items, the categories are created. Then, criteria are put into final form. Samples about criteria given by participants are used as they stated, no changes are made on them.

## Results

The results of the study are presented in five main categories in line with the research questions.

Table 1. School counselors' opinions about positive sides of counseling and guidance program applied at vocational high schools.

Number	Criterion	Frequency	Percentage (%)
1	Functional guidance activities	5	62,5
2	Program's compatibility with students' development level	3	37,5
3	Sufficiency in three guidance domains	2	25
4	Flexibility of the program	1	12,5
5	Sufficiency for intervention of problems	1	12,5

Opinions of school counselors relating to the positive sides of guidance program are given in table 1. When the school counselors' opinions are analyzed, it is seen that 62,5% of participants stated activities in their programs as functional. When answers relating second criterion are considered, 37,5% of participants stated program is compatible with students' development levels. When the third criterion is evaluated, 25% of school counselors stated programs is sufficient for guidance domains. Flexibility of the program is stated by 12,5% of participants. Also, program's sufficiency for intervention of problems as last criterion in the table is stated by 12,5% of participants again.

Table 2. School counselors' opinions about the negative sides of counseling and guidance program.

Number	Criterion	Frequency	Percentage (%)
1	Inappropriateness of guidance activities for structure of school	4	50
2	Insufficiency of time for implementation	3	37,5
3	Not including personal and vocational guidance enough	2	25
4	Inappropriateness for students' level of development	2	25
5	Difficulty in implementing guidance activities in classrooms	1	12,5
6	No inspection concerning the implementation of the program	1	12,5

Opinions of school counselors relating the drawbacks of their program applied at vocational high school take part in the table 2. When the table is analyzed, it is seen that Inappropriateness of guidance activities for structure of school the first criterion is specified by 50% of school counselors. Second criterion Insufficiency of time for implementation is remarked by 37,5% of school counselors. Both not including personal and vocational guidance enough and inappropriateness for students' level of development are considered by 25% of school counselors as

negative side of program. The next criterion difficulty in implementing guidance activities in classrooms is specified by 12,5% participants. Last criterion in the table no inspection concerning the implementation of the program is remarked by 12, 5 % of school counselors.

Table 3. School counselors' suggestions for negative sides of counseling and guidance program.

of school for of their take part 3.	Number	Criterion	Frequency	Percentage (%)	Suggestions counselors drawbacks program in the table
	1	Implementers having full knowledge of program	2	25	
	2	Increasing programs' application time	3	37,5	
	3	Increasing number of school counselors	1	12,5	
	4	Development of a program peculiar to vocational high schools	3	37,5	
	5	Giving further coverage to vocational guidance	1	12,5	

Accordingly, when the table is analyzed, implementers' having full knowledge of program being placed on the first column is seen. This criterion is specified by 25 % of school counselors. Increasing programs' application hour second criterion is remarked by 37,5 % of school counselors. Another criterion increasing number of school counselors is indicated by 12,5 % school counselors. Development of a program peculiar to vocational high schools takes place on the forth column and statements regarding this criterion is indicated by 37,5 % of participants. Statements regarding last criterion giving further coverage to vocational guidance is remarked by 12,5 % of participants.

Table 4. Evaluation of program's adequacy in terms of personal, educational and vocational guidance.

Number	Criterion	Frequency	Percentage (%)
1	Program is inadequate in personal guidance	1	12,5
2	Program is adequate in personal guidance	2	25
3	Program is inadequate in vocational guidance	2	25
4	Program is adequate in educational guidance	2	25
5	Program is adequate in vocational guidance	1	12,5
6	Program is inadequate in educational guidance	1	12,5

School counselors' opinions about program's adequacy in personal, vocational and educational guidance take place in the table 4. Accordingly, it is seen that, program being inadequate in personal guidance is indicated by 12,5% of school counselors and proportion of participants thinking personal guidance as adequate is 25%. School counselors indicating vocational guidance as inadequate is 25%, whereas it is indicated as adequate by 12,5%. When we consider another criterion educational guidance, we see that 25% of school counselors remarked it as adequate, whereas, 12,5% of school counselors remarked it as inadequate.

Table 5: School counselors' opinions about program specific to vocational high schools.

Number	Criterion	Frequency	Percentage (%)
1	Increasing activities application time	1	12,5
2	Giving more place to guidance area	3	37,5
3	Programs offering students opportunity	3	37,5
4	Having a program special to vocational high schools	2	25
5	Providing students' active participation	3	37,5

School counselors are also asked for their suggestions about developing a counseling and guidance program specific to vocational high schools. Accordingly, 12, 5 % of school counselors are indicated necessity of increasing activities' application time. Another criterion giving wide coverage to guidance areas takes place and 37, 5 % of school counselors remarked this criterion. Also, programs' offering students opportunity is indicated by 37, 5% of school counselors. Forth criterion having a program special to vocational high schools is specified by 25 % of school counselors. Lastly, providing students' active participation is indicated by 37, 5 % of school counselors. Examples relating these criteria are as follows:

## Discussion and Suggestions

The study aims for school counselors to assess the counseling and guidance programs they offer at their schools in every respect. It also focuses on the suggestions of counselors about the drawbacks. On being analyzed with content analysis method, opinions of school counselors on counseling and guidance program is categorized in line with the research questions

As for the positive features of the program, within the scope of opinions of school counselors, it is found that the guidance program activities are functional (62,5 %), the program is compatible with students' development levels (37,5%), it is sufficient in educational, vocational and personal counseling and guidance domains (25%),, the program is flexible (12,5 %)and it is sufficient for intervention of problems (12,5%). The planning of guidance activities is based on the student-centered approach and it aims to make students active and individuals able to solve problems (MEB, 2011). Also the comprehensive guidance and counseling program reflects a strong developmental approach, systematically presenting activities appropriate to student developmental levels and including achievable and measurable outcomes in the area of personal, social, educational, and career domains (Gysbers&Henderson, 2000). So guidance activities should encourage students to improve themselves in all domains of guidance. These findings of the study are in common with other studies in literature. For instance Berber (2010) conducted her study on school counselors vocational schools and she stated in her study that the activities of the program is comprehensible and they make students active during lessons and the activities fit for the development levels of



students. Similarly, in other studies, activities are assessed to be functional in line with their purposes (Nazlı, 2008). To accomplish the purposes of counseling and guidance program, activities and procedures are necessary to assist students in understanding and periodically monitoring their growth and development. Students must come to terms with their goals, values, abilities, aptitudes, and interests (competencies) so they can continue to progress educationally and occupationally (Gysbers, 1990). Therefore, considering vocational high schools, activities should support students in vocational domain, as well as educational and personal domains. School counselors evaluated the program sufficient in three guidance domains. It is important to enhance the school guidance and counseling program by providing sequential, developmentally planned activities for all students to gain an understanding of their academic, social, cognitive, and emotional development; become knowledgeable about educational and occupational opportunities; and utilize this learning to craft their educational and career plans (Harewood-Jones&Foster, 1998). So these goals can be reached with effective guidance activities including three guidance domains.

When the drawbacks of the program according to the opinions of school counselors are investigated, they stated the guidance activities are inappropriate for the structure of vocational high schools (50%), there is a lack of time for implementation (37,5%), vocational and personal guidance domains are not included enough in the program (25%), the program is inappropriate for students' level of development (25%), guidance activities cannot be applied in classrooms (12, 5%) and there is not any inspection concerning the implementation of the program (12,5%). As vocational high schools train students for professional life, their needs of counseling and guidance may be different from other schools. Half of school counselors states that the guidance activities should be organized in accordance with students' fields and these guidance activities should be different from the activities of the other schools.

One of the main concerns expressed by counselors in the current study was the time required to adequately and effectively implement the program. This finding of the study supports the finding of Lehr (2002) as he states that with more time and resources, more students can be reached, and more guidance and counseling needs met. It should be allocated more time for counselors to implement the program and

Another drawback is that the guidance domains are not included in the program equally. Vocational guidance in secondary education includes services offered students to help them be aware of professions in the changing world and choose a profession in accordance with their abilities and interests and improve themselves in their profession (Yeşilyaprak, 2013; Bakırcıoğlu, 2005; Tan, 2013). By choosing vocational high schools, students also choose their profession. These schools present students the opportunity to choose their profession earlier than the other high schools and the students take mainly career training-oriented education. So their needs of vocational guidance domain are different from the needs of students in general high schools. Therefore, the program should include effective vocational guidance activities and strategies appropriate for vocational high schools.

School counselors find it difficult to carry out in classrooms this problem may derive from several reasons. One of them expresses that some activities are not proper to conduct in classroom environment. Terzi, Tekinalp and Leuwerke (2011) suggest that crowded classrooms make it difficult to conduct guidance activities. Also Nazlı (2003) states that crowded classrooms, having no suitable rooms for guidance activities and lack of necessary materials hinder the implementation of the program. It should be searched for solutions to these problems within the resources of this country.

As classroom guidance activities are implemented by classroom guidance teachers in collaboration with school counselors (MEB, 2001), counselors want an inspection mechanism to control this process. According to the findings of studies in literature on this subject (Nazlı 2003; Terzi, Tekinalp & Leuwerke, 2011) the school counselors stated that teachers neglect performing classroom guidance activities and they do not take proper care and interest in guidance activities and lack the necessary skills to perform guidance practices. So classroom guidance teachers should attend to in service trainings to gain some skills and knowledge about counseling and guidance.

In this study as well as negative sides of guidance program, it is received the suggestions of school counselor to drawbacks of the program they stated. They suggested that as implementers, classroom guidance teachers should have full knowledge about the program (25%), there should be sufficient time for implementation (37,5 %), there should be more school counselors in schools (12,5 %), a program specific to vocational high schools should be developed (37,5 %), vocational guidance domain should be included more in the program (12,5 %). As stated above, insufficient time and teachers' lack of information about counseling and guidance activities are problems school counselors meet during the implementation of the program. They also express the number of counselors at schools is

not adequate and this hinders the implementation of the program. Yüksel-Şahin (2012) reveals in her study that the number of school counselors should be sufficient and school counselors should not be employed at schools where they are not permanently staffed. An important reason behind the inadequate level of PCG services offered is the insufficient number of school psychological counselors. This study also aims to determine whether there is a need for a program specific to vocational high schools in terms of opinions of school counselors. In this context, school counselors stated that vocational high schools need a program for specific to their structures and the needs of students attend to them. Preparers of the counseling and guidance programs should take this suggestion into consideration and they should investigate this subject in detail.

School counselors are asked for evaluating the guidance program's adequacy in terms of personal, educational and vocational guidance domains. When the percentages are examined, it can be said that the guidance program is generally sufficient in personal and educational guidance domains but it is not sufficient in vocational guidance domain as stated before. So there is a lack of vocational guidance activities and practices specific to vocational high schools. This problem may be resolved by Guidance Research Centers, they may encourage counselors working in vocational high schools to prepare some activities for students' vocational development.

School counselors also give some suggestions on a guidance program specific to vocational high schools. They said that if they prepare a new program for vocational high schools, they would increase the period of application of activities. They also give more space for personal, educational and vocational guidance fields. The new program would also give more opportunities to students to improve themselves. For this reason, there may be activities that will open up students' horizons.

In conclusion, school counselors who are the implementers of guidance programs of vocational high schools find the program powerful in terms of the guidance program activities, the program's compatibility with students' development levels, educational, vocational and personal counseling and guidance domains, flexibility of the program and its sufficiency for intervention of problems. On the other hand, they find the guidance program weak in terms of inappropriateness of guidance activities for the structure of vocational high schools, insufficiency of time for implementation, not including vocational and personal guidance domains enough, inappropriateness for students' level of development, difficulty in implementing guidance activities in classrooms and no inspection concerning the implementation of the program. One of the important opinions of school counselors on this subject is that vocational high schools have hallmarks in education system of Turkey. For this reason vocational high schools need a program prioritizing their distinctive features. By means of this study, for the first time in Turkey, counseling and guidance program implemented in vocational high schools is investigated so, the findings of the study can be useful for school counselors working at vocational high schools, officials preparing education programs and also in organization of education policies and training of school counselors. Furthermore, different studies can be conducted for investigation and development of counseling and guidance programs implemented at vocational high schools.

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# The polish horizon in education - facts and fiction

Leszek Sosnowski\*, Paulina Tendera\*\*

*\*Institute of Philosophy, Jagiellonian University, Krakow, Poland*

*\*\*the Chair in Comparative Studies in Civilizations, Jagiellonian University, Krakow, Poland*

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## Abstract

The aim of this paper is to assess the transformation of the education system in Poland in the last 25 years, particularly with the discussion of the National Qualifications Framework. During this period there were introduced three bills on higher education in years 1990-2005-2011. The last two follow European standards of education. In the past three years, work of the Ministry of Higher Education has been accelerated. The legislator produced 101 further regulations and notices until the end of 2013. The Ministry's website contains 37 further projects about to change some regulations until now. However the nightmare of the Polish scientists is the National Qualifications Framework.

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*Keywords:* Education, Poland, Transformation, National Qualification Framework

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## 1.1 The power of tradition

The ideas of higher education, since its institutionalized foundation in the Middle Ages until now, have been based on cognitive and impractical values. Medieval Europe used these values to build ideas of teaching and learning aided by values like freedom, autonomy, truth, and mutual respect. These values were accompanied by one more value that is often forgotten – full

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*\*E-mail address:* leszek.sosnowski@uj.edu.pl; *\*\*paulina.tendera@uj.edu.pl*

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openness of every university. Such an approach enabled free development of the universities as well as exchange of findings and information resulting from the research carried out at individual schools.

These ideas put together brought success to schools and researchers, but it also meant selection of those who wished to study. As a result, a university was a research unit, but it offered its services only to a limited group of students. Consequently, certain methods of teaching and doing research were established. This specific relation, known today as a master – student relation, was a highly individualized cooperation relationship. This type of relations followed by the highest possible moral and work standards constituted a scientific and moral trademark of a university. Elitism of knowledge was paired with elitism of access.

### 1.2 The potential of modernity

Exclusiveness of education that gave a firm basis for self-development was based on principles of individualism. A student was guided by independent decisions in choices of subjects and teachers, being a consequence of individual interests. Such approach to studying should not be considered irrational. The educational system was organized in a way that even when a student joined a technical university in order to study in specialist, technical field, he could still broaden his or her interests directly in his/her own college, or at a university which made it possible for each student to acquire deeper human knowledge.

The early twentieth century brought along profound social changes caused by both world conflicts and military races. After the Second World War a technological race of the countries on both sides of the Iron Curtain took place. Economic and, in consequence, technical and military imbalance resulted in an educational majority of one of the sides. Knowledge kept its status, although its character changed. The elitism of humanistic knowledge was driven by the egalitarianism of technical abilities (in the West).

The geopolitical change imposed as a result of the Yalta arrangements pitched the so far homogeneous education system in Europe. That is why the Second World War constitutes an important dividing line in the approach to the obvious until now issues associated with the functioning of a university. One of the most important matters was autonomy. A considerable fragment of Europe became subordinated to the communist ideology, which meant serious changes in the status of universities and their staff. This resulted in an imposition of a direction for the conducted research and didactics. As a matter of fact, these changes were much wider and deeper since education became subordinated to the ideology of the communist party. In 1951 a new law on higher education institutions was enforced, which established a new institutional and organizational model in Poland. As a result, the learning was divided into four levels: higher education institutions, the Polish Academy of Sciences, departmental institutes, and science and technology associations (Hejnicka-Bezwińska, p. 36).

As a result of the dominance of the ideology of scientific work over the philosophy of such a work, many outstanding but non-conforming scientists lost their university positions. Not only people were eliminated, but "institutions and ideas as well. Crime could also be committed on the system of values. Such were the needs of the system. However, the crisis of arts and limitations of humanism was of help" (Hübner, p. 227). The crisis that was triggered, naturally, by the very dominating system of mass culture which "destroyed local values", caused "the family world to break up, faith was at the state of crisis. (...) On one hand, the system had a great destructive power but it was short of structural abilities not only in the economic sphere, but also in science".

Universities surrendered to having certain departments closed, which included theological departments. Others were transformed into new colleges. The Jagiellonian University may be taken as a typical example of the situation in those times. Its agricultural, medical and physical education departments were used to serve as a basis for creating new higher education institutions. Some other departments were closed while enrollment to others was canceled for a dozen of years. This happened to philosophy, pedagogy, psychology and sociology departments. Finally, the number of students who could be admitted was limited, and its increase or further reduction depended on the decision of the party executive committee. In other words, decisions on important, and often sensitive issues of higher education and broadly understood culture, were given an ideological character.

In the mid-fifties the situation got slightly better, although it never achieved full stability and autonomy available to colleges in Western Europe or the USA. The centralization of culture extended on higher education, too. As a result, during all those years higher education was subjected to party-political pressures and control. Therefore there were hopes that the political- economic turn of the late 80s of the 20<sup>th</sup> century would finally put an end to this type of guidance and make way for re-establishing of the university, basing on the well-known patterns and traditions of the pre-war system as well as answering the needs of the new century.

### 1.3 Mission or remission?

In the late 1980s, on the occasion of the nine-hundredth anniversary of the University of Bologna (1988),

rectors of European universities, including Warsaw University, signed the Bologna Charter (18.09.1988). This document links tradition with the present by emphasizing the importance of such academic values as tolerance, respect, openness and assigning universities the central role in the social and cultural life of European countries. Moreover, an obligation to create a common system of education in Europe, based on principles formulated in the Magna Charta Universitatum, was expressed there. In its "Fundamental Principles" we can find a confirmation of the role and place of the university in the culture of the "old" continent expressed by four principles: a) autonomy: "research and teaching must be morally and intellectually independent of political authority and economic power"; b) bond of science and didactics: "Teaching and research in universities must be inseparable"; c) tolerance: "a university is an ideal meeting-place for teachers capable of imparting their knowledge (...) and for students entitled, able and willing to enrich their minds with that knowledge"; d) trust: "a university is the trustee of the European humanist tradition; its constant care is to attain universal knowledge; to fulfill its vocation it transcends geographical and political frontiers, and affirms the vital need for different cultures to know and influence each other" ([http://www.magna-charta.org/library/userfiles/file/mc\\_english.pdf](http://www.magna-charta.org/library/userfiles/file/mc_english.pdf)). These principles expressed obvious beliefs as they had been carried out in Europe for the past thousand years, and yet, it was necessary to recall them since they had been repeatedly violated in the 20th century.

The declarations that followed confirmed this fact, broadening some of the issues. Eleven years later, in 1999, 29 ministers of higher education of European countries signed the Bologna Declaration (19.06.1999) which expresses the will to create the European Higher Education Area. All these declarations resulted in activities aimed at unifying the educational systems of individual countries. There were also a few communiques and declarations (Prague 2001, Berlin 2003, Bergen 2005, London 2007, Leuven/Louvain-la-Neuve 2009, Budapest-Vienna 2010) which stated that Europe needed strong universities that would help to build the "European science society" ([http://www.eua.be/eua/jsp/en/upload/GLASGOWdeclaration\\_FINAL\\_PO.1117550611801.pdf](http://www.eua.be/eua/jsp/en/upload/GLASGOWdeclaration_FINAL_PO.1117550611801.pdf)).

We can acknowledge that the Magna Charta Universitatum is the answer to the never asked question: why is the "knowledge society" important. "The future of the mankind (...) depends largely on the cultural, scientific and technical development, whereas this development is an effect of the action taken at community centers, the knowledge and researches, so as universities. A crowning of the work was the Budapest-Vienna Declaration, which announced the appointment of the "European Higher Education Area".

The Bologna process has created space for higher education, although probably we will have to wait longer for the building of a science society. Nevertheless, the Bolognese process has set out a general framework of action without interfering with detailed issues of education in individual countries. And thus the signature of the Declaration does not mean any loss of educational autonomy of each of the countries participating in the process, because it allows individual solutions.

All these principles and declarations concerning the institution of the university instil optimism. They draw a future in which restrictions of reforms of Napoleon and Humboldt will be overcome by including them in the structure of the education, applying needs of the present. It is a great challenge and it is possible to recognize the already implemented changes as an answer to the current needs. One might state that the Bolognese process combines the French and German models of education. A bachelor's degree course "through its one directionality" belongs to the first one, while an undergraduate course leading to a master's degree comprising of „theoretical part, methodological part and a part aimed at developing practical skills" belongs to the second model (K. Sauerland, 36). The Bologna process was commenced in the sphere of organizations and the European network of higher education institutions is a fact. Structural changes, which in themselves should be regarded as positive, were carried out too mechanically, and as a consequence they adversely affected the level of teaching. Analyzing the implemented changes in Poland will be particularly interesting.

The fundamental changes concerned the quality of teaching students, referring to the National Qualification Framework (NQF). In Poland, they were introduced on the 18<sup>th</sup> March 2011 and came into force as of 1<sup>st</sup> October 2011. The NQF program, while worthy in its assumptions, has caused and still is causing a headache to university teachers in Poland, gaining extremely varying opinions. The following remarks are supposed to present the "Polish way" of carrying out the program, which – for obvious organizational reasons (central management) – affects the entire system of higher education in our country. As exponents of the attitude towards the NQF we take the analyses of two scientists from the AGH-University of Science and Technology, who

analyzed the program from a theoretical and empirical point of view, in two aspects: negative and positive.

The authors, Ryszard Tadeusiewicz and Antoni Ligeza, state that from the very beginning the NQF was a "real nightmare that affected the entire higher education and caused (...) a huge disruption in the teaching process in all Polish colleges. The implementation of these rules cost a massive amount of work of highly qualified

academic teachers from universities given to an undertaking that proved to be as much ill-considered, as pointless" (Tadeusiewicz, Ligęza, 2).

In their report, the authors raise some valid questions: what was the reason for applying the NQF, what purpose it is supposed to serve, what are the potential profits and losses resulting from its implementation. In other words, they carry out an academic account. It is worthwhile adding that there has been no ministerial account of the reform to this day. The general evaluation falls out very badly, not to say crushingly - and what is more both in the technical, as well as financial aspect. Still, we cannot claim that the implementation of the NQF was the requirement of the European Union, since only two countries implemented it: Norway and Poland. Three other countries - France, Germany and Great Britain - had their own NQF. So what did the NQF basics mean?

The authors took into consideration only their own university, comprising of 16 departments. A digital curriculum has some statistics available: "For example, each department created from 189 to 1398 descriptions of modules of teaching. Every description of a module consists of 14 identification fields, descriptions of effects of educating (...), matrix of effects of teaching (...), description of contents of teaching, estimating the workload of the student and balance of ECTS points, description of the method of appointing the final evaluation, description of preliminary and additional requirements, list of recommended literature and resources, additional information" (Tadeusiewicz, Ligęza, p. 9). As it appears from these statistics 10 860 descriptions of modules have been prepared. Since writing up of each module took up to 20 hours, it sums up to a massive 200.000 man-hours total. Estimating the cost of one man-hour as PLN 40 (without substantial supplementary costs), it is PLN 8 million (approx. 2 million Euro) per one college.

The conclusion in the wider scale is indeed paralyzing: "at the national level it gives an estimated total (with reference to public colleges) of one billion Polish zloty" (Tadeusiewicz, Ligęza, p. 9).

And so question arises: has anything changed in the process of conducting classes or verifying students' knowledge? The answer regarding the evaluation of knowledge and skills is explicit: nothing. The teaching process and the process of examining remained unchanged. So have any changes taken place with reference to competencies? The reply is also negative. The ministry did not provide for any mechanisms of verification and evaluation of social competencies, and in fact the university cannot do it on its own. Consequently, costs may multiply. As the authors point out, a survey on the NQF identified various negative opinions and criticism from different sources. Until the moment of publication of their report, there had been no positive assessments. Let us also hope that the situation of KRK will not replicate the legal situation of the act on higher education.

After the political changes in 1989, on 12<sup>th</sup> September 1990 an act on higher education came into force. Fifteen years later it was replaced with a new statute "Law on higher education" (27<sup>th</sup> July 2005). Six years passed and there was another change of law. As can be seen, the time between introducing new laws has shortened. In the last three years the pace at which the Ministry of Science and Higher Education conducts legislative work has considerably accelerated: up till today 101 further regulations and announcements have been introduced, in which the legislator expressed the will of even more detailed regulation of different issues. Currently, on the Ministry's website there have been 37 further draft amendments published (Tadeusiewicz, Ligęza). It is worthy to note that the Polish Ministry of Higher Education is going to add further 150 regulations this year only).

All these facts demonstrate problems that administrative personnel and academic staff have to deal with at Polish universities. These facts rise anxieties regarding future actions of ministerial committees. Above all, however, these undesired developments also show the shaken relations and a total lack of balance between the NQF goals and the reality? On one hand, there is a lot of talk about the mission of the university in the contemporary world, and on the other - about the challenges of this world. The latter immediately undermine the ideal of a university and its mission because it implements an element of entrepreneurship at universities, which converts a higher education institution into a business venture. Thus, instead of the mission accepted by the ministry and carried out by a higher education institution we are dealing with a remission of the morbidity, triggered by the real socialism. This only means continuing the process of decay of traditional values associated with education, knowledge acquisition, research conduct - that is, all the elements that form the European humanistic tradition.

Three missions: knowledge, skill and competence express significant features of university education throughout its history, from the cognitive model of the Greeks to the enterprise model of the present. The theory, understood as a deep cognitive access, has been currently subordinated to the pragmatics of technologized and economized life. Finding a balanced model, in which none of the missions will be developed at the cost of another, seems unattainable at the moment. These three missions are similar to the three Greek Graces of European education. Let us not decide which is "Splendor" (Aglaia), which "Mirth" (Euphrosyne) and which "Good Cheer" (Thalia). However, we fear to ask whether, by any chance, there was some "local" grace that participated in the implementation of changes to Polish higher education. And if it did, which name should we call her?

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## The popular education in Rio Grande do Norte (1948-1964)

Marlúcia Menezes de Paiva<sup>a</sup>

<sup>a</sup>UFRN, Campus Universitário, Natal, RN, Brazil

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### Abstract

This paper studies movements of education and popular culture that occurred in the State of Rio Grande do Norte, between the years 1948-1964, a period of democratic validity. This context facilitated the expression of the Catholic Church, under the guidance of the Archdiocese of Natal and progressive sectors of the Catholic Action, created in 1958, an experience in education and popular culture literacy by radio to the rural environment, the radio schools, then Base Education Movement (MEB). Also in Natal in 1961, a movement of popular education, the responsibility of the Municipality, called "Campaign standing on the ground also learn to read" and meant an innovative experience in education, with great popular participation, facing the same poorest sections of the population. These two experiments have achieved a significant number of the population, developing, beyond literacy an awareness- pedagogical action, representing moments of liberation, progressive quest for a more just and humane society.

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*Keywords:* Education; Radio schools; Campaign standing on the ground also learn to read.

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### Introduction

The movements of popular education and culture, which occurred in the State of Rio Grande do Norte in the 1950s and early 1960s, happened in a period of relative democratic opening in our country. The validity of the democratic state in Brazil (1945-1964) led to the growth and organization of civil society, leading to the emergence of mobilizations in favor of structural reforms for the country, denominated base reforms, necessary for the economic and social development.

This historical context facilitated the expression of the Catholic Church, under the guidance of the Archdiocese of Natal and of the progressive sectors of the Catholic Action, created, in 1958, an experience in education and popular culture of literacy by radio, focused on rural areas, denominated Radio Schools. The expansion and continuity of this experience led to the creation of the Movement of Basic Education (MEB), which pushed the boundaries of the State of Rio Grande do Norte, affecting much of the country in areas considered the poorest, with high illiteracy rates.

Within the civil society, secular, political factions, progressive and nationalist, elected during that democratic process in expansion, favored the emergence of other movements of popular education and culture. In Natal, for example, in 1961, a movement of popular education emerged under the responsibility of the Municipality, called "Campaign standing on the ground also learns to read" and meant an innovative experience in education, with a great popular participation, aimed for the poorest sections of the population of the city of Natal.

These two experiments have achieved a significant part of the population, developing, beyond literacy, an awareness-pedagogical action. Shortly thereafter, in 1963, occurred in the city of Angicos, in the backcountry of Rio Grande do Norte, promoted by the State Government, an experiment in popular education known as The 40 hours of Angicos. In this city, the educator Paulo Freire applied on a larger scale, for the first time, his educational system. Until then, the system was designed and implemented in small groups. At that moment, to apply it on a larger scale, the educator could consolidate it, resizing and adjusting it to the literacy needs of the poorest sectors of the population. These experiences lost, with the coup d'état of 1964, their strength, because they were severely repressed. The new government had imposed a new-old order.

In this research, we have worked with the first two movements: the Radio Schools/ MEB and Campaign "standing on the ground also learns to read". We have defined our study on these two movements because they consisted of a more lasting experience, covering a larger share of the state population. The experience of Angicos, despite the future developments, had a brief existence; its action was limited to the city of Angicos not generating greater impact on the literacy rate of the state. In both movements chosen, we decided to work the

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<sup>\*</sup> Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .  
E-mail address: author@institute.xxx

process of teacher training, instructional materials for reading used in literacy, observing the book, booklet, among other educational materials, also highlighting the content transmitted in various reading activities, without forgetting that, for the poorest, the school is the only reading space. The study is limited by the post-war period until 1964, the year when the coup d'état occurred, because these movements were smitten, as said before, losing its power or even being canceled, as was the case of the Campaign "standing on the ground also learns to read".

### The Radio Schools

The radio schools emerged within a larger movement, developed by the Archdiocese of Natal, called Movement of Natal. This movement emerged as an unfolding of the problems caused by the Second World War and by the phenomenon of cyclical droughts in northeastern Brazil. With the outbreak of the war and especially because of the geographical position occupied by the city of Natal, on the way of troops in transit to Dakar (Africa), the Office of Anti-Air Defense was installed, in 1942, in the nearby town of Parnamirim, and thereafter, "... the city, in addition to receiving the troops in transit, hosts a large numbers of Americans, because Natal had come to constitute a field for the adaptation to the tropical climate" (Paiva et al, 2009, p. 25). There were times when the city hosted about 10,000 soldiers, a period in which it had about 50 million inhabitants. This fact demanded labor for domestic service, construction, bars, hotels, nightclubs, attracting people from across the region, for these new jobs, particularly in rural areas plagued by the drought.

The end of the war, which caused the withdrawal of U.S. troops, produced a severe social crisis in the city, marked by problems resulting from drought. People, who had been attracted by the possibility of employment, were unemployed in large part, generating a high level of panhandling and other typical problems of crisis moments. The Archdiocese of Natal, then, initiated a series of actions to combat these problems, occupying a place that would be up to federal, state and municipal governments. These actions initially limited to the city of Natal, extending soon after to rural areas, with the creation of the Office of Rural Assistance (SAR) in 1948. Among activities such as shelter to abandoned children, creation of social centers, rural missions, holiday weeks, cooperatives, among others, the Archdiocese of Natal, with the adjuvant action of the Catholic Action, introduced another activity that was the literacy for youth and adults.

Taking as parameter the activities of evangelization and education by radio observed by D. Eugenio de Araujo Sales, the Auxiliary Bishop of Natal, in Sutanteza (Colombia), it was initiated into the Movement of Natal, the education through the radio, with the creation called the Radio Schools. These schools, different from the movement of Sutanteza, had an organized reception. They were primarily intended for the people who lived in the countryside. Its constitution was under the guidance of local parishes and the infrastructure was responsibility of the communities where the schools were located. At the beginning, the Church supplied the radio and the electric battery, that could be rechargeable, and then the radios became more modern and started operating on batteries, so the students and the community people held parties, task forces and money for the small expenses such as batteries for the radio, kerosene for lamps, chalk.

There was a large participation of the entire community. The students also cooperated bringing objects from their homes to sit – such as benches, stools, because the classrooms functioned wherever possible, what could be the home of the monitor, the rectories, or any available room that existed in the community. Schools started in September 1958 with literacy classes for youth and adults.

In 1961, with the expansion of the schools, it was introduced a new series and so on until, in 1963, the first five grades of primary education. The classes had the duration of 45 minutes and were broadcast daily by the Issuer for Rural Education, radio that belongs to the Archdiocese of Natal. The movement initially reached 69 schools and, in 1963, the year that a further expansion occurred, these schools were expanded and reached a total of 1,414 and 26,863 students.

Until 1961, the experience of the Radio Schools was the responsibility of the Archdiocese of Natal, through the SAR, and was restricted to the Rio Grande do Norte. After the Second Meeting of Bishops of the Northeast (1959) held in Natal, the bishops present suggested, in the Declaration of the Bishops of the Northeast, result of the meeting, to the then president, Juscelino Kubitschek, the expansion of the Radio Schools to the entire Northeast. That fact was realized later, on the occasion of the first meeting of the Basic Education, in Aracaju (SE), in December of 1960. In this meeting, the CNBB initiated talks with the elected president - although not yet sworn in, Jânio Quadros to expand these schools. In contrast, "[...] the CNBB proposed itself to structure the existing efforts through a Movement to coordinate the common action. The activities of the Radio Schools of the Diocese, along with the sector of Basic Education of RENECE, would become a new organism: the Movement of Basic Education (MEB)." (SPEYER, 1976, p. 6).

Yet in 1961 the Movement of Basic Education (MEB), was established by Decree No. 50,370, of March of 1961, signed by the President Quadros, which provided, through an agreement between the Ministry of Education and Culture (MEC) and CNBB, the funding of this project for five years of basic education. The agreement assumed the installation of 15,000 radio schools in the north, northeast and center-west of the country, considered underdeveloped regions. With the signing of this agreement, the MEB started. After the MEB, the radio schools of Natal took a new direction and became part of this new organism, which was linked to CNBB, although it was still organically linked to the Archdiocese of Natal. The national coordination of the MEB was subordinate to the Church/CNBB, but had the active participation of lay people, particularly those linked to the Catholic university youth (JUC), Section of the Catholic Action.

The radio schools were based on a tripod: speaker-teachers, monitors and radio.

The speaker-teachers were arrayed among youth who had a teacher training and participated, almost always, of the social activities of the Archdiocese of Natal. The first speaker-teacher was also a teacher of the Normal School of Natal and had some knowledge on radio technics for education by radio. The inaugural class, taught by the mentioned teacher, aired on September 20th, of 1958. Later, in February 1961 and in December of the same year, with the expansion of the schools, this teacher invited two students of the Normal School to participate as speaker-teachers of the educational experiment.

These three teachers led the work of the radio broadcast of classes throughout the time limits of this study. The last two teachers received in-service training, because there was no time to conduct more appropriate training, the activities were happening while the speaker-teachers learned how to deal with the new situation.

With the entry of the MEB, the training of the pedagogical staff became a target of greater importance. The National Team of the MEB performed supervisory visits and, at that time, there were discussions, debates, readings of texts with theoretical-philosophical deepening and planning of activities, with review and exchange of experiences. The speaker- teachers were also responsible for the preparation and transmission of the classes that had the form of script, because of the language of radio.

The monitors were set up in the large motor movement. Many were just literate and, in general, participants of the Catholic Action and other movements of the Church. They played a volunteer work, without pay. These young people lived in the parishes where the school was, or would be installed. They were usually chosen by the local priest, who took into account their leadership skills and the requirement to have a minimum of literacy. So they could take this educational function, the monitors participated of trainings, or other activities such as study days, courses. These educational activities were held under the coordination of the Central Staff, sort of techno-pedagogical staff who coordinated all the activities of teaching and schools running, and were held in conjunction with members of other sectors of the SAR in Natal.

The monitors were responsible for boosting the lessons provided by the speaker-teachers, by the Issuer of Rural Education, and were also responsible for handling the radio in the schools. In remote locations, wilderness, there was a monitor stimulating classes of the radio schools. The training received, was initially a conversation to know the daily life of the community where he resided, from that information, the knowledge was broadened to a more general information about the state, country, other countries, placing him in this reality; then the speaker-teachers taught classes with didactic-pedagogic content and information on the operational functioning of the school, such as the handling of the radio, license, frequency control, among others (PAIVA, 2009).

The reading book, "Educate to build" (1964), created by the teaching staff of the movement itself, brings in one of its lessons, called, "The mission of the monitor", the following assertion:

January 20th, the day of the monitor, the day of those who fight for a better tomorrow, and want to turn darkness into light, loneliness in friendship, and sadness into joy. The monitor is someone who will make the field a land of free men, because to be free we have to educate ourselves. [...] I, monitor, must be the light which will lighten the illiterate. I will be someone who works for a strong and true Christianity to come to the world. We must follow this motto: All for God and for our brothers (PEREIRA, 1964, p. 4.).

This lesson was written by a monitor of a small town. It shows the importance that the monitor was in the movement, as it is the one that "will make the field a land of free men" and is also "the light that will lighten the illiterate".

The movements of education and popular culture of the decades of 1950/1960, according to Germano (2004) present typical features of the political romanticism: "refusal of this social reality, sense of loss, nostalgia and search for what was lost". "Thus, the present would be denied, and the future would be object of interrogation, and, somehow, a reference to the past" (2004, p.5). All the text of the lesson in question is redolent of that romantic spirit, almost heroic.

The radio was the big star in the radio schools. It represented an extraordinary technological novelty for that needy and so devoid of everything place. We shall not forget that we are talking about the interior of the northeastern region, Brazil, in 1958, the beginning of this educational movement. A letter from a monitoring well exemplifies this dimension: "At my school what is grandest is the Radio. In the room where settles the

class, it was reserved a place with all zeal and affection. This radio is music, teacher and church, teaching and instructing the people in our rural areas.” (MORAIS, s/d. In: PAIVA, p. 55).

The radios, of the Phillips brand, came from Holland, donated by Catholic institutions. At the time Catholic institutions, such as the Adveniat, Misereor, among others, helped a lot the Catholic social works in the Northeast. The radios were equipped with a device that did tuned only the Issuer for Rural Education. Because of the lack of electricity in rural areas, the radios worked with electric battery. As a teaching-learning tool it was invaluable. The vehicle, itself, already pointed out, the speech of the monitor reflects the dimension of this importance. The isolation of the rural areas was broken. Without leaving their community, the workers and the rural communities could tune into the world.

Backed in this tripod, the didactic and pedagogical activities were being built. For the best achievement in the teaching-learning process, quite varied materials were employed, such as “cordel” literature, viola singings, folkloric events, plays, politicization books, newspapers, brochures and reading books.

The manifestations of the popular culture, such as viola singing, “cordel” verses, facilitated the transmission of content, as they talked about the day-to-day of the peasant population. The reading book, “Educate to Build” prepared by the core team of the MEB Natal itself, as already mentioned, had the collaboration of texts written by the monitors. The book approaches questions close to the interests of the workers, such as work, conscious vote, the importance of education and health, value of foods, cooperatives, culture, folklore, popular festivals, but also Christian messages such as “God the creator of all things”, “love of neighbor”, “and the gospel as good news”. The texts in the book bring messages that seek to educate, and as was said at the time, aware. There is clear guidance so that workers know and seek for their rights, their freedom, and their importance as beings responsible for their story. In the text entitled “the value of the vote”, without authorship declaration, reads:

Brazil needs the conscious vote for each of us to develop it. The conscious man knows that his vote is a weapon. He knows that this weapon must be used for the behalf of the people. He knows that this weapon should be used to choose leaders for all the people. The true vote is conscious. The true vote is free. (VALOR..., 1964, p. 27).

There can also be observed the “romantic affinities of the popular education”, exposed by Germano (2004). But, despite this particular, this educational experiment was of great importance in the struggles of workers, in asserting their rights and also literacy them. Besides reading the book “Educating to Build” MEB used in the literacy primer “Effort” and arrived to prepare a book reading “To live is to fight”. The latter was seized by conservative forces of the Lacerda government, in Rio de Janeiro, and has almost not been used; the “Effort” textbook, widely used in the educational action of MEB, was the responsibility of the National Team. It was directed to the rural population and presented a critical content, transformative and, as said at the time, conscientizing, as in general the publications of the national MEB were presented. The Lesson 2, of the 2nd reading book, in verse form, says “In Brazil there is a lot of land waiting for planting, all land without use prejudice gives to the nation. If the land is undivided there is no solution. But the Land Statute can help the matter, because some of the people, who plant corn and beans, want a little land to plant with more passion.” (1965, p. 6).

For the ruling elites of the country, at the time, land and agrarian reform were true taboos, work on this theme on the literacy of peasants meant subversion of the established order, with serious consequences for their authors. This educational activity was severely repressed by the dominant forces of the country in the post-coup of 1964. It was one more experiment in popular education pruned by the blow. The MEB continued its activities, but quite mischaracterized of its initial proposal.

### **The campaign “standing on the ground also learns to read”**

Unlike the previous experiment, which was initiated by the Church, this educational experiment was born in the popular struggles for more education. The first elected mayor of Natal, in 1960, was Djalma Maranhão, elected by a coalition of opposition, mainly sustained by popular participation, incorporated of Popular Commands, consisting of politicians, intellectuals, trade unionists, students, leaders of neighborhoods. These commands prepared the campaign of the mayor and created other levels of organization, such as the Nationalist Camps, which served as guidance for voters and also to raise funds for the campaign. The most representative organizations were called Nationalists Committees, which rallied people through streets and neighborhoods, creating a capillary network that politically mobilized the entire city of Natal (GERMANO, 1982).

After the possession, the mayor fulfilling the commitments of the campaign and accepting popular demands, particularly of the nationalist 240 Nationalists Committees, elected education and culture as a priority for his government. The public education system was in clear decline. There was a lack of schools. The number of

public schools had declined in the past years. However, due to the lack of resources, the mayor struggled to implement reforms and improve the education, for example, to build new schools without the resources.

In the beginning of the administration, the city, to start the Literacy Campaign, expanded the called small schools, literacy classes, in emergency system when all the rooms available, donated by the community, where could run a literacy class were used: unions, churches, clubs, private residences and even a cinema. The teaching materials and meals were donated to students by the public authorities, the teacher, who was trained in emergency courses, received a small pro-labor, but water and electricity were under the responsibility of the entities responsible for the assignment of the room. In two years, these small schools had reached the number of 271 classrooms; however, this number was not sufficient to meet the demand for literacy. That was when the discussions and debates in the Committee of the Nationalist of the Rocas neighborhood came up with the idea of building schools using coconut straws. Moacyr de Goês, then Secretary of Education of the city, in his book "Standing on the ground also learns to read (1961-1964): a democratic school", he reports this time of the birth of the Campaign: "The discussion was long. For over two hours we were around the same issues: it was necessary to eradicate the illiteracy - the people wanted, the mayor too. But, how to end the illiteracy without money to build schools? I do not know, really, from whom came the proposal at that meeting of 40-50 men and women: - Make a school of straw!" (1980, p. 35).

At the end of the meeting a proposal was submitted to the mayor who approved it. There initiated the educational movement that was named "Standing on the Ground Also Learns to Read", name taken from a newspaper article written about the educational movement of the prefecture of Natal. The implementation of the measures necessary for its development was under the responsibility of the Secretary of Education, Culture and Health, of the Municipality, which, for this purpose, created the Working Group on Popular Education. The neighborhood of Rocas was then selected to be the experiment area and construction of the first school of straw. The Nationalist Committee of the neighborhood was one of the most important participants in the struggles and popular demands.

The first school built was named Camp School of Rocas and in the same year, 1961, the city built another School Camp in Carrasco. Soon, it was made the calls to the school for admission of students to begin classes. In 1962, seven more Camps were built in neighborhoods of Nordeste, Igapó, Aparecida, Quintas, Conceição, Granja and Nova Descoberta. It is important to highlight that they were all neighborhoods on the periphery of Natal. There were schools built for the poor people. The enrollment has evolved rapidly in 1960, the Little Schools catered to 2,974 students, in 1961, the total number of students served was 5,249. Regarding the registration of the Schools/Camps, according to Germano (1982), it is difficult to compute the lack of registration. Goês, states that in April of 1964, the overall enrollment exceeded 17,000 students. (1980, p. 79)

The camps had a different architecture from the traditional schools. They were composed of rectangular sheds, where the classrooms happened, with 30 X 8 meters, with thatched roof and floor of beaten clay, without sides; a circular shed, with the same features as the other, for the recreation of the students, parties and folkloric presentations and, also, for meetings of parents and teachers. Internally, the rectangular sheds were divided into four rooms, divided by thick and wide boards used as chalkboards and bulletin board and also as partitions between the rooms; they did not reach the ceiling, neither the floor, they did not have the goal of closing the classes because, as we said before, the sheds had no side walls. It was a literally open school closed in the ceiling by the coverage of straw. Masonry construction, there was only one room where the board functioned, secretary, warehouse, among others, and restrooms. (Goes, 1980).

All camps were equipped with the same infrastructure. The classes were held at regular times, in three shifts, similar to the education of the public school system form. At night worked as a school for adult education.

The teachers who participated in this experiment received varied training, comprised of volunteers, the community, and partly by city officials. Initially, the teachers were trained in emergency courses; until 1962, the city held two of such courses: the first, in 1961, 250 candidates participated in the campaign, who were admitted as lay teachers; in the second, as there was a large number of people, there was a previous selection, with the requirement of complete primary to the candidates; 300 people attended the course, which lasted two months, but only 250 were seized in the Campaign as monitors, or lay teachers. This course gave a greater emphasis on the first three grades of school, called primary course, larger field of action of the campaign.

With the expansion of student enrollment, arose the need for more teachers with better qualifications, it was, then, created the Center for Teacher Education (CFP) in 1962, an institution that became responsible for the teaching coordination of the campaign, or as Goês reports, the Center for Teacher Education has become the "brain of the campaign" (1980, p.72). It offered three modes of courses: a) Emergency Courses, for training of lay teachers, lasting for three or four months, to meet the interior municipalities that had agreement with the city of Natal; Normal gym, lasting four years, which served the Campaign teachers who had previously attended the courses Emergency; and Normal College, high school level, improving the training of the Campaign teachers and also open to other interested people. (CORTEZ, 2005)

The Training Centre gave a greater dynamism and organicism to the Campaign. In addition to the training courses for teachers, it was also responsible for supervising and for all technical and pedagogical orientation, which was held weekly through meetings and visits. It also had an Audio-Visual Resource Center, which prepared the didactic-pedagogic material, and a Demonstration School, which served as a laboratory for teachers and students of the CFP.

The teaching-learning materials used in the campaign, as in MEB, were quite diverse. At first, the process of teaching-learning was not different from the one that existed in the public school system, little by little, with the maturing of the Campaign; the teaching process was being renovated, modified. Widely used was the "Book Reading 'standing on the ground also Learns to Read'", an adaptation of the book "Reading for Adults of the Popular Culture Movement of Recife", as written on the cover of the book, or how the Secretary of Education at the time, Moacyr de Goés, said on the presentation of the book: "This 'Textbook for the reading of Adults of the Campaign Feet on the Ground Also Learns to Read' is not an original work; it is an adaptation to the local conditions of Rio G. do Norte of the 'Textbook for Adults Movement of Popular Culture of Recife'. If the 'Textbook' of the MCP is valid, as we believe, then, it is certain that we seize this valuable experience and I apply it between us." (1963)

There was a great integration between the educational movements of Natal and Recife. Miguel Arraes, governor of the state of Pernambuco and Djalma Maranhão, Mayor of Natal, were very close politically, communed the same struggles and ideals. This book, as the reading book of MEB, also brings a rather critical, conscientizing and also of appreciation of the popular culture in its many interpretations. Some of the lessons are quite enlightening on how these expressions were used, like: "It is necessary to be formed, in Brazil, a broad front, bringing together all those who work to eliminate the causes of the misery of the people. The suffering of our people is just a consequence. The causes that produce these sufferings are deeper. It can only be eliminated with planning and basic reform". Or, "The folklore is all the traditions of a people. The most popular dances of the Northeast are: quadrilha, araruna, bambelô, chegança, bumba-meu-boi and pastoril."

The use of the popular culture, in various expressions, was present at all the times. The shed of circular form, that every camp had, was the scene of varied artistic statements, including the folk performances of each district, which were fully explored: in the Rocas neighborhood, the "Araruna Society of Ancient Dances"; in the Conception neighborhood, the "Bambelô Asa Branca"; in Carrasco neighborhood, the "Congos" and "Boi Calemba", among others.

As Germano says, "it is important to state, at the outset, that the Campaign meant, apart from small schools and School Camps, the creation of popular libraries, cultural squares, the Center for Teacher Education, the People's "Tetrinho", the Art Gallery; meant the formation of reading circles, the conducting of cultural encounters, the reactivation of groups of folk dances, the promoting of art exhibition, the presentation of plays, in other words, resulted in a cultural organization in the city, where people participated effectively and not just watched as a spectator" (1982, p.102,103).

The movement of the campaign Feet on the ground also Learns to Read represented a general change in the culture of the city. The campaign went beyond the traditional limits of action of our schools, mobilized the entire city, the popular culture received a great encouragement and appreciation, folk groups that were disappearing resurfaced and, especially the poorest strata of the population initiated a process of apprehension and worship of the cult knowledge, so distant until that. As the MEB, this was another experiment in popular education finished by the coup of 1964.

## Final considerations

The two educational experiments studied represent popular social movements, with nationalist trend, with proposals for social reforms that, maybe if they had not been pruned, they could have gone further in their accomplishments. There were movements led by intellectuals of the middle classes, Catholics and non-Catholics, socialists and non-socialists. They present a romantic aspect, often assigning education a wrong paper of processing, remnants of the Enlightenment belief in the regenerative potential of education (Beisiegel, 2004), but also represented moments of liberation, of progressive quest for a more fair and humane society.

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# The Portuguese *Online Knowledge Library* (B-on): a year of academic research at Portucalense University

Manuela Barreto Nunes<sup>a</sup>, Marta Abelha<sup>b</sup>

<sup>a</sup>University Portucalense Infante D. Henrique, 4200- 072 Porto, Portugal, Interdisciplinary Centre for History, Culture and Societies – CIDEHUS, University of Évora, (mnunes@upt.pt).

<sup>b</sup>University Portucalense Infante D. Henrique, 4200-072 Porto, Portugal, The Coimbra's University Centre for 20th Century Interdisciplinary Studies - CEIS20, (mabelha@upt.pt).

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## Abstract

“B-on” is the electronic resources platform acknowledged by the Portuguese scientific community, providing a high number of scientific resources and electronic services. Portucalense University adhered to B-on in 2013. After a year, a study of use and evaluation of the professors’ satisfaction was conducted. This paper presents the results obtained through the application of a questionnaire and the analysis of statistical data supplied by the platform. Results reveal a medium level of compliance, although with high intensity and users’ satisfaction. More information literacy instruction is required in order to amplify and diversify the use of the tool.

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*Keywords:* B-on, Portucalense University, scientific resources, online knowledge library, evidence-based research

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## 1. Introduction

The Online Knowledge Library, usually known as *B-on*, is an electronic resources platform developed by the Portuguese Foundation of Science and Technology since March 2004. It provides the universities, scientific laboratories and higher education organizations in general with an unlimited and permanent access to several of the main national and international sources of knowledge, as online scientific journals and e-books.

The mission of *B-on* is to ensure the access to a high number of scientific publications, providing related electronic services to the Portuguese academic and scientific community. The platform works as a consortium, and the access to this range of services is only allowed to the adherent institutions, through their IP addresses. Up to now, 41 research and higher education institutions are members of this consortium.

*B-on* presents the following main goals:

- To promote electronic access to some of the major international knowledge sources;
- To play an active and participatory role in building a Knowledge Society;
- To encourage the consumption and production of scientific contents by the community;
- To encourage cooperation between national academic and scientific institutions;
- To facilitate the management of information of the national scientific output;
- To develop key skills in managing information and knowledge;
- To rationalize costs through a centralized negotiation with publishers and other content providers;
- To increase visibility, accessibility and dissemination of Portuguese scientific research and academic activity, enhancing their use and impact among the national and international scientific communities;
- To become a reference in the provision of electronic services and products that meets the needs of the various user groups;



To develop and provide a preservation policy in order to ensure perpetual access to the publications available to its members. (B-on, n.d.)

In fact, *B-on*

made possible to all the national academic and scientific community – teachers, researchers and students – an easy access to the full papers of a relevant set of scientific journals published online by some of the most reputed scientific international publishers and database owners, in a scale economy made possible by the centralized purchase of contents. (Costa, 2007, p.1, translation by the authors)

By allowing the access to a high set of online full text papers and e-books, covering different areas of knowledge, this platform looks not only for the improving of the conditions of access to knowledge, but also to stimulate and increase the Portuguese scientific production (Costa, 2007). Besides being a content provider, the platform offers several advanced services to support learning and research, such as training, tutorials, preservation, special support for researchers, librarians, students, health professionals and publishers, access to the Journal Citation Reports, bibliographical analysis and other features of Thompson Reuters' Web of Science, such as the bibliographic manager (EndNote Web) and also administration features, including statistical data.

As Costa (2008), we also believe that *B-on* represents one of the most meaningful accomplishments in favor of the Portuguese scientific and academic community, offering as its main advantages the democratization and flexibility in the access and organization of scientific knowledge.

This paper pretends to disseminate and analyze the results of an evidence-based research centered within the academic community of the Portucalense University, a year after the introduction of *B-on* in its routines of information search and retrieval. The use of the resources and services provided by this platform was therefore subject to a descriptive and interpretative analysis. The results of the study, operated as evidences, will provide management indicators related to the return of the investment in contribution for the scientific production and learning, as well as capital information for the development of more adequate strategies of information literacy and divulging, in order to make the best use possible of the tool.

## 2. Context

Portucalense University is a small private university located in the second town of Portugal, the city of Oporto, in the northern part of the country. It has around 2.000 students and 140 teachers and researchers, and is divided into four Departments: Law Studies; Tourism, Culture and Patrimony; Psychology and Education; and Economy, Management and Innovation. It offers ten graduation courses and 13 masters, giving its students the opportunity of specialization and lifelong learning through a wide range of post-graduations and short masters.

The Library is an important part of the university, and it supports the processes of learning and research of the academic community not only by providing the access to collections and traditional services, both in physical and virtual environments, but also managing the institutional repository and the access to the subscribed databases – *B-on* being the most important of them – and developing formal and informal sessions of information and digital literacy, including the production of guidelines for bibliographic styles and scientific publication.

To ensure the return of the investment made by the administration of the university in the subscription of *B-on*, corresponding to 34.000 euros, and to incite the academic community to use the platform, the library developed several information literacy training sessions, for teachers and students, besides numerous announcements and publicity through e-mail, advertisements, the university institutional newsletter and site, and also social networks such as Facebook.

The close collaboration with the academic community and the application of evidence-based principles in the library management led to a study that intends to start the evaluation of the use and impact of *B-on* and the importance of literacy sessions for the faculty members, looking for evidences that will help the making of informed decisions within the use of scientific information for learning and research purposes.

Evidence-based decision making is a rational model based on the use of research through scientific methods to gather quantitative and qualitative evidences. The evidences gathered should have consequences *for* the practice (identifying best practices and proposing new practices), *in* the practice (identification of problems and contradictions through the contextualization of professional experience and research results), and *from* the practice (measuring the results of the phenomena studied through the identification of the changes that resulted from the actions taken) (Todd, 2008). Such evidences will be shown in this paper, though the results reported relate to a larger study from which we present only the most significant findings.

### 3. Methodology

The methodological approach for this study thus follows the evidence-based research principles, supported by both background and foreground questions, as suggested by Booth (2004). Research looked for answers to background questions, whose results were found through statistical data provided by the platform reports and the answers to a questionnaire survey, such as: “Is *B-on* really having an impact in the search practices of teachers and researchers?”, “How many well succeeded searches were achieved during the first year of use?”, “Which knowledge area is using more the platform facilities?”. A range of foreground questions, whose answers were found through the survey, with both closed and open questions, and the crossing of data, were designed as follows: “How do teachers and researchers use the platform facilities?”, “Is the participation in information literacy sessions related to the intensity of their use of *B-on*?”, “For what purposes is the platform being used?”.

As pointed above, the techniques used for data collection were statistical reports provided by the platform and a survey with both open and closed questions; the survey was sent to all the universe of 141 teachers and the sample obtained corresponds to thirty-four ( $n=34$ ) of them, that is, 25% of the population. All data were subject to interpretation, and some of the open questions gave place to the definition of qualitative categories to help the comprehension of the motivations lying under the answers. Also, some data were crossed in order to better understand their significance.

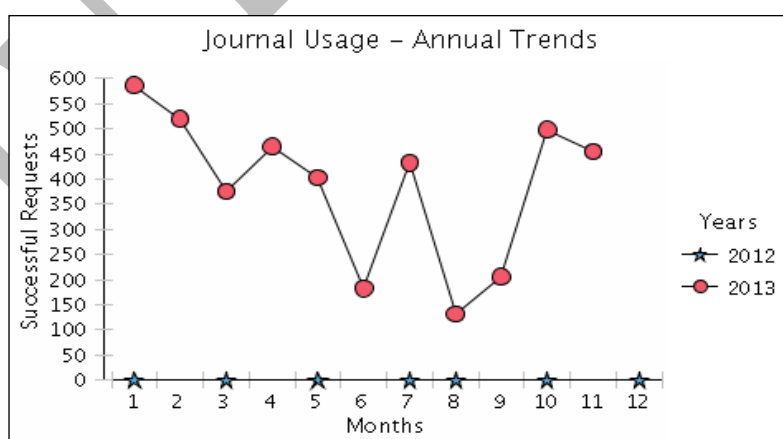
As this is the first phase of an evidence-based research on the impact of a big content aggregator and scientific research services provider, the analysis of the results is intended to be both descriptive and interpretative, providing evidences that will guide future researches and lead to better practices in the immediate future.

### 4. Results

#### 4.1. Statistical reports

Statistical data collected from the *B-on* reports incurred in the number of downloads and its distribution through the months of the year, the most requested publishers and the most rated journals between January and November 2013.

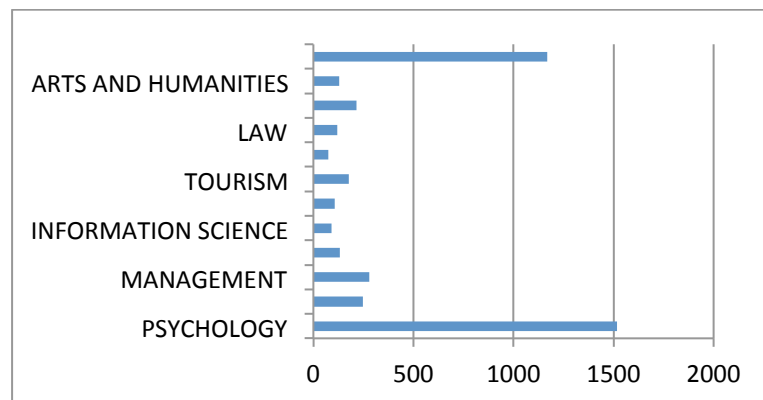
Being the total number of downloads 4.257, the first graph shows its monthly distribution. We can see that the months that correspond to a larger number of downloads were January, with 600, followed by February, with around 530, April (480), then July (460) and October and November, around 500. The months when the platform was less used correspond to June, August and September, all of them below 200 downloads.



Graph 1: Number of downloads and monthly distribution

This distribution can be better understood if it's noticed that the first two months correspond to the first literacy sessions and to a heavier effort of publicity related to the launch of the platform at the university. April corresponds to another training session, such as October. As July is the month before vacations in Portugal, maybe the high rate of downloads during this month can be justified by the preparation of the new academic year, but that is yet to be proved by findings that this study wasn't able to show.

What are the predominant knowledge areas of the most searched journals? Graph number 2 shows the knowledge areas, that were defined through the keywords and title information of the journals from where the downloads were obtained:



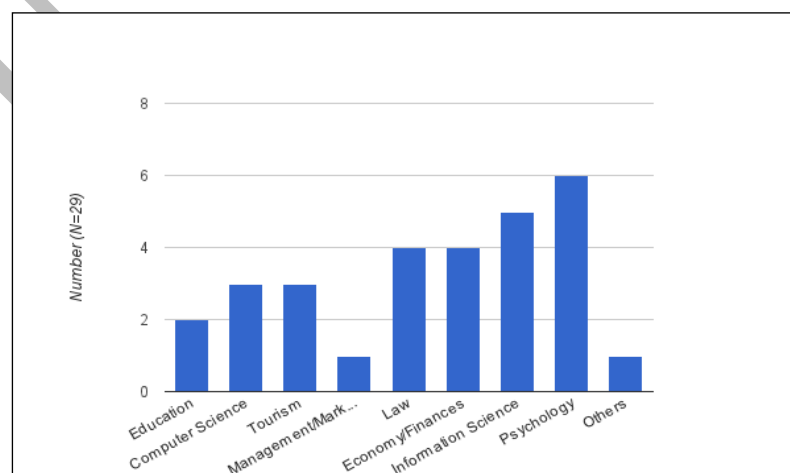
Graph 2: Knowledge areas of the most requested journals

Data shows that Psychology is by far the most requested area, followed by multidisciplinary journals (other areas) and, by far, by Management, Social Education, Education and Tourism. These knowledge areas are a reflection of the contents that are covered by the faculty courses and lines of research. The most important courses of the university are, by number of students, first Law, than Economy and only then Psychology. Nevertheless, neither Law, nor Economy are so well succeeded in their research sessions. Further in this paper, in the analysis of the questionnaire results, the reason of these outcomes will be better understood.

#### 4.2. Survey results

The survey was applied to thirty-four teachers (N=34). From these, twenty-nine (N=29) use the resource regularly, while five never used it. Questioned about the reasons why they didn't use it, two said that they had never heard about it, and the other three presented the following reasons: "I never needed it", "I don't have much time for research, and when I do I prefer to search through Google scholar" and "I work at home and I can't access *B-on* from home". These responses show that, although a minority, there are still some teachers that don't use or care to use reliable and actual scientific resources, and lack computer and literacy skills to help them search through Internet using, for instance, the VPN service provided by the university; further research will help us understand some demographic and sociological characteristics of this group, which were not surveyed through the present questionnaire.

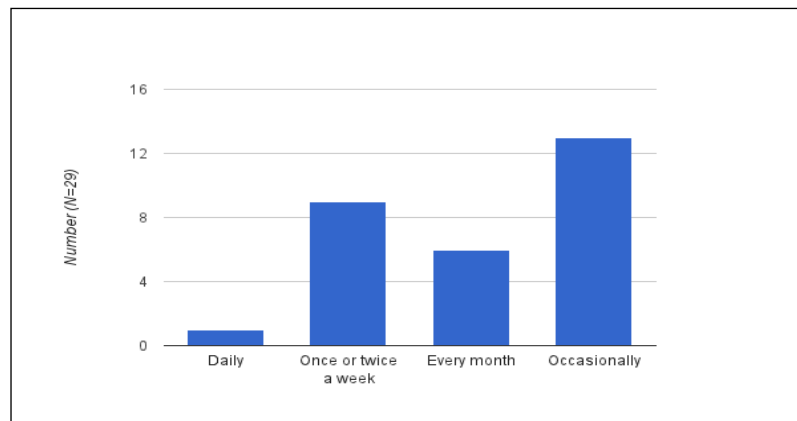
The research interests of the twenty-nine teachers that use regularly *B-on* are shown in Graph 3:



Graph 3: Research interests

Respondents that confirmed an effective use of *B-on* are mostly interested in the areas of Psychology (N=6) and Information Science (N=5), followed by Law and Economy/Finances (N=4 to each of them). When we cross these data with the statistical reports on the most requested knowledge areas, we can see that there is a coincidence, for respondents come mostly from the area of Psychology, which is in fact the most requested area in the platform. We can interpret that if all the Information Science researchers of the University answered the survey (N=5), that doesn't coincide with the most successful searches for the simple reason that this is a small area at the university, showing only the special concern of these researchers in participating in a survey that has to do with their own research interests. There is also a special interest revealed by teachers of Law and Economy/Finances, which doesn't result in equivalent well succeeded searches for reasons that will be pointed out further in this report.

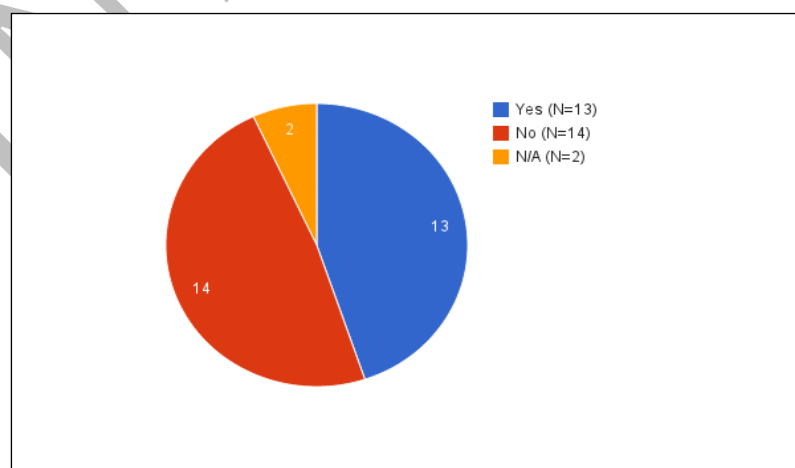
Graph 4 shows how often these individuals use the platform:



Graph 4: Regularity of use

Most respondents (N=13) use it only occasionally, although a significant number (N=9) recurs to the platform once or twice a week.

Trying to understand how systematically some of *B-on* facilities, such as the personal profile are being profited by the respondents, they then were asked if they had opened one. Graph 5 tells us that this feature is not yet used by all the respondents, but nevertheless conquered almost half of them (N=13 for yes, and N=14 for no):

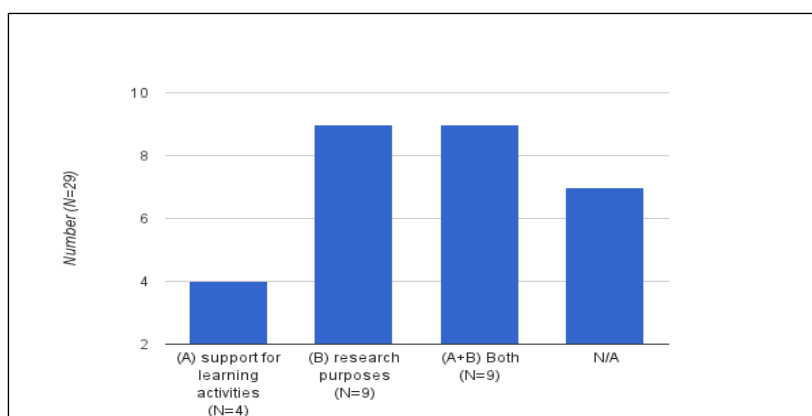


Graph 5: Personal profile

Respondents that didn't register for a personal profile justified their answer in the following two categories: (1) lack of use and (2) ignorance; "I don't use *B-on* very often", or "I use *B-on* occasionally and it doesn't justify the opening of a profile" were inserted into category one (lack of use); "I don't understand what the advantages

are”, “I don’t think I need one”, “I don’t know how to do it”, “I had never thought about it”, “I save everything in my PC” or “I don’t feel at ease with this technology” belong to category two (ignorance). Crossing data with the regularity of use, and although some of those who use *B-on* more often didn’t create a profile (N=5 for daily and weekly use answered No, from a total of 12) these answers can be interpreted as showing that those who don’t use very often the search platform don’t feel the need of exploring it more for, for instance, purposes of saving searches for further use within the platform (N=11 for those who use *B-on* Occasionally or Monthly, from a total of 17); a lack of experience with scientific databases that are being now explored for the first time is another possible explanation. The respondents included in category two also said that they would ask for instructions at the library, which means that they rely on the librarians to help with their search difficulties.

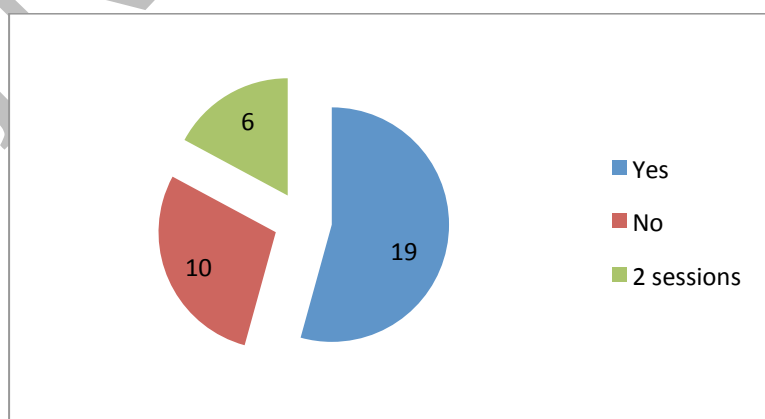
The survey also intended to understand for what purposes the respondents use the resources retrieved from *B-on*. The data shown in Graph 6 demonstrates that scientific resources are mostly used as research sources (N=9), but also for the preparation and teaching of classes (N=4) and, in a significant dimension, for both objectives (N=9). Seven (N=7) of the respondents didn’t answer to this question, having five of them justified with the lack of interest of the platform resources for their area of knowledge.



Graph 6: Use of the resources

Crossing these findings with research interests, it is verifiable that the less satisfied responders are those from the areas of Law and Finances, who use other databases for their work, which are not included in *B-on*, such as Heinonline, JStor and national databases regarding jurisprudence and national legal matters, for the first, and ProQuest and SARI (national) for the second. From these, the university subscribes two national databases, respectively BDJUR and SARI.

Finally, it was intended to know whether respondents had participated in any of the Information Literacy sessions provided by the university library. Results show that nineteen (N=19) of them participated in those training sessions, with six (N=6) having assisted to more than one session, as can be seen in Graph 7:



Graph 7: Assistance to Information Literacy training sessions

There appears to be a direct relationship with the assistance to training sessions and the regularity and intensity of use of the platform, while the results also show that respondents within the Law Studies area,

although attending to the training sessions and having regular search practices, can't find the contents they need within *B-on*.

## 5. Conclusion

*B-on*, as a major database's and scientific research service's platform, is a new reality in Portucalense University. During the first year of subscription almost 5.500 requests were made, mainly from individuals whose research interests rest on the area of Psychology. It appeared as an innovation on the research practices of the university members, as shown by the initial enthusiasm that led to a great number of requests during the first months, aided by the assistance to its first information literacy training sessions. As an innovation, not all teachers and researchers have yet become aware of its importance, or even existence, but those who did have started to integrate it in their habits and practices, both for learning and research activities. Some of the university members don't seem to find in the platform the kind of resources they need, and this applies mainly to those whose research interests lie on Law and Economic Studies, areas where the platform is not so strong, mainly when referred to national publications.

This study brought up to light three main evidences:

Evidence 1: the use of *B-on* is not yet sufficiently widespread within the faculty members, but satisfies those who use it and must be more divulged; The spread implies more publicity and more training sessions, not only deepening but introductory;

Evidence 2: not all areas taught and researched at the university are duly covered by *B-on*: Law Studies, but also the area of Economics/Finance don't find in *B-on* a satisfactory response to their specific needs. The solution to this lack of resources must be found by the managers of *B-on*, but meanwhile obliges the university to subscribe specialized databases, so that the needs for learning and researching in these fields are granted.

Evidence 3: university members rely on the university library and its librarians to help them with their research problems; still, the library needs to offer the researchers more information literacy training sessions and other types of support.

Evidence 4: further research is needed to deepen the findings of this first survey, as well as a continued monitoring of the statistical reports provided by the database; another survey should be applied by the beginning of the academic year of 2014/2015, with questions leading to a qualitative analysis of the results.

As an evidence-based research applied for the purposes of decision making, this is the first step of a continued process, intending to improve the research and learning process at Portucalense University and insure an effective return of the investment implied in the subscription of a major platform like *B-on*. The search for good practices as a way of increasing the use of the platform and the development of more Information Literacy sessions will be the next step, as well as the continued analysis and evaluation of the use of the tool, namely to understand the real impact of the platform in the research and learning practices of the university members; that includes students, who were not inquired through this survey. The alert provided by the less satisfied researchers with the platform contents must as well be considered by attempts of influencing the policies of *B-on* consortium managers and, meanwhile, by continuing to subscribe smaller databases on those less contemplated contents.

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# The power in digital literacy and algorithmic skill

Mária Csernoch<sup>a</sup>, Piroska Biró<sup>b</sup>

<sup>a,b</sup>University of Debrecen, Kassai út 26. Debrecen 4028, Hungary

## Abstract

We argue that in educational contexts ICT (Information and Communications Technology) and CS (Computer Sciences) should not be separated. To support our ideas, we present methods related to the minimalist principle with which students with different interests would develop algorithmic skills even in an ICT environment, and this introductory phase would lead the students on to more serious CS studies. The core of these methods is that from the very beginning of CSI education algorithms should be looked for in every computer-related problem. Deep-approach metacognitive methods should be applied, instead of uncontrolled sequences of surface-approach metacognitive activities such as aimless clicking, unplanned wandering, and relying on the newest features in graphical user interfaces (GUI). Our team has developed a deep-approach metacognitive method for teaching spreadsheet to novices, which is in accordance with the concept of building algorithms to solve computer-related problems. The three cornerstones of the method are (1) introducing as simple and as few functions as possible, (2) building multilevel formulas based on these functions, and (3) focusing on the problem instead of the features of the software. As the students make progress, the number of functions would be increased, but general purpose functions would still be focused on. Testing our deep-approach method has proved that it is a lot more effective in teaching spreadsheet than the classical surface-approach, wizard-based metacognitive methods, since all the basic elements are in accordance with the minimalist theory, which advises teaching as simple a language as possible for beginners to develop basic algorithmic skills. Beyond the direct advantages of the method, spreadsheet would serve as an introductory language to high level programming languages, which is our ultimate goal.

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*Keywords:* deep- and surface-approach metacognitive processes; developing algorithmic skill; teaching spreadsheet

## 1. Introduction

Digital competency and digital literacy have been among the most popular expressions featuring in the curricula of the last few years, and the effect of both of these on different generations – the Y and Z generations of digital natives (the bit-generations) and the X generation of digital immigrants (Dani, 2013; Jukes, McCain & Crockett, 2010) – is one of societies' main concerns. We must give some consideration to these newly coined expressions and some background information related to them. First of all, the most important point is to emphasize that in order to develop digital competency effectively and efficiently, and to achieve digital literacy, formal education is needed. For formal education, teachers are needed, and for teachers, teacher education is needed. At this point the loop is closed, and we face the chicken and the egg problem: who teaches the teachers if there are no teachers? In Computer Science/Informatics (CSI) education this is one of the most crucial questions and for an answer we have to look back in time to the emergence of the subject. The contradictions, both of the science itself, and of the developing commercialized world as it interacted with the science, have affected both teachers and teacher education and consequently the development of digital literacy.

The pioneer teachers were self-educated, in most cases not supervised, and if so, certainly not by experts in the methodology of the subject, because it did not exist. These first teachers mainly taught programming languages, algorithms, binary arithmetic, and computer architecture. Over time they became accepted in their local environment, whether they were qualified or not; they used methods they had developed themselves, without proving their efficiency or effectiveness, due to a lack of time and methods.

In the meantime, computer science developed at an incredible speed, and the new mouse-based graphical user interfaces (GUI) increased the number of users and changed the approach and attitude towards computers. Everyone started to use computers regardless of whether they had any background knowledge, and software developers encouraged them to do so. These companies claimed that by using the GUI and its accompanying wizards the users would be able to solve problems. Users need do nothing more than click here and there and they will find the solution.

\* Corresponding author. Tel.: +36-52-512-900/75128; fax: +36-52-512-996.

E-mail address: csernoch.maria@inf.unideb.hu

Even teachers fell for this, and giving up the teaching of algorithms, switched to aimless clicking, not looking for the algorithms in these new programs; consequently they stopped developing their own and the students' algorithmic skills.

#### **Nomenclature**

- |   |   |
|---|---|
| A | ICT: Information Communication Technologies   |
| B | CS: Computer Sciences   |
| C | CSI: Computer Science/Informatics, including both ICT and CS  |
| D | CAAD-based (Computer-Algorithmic And Debugging-based): deep-approach metacognitive processes of computer related activities with an emphasis on building algorithms and debugging results |
| E | TAEW-based (Trial-And-Error Wizard-based): surface-approach metacognitive processes of computer related activities highly dependent on the graphical interface                            |

### *1.1.Fiasco*

#### *1.1.1.Facts and results*

Recent studies have found that more than 90% of e-documents have errors (Panko & Aurigemma, 2010; Tort, Blondel & Bruillard, 2008; Tort, 2010, Csernoch & Bujdosó, 2009; Csernoch 2010), and uneducated computer users cause serious financial losses by providing unreliable data and by taking much more time than problems require (van Deursen & van Dijk, 2012). Along with these findings, other publications have provided evidence that these mistakes are due to a lack of algorithmic skills and thinking (Angeli 2013; Panko & Aurigemma, 2010; Biró & Csernoch, 2013a, 2013b). However, the Students On Line session of the PISA 2009 survey proved that computer usage in schools does not necessarily increase the level of digital competency (OECD, 2011). This ambiguity clearly indicates that we have serious problems with the methods employed to teach CSI in most countries. Faced with these problems, countries have reacted in different ways. In the United Kingdom in 2012 the number of computer classes was increased, in order to focus on the development of the algorithmic skill, while in Hungary the number of CSI classes was reduced in the 2013 Core Curricula. In 2012 France introduced Informatique et sciences du numerique (ISN) as an optional subject in the science track for the 12th grade. Despite this, no more than one sixth of French students study CSI only for one year. Who is right? Which path should be followed? Which are the most effective and efficient ways to improve?

The answer lies mainly in the characteristics of the science. The problems of CSI education emerge from the particularities and contradictions of the science, namely that it is:

- a new science without any direct predecessors,
- a science developing at a speed previously unknown in any other science,
- a science with its own commercialized word developing around it, and
- a science operating in the context of the pressures and the needs for computer usage and for information.

In this heavily industrialized science, researches and teachers have to find methods to develop basic algorithmic skills which are effective, efficient, and last but not least, acceptable to the different generations of computer users.

#### *1.1.2.ICT is blamed*

Recent reports indicate that office packages are to blame for this fiasco, and they should be banished from CSI courses. One of the most extreme views is Gove's, who states that "Instead of children bored out of their minds being taught how to use Word and Excel by bored teachers, we could have 11 year-olds able to write simple 2D computer animations using an MIT tool called Scratch. By 16, they could have an understanding of formal logic previously covered only in University courses and be writing their own Apps for smartphones." (Gove, 2012).

In our opinion, even these 11 and 16 year-olds should be able to create error-free e-documents. Gove is mistaken when he thinks that CSI classes should not teach how word processing and spreadsheet. These classes should teach the structure of documents and formulas, and the algorithms behind them. Actually, these programs are quite challenging. Typing and aimlessly clicking on the surface should be banished, not the programs themselves. In general, office packages are harmless. They are programs which operate on algorithms, and we have to find and teach the algorithms behind these programs. Those teachers who find these programs boring and make their students think the same are effectively saying that they themselves never have looked for these algorithms.



### *1.1.3. Surface-approach metacognitive processes – reasons*

Our team has launched the Testing Algorithmic and Application Skills (TAaAS) project in the 2011/2012 academic year. In the TAaAS project we tested the Informatics knowledge and the usage of terminology of freshmen students at the Faculty of Informatics of the University of Debrecen, Hungary on the first week of their arrival.

In the TAaAS project it has been proved that most of the computer related activities are metacognitive processes (Biró & Csernoch, 2013a), because users are supposed to read and understand the signs and messages of the GUI and the wizards, and they must make their decisions on the basis of the information offered. However, the results of the TAaAS project clearly indicate that in most cases users adopt trial-and-error driven solutions (TAEW, Trial-and-error wizard-based) (Csernoch & Biró, 2013a), mainly because they do not understand and are not interested in the messages provided by the software. Consequently, these methods of creating e-documents can be categorized as surface approach methods, and such as they are not sufficient for problem solving, and consequently, developing digital competency, digital literacy, and algorithmic skills.

Several other consequences of the teachers' choice of the TAEW-approach could be reported, but we must emphasize one which has far-reaching consequences: the method is not suitable for measuring the students' knowledge (Csernoch & Biró, 2013b). The tests of the TAaAS project have also revealed that the teachers hardly know any more than the students, and more disconcertingly, they are not able to judge the students' knowledge (Csernoch & Biró, 2013b).

Similar results were found by testing the students' and the teachers' programming skills (Biró & Csernoch 2013a). The results of the test clearly show that both the students, and more unfortunately, the teachers, have problems with tracking codes both in programming and spreadsheet. After seeing the teachers' results it is no wonder that in general they are not able to develop the algorithmic skills of the students. The other surprising and disappointing result of the test is that those who passed the middle level graduation exam – where knowledge of office packages is tested on computer – have not been helped in developing their algorithmic skills. The results of the test are in accordance with our findings, considering the different metacognitive approaches in teaching computer applications and programming (Csernoch & Biró, 2013a, 2013b). Based on these tests, it is clear that in order to develop algorithm skills, digital thinking programming and applications should not be separated from each other, because computer related problems – the problems of the digital world – are based on algorithms.

## **2. Results**

### *2.1. Deep-approach metacognitive processes*

To solve the problems of the digital world algorithms have to be built and these algorithms have to be coded. The methods which support this approach are entitled Computer-algorithmic And Debugging-based methods (CAAD) (Csernoch & Biró, 2013a, 2013b), and are classified as deep-approach metacognitive processes (Case & Gunstone, 2002, 2003; Case, Gunstone & Lewis, 2001). The CAAD approach can be applied to any computer related problem. We have developed and tested CAAD-based methods for solving spreadsheet (Csernoch, 2012; Csernoch & Biró 2013a) and word processing problems (Csernoch, 2009). In both cases the primary aims of the methods are that in advance of the actualization of the problem the algorithms have to be created, and, based on the algorithm, the coding process follows (Biró & Csernoch, 2013a, 2013b, 2014). With spreadsheet, since it is classed as a functional language the coding process is more closely related to other programming languages, while in word processing the coding in the planned order is carried out by clicking on the command buttons, filling in the fields in GUI.

### *2.2. Theoretical background to the CAAD-based approach*

The core of our CAAD-based method is based on the following theories:

- the Minimalist theory (Carroll, 1990; Nielsen, 1993; Warren, 2004),
- the Guided-instructions theory (Kirschner, Sweller & Clark, 2006),
- Phenomenography (Booth, 2001),
- Constructionism (Papert & Harel, 1991).

In the following chapters the implementation of these four theories are discussed in detail in the context of the spreadsheet environment. We argue that based on these theories efficient and effective methods for developing algorithmic skills would be created in the ICT environment.

#### *1.1.4. Minimalist theory in the spreadsheet environment*

From time to time, the most popular software publishers release new packages on the market boasting new features, which are of course more powerful than their predecessors. Spreadsheet programs, in addition to these new features, introduce new functions, specialized to solve specific problems. However, on one hand, these new functions make the program more difficult to use and understand for novices, while on the other hand, there is no way to prepare a general purpose spreadsheet program to solve all the world's problems, so there can never be enough upgrades. All these efforts are in vain.

According to the minimalist theory, we can teach spreadsheet to novices with as few and as simple functions as possible (Table 1, Group 1), and along with these functions we can teach how to build algorithms to solve more demanding problems, focusing on the problem, not on the software. Simple functions have two characteristics; (1) they are general purpose functions, and (2) they have only a few arguments. The other tool to solve problems using these simple general purpose functions is the creation of multilevel functions. Building multilevel functions can be well demonstrated by the popular Russian (matrjoska) dolls (Fig. 1). The encapsulated functions behave in exactly the same way as the encapsulated dolls do:

we start building the multilevel function with the innermost function, outside it comes its hypernym, whose one argument – the input – is the output of the innermost function, this relationship between hyponyms and hypernyms continues until we reach the outermost function, the output of the outermost function is the output of the multilevel function.

Table 1. Three steps of introducing general purpose spreadsheet functions

Step 1	Step 2	Step 3
SUM()	MATCH()	SMALL()
AVERAGE()	INDEX()	LARGE()
MIN()	ISERROR()	AND()
MAX()		OR()
LEFT()		NOT()
RIGHT()		ROW()
LEN()		COLUMN()
SEARCH()		OFFSET()
IF()		TRANSPOSE()
		ROUND()



Fig. 1. Russian (matrojska) dolls simulating the encapsulation of functions in a multilevel function

Nielsen in 1991 and Warren in 2004, claimed that spreadsheet programs fulfill the expectations of the minimalist theory but neither of them provided further details or methods. As has been mentioned in section 1.1.3, the mere existence of a spreadsheet program does not in itself fulfill the requirements of the minimalist theory. However, a CAAD-based approach to spreadsheet, as outlined in this chapter, would be the right tool to do this.

### 2.2.1. Guided-instructions theory

Kirschner, Sweller & Clark's (2006) paper gives details regarding why it is that minimal guidance during instruction does not work. The reason is simple: very little is stored in long term memory. This finding is in accordance with our CAAD-based approach.

With spreadsheet the CAAD-based approach means that algorithms have to be built both at workbook and formula levels. For novices we focus on the formula level. At this level we teach a small number of general purpose functions (Table 1) and how to create multilevel functions to solve problems (Fig. 1). Again, with these two tools and heavily guided instructions at the beginning we can develop the basic algorithmic skills of the students, and later on, based on this knowledge the students will be able to free themselves from the teachers' strict guidelines and solve problems on their own. However, we have to emphasize here that creating spreadsheet formulas requires algorithms and the methods for creating formulas have to be learned. Clicking and wandering

aimlessly in a huge program will result not in any knowledge entering long term memory but rather frustration, boredom, and error-filled documents. With guided instructions for novice spreadsheet end-user programmers, beyond the direct advantages of developing algorithmic and debugging skills, we can teach our students how to reduce the tendency to produce errors in spreadsheet documents.

The other importance of guided instructions at the beginning is that spreadsheet languages, since they belong to the group of functional languages, would serve as introductory programming languages which lead on to high level programming languages. This is one of the reasons that in teaching spreadsheet we have to use the same already proven methods of teaching programming languages.

### *2.2.2. Phenomenography*

Marton and Booth (1998) proved that learning has two aspects that are inextricably intertwined: (1) the “what” aspect, which refers to the content of learning, and (2) the “how” aspect, which refers to the way in which learning takes place. It has been empirically established that whatever it is that learners learn (the “what” aspect), a qualitative variation is to be found in the outcome, and, correspondingly, whatever learning tasks are undertaken (the “how” aspect), there is a qualitative variation in the ways the learners approach them, or go about them. There is a degree of consistency in the nature of the variation in the “how” aspect in that there is an overall pattern of deep and surface approaches. A deep approach to a learning task is characterized by the learner's intention of finding meaning in the content through tackling the task, whereas in a surface approach focus is rather on meeting the demands of the task as such.

The learner's experience is always one of learning something, in some way, and in some context; by holding the learner's experience of learning as the focus of study throughout – and not studying the learning of the content and the acts and the context as separate and distinct focuses – the content, the act, and the context remain united as constituents of the learner's experience.

In 2001 Booth detailed and provided examples of their phenomenon. She claims that the first form of learning might be exemplified, in computer related activities, by acquiring further aspects of a partly-known programming language, or learning to write programs in yet another imperative programming language, or by learning to work in another new operating environment, or acquiring mastery of a particular set of techniques. The second form of learning, characterized rather by seeing things in a new way and bringing new perspectives to bear on things, is more like learning functional programming or object-oriented programming when hitherto only imperative programming has been encountered, and having to approach problems in quite a new way, having to consider new structures, and to develop new ways of understanding.

In a simplified way, we can say that Marton and Booth found that those methods which focus only on content and in which students cannot see the outcome of the learning experience are not effective enough. It is like not seeing the wood for the trees. Students are lost in the technical details and cannot grab the main idea. In Warren's wording (2004) this concept is expressed in the following form: “There is a need for an approach that allows the Computer Science issues to be in the foreground and the language issues in the background.” In a human computer interaction (HCI) the problem, the programmer should be the focus of the activity, not the language, the software, the environment, or the hardware.

Marton and Booth's theory can easily be adapted to spreadsheet environment. However, using TAEW-based surface approach methods in spreadsheets the primary aim of the processes is to find a suitable function. But it should not work this way: first the algorithm has to be built and then we have to apply tools to code our algorithm. The tool is already provided in section 2.2.1. This method is in accordance with Booth's second form of learning: students gain experience in a functional language with a perspective towards other high level programming languages.

Booth's first form of learning is present in at least two different forms in spreadsheet. First of all, in the direct environment, where despite being familiar with only a few functions, demanding problems could be solved. Furthermore, the ability to solve problems in a spreadsheet environment might lead to similar problem-solving abilities in other programming languages.

In general, we state that the goal of learning spreadsheet is not to learn functions but to solve problems. The functions are only tools which are needed for coding; consequently, they should not be the primary target of the learning process. In most Informatics course books long lists of spreadsheet functions are presented, like in a reference book, suggesting that students have to learn these functions. The whole process should be the other way around: problems should be presented in these course books and the functions should only play a minor role.

If we teach only a few simple and general purpose functions along with the methods needed to build multilevel functions

the functions can be easily remembered and

both the functions and the building of multilevel functions can be adapted to other programming languages.

In this concept both spreadsheet course books and spreadsheet classes should use authentic tables instead of typing and creating artificial tables during the class. The hindrance caused by typing tables in a learning spreadsheet environment has far reaching consequences. Here, we find the connection to the next theory: artificial tables will not provide data and consequently there will be no need to construct them. Again, interest is lost. In a spreadsheet environment we have to convince the students that they “desperately” need this piece of software; they have to see the power in this program from the very beginning.

### 2.2.3. Constructionism

Neither phenomenography nor constructionism support typing data sources in introductory application classes. The unexpected consequences of typing tables in introductory spreadsheet classes are listed below.

- Typing is boring. Students get bored at the very beginning.
- Typing is not Informatics. Consequently, typing steals time from real Informatics.
- Typed data is uncontrollable. Students type at different speeds and with different abilities. Consequently, the results are hard to use in a classroom environment.
- The amount of data is not sufficient. Consequently, students will find that creating spreadsheet for such a small amount of data is a waste of time.
- Manually typed tables are not challenging enough. No one is interested in information retrieval in a short and boring table.
- Students cannot see the power of a spreadsheet through typing. Consequently, they lose interest in it before they become familiar with it.

Learning and using applications should be a creative occupation. That is where the constructionism theory has its role. If we use authentic source documents for information retrieval and if we create documents which would communicate the desired content, these processes are nothing else but a construction of information or sources of information. Although these documents do not necessarily reach the wide public, the students in their micro community – even in a class – do construct something which has a value, the value of information.

### 2.2.4. The actualization of CAAD in spreadsheet

Based on the theories outlined in the previous chapters we have developed a deep-approach CAAD-based metacognitive method on the formula-level of spreadsheet programs. The method is applied to a rarely used but powerful feature of spreadsheet, namely the Conditional Single Result Array Formula (CSRAF). This feature of spreadsheet programs requires

knowledge of a few simple and general purpose functions – minimalism,  
 knowledge of how to build multilevel formulas – constructionism,  
 complete guidelines from teachers at the beginning – guided instructions,  
 meaningful, usually authentic tables with a huge amount of data – phenomenography,  
 the teachers’ choice of demanding problems at the students’ level – constructionism, phenomenography,  
 students’ awareness of problems – constructionism, phenomenography.

Through the course of the application of CSRAFs, spreadsheet programs

- serve as a tool for building algorithmic skills – phenomenography,
- serve as an introductory language to high level programming languages – phenomenography,
- serve as an environment for solving demanding data retrieval problems – constructionism, phenomenography,
- serve as an environment for debugging formulas – guided instructions, constructionism, phenomenography,
- serve as a tool for lowering the number of error-filled documents – guided instructions, constructionism, phenomenography,
- increase students’ confidence – constructionism, phenomenography,
- increase students’ skills in handling problems – constructionism, phenomenography.

It has been proved with the tests conducted on the TAaAS project that one of the main reasons for error prone documents is the almost exclusive usage of TAEW-based methods, especially in the learning stage. Based on these theories we switched to a CAAD-based method whose focus is the building of CSRAFs. The method was first applied to gifted high schools students participating in application competitions. The students’ results in these competitions improved a great deal. Encouraged by the results of the competitions we applied the method to a couple of normal Informatics classes, and it also worked.

### 2.2.5. Students’ development in a CAAD-based environment

The first tests of the method were carried out with university students in the academic year 2011/2012 and were repeated in the following two years. The students were tested three times.

- The first stage of the test was carried out at the beginning of the students’ tertiary studies, with students who

had previously studied spreadsheet with TAEW-based methods in elementary and high schools.

Consequently, in terms of the methods with which the students were familiar, at this stage there was no difference between Group1 and Group2.

- The second stage of the test took place immediately after students had covered spreadsheet with a CAAD-based method (Group1).
- The third test was applied one year later, testing students who had covered spreadsheets with CAAD-based (Group1) or TAEW-based methods (Group2).

In all three tests we were focusing on the methods the students used to create spreadsheet formulas. In the first test the students' results were extremely low, below 5% on average (Fig. 2.). In the second test the results of those students who covered spreadsheet with the CAAD-based method increased to above 60% (Fig. 3, left). In the third test the question was what knowledge is stored in long term memory. It was found that those students who learned with the CAAD-based method had results around 40%, while those who used the TAEW-based method were still unable to solve these problems (Fig. 3, right).

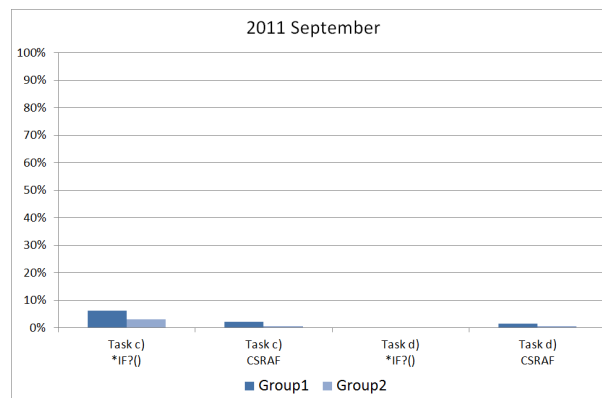


Fig. 2. The students' results in the first TaaAS test in September, after covering spreadsheet with TAEW-based methods in elementary and high schools

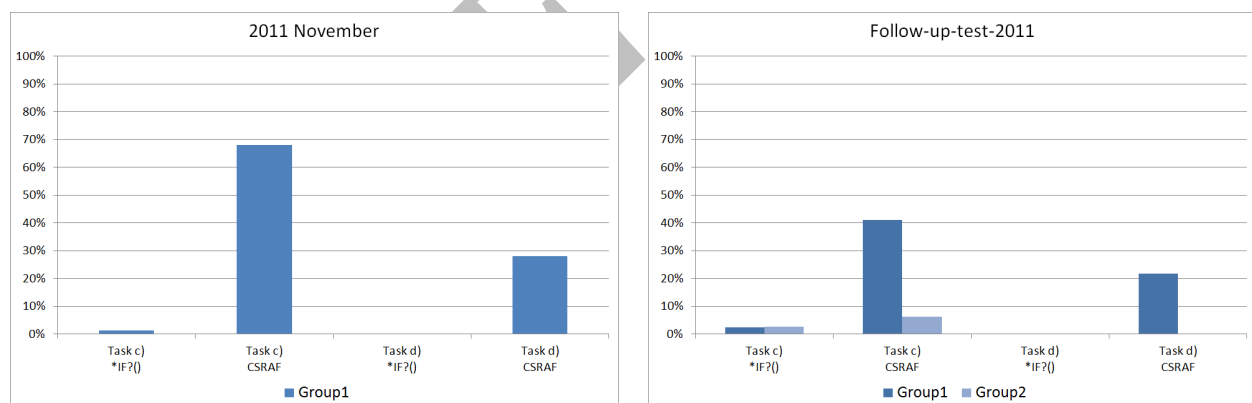


Fig. 3. The students' results in the second test, after covering spreadsheet with the CAAD-based method (left), and in the third test, in next November, one year after covering spreadsheet with CAAD- or TAEW-based methods (right)

The other goal of the test was to detect whether the CAAD-based method made the students switch to the multilevel formulas instead of using the error prone built-in functions or, based on their previous 6–8 years of studies, they still stuck to the built-in functions.

It was found that the students using the CAAD-based method almost exclusively switched to the multilevel CSRAFs, while in the other group some students preferred the CSRAFs formulas. Their solutions, due to the lack of guided instructions, were not correct, but the traces of multilevel formulas were recognizable.

As was mentioned in section 2.2.5, the method was first introduced to high school students, and their ability to solve spreadsheet problems improved significantly; however, their improvement was not tested directly, but observed through their results in competitions.

Similar improvements were registered by testing 8<sup>th</sup> grade students studying spreadsheet with a CAAD-based approach, in comparison with 8<sup>th</sup> grade students studying with the popular TAEW-based method (Majláth, 2013). All these findings mean that the method can be applied to the different levels of the education system.

### 3.Summary

It has been proved in the last couple of years that more than 90% of spreadsheet documents carry mistakes, and uneducated computer users cause serious financial losses by providing unreliable data and by taking much more time than problems require. It has also been proved that surface approach metacognitive methods are not effective and efficient enough to develop the skills required to solve spreadsheet problems. Even though the minimalist theory claimed in 1993 that spreadsheet languages would be perfect introductory languages, methods have not been developed. The reason was that the minimalist theory on its own was not enough to develop a method which would be used in education; three additional theories – guided instructions, phenomenography, and constructionism – had to emerge.

Based on this theoretical background we have developed a deep approach metacognitive method – the computer-algorithmic and debugging (CAAD) based method – for solving computer related problems, especially those within computer applications. In spreadsheet programs the tool which fulfills all the requirements of the CAAD-based method is the conditional single result array formula (CSRAF). The core of this method is that we use as few and as simple general purpose functions as possible, and develop the technique necessary to create multilevel functions.

By testing the method it was found that it is much more effective and efficient than the widely used and commercialized TAEW-based methods. The students using the CAAD-based method prove to be more confident and safer in creating spreadsheet formulas. Beyond this primary result, our tests also proved that with the CAAD-based method the students' algorithmic skills have developed, and that knowledge is stored in long term memory. Nielsen's prediction of the power hidden in spreadsheet and his suggestion to use spreadsheet as an introductory programming language has been proved with our CAAD-based method.

### 4.Acknowledgement

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# The precarious teaching work in the higher education in Brazil

Lorena Ferreira Portes<sup>96</sup>, Jolinda de Moraes Alves<sup>97</sup>

<sup>1</sup>Department of Social Services, and Doctorate Student, Postgraduate Studies Program, Londrina State University, Londrina, Paraná, 86.057-970, Brazil

<sup>2</sup>Department of Social Services, and Coordinator, Postgraduate Social and Political Studies, Londrina State University, Londrina, Paraná, 86.057-970, Brazil

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## Abstract

The Higher Education in Brazil from 1990 was marked by reforms that attended to the imperatives of the international agencies, in particular the World Bank that had a fundamental part in the dissemination of the neoliberal guidelines. This article raises questions in the current reform of the Higher Education in the country, emphasizing the expansion of private education, the investments in long distance courses, and the precarious situation of the teaching work. The results point to production-driven and meritocratic tendencies which reign in the education in detriment of research, demonstrating that the demeaning work conditions that demand an excessive workload of bureaucratic and administrative tasks, distancing themselves from the first function which is to build and disseminate critical knowledge.

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*Keywords:* Higher Education; teaching work, mercantilization, private education, reforms

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The data show the expansion process of the Higher Education and in neoliberal context, earn new rationality, established through the extension of the private sector and the internal privatization of the Higher Education state institutions. The teaching work suffers directly from the consequences of this expansion and mercantilization of the Higher Education through the incorporation of the managerial logic in work conditions, differentiating from public and private institutions. It states that while in public institutions of Higher Education the faculty work full time and have a doctorate title, in the private institutions they are generally hired by the hour and have a master's degree.

## *The paths of Brazilian higher education*

Higher Education in Brazil was marked in the 1990's by reforms that attended to the demands of international agencies, specifically the World Bank which had a fundamental part in the dissemination of many guidelines that founded the neoliberal hegemony. With the proposal of the state reform elaborated by the Ministry of Administration and Reform, it was sought to put into practice the redefinition of public and private spheres through the appearance of a new concept, the "non-state-owned public". The minister Bresser Pereira defended the trick alleging that it would be necessary to modernize public administration making it more efficient under market criteria.

This way, in the MARE Director Plan (1995), education, in all of its levels, basic, grade, high, or higher was placed in scope of the non-exclusive State activities; in other words, it could be transferred and better executed by the economic point of view through the "non-state-owned public". This process is erroneously called "publicity", where traditional teaching institutions organize themselves under a new legal form, the social

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## Introduction

This article means to analyze the Higher Education in Brazil during the last years, pointing to the paths taken, the present tendencies, and the changes that interfere in the teaching work. This is a bibliographic research complemented through the analysis of data through the Higher Education Census published in 2012.

\*Corresponding author. Tel.: +0-000-000-0000  
Email address: lorenafportes@gmail.com



organizations that would celebrate the management contracts with the State who would reduce their part as direct service providers, maintaining themselves regulator, provider and promoter.

In this scenario, the private institutions started to “negotiate” education transforming the right to education in a service that should be “bought” on the Market. This denounces Chauí (1999, p 01) for “ the Reform shrunk the democratic, public space of rights and increased the private space, not just where it would be predictable- in the activities connected to economic production, but also where it is not admissible- in the field of conquered social rights”. The historic struggles of the Brazilian society made the guarantee to the right of education as a State duty, as specified in the Federal Constitution of 1988. In Higher Education, the classic universities transform themselves into functional universities, as highlighted by the author, aimed to the fast training of professionals requested with highly qualified labor for the job market.

Adapting themselves to market demands, the university changed its curriculum, programs, and activities to guarantee the professional insertion of students on the job Market, each time further separating instruction and research. While the classic university was aimed to knowledge, the functional university was aimed directly to the job market. (CHAUÍ, 1999, p. 04).

From functional it started being operational, governed by management contracts evaluated by productivity indices, calculated to be flexible, with an emptying formation process, reducing training to recycling, annulling the possibility of criticism to the *status quo*.

The reform process in the Higher Education in Brazil presents a managerial culture, especially in federal universities. According to Netto (2000) one of the greatest traits of this culture is the logic in rationalizing resources, from which the State ceases being the main provider in social politics specifically in Higher Education, turning over the responsibility to the market with the intent of saving expenses from state machinery. This perspective makes financing through public-private partnerships possible and places graduate school and research in the interest of private organizations.

Another outstanding factor is the management’s direction towards results from which the evaluation plays an important part in the accreditation in Higher Education Institutes for the realization of its autonomy and resources received. In the same line of efficiency and optimization of financial resources, it acts as a limit to flexibility. From the elimination of the single legal system, public contest, and exclusive dedication to teaching, shorter and more economic contracts are preferred. The results are the “temporary” faculty contras in a precarious work condition. In managerial logic, quality is built and founded in competition and meritocracy; quality cannot be restricted by all universities, concentrating itself in a few centers of excellence.

In Brazil, the configured option in the Bresser Plan, in establishing the expansion of Higher Education for private education institutions, presented in public universities the tendency to commercialize teaching. As an example we can observe the growth in paid graduate *lato sensu* courses. Maroneze and Lara, in their studies about the challenges of political and personal education, explain that teaching has not become immune to the transformation in social relations of production that characterized the last few decades in the XX century.

It can be affirmed that the new social relations assumed in the capital’s financial globalization context established changes in the field of education shaping a visible devalued and precarious work frame which is manifested in compliance with the current restructuring of the productive sector and redefinition of State intervention. (MARONEZE E LARRA In LARA E DEITOS, 2012, p. 119)

Bosi (2007) conducted a survey about the precarious teaching work in the IES (Higher Education Institute) from ample research from different bibliographies about the mercantiliBzation of Higher Education (Pinto, 2002; Amaral, 2003; Chaves, 2005; Silva, 2005) and a generalized view from the professors. He considered precarious teaching work to be the teaching routine activities, research, and extension that composes the academic activities in Brazil, articulating data related to the IES of the public sectors (federal, state, and municipal) and private (community, religious, and private)

According to the author, the main changes happening on the job market that involve the faculty activities are situated in a crisis of accumulated capital occurred on international scope, in the beginning of the 1970’s (BOSI, 2007). The 1990’s inaugurated an educational model encouraged by the reduction of state functions through the minimization of economic, social, and educational investments and the opening of a vast and promising field of private initiative.

The successful Brazilian governments of Itamar Franco and Dilma Rousseff adopted as a principal of their neoconservative politics, for financing education, the strategy of financial funds, aiming to minimize the negative social impacts on the supply of education, giving the impression that from there it would reach by itself the condition of redeemer of problems derived from poverty. (COUTINHO, 2012 p 148.) It was from that

moment that the modality of public spending in education in the country began idealized under the acquiescence of national and international governments.

The process of privatizing, especially on the educational scope, opened precedents of the lack of responsibility of the State, resignifying the public, private and state concepts. In this sense, the Higher Education represented a great possibility of investments and financial success for the capital. Proof of this was the immense growth and mercantilization in Higher Education. One of the strategies of this expansion is long distance courses.

The delivery of Higher Education to the private sphere demonstrates the integration of the educational politics to the management of international agencies, making itself a more promising field on the market. According to Sousa Santos (2004, p. 27) “more profitable than the London Stock Exchange (...) more than double the world automobile market”, Higher Education has been very promising for profit. Data from ILAEE (2004), cited by Koike (2009, p. 205) show that the financial investments in Higher Education, in 2003, were of R\$45 billion and for the companies that negotiate in the profits sector, it was of R\$15 billion.

Analyzing the reform of the Brazilian State is a managerial logic that interferes with the politics of Brazilian Higher Education. Netto (2000) presented five traits of this interference that are not only projective, but are evidenced in the current reality.

The first trait is the shameless preference towards the expansion of privatism, a movement that installed itself in a period of military dictatorship, transforming Higher Education into a field of capital investment. The second trait is the liquidation in the academy of the teaching/research/extension relation being made evident in the separation of this trivet. LDB (Law of Guidelines and Basis of National Education) even makes way for this disjunction, as long as it is clear that not all Higher Education is responsible for research. The third trait is the suppression of the universalistic character of the university. As the fourth trait is the suppression of the university's goals towards market demand, making this one of the references for academic life because it starts to legitimize the university effectiveness. Lastly, the fifth trait is the fall in the degree of university autonomy to the rise in financial autonomy. It's transformation in organization also represents suppression of faculty autonomy making a faculty career more flexible.

It should be mentioned that the expansion and growth of Higher Education, disguised by the “democratization and access to education” speech, has deconstructed the public Brazilian education as a social right. The reforms in Higher Education and the measures taken by the Cardoso government and strengthened by the Lula government demonstrated this deconstruction. Since 2003, the Lula government implemented Interim Measures, Law Projects, Decrees indicating that a renewal in Higher Education was a priority on his political action agenda, says Lima (2012). Some of these programs include: The University for Everyone Program – PROUNI (Programa Universidade para Todos), The Restructuring of Federal Universities Program- REUNI (Programa de Reestruturação das Universidades Federais), the Financing Fund for the Higher Education Student- FIES (Fundo de Financiamento ao Estudante do Ensino Superior), and Distance Learning- EAD (Ensino a Distância)

These measures made the entrepreneurship of education evident in three ways, as Lima points out (2012): a) the rise of the IES number with the expansion of private schools, remaining in the tendency of privatism to Higher Education; b) the privatization in public universities, expressed by the sale of “educational services”, such as paid courses and partnerships between companies and public universities; c) the productivism that crosses and conditions the politic of research and postgraduate studies: this process makes evident the subordination of science towards mercantile logic, motivating competition and pragmatic entrepreneurship where the process of producing new knowledge is linked to company competition.

On these terms, education ceases being public politics and the institutions of Higher Education, particularly universities, start playing another part of not constituting as a space of knowledge production, debate, training of professional critics with a theoretical and competent technical base (PINTO, 2012.).

The unfolding of this movement to Pinto (2012) is a profound change in the teaching work, identifying three main components of this change a) fragmentation of the classification among faculty, distinguishing themselves among those who research and those who teach; b) precarious work due to the increase of the class load, number of students, integration of tasks as criteria for compensation and the absence of wage policy; c) wage compensation related to productivity, whose criteria is defined by external demands.

This State reform and privatism of social rights movement, transforming them into goods is disguised by speeches of democratizing access to Higher Education, elevating the educational level for the Brazilian population and strengthening democracy. However, in what conditions is this access being made available? To whom? With what quality? With what resources?

This opens to an extremely profitable field which is long distance learning and private, live classes. What is the State's part in this expansion? The private sector to maintain and be able to get this expansion needs state intervention through public resources to finance directly or indirectly the private institutions. As Davies (2012) points out the “tendency is create a “captive” bourgeoisie in the reception of the most meaningful volume of

resources”. Proof of this is the disguise of the private institutions under the veil of philanthropy, since most of the greatest private IES in the country do not declare profit.

It should also be mentioned that the impacts of this commercialization for training professionals: downplayed formation voted towards market interests, providing tools for Higher Education, stepping away from solid and critic formation, and the tendencies that outline the functionality of Higher Education in Brazil.

This way we watch Higher Education dissemble by means as it tends to follow the doctrine of loosening activities, the faculty career, the lack of necessity of scientific research, fragmentation of fields of knowledge. This university, says Chauí (1999 p. 07) “does not make nor create the curiosity and admiration that leads to discovery again, it annuls all pretenses of historic transformation as a conscious action of human beings in materialist determined conditions”.

This process brings consequences in the faculty’s work in Brazilian Higher Education. The proposal of management flexibility in Higher Education institutes have favored more agile and economic work contracts, such as “temporary”, “precarious”, and “substitutes”; the teaching is made flexible through shorter courses, a quickening in formation and in curriculums, the growth of long distance learning; new attributes are aggregated to the teaching work, with the responsibility of fundraising, creating an excessive workload, the evaluation practices are developed more and more on a productive-driven path, adding to the teaching work an undetermined number of procedures, such as reports, filling out forms, providing data for information systems, emitting opinions; a competition is created among the professors, by the institution of managerial quality at work, founding itself in competence and merit, therefore dismantling the collective dimension of work. (MANCEBO and FRANCO, 2003)

#### *The teaching work in higher education in Brazil*

It has been noted in the most recent periods in Brazil through analyzing data from the Higher Education Census in the last few years that is it a growing tendency related to faculty who establish a capitalist relation when compared to those who are State Workers. In relation to the degree of training, data shows that 362,732 current teaching posts, 93 are carried out by teachers without a university degree, 10,745 with a university degree, 95,589 with a specialization, 141,218 with a master’s degree, and 115,087 with a doctorate degree. In comparing with the 2011 Census there was a growth in the masters and doctorate degrees.

However, when compared to the data between the public and private institution, the reality is quite different. In public schools, 19,838 teaching posts are carried out by faculty with a specialized degree, these numbers rise significantly in private schools with a total of 75,751. In relation to the master’s title, in public institutions, the total is 44,536 while in private institutions it is 96,682. Teaching posts carried out by doctorate faculty in public institutions symbolizes 77,298 and in private institutions 37,789.

It can be affirmed through this data that the professors of Higher Education in public institutions have a more representative title of masters and doctorate degrees, while in private schools their titles are specialists and masters. In the work regime of the 150,338 current teaching posts in public institutions, 120,443 are characterized by a full-time workload, 19,501 by a part-time workload, and 10,395 by an hourly wage workload. In private institutions, of the 212,394 current teaching posts, 51,372 are a full-time regime, 72,512 are a part-time regime, and 88,510 are an hourly wage regime.

The data reveals that while in private IES the “typical faculty member” has a master’s degree and an hourly wage regime. In public IES the “typical faculty member” has a doctorate degree and a full-time workload. It is clear that the faculty work conditions are differentiated between the public and private sector, indicating that the faculty in the private institutions does not have conditions to dedicate themselves in research and extension since they are on an hourly wage regime and are therefore restricted to teaching.

These discrepancies end up being legitimized by the legislation that governs the education in Brazil. The Law of Guidelines and Basis of National Education –LGBNE explains that only university institutions are legally obligated to scientific research and only in them is it mandatory the existence of “(...) at least a third of the faculty members with an academic title of masters or doctorate” and (...) a third of the faculty members with a full-time workload” (BRASIL, 1996, art. 52, I and II).

Supported by the legislation, the institutions, especially the private ones, end up neglecting the qualification of their own staff, hiring them for their titles, to attend to the minimum criteria demanded. Once they have assured the minimum required they do not try to expand their teaching staff with Master’s and especially, Doctorate degrees, conditions are not created for the faculty member to qualify and seek to improve their titles, which is up to the individual effort of each faculty member. The teacher training policies are fewer and fewer, being neglected by the private realm where the professors have little incentive and concrete conditions in which to qualify themselves.

The characteristics of Higher Education in Brazil clarify that the education institutions transit between the new Napoleonic and Neo-Humboldtian models. According to Sguissardi, (2004), in the first model, criteria and indicators predominate, such as a lack of structure from consolidated and recognized research and graduate *scripto sensu* studies; majority presence of faculty in part-time or hourly wage regime and without postgraduate studies qualification that qualifies them for research; isolation from units, almost exclusive dedication to teaching activities, administrative-academic structure directed towards teacher training. In the second model, on the contrary, criteria and indicators predominate such as, the presence of structures of scientific production and consolidated, recognized, *stricto sensu*, postgraduate studies; majority presence of faculty in full-time regime, and postgraduate studies qualification that qualifies them for research; integration of units around common educational and research projects; learning association, research and extension in different levels, administrative-academic structure directed towards teacher training and research training in most of the knowledge areas. (SGUISSARDI, 2004).

With this classification we could claim that it is not possible to think of just the Higher Education model in the Brazilian reality. What we can attest to and easily demonstrate is in the “presence of duality or suppositions of models” (p. 42). The new Napoleonic model predominates in private colleges, without any obligation of doing research or associating education, research, and extension. However, would the public institutions, the universities, be attending the criteria of the Neo-Humboldtian model? The author questions: how many of these institutions have consolidated structures for research and postgraduate studies? How many have faculty that work predominantly full-time and are qualified for research? How many implement to the association teaching, research, and extension in addition to the programs and *scripto sensu* graduate courses?

This way, Sguissardi (2004) affirms that from 1990 on Higher Education acquired more and more the content of a public and private model- *neoprofessional, heteronomous, and competitive*. Indicators of this model are evidenced by the expansion of the number of private IES, much more than that of public institutions; the evolution of the amount of enrollments in the private sector in relation to the public; the reduction of public financing; the insertion of competitive criteria between faculty/researchers in relation to a bonus for teaching motivation; the strengthening of economic competitiveness which would imply the innovation of products and processes linked to market necessities; the incentive towards creation of private foundations on campuses in public sectors; the lack of autonomy of universities, where the market and state have expanded their capacity to enforce their own logic and interests; the decline of the Neo-Humboldtian model, that is, in research universities or universities related to research, education, or extension.

Before these considerations, it is not possible to generalize faculty linking them only to universities. The institutional diversity of Brazilian Higher Education implies the existence of teaching models which are established from the kind of institution where the professors work. The teaching, in a university institution, sustained by the tripod of education, research, and extension, imposes distinctive characteristics in relation to the teaching in non-university institutions, in which the central axis is the teaching. Considering that the highest number of institutions of Higher Education today is constituted by non-university institutions and private institutions, the teaching in non-university institutions deserves some attention (DOTTA, 2011).

Nevertheless, it is necessary to be careful to not make any anticipated analysis restricting criticism to private IES, especially private colleges, given to the expansion and being the highest number of Higher Education institutions in Brazil. On a public realm, we have seen in a differentiated way, sometimes even camouflaged, the rebuttal of the productive reconstruction in the teaching work. This implies to affirm that, even the faculty who work in public institutions have suffered with precarious work conditions, the invasion of productivist logic, the differentiation among faculty who research and teach, the valorization for individual merit, the temporary work contracts; there is an invasion of the managerial model in public administration, and therefore, the teaching work suffers its rebuttals.

From the mercantilist point of view of education, educational workers cannot be separated from the others, being that they are equally overexploited. Hence, we are experiencing an intensification in teaching work that expresses itself with determined characteristics, as explained by Del Pino; Viera; Hypolito (2009, p. 123):

- 1) Leads to the reduction of rest time in the workload; 2) implies lack of time for updating and requalification in necessary abilities; 3) implies a chronic feeling of an excessive workload; 4) reduces the quality of time, which increases isolation, reduces interaction, and limits joint reflection; 5) the collective work abilities are lost or reduced and managerial activities are increased; 6) imposes and increases specialist's work to cover personal “deficiencies”; 7) introduces simplified, technical solutions (technology) for curricular changes, in order to compensate the reduced preparation time; 8) the ways of intensification are many times interpreted as professionalization and this starts being voluntarily approved of by teaching.

These characteristics are not manifested in a homogenous and linear way, for they stand out among faculty, depending on the level of education in which they work and the relations which are established in the education and institutional contexts.

## Conclusion

The apparent expansion of access to Higher Education meant an internal privatization of public universities and the entrepreneurship of Higher Education, through the growth in number of private courses and by the imposition of entrepreneurial logic towards professional training. As Dahmer (2008, p. 42) says, “Higher Education has formed a very lucrative vein for capital and, at the same time, stands out in its part of ideological dissemination of collaborative sociability, by means of training intellectuals, collaborators, and entrepreneurs about optic capital”.

It is important to emphasize that the counter reform of Higher Education, initiated by the FHC government, extends itself to the Lula Government and continues during the Dilma Rousseff Government, through intense reforms, from the materialization of the non-state public concept of partnerships between public and private institutions. This reform, in the Lula government is evidenced by the immense expansion of Higher Education at a distance which focuses on streamlining and disqualifying professional training.

With the speech of democratizing Higher Education with access to the right of education, the interests and finalities end up disguising the tendencies that currently orient Higher Education in Brazil. These tendencies show that the Brazilian reality is on the path towards to astronomic privatization of Higher Education, be it by the expansion of private institutes or by the attack to university autonomy in public institutions and by the managerial logic that invades university areas, and also, teaching work. As Sevcenko (2000, p. 7) denounced, “The ideal professor now is a hybrid of a scientist and a broker”.

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# The problems of assessing the competitiveness of Russian graduates

Tatyana Selevich<sup>a</sup>, Olga Selevich<sup>a</sup>, Vera Golubeva<sup>a</sup>

<sup>a</sup> Tomsk Polytechnic University, Lenin st., 30, Tomsk, 634050, Russian Federation

## Abstract

In recent times the largest Russian Higher Education Institutions have been aimed at enhancing the quality of educational services and increasing the graduates' competitive advantage in the world educational market. Meeting this challenge Russian Higher Education Institutions have faced with a specific issue: the traditional assessment system makes it possible to analyse only graduates' educational achievements while the employers in their turn specify a wide range of requirements concerning the competences and personal traits of the prospective employees.

Thereby, the authors of the paper suggested their own methodology of assessing the graduates' competitiveness, i.e. their ability to be in demand in the competitive labour market. The paper contains the research results of the key requirements which the employers specify for a graduate and the methodology of assessing these requirements.

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**Keywords:** Graduates; Competitiveness; Higher Education Institutions, Employers.

## 1. The Transformation of Higher Education in Russia

Recently there have been some substantial transformational processes in the system of Russian higher education. The number of students studying in different types of universities tends to reduce; this situation is caused by demographical reasons.

A sharp decline in the birth rate during 1990s influences the field of professional education. In three coming years the number of students in Russian higher educational institutions is predicted to be reduced by 2 million people. According to the estimations of the Ministry of Education, the demographical crisis will last till 2020, see Fig. 1 [Fursenko, 2010].

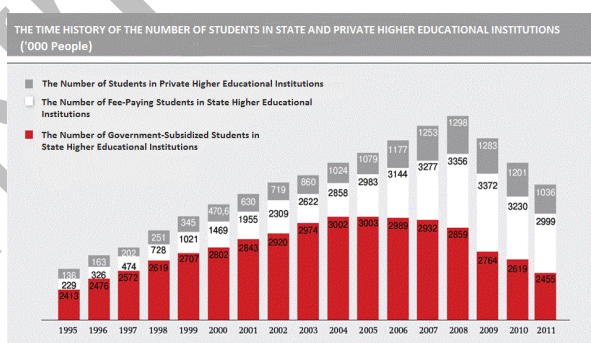


Fig. 1. The time history of the number of students in state and private higher educational institutions, 1000 people.

This leads to a range of challenges for the system of Russian higher education. Firstly, according to the Concept of the Federal Target Program for Education Development in 2011-2015 the number of academic staff in professional education is predicted to be reduced by 20-30% [the Concept of the Federal Target Program for Education Development]. Secondly, the demand for getting higher education remains pressing; the fact is proved by the results of the research conducted by Russian Public Opinion Research Center, see Fig. 2 [WCIOM, 2011].

\* Corresponding author. Tel.: +7903951392.  
E-mail address: golubeva@tpu.ru

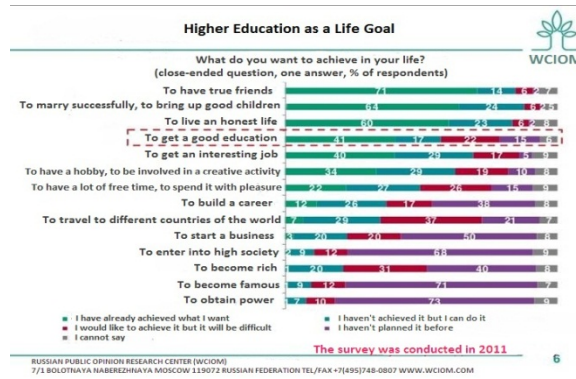


Fig. 2. Higher education as a life goal.

Russia is among leaders by the number of people with higher education; the number of people who want to get a higher education increases worldwide, see Fig. 3. [CITI, 2012].

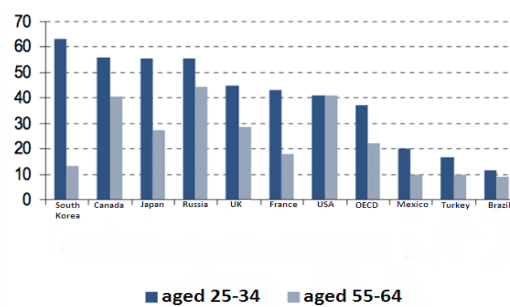


Fig. 3. Countries-leaders by the number of people with higher education.

However, the increase in the number of people who want to get a higher education is accompanied by a sharp decline in the quality of educational services, that is the demand for the diplomas of higher education is greater than the demand for knowledge. Russian higher educational institutions have become an element of socialization rather than a place for getting an education.

These internal contradiction in the system of higher education has led to the necessity of enhancing state monitoring. Reacting to a low quality of training and a large number of ineffective higher educational institutions the government implemented the system of assessing the effectiveness of higher educational institutions. You can see the results for the year 2013 on the Fig. 4 [Ministry of Education of the Russian Federation, 2013].

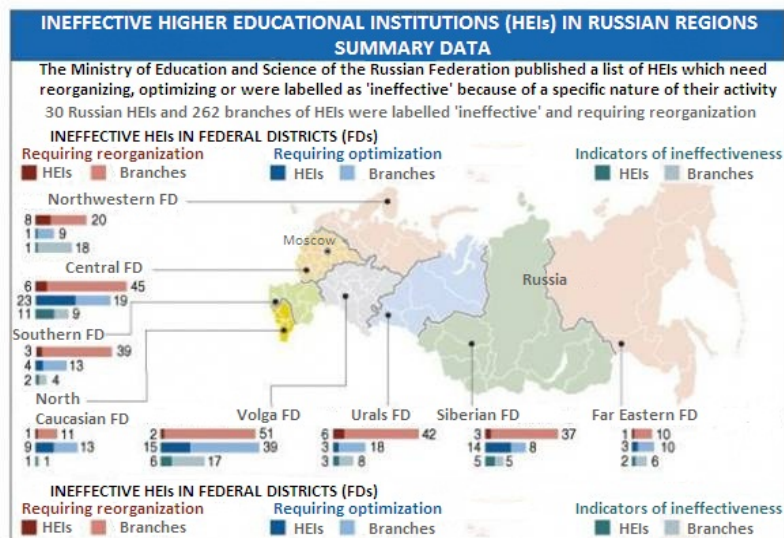


Fig. 4. Ineffective higher educational institutions in Russian regions.



A list of ineffective higher educational institutions and those higher educational institutions which show signs of ineffectiveness emerges every year as a result of annual state monitoring. Eventually not only the administration of ineffective universities are made to take action. The leaders in the field also try to achieve better results; this has led to a national campaign for enhancing the quality of training.

We suppose that the key task of a higher educational institution is not only to enhance the quality of educational services but also to increase the competitiveness of its final products – the graduates. There are two reasons: a systematic one (the strengthening of the state requirements for the quality of educational services) and a market one (the decrease in sales, the improvement of domestic competition and employers' intention to hire graduates with greatest number of competences and best personal traits). Employers are interested not in the organization of the educational process but in the final product.

Since 2010 the most ambitious Russian higher educational institutions (Federal universities, National Research universities as well as the universities participating in the project of becoming a part of 100 world top universities in QS by 2020) have made the first changes and showed responsible attitude.

While assessing graduates' qualities Russian higher educational institutions faced with a specific issue: the traditional (grade-rating) system makes it possible to analyze only graduates' educational achievements while the employers in their turn specify a wide range of requirements concerning the competences and personal traits of prospective employees.

Hence, we took the marketing approach to assessing a graduate's competitiveness, that is his/her ability to be in demand in the competitive labor market.

## 2. Assessing Graduates' Competitiveness

To assess the competitiveness we have chosen 3 subjects – 3 graduates from the Department of Engineering Entrepreneurship of Tomsk Polytechnic University (market research consultants), we will term them Graduate 1, 2 and 3. We determined the graduate's value which employers and the society expect. It is the ability to do a job to a high standard which is guaranteed by the presence of competences, both professional and universal. Professional competences are more important for business; universal competences – for the society.

By the target group we mean business, a university should adapt to the needs of the target group. The employer's requirement is to employ a competitive graduate with a high level of professional competences. We implemented the segmentations of the business and found out that the requirements of employers working in different segments vary:

- Manufacturing companies appreciate analytical competences
- Trade organizations expect communicative competences in the first place
- Large companies appreciate competences in the project management field

Our next step was to choose priority competitors. As the assessing of competitiveness is a relative value we should determine who we will compare. There are two approaches: the first approach is to compare to similar subjects, the second – to the standard. We took the first approach – compared our subjects to the graduates from the same educational program of the department. We could have compared to the graduates from the same educational program of the department but this would have raised the issue of searching for an information source.

Then we defined the graduate's competitive differentiators, which you can see on the slide. They are the following:

- Graduate's academic achievements
- Graduate's nonacademic achievements (competitions, conferences)
- Graduate's competences (knowledge and skills)
- Graduates' employment (practical experience)
- Graduate's personal contacts (whether a graduate knows influential people or has influential relatives or friends who lobby his/her interests)
- Graduate's individuality (personal traits)

To collect the data we used the methods of competitive intelligence, social research and psychological assessment (testing). An important source is the review of secondary data (exam and academic results, R&D reports, portfolio analysis). While interviewing employers, we singled out key criteria for a graduate they would like to employ. We termed these criteria as graduates' competitive differentiators. They have different weight

which was estimated while conducting a survey among employers (entrepreneurs), experts and graduates. You can see weighting coefficients on the Fig. 5.

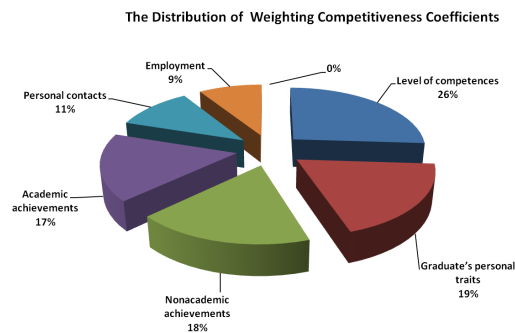


Fig. 5. The distribution of weighting competitiveness coefficients.

Our next step was to decompose the indicators. Thus we decided to assess academic achievements on the basis of the graduate's academic progress (average grade), state exam results and thesis defense results. We also took into account if a graduate was getting any further education.

Nonacademic achievements implied the number of victories in competitions, especially the number of victories in municipal, federal and state academic competitions.

The level of professional competences (graduate's knowledge and skills) was assessed by a special commission; the level of universal competences – by mentors and tutors.

Psychologists assessed graduate's personal traits: motivation, ambitions and talent.

Employment assessment implied working experience, position held and whether the graduate applied to an employment office.

Then we compared micro-indicators by transforming the quantitative and qualitative assessment into points (using the 5-point scale), see table 1.

Table 1. The comparison of graduates' competitive positions.

Differentiators / Competitors	Graduate 1	Graduate 2	Graduate 3	Leader
1 Academic achievements:	4,88	2,7	3,1	
Coeff. = 0,17	0,83	0,46	0,53	
State exam results	5	4	5	Graduate 1
Average grade	4,65	4,1	4,3	
Further education	5	0	0	
2 Nonacademic achievements:	3,66	4,33	4,33	
Coeff. = 0,18	0,66	0,78	0,78	
Competition winners	4	5	5	Graduate2, Graduate 3
Academic competition winners	4	3	5	
Hobbies	3	5	3	
3 Level of Competences	5	4	4	
Coeff. = 0,26	1,3	1,04	1,04	Graduate 1
Professional Competences	5	3	4	
Universal Competences	5	5	4	
4 Employment:	4,5	4	4,5	
Coeff. = 0,09	0,41	0,36	0,41	Graduate 1, Graduate 3
Occupational Work	4	3	4	
Employment term	5	5	5	
5 Personal contacts	5	3	5	Graduate 1, Graduate 3
K = 0,11	0,55	0,33	0,55	
6 Personal Traits:	4,38	4,08	3,1	Graduate 1
Coeff. = 0,17	0,83	0,78	0,59	

Academic and career motivation	4,8	4	3	
Incentive motivation	4,33	4,33	4	
The ability to apply knowledge in uncommon situations	5	4	3	
Research skills	4	4	2	
Skills that ensure personal enhancement and professional growth	4,4	4	3,4	
Results (market standing)	4,57	3,68	4,00	Graduate 1
With weighting coefficient	4,57	3,74	3,89	Graduate 1

The leader by “Academic achievements” was Graduate 1. The leaders by “Nonacademic achievements” were Graduate 2 and Graduate 3. Graduate 1 took the first place in «Level of competences».

Graduate 1 and Graduate 3 shared the leadership in “Employment”. As for “Personal contacts”, here we have 2 leaders: Graduate 1 and Graduate 3. The assessment of personal traits was conducted in detail; the leader by this indicator was Graduate 1. Finally, after summing up all the points, the leadership position was held by Graduate 1.

Then we counted the competitiveness of Graduate 1. If the competitiveness is more than 1, the subject is more competitive.

The competitiveness of Graduate 1 referred to the competitiveness of Graduate 2 is 4,57 divided by 3,74 equaling 1,22; the competitiveness of Graduate 1 referred to the competitiveness of Graduate 3 is 4,57 divided by 3,89 equaling 1,17. Thus Graduate 1 is more competitive in the market.

We visualized the result as a competitiveness polygon; here the advantages of each graduate are visually presented, see Fig. 6.

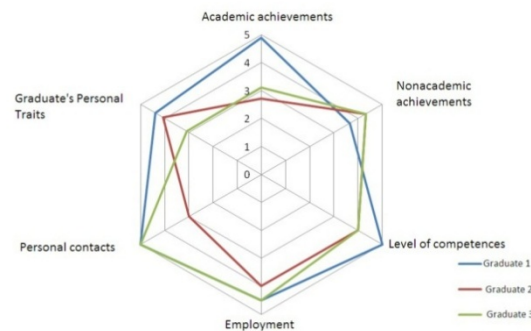


Fig. 6. A competitiveness polygon.

It's possible to present the polygon adjusted to the weighting coefficient. It is presented here. As you can see at Fig. 7, the results are clearer.

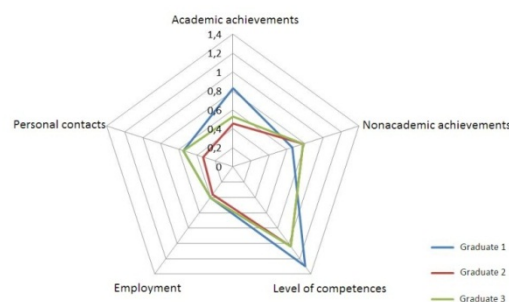


Fig. 7. The polygon adjusted to the weighting coefficient.

We conducted the SNW analysis (the table of graduates' strong and weak points), the results are presented on the slide. This data were received without taking into account the weighting coefficients. As you can see at Fig. 8, none of the graduates is below the threshold.

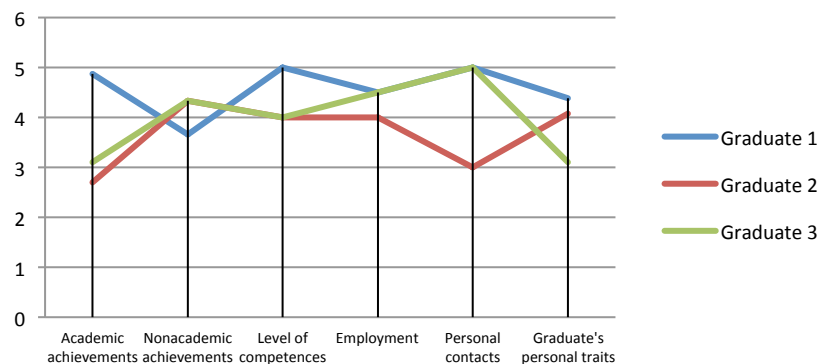


Fig. 8. The SNW analysis.

The data with the weighting coefficients are presented at Fig. 9.

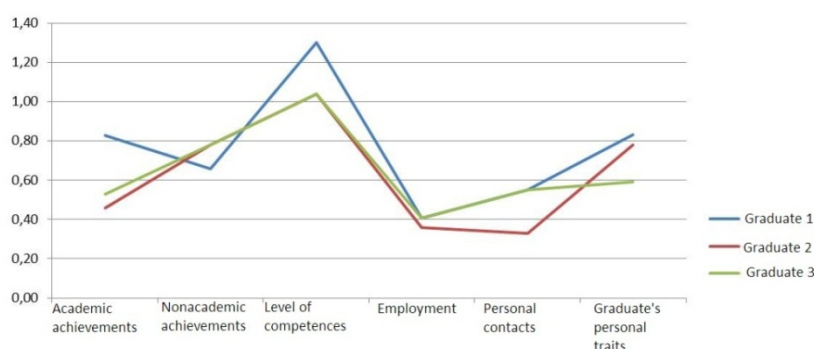


Fig. 9. The SNW analysis with the weighting coefficients.

Having conducted the research we have come to the following conclusion:

Firstly, by investigating the annual dynamics of the graduate's competitiveness it's possible to assess the growth rate of the graduate's qualities and draw a conclusion about the efficiency of applied academic approaches.

Secondly, it's necessary to single out the most significant competitiveness indicators for an employer. By doing this we can find a graduate who meets the employer's requirements.

Thirdly, by comparing the competitiveness of the graduates from different groups, educational programs, higher educational institutions and nationalities we can determine target segments with the maximal competitiveness growth, find the factors and reasons for it and hold the growth.

The results of the research may be useful for higher educational institutions' academic and administrative staff who are concerned with the challenge of finding an assessment system which will, on the one hand, be universal and easy to use and, on the other hand, would allow to meet employers' requirements.

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# The reactions of universities to imposing new a institutional pattern: the case of higher education in Serbia

Nebojša Janićijević\*

*University of Belgrade, Faculty of Economics, Kamenicka 6, 11000 Belgrade, Serbia*

## Abstract

The paper is aiming to discover the shape of universities' reactions to imposing a new institutional pattern of structure and functioning. The answer to this question is sought through analyzing of the accreditation process in higher education in Serbia. This paper analyzes the way in which universities and faculties reacted to the requirements for implementation of the accreditation standards. Research findings have shown that the universities reacted in four basic ways: full implementation; modified implementation; partial implementation by elements, time, space, and level; and rejection of implementation.

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*Keywords:* university; accreditation; institutional theory; institution; higher education

## Introduction

In the second half of the 20<sup>th</sup> century, the institutional theory emerged in the field of organization, offering a completely different explanation of organizations' structuring in comparison with the then dominant rationalistic and objectivistic explanations of organizational theory (Kondra and Hurst 2009; Pedersen and Dobbin 1997, 2006). Organizational institutional theory is based on the argument that the structuring and functioning of organization in a certain sector is determined by institutions, and not by criteria of technical or economic rationality and efficiency (Meyer and Rowan 1977; Di Maggio and Powell 1983; Scot 1987, 2008). Institutions in every sector prescribe the institutional pattern of organizing and functioning, and impose it on all organizations within the sector. The basic assumption that underlies this argument is that organizations prove their legitimacy in society by obeying institutionally imposed pattern of structure and processes, and not by technical or economic efficiency.

According to Scott (1987), institutionalization is basically the process of creating and stabilizing of the meaning of reality, and institutions are stable systems of social beliefs and rules that govern defining of practices in many functional spheres of life. Berger and Luckman (1966) had long ago asserted that behavior of social actors is determined by their interpretation of reality that surrounds them, and that they construct that reality in social interactions with other social actors. In the process of social constructing of reality, actions of social actors are being "infused with value" in order to be imposed as such on other social actors (DiMaggio and Powell 1983). Value of a certain pattern of behavior does not at all have to originate from the fact that this pattern constitutes a technically rational or economically efficient way of spending of social resources. The institutionalized pattern of behavior is valuable because it is generally accepted and because it complies with the shared understandings of reality, and not because it is objectively proven to be rational. When a certain rule, structure or process is being institutionalized, it is marked by social actors as valuable and legitimate, and therefore all other actors within the sector, in order to prove their legitimacy and value, must accept and implement it. The institutionalized patterns of structuring and functioning of organizations often have the form of contemporary myths (Meyer and Rowan 1977). There are the three basic types of institution that constitute institutional patterns of structure in organizations: regulative, normative, and cultural-cognitive (Scott 2008), as well as three mechanisms through which each is imposed on organizations: coercive, normative, and mimetic (DiMaggio and Powell 1983). Institutionalized practices are seen as natural, the only possible, and therefore legitimate (Oliver 1992). Institutionalized organizational behavior includes stable, repetitive, and permanent activities which have meaning and values that surpass their technical goals (Jepperson 1991). The consequence of institutionalization in a sector is, therefore, that organizations within it become increasingly isomorphic, that

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\* Corresponding author. Tel.: +381-65-8397726.  
E-mail address: jnebojsa@eunet.rs

is, their structures and way of functioning resemble each other's more (Ashworth, Boyne, Delbridge 2007; Frumkin, Galaskiewicz 2004; DiMaggio and Powell 1983).

It is intriguing that so far, the institutional theory has not dealt much with the issue of the reaction of organizations to an imposed institutional pattern (Scott 2008; Edelman 1992; Oliver 1991). The institutional theory has offered explanations of the nature, the way of creation, and the way of imposing of the structure and processes' patterns on organizations, but it has not offered much in the explanation of organizations' reactions to these patterns. Still, there are some notable exceptions, starting from Meyer and Rowan's (1977) concept of decoupling, through the works of Oliver (1991, 1992), Edelman (1992), Greenwood and Higgs (1996), and Casile and Davis-Blake (2005), to the work of Pedersen and Dobbin (2006). In a number of these works, the focus is on factors that direct the behavior of organizations faced with the imposed institutionalized pattern, while other works explore precisely how organization react to these patterns. This other group of works will be our primary focus of interest.

Using the stated works as a theoretical framework, this paper will explore the reactions of universities and faculties in Serbia to the implementation of accreditation standards which have shaped the new institutional pattern of structuring and functioning of the Serbian universities and faculties. The key research question of this paper is: how do the universities react to the pressures from the institutional environment to accept and implement the new institutional pattern of structuring and functioning? The integral part of this question is also the question of the available options that the universities and faculties faced with institutional pressure have in accepting this new institutional pattern? The aim of this paper is to identify typical reactions of universities and faculties to the pressure from institutional environment to implement the institutionalized rules of their structuring and functioning. The answer to the research question is obtained by means of empirical analysis of the accreditation process in the higher education sector in Serbia in the period from 2006 to 2010.

The paper is organized as follows: first, the theoretical framework, comprising the existing papers focused on organizations' behavior during institutionalized patterns implementation, is presented. Next, the research methodology is explained, including the description of the accreditation process in Serbia which served as the empiric research framework. This is followed by the research results and discussion. And finally, conclusions are made, and directions for further research are defined.

## **The literature review**

The idea that organizations do not have to accept and implement the imposed institutional pattern of structure and functioning first came from Meyer and Rowan (1977). They noticed that standardized rules of organizations' structuring and functioning can be inconsistent with technical criteria of efficiency, and also too general and contradictory, so therefore unacceptable for an organization. In this case, the solution for organizations is decoupling, that is, separating the operative, real structure from the formal, institutionalized structure. Formal structure proves legitimacy, because it is in conformity with the institutionalized rules, and in reality the practice and functioning of organization are in conformity with technical criteria of efficiency. Formal structure is accompanied by ceremonies that manifest loyalty to the institutionalized rules, while in reality these rules are not applied, because in practice technically effective solutions are being used.

Probably the most comprehensive summary of organizations' possible reactions to the imposition of institutional structures and practices was presented by Oliver (1991). In her view, organizations may react to pressures from the institutional environment in five basic ways that vary according to the degree of an organization's activism: 1) conforming, or accepting the requirements and implementing the institutionalized rules, practices, and structures; 2) compromise, or obey the institutional requirements but adjusting them to the organization's own capacities; 3) avoidance, or only symbolically accepting and implementing practices and structures, while in reality continuing with the existing practices (this corresponds with decoupling); 4) defiance, or publicly refusing to implement the institutional patterns of structures and functioning and; 5) manipulation, or trying to influence the institutional environment, that is, negotiate and acquire special treatment for the organization that would enable it to not implement the institutionalized rules. Which reaction the organization will choose depends on several factors that Oliver identified: institutional pattern legitimacy, organization's dependence of the institution that designs the pattern, consistency of the pattern itself with the existing way of structuring and functioning of organization, efficiency of control of institutional pattern implementation, and interconnectedness of organizations within a sector.

Pedersen and Dobbin (2006) have analyzed the reactions of business schools to the institutional environment by analyzing MBA programs in Europe. Authors have identified four processes that shape those reactions. The first process is imitation, and it emerges when one school imitates those that are successful and applies their way of organizing. Hybridization is the second process through which school combines the global, accepted model with some local elements, thus making a hybrid. Transmutation happens when new meanings are assigned to the existing forms and shapes of structure and processes in the school, while the said structure and processes change little or not at all. Practically, it is “proclaimed” that the existing structure and processes are harmonized with the institutional pattern, which is specifically done through redefining of their meanings, regardless of the reality. Immunization emerges when the school’s leaders refuse to implement the institutional model, invoking the tradition and their own experiences.

In their research of higher education organizations’ reaction to the accreditation process, which is highly relevant for this paper, Casile and Davis-Blake (2002) have shown that, other than acceptance, there are other reactions of organizations to institutional requirements. Accreditation is a kind of “rationalized myth” that provides legitimacy to business administration schools under investigation. The authors explored how US collegiate business schools reacted to accreditation standards. The schools were dissatisfied with both the accreditation standards and the body implementing them, since half of them did not manage to get accredited. Due to this, the schools put pressure on the accreditation institution by founding a new accreditation body. In response to this, the original accreditation body lowered the criteria and paid special attention to loosening the teachers’ academic qualifications requirements. Although the factors directing organizations’ response were actually the focus of the authors, their results imply that organizations can also impact institutions, and that this is actually one of the possible responses to institutional pressures. The key factor that directed the schools’ behavior in the accreditation process was ownership, because private and public schools have different sources of financing, they are dependent on the state or market in different degree, they also have different degree of power and influence, etc.

Edelman (1992) determined that organizations faced with the necessity of implementation certain regulatory norms (laws) react by first elaborating their own formal structural arrangements for enforcing laws. They do this even when it is not requested by the institutionalized norm. Elaboration of formal structures is, however, useful for an organization because the organization in this way symbolically shows that it obeys the law and enforces it. On the other hand, elaboration of formal structures enables organization management to construct the meaning of obeying and enforcing laws in the way it suits the organization management. The second step is institutionalization of structures by means of developing routines in organization’s functioning. The impact of laws on organization’s functioning is in this step indeed realized, at least in the smallest possible degree. When structures are once developed and when they develop their routines, one part of the law is still enforced and it changes the functioning of organization. But this enforcement of the law is modified in such a way that it jeopardizes the interests of organization and its management in the least possible degree.

Ashworth, Boyne and Delbridge (2007) have developed a hypothesis that conforming of the organization with the institutional pattern requirements can have two possible forms: compliance and convergence. Compliance is the process through which organizational characteristics are modified in the direction of increasing compatibility with institutionalized pattern. Convergence is a constraining process that forces one unit in a population to resemble other units that face the same set of institutionalized rules. Therefore, through the process of compliance, organizations directly accept the model of structure and functioning created in the environment, while through convergence they indirectly implement the institutionalized pattern following the example of other organizations that have already done it through obeying. In both cases, the result is implementation of institutionalized pattern.

In several of their works, done both individually and with their associates, Greenwood and Hinings have analyzed the process, factors and results of the implementation of institutional patterns of structures within organizations (Hinings, Greenwood 1988; Greenwood, Hinings 1996; Hinings, Greenwood, Reay, Suddabay 2004). These institutional patterns are what they call archetypes. When a new archetype is created in a field of organization, it is imposed on the organizations in the field. Reactions of organizations may be: (1) acceptance of the new archetype through linear transformation or oscillating dynamics; (2) refusing the new archetype through inertness or “aborted excursion” ; (3) partial implementation of the new archetype through “unfinished journey”.

The review of literature shows that organizations faced with the pressure to apply the institutional pattern of structure and functioning can react in several ways. They can obey the institutional environment requirements and completely accept and implement the institutionalized rules of structuring and functioning. This kind of organization's reaction is primarily expected and it is in accordance with the institutional theory postulates (Ashworth, Boyne, and Delbridge 2007). However, other than acceptance, organizations have other options available when reactions to institutional pressures are concerned. First, they can adapt the institutional pattern to their own needs and resources, values or interests, and implement thus adjusted pattern. While Oliver (1991) called it compromise, this type of organizations' reaction was named hybridization by Pedersen and Dobbin (2006). Second, organizations can pretend to implement the institutional pattern, while in reality they are actually not implementing it. This fiction is achieved through symbols, such as rituals, language phrases or material symbols. Meyers and Rowan (1977), as well as Edelman (1992) have described this process, while Oliver (1991) called it avoidance and Pedersen and Dobbin (2006) named it transmutation. Finally, in certain circumstances, organizations can even, openly or covertly and more or less aggressively, refuse to implement the institutional pattern. The consequence of this refusal is inertness of the organization (Hinings, Greenwood 1988). Casile and Davis-Blake (2002) have also described this scenario, while Pedersen and Dobbin (2006) named it immunization. Oliver (1991) has even distinguished two types of refusal: the one accompanied by attempts to impact institutions and the one without these attempts.

### The Research Methodology

The accreditation process in higher education in Serbia represented an excellent research framework for exploring the reactions of universities to imposition of a new institutional pattern of structure and functioning in the said sector. The higher education sector is one of those sectors in which the influence of institutional environment on organizational structure and functioning is very strong (Casile & Davis-Blake 2002). In this sector it is not possible to clearly define technical criteria for performance evaluation, so performance of universities is evaluated according to the degree in which the institutionalized rules and standards are followed (Frumkin & Galaskiewicz 2004). The accreditation process is *par excellence* a process of putting institutional pressure on universities as basic units in the higher education sector. Through the accreditation process, one model of functioning of university is actually being shaped and institutionalized, and then imposed on all universities.

Accreditation in higher education organizations and study programs in Serbia was first conducted between 2006 and 2010. Accreditation in higher education in Serbia started in 2006, when the National Council for Higher Education (NCHE) and the Commission for Accreditation and Quality Assurance (CAQA) were formed in compliance with the Higher Education Act (<http://www.parlament.gov.rs>). CAQA was formed as an independent regulatory body and was comprised of fifteen university professors from all scientific fields. CAQA proposed two sets of accreditation standards: one for universities and faculties as higher education organizations, and the other for study programs. Both sets of accreditation standards were then adopted by NCHE. According to the Higher Education Act these standards are given the power of the law. A positive accreditation decision was the precondition for issuing of operating license to a higher education organization by the Serbian Ministry of Education.

Accreditation was conducted at both levels: organizational level and at the level of a particular study program. Organizational level of accreditation comprised faculties and integrated universities. The majority of Serbian universities are not integrated, which means that they function as loose confederations of independent faculties. Although faculties cannot exist outside of university, they are almost completely independent within themselves. Therefore, faculty was the basic organizational unit in accreditation. Along with faculties, integrated universities, which include no independent faculties but have departments in their structure instead, also constitute organizational units subjected to accreditation. They are a recent occurrence in Serbia and they are all private. Accreditation standards for faculties and integrated universities consist of 13 sections: the mission and the goals, planning and control, organization and management, qualifications of graduated students, scientific research, number and competence of teaching staff, number and competence of support personnel, student admission, space and equipment, library and informational support, financial resources, quality assurance system, and public relations.

Undergraduate programs, as well as master and PhD programs, have also been accredited in Serbia along with universities and faculties and their individual study programs. Therefore, every faculty first had to gain



accreditation as an institution and then to accredit every of its study programs. Standards for accreditation of study programs prescribe the existence of the minimum level of quality of the following: the purpose, the goals, education results and students' competences, curriculum, number and competences of lecturers, evaluation of students, spatial and library resources, and the system of quality assurance.

In the period from 2006 to 2010, 220 faculties and universities in Serbia were accredited. In addition, 509 study programs for the first level of education, 459 study programs for master studies, as well as 223 study programs for PhD studies were accredited. Out of all the institutions that applied for accreditation, 78% were accredited, while out of all the study programs that applied, 73% were accredited. The analysis in this paper encompassed only the accredited faculties and universities and their accredited study programs.

In Serbia, accreditation standards are formulated so that they ensure two basic goals. The first goal was to ensure the quality of the educational process at universities and faculties in Serbia. That is the reason for having prescribed standards concerning the minimum number of lecturers, their competences, space, equipment, librarian and IT resources that a faculty or university must have. The second objective of the standards was no less important: ensuring that faculties and universities meet demands in higher education set by the Bologna process ([www.ec.europa.eu/education/higher-education/doc1290\\_en.htm](http://www.ec.europa.eu/education/higher-education/doc1290_en.htm)). Standards for accreditation in Serbia are written in a way that mirrors the key elements of higher education defined within the Bologna process. Implementation of these elements is designated to develop a model of higher education that can be called "the Bologna model". For instance, there are standards prescribing self-evaluation, students' mobility, mandatory interactive teaching, evaluation of students during classes, number of elective subjects in the curriculum, etc. All 25 standards were mutually consistent, and although overlapping, bore the same basic idea. In Serbia, accreditation standards were the rules by whose adoption universities and faculties were compelled to accept and implement the Bologna model of higher education. Since the universities in Serbia had operated in a traditional way until the beginning of the accreditation period, the accreditation standards, focused on implementing the Bologna model of higher education, were quite new for universities in the country. By adopting the standards for accreditation as they were formulated, universities and faculties in Serbia were supposed to accept and implement a pattern of structure and functioning very different than those they had had before. Therefore, in the process of accreditation, universities and faculties in Serbia faced the institutional environment requirement to accept a completely new model of structure and functioning. It is very important to identify how the higher education organizations reacted to this requirement.

The process of the research contained three steps. First, a detailed analysis of accreditation standards in Serbia, which shaped a new institutional pattern of functioning of the universities, was performed. This was accomplished by reviewing the accreditation standards published as a public document (<http://www.kap.kg.org>). The objective of the analysis was to determine the standards whose application would be monitored at faculties and universities in Serbia. Reducing the number of the standards to be monitored was necessary, since it would be very difficult to monitor the implementation of all 13 standards for faculties and all 12 for study programs. It was therefore necessary to select a manageable number of standards of accreditation whose implementation on faculties would be analyzable. The criterion for selection of the standards was twofold. On one hand, they had to be the standards which bring the key elements of Bologna higher education model to universities in Serbia. On the other hand, they had to be the standards whose implementation could be monitored at faculties in Serbia. After a detailed analysis, five out of 25 standards were selected to be included in the analysis. Out of those five, two refer to faculties as institutions, while three of them concern study programs. This is the list of selected standards:

Curriculum: Minimal elements of study program's curriculum and its compatibility with students' goals and competences are prescribed.

Number and competences of lecturers: Number of lecturers in relation to the number of students and the number of active classes are prescribed; minimal competency of a lecturer measured in number of relevant references is also prescribed.

Student assessment: Monitoring and evaluation of students' work during classes and in the final examination is prescribed.

Quality assurance system: Necessary elements of self-evaluation system and quality assurance in an institution are prescribed.

Facilities and technical resources: Minimum space according to number of students and minimum library and IT resources are prescribed.

The second step in methodology of this research consisted of choosing samples, or, in other words, selecting the faculties and universities where the implementation of the accreditation standards would be monitored. The selected faculties and universities were within the field of humanities, particularly from the domain of economics and management. There were several reasons for this. Firstly, the author was a member of CAQA, in charge precisely of the accreditation process in the domain of economics and management; therefore he had the experience and the knowledge about the faculties in this domain. Secondly, the majority of faculties and universities, especially private ones, are within this particular domain. Thirdly, it was a commonly held belief that the faculties from this domain have the lowest teaching quality; so the most distinctive changes were to be expected there. Twenty faculties and integrated universities from different parts of Serbia were selected, and their implementation of the accreditation standards was monitored. Among these, 5 were public faculties and 15 were privately held. Seventeen out of 20 selected organizations were faculties and the remaining 3 were integrated universities, all 3 of them privately held. From each of these 20 schools, a study program in management and economics was chosen. Almost all of the selected schools even had several programs in management and economics, but in order to keep the monitoring process simple, only one program from each school could be selected. Besides, while implementing the standards of accreditation, the schools behaved quite evenly within all the programs. All selected programs were undergraduate ones.

Collecting and analysis of data on implementation of the selected accreditation standards within the selected higher education institutions constituted the third step in research methodology. Data collecting was conducted through two basic methods. In-depth interviews with managers, lecturers and students at the selected faculties constituted the first method. Interviews with the dean, the vice-dean of academic affairs, three lecturers and five students were performed at every faculty. That meant 220 interviews in total. The interview questions were focused on finding whether elements of the selected standards existed at faculties after the accreditation, and also, whether they initiated specific changes within the course of the education process and its outcomes. The second method of data collecting involved content analysis of the faculties' documentation. Documents from before and after accreditation were analyzed in order to identify the differences. The list of the analyzed documentation included: study program curricula, students' brochures, self-evaluation and quality assurance policies, statutes, documentation on facilities, lists concerning the number of lecturers and their references. Some of the aforementioned documents were available on the Internet, and the rest were provided by the faculties themselves.

The research was conducted from October 2010 to October 2012. The implementation of the accreditation standards and all the changes that took place within the faculties were monitored in that period. The research results consist of findings about real changes brought about by the implementation of the accreditation standards at the selected faculties and universities.

### The Research Results and Discussion

The research has shown that the universities and faculties in Serbia have exhibited four different reactions to the attempt of imposing new institutional pattern through accreditation standards. These reactions mostly match those described in the literature (Oliver 1991; Pedersen, Dobbin 2006), although there are some specific qualities that will be elaborated. The first type of faculties' reactions was the acceptance and full implementation of the accreditation standards. Some universities and faculties fully accepted and implemented some accreditation standards. The second reaction of the universities and faculties was to modify some accreditation standards and then to apply them. The third reaction was partial implementation of the accreditation standards. The fourth reaction of universities was rejection of the accreditation standards. Universities and faculties in Serbia were selective in the process of accreditation. They chose which accreditation standards they would accept and implement, which accreditation standards they would implement in a modified version and which only partially, and, finally, which accreditation standards they would completely refuse to implement. The consequence of this is that no accreditation standard was implemented by all the universities and faculties. On the other hand, no university or faculty had implemented all the accreditation standards. Summary overview of 20 faculties' and universities' reactions to implementation of 5 accreditation standards is presented in the following table:

Table 1. Universities' reactions to implementation of selected accreditation standards

Reactions Standards	Full implementation	Modified implementation	Partial implementation	Rejection of implementation	Total
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Curriculum	5	10	4	1	20
Lecturers	3	12	2	3	20
Student assessments	7	5	4	4	20
Quality assurance	2	7	9	2	20
Spatial and technical resources	6	8	4	2	20
Total	23	42	23	12	100
Percent	23%	42%	23%	12%	100%

Full implementation of the accreditation standards means that faculties have implemented requirements contained in the standards in practice. In such cases, universities and faculties did not merely meet the accreditation standards on paper at the time of application for accreditation, but proceeded to meet them by implementing the requirements contained in the standards in a longer period after gaining the accreditation. This type of reaction of higher education organizations in Serbia is in compliance with the basic postulates of the institutional organizational theory, and it is completely expected. Oliver (1991) describes it as conforming. Full implementation of the accreditation standards induces significant reforms on faculties and universities. However, the analysis has shown the full implementation of the accreditation standards on faculties and universities in Serbia to be relatively rare. The curricula were genuinely and permanently changed to adapt to accreditation standards in only 5 out of 20 study programs at the same number of universities or faculties. In two years after the accreditation, the number of lecturers and their competences was found to be in full accordance with the standards at only 3 out of 20 faculties or universities. Among higher education organizations in Serbia, among all the standards, student evaluation standards were the ones that were most widely met to full extent. It was found that the evaluation method had been thoroughly adapted according to accreditation standards and their demands in 7 out of 20 study programs. However, in only 2 out of 20 higher education organizations in Serbia, the development of quality assurance system was entirely carried out by the accreditation standards. Finally, 6 out of 20 faculties or universities were managing their facilities and equipment in accordance with the accreditation standards. The analysis resulted in the conclusion that 23% of 5 standards at 20 faculties and universities were fully implemented.

Modified implementation of institutionalized standards indicates that, prior to implementing them, a university modifies them to a certain degree and adjusts them to its own resources, its existing structures and processes, its perception of technical rationality and, finally, to the interests of the ruling coalition. It is this type of reaction that Oliver (1991) calls compromise, while Pedersen and Dobbin (2006) call it hybridisation. Edelman's (1992) description of an organization's behaviour during law enforcement also matches this type of reaction. Modification of the accreditation standards happened, for example, at the University of Belgrade when it comes to standards of defining the competence of the faculty members who teach PhD courses or who can be mentors for PhD dissertations. This particular competence is, for the first time in Serbia, being defined by accreditation standards based on the number of articles published in journals from SCI list. However, University of Belgrade has simply decreased the number of published articles required as a minimum condition for teaching staff and mentors from 5 to 3, and applied the standard modified in such a way in practice. After the accreditation process, 10 out of 20 researched study programs had their curriculum in accordance with new standards, but those standards were not original but modified ones. As for the lecturers, before the implementation, standards concerning their number and competences were modified at 12 out of 20 faculties and universities monitored. Seven out of 20 institutions had the standards of quality assurance system implemented, but modified according to their own perception of the optimum. A similar occurrence took place with the facilities and equipment standards, since 8 out of 20 faculties or universities implemented "their own" standard, which differed from the original.

Partial implementation of institutionalized standards, structures and processes means that a university does accept and implement institutional demands coming from the organizational field it is a part of, but does so only partially, not completely. This type of organization's reaction to institutional pattern is, in large part, new and so far it has not been recorded in the literature. Namely, there are several modalities of partial implementation of institutionalized standards: a) by elements: some elements of the standards are implemented, while others are not; b) by time: a standard is applied for some time, and then its application gradually decreases, and in the end the standard is completely abandoned; c) by organizational parts: the university, more or less, fully implements

the institutionalized model in some of its departments, while avoiding its implementation in other departments, especially if they are territorially separated from the headquarters; d) by levels – symbolic implementation: the standards are not in fact being implemented, but universities deliberately design and present symbols like rituals, terms, artefacts, which serve the purpose of convincing the external institutions that the university has indeed accepted and implemented the required structures and processes even though there have been no changes in the way of structuring and functioning of the university. Good examples for the symbolic implementation of standards are ritualized student polls at some universities, which only serve to fake the process of teaching staff evaluation without a real effect. The first three types of partial implementation, by elements, by time and by parts, are new in the literature. The last type of partial implementation of institutional pattern, symbolic implementation, has already been described in the literature. This reaction of organizations to institutional pressure is what Meyer and Rowan (1977) called decoupling. Also, Oliver (1991) has identified this type of reaction as avoidance, and Pedersen and Dobbin (2006) have recognized it as transmutation. Partial implementation usually implied significantly reduced implementation of accreditation standards and induced even lesser changes than the previous modification of standards. When it comes to the quality assurance system, partial implementation of standards was the most common case. Quality assurance standards were implemented partially and in a different manner at almost half of the institutions. For instance, particular system elements have been developed at some universities and faculties, while other elements, also requested by the standards, simply were not developed; for example, a teacher evaluation survey for students took place, but no self-evaluation report needed to be made. Some of the universities and faculties implemented this standard only symbolically – by performing the ritual of preparing and publishing self-evaluation reports with no actual consequences or results of any kind. Some faculties conducted the process of self-evaluation reporting only in the year of their application for accreditation, and ceased to do so since. Finally, at some universities, quality assurance system is implemented only at headquarters, and not at their dislocated departments.

The final type of the universities' reactions to the pressure from institutional environment to accept the accreditation standards is rejection of their implementation. As it is described in the literature, rejection had, more or less, passive or active form which manifested as: ignoring, passive rejection, active rejection or attack, and it was even manifested as an attempt to control the CAQA as an institution which implements the standards (Oliver 1991; Casile Davis-Blake 2005). Some universities in Serbia have simply decided to enroll students above the quota allowed by accreditation, or have simply to enroll students whose applications were denied to study programs. Rejection, as a reaction of a university or a faculty, is only possible in the case when the university has gained the greatest autonomy with respect to institutional environment. As a rule, universities use this autonomy in order to block the changes that are being imposed on them by the institutional environment. Among the standards, student evaluation standards are the ones that are most often entirely rejected, as is the case with 4 universities and faculties. Student evaluation during classes is the most rejected element – instead of its implementation, the former practices of evaluating students with only one final exam (usually oral) is still the case.

### **Conclusions, Limitations and Directions for Further Research**

The research of reactions of universities and faculties in Serbia to imposing of institutional pattern of structure and functioning through accreditation process has confirmed the so far identified patterns of organizations' behavior when faced with institutional environment requirements. Faced with the institutional accreditation standards, the faculties and universities in Serbia have reacted in four ways that have mainly been already described in the literature (Meyer, Rowan 1977; Oliver 1991; Edelman 1992; Casile, Davis-Blake, 2002; Pedersen and Dobbin 2006). The reactions of higher education organizations in Serbia that could have been assumed based on the findings of the institutional organization theory are full implementation, modified implementation, rejection of implementation, as well as symbolic partial implementation. Partial implementation by elements of content, by time and by parts was also the universities and faculties' reaction to imposition of the accreditation standards, but it has not been described in the literature so far. The general conclusion is that organizations are everything but helpless and forced to accept and implement the institutionalized patterns of structure and functioning imposed by the institutional environment.

This paper has a number of limitations, especially with respect to the methodology. It is basically a multiple case study analysis, and there are significant limitations with regard to generalization of the conclusions. Also, the collecting of data on reactions of Serbian universities to accreditation standards and their implementation was

mostly based on interviews, which in itself has certain limitations with regard to subjectivity of both the interviewer and the interviewee.

The important issue which has been dealt with in the literature, but which was not a part of this research and remains open for some new researches, is the following: Which factors determine the reactions of organizations to imposing of institutionalized patterns from the environment? What does it depend on whether the organization will fully implement the pattern, or it will implement it in the modified form, or it will partially implement it or it will not implement it at all? In the case of accreditation process in higher education in Serbia, the question is: which factors determine universities and faculties' reactions to accreditation standards?

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# The reflection of critical thinking dispositions on operational chemistry and physics problems solving of engineering faculty students

Zeliha Özsoy-Güneş<sup>a98</sup>, İbrahim Güneş<sup>b</sup>, Yasemin Derelioğlu<sup>c</sup>,  
Fatma Gülay Kırbaşlar<sup>a</sup>

<sup>a</sup>Istanbul University, Hasan Ali Yücel Faculty of Education, Department of Elementary Education, Division of Science Education, Vefa, Istanbul, Turkey

<sup>b</sup>Istanbul University, Faculty of Engineering, Department of Electrical-Electronics Engineering, Avcılar, Istanbul, Turkey

<sup>c</sup>Istanbul University, Hasan Ali Yücel Faculty of Education, Department of Elementary Education, Division of Pre-School Education, Vefa, Istanbul, Turkey

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## Abstract

The aim of this research is to investigate the reflections on operational chemistry and physics problems solving critical thinking dispositions of engineering faculty students. This research is designed as relational scanning model. The sample of this study, Chemistry, Chemical Engineering, Electrical-Electronics Engineering last year students taking “General Chemistry” and “General Physics” course has formed. In the study; The California Critical Thinking Disposition Inventory (CCTDI-R), which is improved by Facione, Facione and Giancarlo (1998) and adapted to Turkish by Kökdemir (2003).and “Mathematics usage scale in Operational Chemistry and Physics Problems” (MUSOPCP) with two factors which is developed by Özsoy-Güneş, Derelioğlu, Kırbaşlar (2011) are used as tool of data collection. In order to analyze the data, SPSS 16.00, ANOVA, independent T-Test, Pearson correlation coefficient techniques are used. As a result, between CCTDI-R scale with mathematics anxiety in chemistry and physics problems factor of MUSOPCP has a negative relation and with mathematics knowledge factor of MUSOPCP has a positive relation. The significant differences were found between the departments with mathematics anxiety factor score of MUSOPCP and between the gender with mathematics knowledge factor score of MUSOPCP. The significant differences weren't found between gender and department with CCTDI-R scale; but according to graduated secondary school, significant differences were found between with CCTDI-R scale.

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**Keywords:** Chemistry and Physics Problems Solving, Critical thinking, Engineering faculty students.

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## 1.Introduction

Critical Thinking can be defined as an effective, organized and operative cognitive period enabling us to improve understanding our own thoughts and others ideas and our skill to explain the opinions (Chaffee, 1994). Critical thinking is a positive analysis enabling us to comprehend the events happening around us. This system of analysis is a system that can be used for defining the problems, starting the studies of any aimed subject, deciding and making evaluations retrospectively (Chaffee, 1994).

Nowadays, it is crucial that active individuals with critical thinking and problem solving skills, with ability to create information, to question, search and contribute to information, to adopt change and to apply their thoughts must be brought up. This situation causes new expectations to be raised in education. Today, the most important aim of education is to bring up individuals who can adapt to different conditions, who can think in different, flexible and original ways. This general change in the whole world, effects education systems and causes them to be developed to meet the requirements of the age (Kirişcioğlu, Başdaş & Başöncül, 2007; Koray & Çil, 2006; Seferoğlu & Akbıyık, 2006; Zayıf, 2008; Gök & Erdoğan, 2011).

The main objectives of university education; give a good basic education, develop analysis, thinking, research and inquiry skills, generate ideas, develop teamwork and communication skills, Thinking on a global level, be able to organize information in a particular field and develop the ability to solve problems in that area can be listed. In this sense, in terms of positive science, higher education will be based on a strong science and mathematics education is often emphasized (Gençoğlu & Gençoğlu, 2005). The most important reasons of the students' difficulties in science (chemistry and physics) problems solving are the lack of information in domain and lack of the basic operational processes.

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\* Corresponding author: Zeliha Özsoy-Güneş Tel.: +0-212-440-00-00.

E-mail address: ozsoyz@istanbul.edu.tr

Problem solving is an action has a wide range of mental processes and skills when reached the correct conclusion (Altun, 2002). An individual with advanced problem solving skills can effectively use knowledge and can easily solve the problems encountered (Altun, 2010).

General Chemistry and General Physics courses were taught in the first classes of the Engineering Faculties' all departments. Development of professional and mathematical information and skills used by engineering faculty students in solving operational problems plays a crucial role in the educational process. Much of the problem solving is quantitative, involving formulae and the application of mathematics, and is a source of great difficulty for many students. Many studies have been conducted on the problem solving models, the types of problems and successful problem solving (Bodner & Domin, 2000; Bennett, 2008; Cooper, Cox, Nammouz & Case, 2008; Lee, Tang, Goh & Chia, 2001).

## **2. Aim of the Research**

The aim of this research is to investigate the reflections on operational chemistry and physics problems solving critical thinking dispositions of engineering faculty students.

Is there a connection between critical thinking dispositions and operational chemistry and physics problems solving skills of Engineering Faculty students?

Sub Problems:

1. What are the levels of critical thinking dispositions and operational chemistry and physics problems solving of students?
2. How do students' levels of critical thinking dispositions and operational chemistry and physics problems solving vary according to the varieties of gender, department and graduated secondary school?
3. Is there a connection between critical thinking dispositions and operational chemistry and physics problems solving skills of Engineering Faculty students?

## **3. Methods of the Research**

In this study, quantitative research method and relational screening model has been used.

### *3.1. Sample of the Research*

The sample of this study is formed by 214 senior students taking "General Chemistry" and "General Physics" course from departments of Chemistry, Chemical Engineering and Electrical-Electronics Engineering at Engineering Faculty. 58 of Students (27.1%) are from the department of Chemistry, 99 of them (46.3%) are from the department of Chemical Engineering, and of 57 them (26.6%) are from the department of Electrical-Electronics Engineering, 119 of students (55.6%) are female and 95 of them (44.4%) are male.

### 3.2. Data Collection Instruments

For research a three fold form has been created. In the first part personal data like the gender, department and graduated secondary school have been collected. Second part includes “The California Critical Thinking Disposition Inventory” (CCTDI-R), which is improved by Facione, Facione and Giancarlo (1998) and adapted to Turkish by Kökdemir (2003). Third part includes Mathematics usage scale in Operational Chemistry and Physics Problems” (MUSOPCP) scale which is developed by Özsoy-Güneş, Derelioğlu, Kırbaşlar (2011) for define mathematics usage inclinations in operational chemistry and physics problems of students.

The California Critical Thinking Disposition Inventory (CCTDI-R): As a data collection tool, The California Critical Thinking Disposition Inventory (CCTDI-R) was developed by Facione, Facione and Giancarlo (1998) and was translated and validated in Turkish by Kökdemir (2003) has been employed. Cronbach’s alpha coefficient, which shows internal consistency for the dimensions of the CCTDI-R were calculated as .75 in analyticity dimension, .75 in open-mindedness dimension, .78 in inquisitiveness dimension, .77 in self-confidence dimension, .61 in truth-seeking dimension, and .63 in systematicity dimension. Cronbach’s alpha coefficient of the latest scale which was translated in Turkish by Kökdemir (2003) and has six dimensions and 51 items was calculated as .88. The scale was prepared as six – point Likert scale. A total score above 240 reflects a positive overall disposition toward critical thinking (Kokdemir, 2003). Six-point Likert type scale shows “totally agree” option 6, “disagree” option 1 point. Six-point Likert type scale responses were collected. Raw scores were calculated for each factor. The raw scores were divided by the number of questions and then were multiplied by 10. In this way, the lowest value 6, and the highest value 60 standard points are obtained for factors.

Mathematics usage scale in Operational Physics and Chemistry Problems (MUSOPCP): MUSOPCP formed by 10 statements requiring “yes”, “no” and “neutral” as choice of answers is a three-points likert scale. Following the factor analysis, it is noticeable that the scale is in two factor structure and disclosed total variance is 46.864 %. These factors are defined as: 1. Mathematics anxiety in Operational Physics and Chemistry Problems, 2. Conceptual knowledge and Mathematics knowledge relation in Operational Physics and Chemistry Problems. First factor consists of the statement numbers 2, 4, 5, 7, 9, 10; second factor consists of the statement numbers 1, 3, 6, 8. Total cronbach of the scale is  $\alpha=.713$  and cronbach for the first factor “Mathematics Anxiety in Operational Physics and Chemistry Problems” is  $\alpha=.720$ ; cronbach for the second factor “Concept knowledge and mathematics knowledge connection in Operational Physics and Chemistry Problems” is  $\alpha=.675$ . Students’ responses to substances, “yes” option 3, “neutral” option 2, “no” option is given 1 point. The minimum and the maximum score that can be taken from the scale are between 6-18 for the first factor, 4-12 for the second.

### 3.3. Analyzing Data

SPSS 16.00 is used to analyze the data. ANOVA, independent t-test and Post-Hoc test techniques have been conducted to monitor the scores taken from the scales in terms of demographic varieties. PEARSON correlation coefficient analysis technique is applied in order to observe the relations between scales. In all statistical processes significance at a level of .05 has been sought.

## 4. Findings

The research findings are evaluated in the context of sub-problems.

Sub-Problem 1. What are the levels of critical thinking dispositions and operational chemistry and physics problems solving of students?

The sample of this study is formed by 214 students from Engineering Faculty. In this study, the taken total The California Critical Thinking Disposition Inventory (CCTDI-R) scale score was calculated as 222.93. In this study, Students’ average score for the first factor which is Mathematics Anxiety in Operational Physics and Chemistry Problems is found as 9.1028; and average score for the second factor which is Concept Knowledge and Mathematics Knowledge Relation in Operational Physics and Chemistry problems is found as 11.5888. (Table 1).

Table 1. Distribution of scores of students taken from CCTDI-R scale according to the factors and MUSOPCP according to the factors.

Scales		X	SD	SE
CCTDI-R Scale	Analyticity	45.1449	5.63878	.38546
	Open-Mindedness	40.7671	5.26478	.35989
	Inquisitiveness	45.2544	5.75605	.39348
	Self-Confidence	44.3792	5.93236	.40553
	Truth-Seeking	44.2190	5.99698	.40994



	<b>Systemacity</b>	43.5280	5.28785	.36147
	<b>CCTDI-R Scale Total</b>	222.9299	22.44785	1.53450
<b>MUSOPCP Scale</b>	<b>1st Factor</b>	9.1028	2.74737	.18781
	<b>2nd Factor</b>	11.5888	1.06108	.07253

Sub-Problem 2. How do students' levels of critical thinking dispositions and operational chemistry and physics problems solving vary according to the varieties of gender, department and graduated secondary school?

As in table 2, as a result of independent group T-test applied to define whether the scores taken from the CCTDI-R scale and factors differentiate according to the gender variable; for the CCTDI-R scale Analyticity, Self-Confidence, Truth-Seeking factor scores the difference between the arithmetic average of the groups have been found statistically significant. Female students' score average is significantly higher than the Male students ( $p < .05$ ). As a result of independent group T-test applied to define whether the scores taken from the MUSOPCP factors differentiate according to the gender variable; for the second factor score the difference between the arithmetic average of the groups have been found statistically significant. Female students' score average is significantly higher than the Male students ( $p < .05$ ).

The result of independent group t-test applied to define whether the scores taken from the MLSS Scale differentiate according to the gender variable; for the MLSS Scale total score the difference between the arithmetic average of the groups have not been found statistically significant ( $p > .05$ ).

Table 2. The results of Independent group T-test of the scores taken from CCTDI-R scale and factors and MUSOPCP factors according to the gender variable of students.

	Scales	Group	N	X	SD	SE	T test		
							t	df	p
CCTDI-R Scale	Analyticity	Female	119	45.8487	5.14475	.47162	2.059	212	.041
		Male	95	44.2632	6.11627	.62752			
	Open-Mindedness	Female	119	40.9664	5.28048	.48406	.619	212	.537
		Male	95	40.5175	5.26230	.53990			
	Inquisitiveness	Female	119	45.3968	5.54101	.50794	.404	212	.686
		Male	95	45.0760	6.03956	.61965			
	Self-Confidence	Female	119	45.1501	5.65410	.51831	2.145	212	.033
		Male	95	43.4135	6.15791	.63179			
	Truth-Seeking	Female	119	44.9580	5.73490	.52572	2.032	212	.043
		Male	95	43.2932	6.21679	.63783			
	Systemacity	Female	119	44.1597	5.02758	.46088	1.969	212	.050
		Male	95	42.7368	5.52191	.56654			
	CCTDI-R Scale Total	Female	119	225.4370	21.65901	1.98548	1.839	212	.067
		Male	95	219.7895	23.13048	2.37314			
MUSOPCP Scale	1 <sup>st</sup> Factor	Female	119	9.1008	2.85644	.26185	-.012	212	.991
		Male	95	9.1053	2.61938	.26874			
	2 <sup>nd</sup> Factor	Female	119	11.7395	.69456	.06367	2.198	132.026	.030
		Male	95	11.4000	1.37144	.14071			

As seen in table 3 as a result of one-way analysis of variance (ANOVA) which is done in order to determine whether the CCTDI-R scale and factors show a significant difference according to the department variable; for CCTDI-R scale Open-Mindedness factor scores the difference between the arithmetic average of the group has been found statistically significant. Following this process Post-Hoc analysis techniques are started to be applied.

After one-way analysis of variance (ANOVA); to determine how changed in CCTDI-R scale Open-Mindedness factor among sub-groups, considering the department variable, Tamhane test has been chosen from among the post-hoc analysis techniques; because of Open-Mindedness factor group variance are not homogeneity according to the Levene's test ( $L=3.333$ ,  $p < .05$ ). As a result of this test it has been stated that Chemistry Engineering students get a lower significant level of score for the Open-Mindedness factor than Electric-Electronics Engineering students.

Table 3. The results (ANOVA) of the scores taken from CCTDI-R scale and factors and MUSOPCP factors according to the academic department variable of students.

N, X and SD Values					ANOVA Results					
Score	Group	N	X	SD	Var. K.	SS	df	MS	F	p
Analyticity	Chemistry	58	45.4483	6.01511	Between	167.730	2	83.865	2.679	.071
	Chemical Engineering	99	44.2626	5.59261	Within	6604.780	211	31.302		
	Electric-Electronics Engineering	57	46.3684	5.13612	Total	6772.509	213			
	Total	214	45.1449	5.63878						
Open-Mindedness	Chemistry	58	40.5029	4.36219	Between	271.996	2	135.998	5.095	.007
	Chemical Engineering	99	39.8737	5.21010	Within	5631.927	211	26.692		
	Electric-Electronics Engineering	57	42.5877	5.80496	Total	5903.923	213			
	Total	214	40.7877	4.84187						

<b>Inquisitiveness</b>	Engineering Total	214	40.7671	5.26478						
	Chemistry	58	45.9770	5.23160	Between	161.280	2	80.640		
	Chemical Engineering	99	44.3210	5.94102	Within	6895.856	211	32.682		
	Electric-Electronics Engineering	57	46.1404	5.78916	Total	7057.136	213		2.467	.087
<b>Self-Confidence</b>	Engineering Total	214	45.2544	5.75605						
	Chemistry	58	45.0246	5.30651	Between	37.563	2	18.781		
	Chemical Engineering	99	44.0115	6.85932	Within	7458.527	211	35.348		
	Electric-Electronics Engineering	57	44.3609	4.71043	Total	7496.090	213		.531	.589
<b>Truth-Seeking</b>	Engineering Total	214	44.3792	5.93236						
	Chemistry	58	44.6798	5.75047	Between	104.924	2	52.462		
	Chemical Engineering	99	43.4776	6.42829	Within	7555.347	211	35.807		
	Electric-Electronics Engineering	57	45.0376	5.37992	Total	7660.271	213		1.465	.233
<b>Systemacity</b>	Engineering Total	214	44.2190	5.99698						
	Chemistry	58	43.1322	5.63750	Between	47.332	2	23.666		
	Chemical Engineering	99	43.3165	5.14250	Within	5908.444	211	28.002		
	Electric-Electronics Engineering	57	44.2982	5.18456	Total	5955.776	213		.845	.431
<b>CCTDI-R Scale Total</b>	Engineering Total	214	43.5280	5.28785						
	Chemistry	58	224.1034	20.15439	Between	2991.334	2	1495.667		
	Chemical Engineering	99	219.2323	23.60250	Within	104340.615	211	494.505		
	Electric-Electronics Engineering	57	228.1579	21.79186	Total	107331.949	213		3.025	.051
<b>MUSOPCP 1<sup>st</sup> Factor</b>	Engineering Total	214	222.9299	22.44785						
	Chemistry	58	8.0862	2.59070	Between	139.217	2	69.609		
	Chemical Engineering	99	9.9394	2.97890	Within	1468.521	211	6.960		
	Electric-Electronics Engineering	57	8.6842	1.96540	Total	1607.738	213		10.002	.000
<b>MUSOPCP 2<sup>nd</sup> Factor</b>	Engineering Total	214	9.1028	2.74737						
	Chemistry	58	11.5517	1.20193	Between	.708	2	.354		
	Chemical Engineering	99	11.5556	1.05194	Within	239.105	211	1.1335		
	Electric-Electronics Engineering	57	11.6842	.92886	Total	239.813	213		.312	.732

As a result of one-way analysis of variance (ANOVA) which is done in order to determine whether the scores taken from MUSOPCP first and second factors show a significant difference according to the academic department variable; for the first factor scores the difference between the arithmetic averages of the group has been found statistically significant. Following this process Post-Hoc analysis techniques are started to be applied.

After one-way analysis of variance (ANOVA), conducted to define how first factor score changes among sub-groups, considering the academic department variable; LSD test is chosen among the post-hoc analysis techniques upon seeing: group variance is found not homogeny for the first factor according to the Levene's test applied ( $L=4.010$ ,  $p<.05$ ). As a result of this test it has been stated that Chemistry Engineering students get a higher significant level of score for the first factor than Chemistry and Electric-Electronics Engineering students.

As seen in table 4 as a result of one-way analysis of variance (ANOVA) which is done in order to determine whether the CCTDI-R scale and factors show a significant difference according to the graduated secondary school variable; for scale total score and Analyticity, Inquisitiveness factors scores the difference between the arithmetic average of the group has been found statistically significant. Following this process Post-Hoc analysis techniques are started to be applied.

Table 4. The results of ANOVA of the scores taken from CCTDI-R scale and factors and MUSOPCP factors according to the graduated secondary school.

N, X and SD Values					ANOVA Results					
Scales	Group	N	X	SD	Var. K.	SS	df	MS	F	p
<b>Analyticity</b>	General High School	66	43.8030	6.50259	Between	400.922	2	200.461		
	Anatolian High School	88	44.7159	5.18829	Within	6371.587	211	30.197		
	Others	60	47.2500	4.66005	Total	6772.509	213		6.638	.002
	Total	214	45.1449	5.63878						
<b>Open-Mindedness</b>	General High School	66	40.0253	5.61585	Between	120.160	2	60.080		
	Anatolian High School	88	40.5398	5.14794	Within	5783.763	211	27.411		
	Others	60	41.9167	4.92003	Total	5903.923	213		2.192	.114
	Total	214	40.7671	5.26478						
<b>Inquisitiveness</b>	General High School	66	44.1414	6.22328	Between	503.088	2	251.544		
	Anatolian High School	88	44.4192	5.31664	Within	6554.048	211	31.062	8.098	.000

	Others	60	47.7037	5.17073	Total	7057.136	213		
	Total	214	45.2544	5.75605					
<b>Self-Confidence</b>	General High School	66	43.6364	6.60708	Between	196.597	2	98.299	
	Anatolian High School	88	43.8961	6.19765	Within	7299.493	211	34.595	
	Others	60	45.9048	4.35748	Total	7496.090	213		2.841 .061
	Total	214	44.3792	5.93236					
<b>Truth-Seeking</b>	General High School	66	43.8312	6.76661	Between	60.948	2	30.474	
	Anatolian High School	88	43.9286	6.42994	Within	7599.323	211	36.016	
	Others	60	45.0714	4.17057	Total	7660.271	213		.846 .431
	Total	214	44.2190	5.99698					
<b>Systemacity</b>	General High School	66	43.8636	5.72264	Between	14.162	2	7.081	
	Anatolian High School	88	43.5038	5.49608	Within	5941.614	211	28.159	
	Others	60	43.1944	4.48151	Total	5955.776	213		.251 .778
	Total	214	43.5280	5.28785					
<b>CCTDI-R Scale Total</b>	General High School	66	219.1061	25.64559	Between	4390.665	2	2195.332	
	Anatolian High School	88	220.9205	22.65494	Within	102941.284	211	487.873	
	Others	60	230.0833	16.22855	Total	107331.949	213		4.500 .012
	Total	214	222.9299	22.44785					
<b>MUSOPCP 1<sup>st</sup> Factor</b>	General High School	66	8.5455	2.45690	Between	37.823	2	18.912	
	Anatolian High School	88	9.5455	2.90425	Within	1569.915	211	7.440	
	Others	60	9.0667	2.74243	Total	1607.738	213		2.542 .081
	Total	214	9.1028	2.74737					
<b>MUSOPCP 2<sup>nd</sup> Factor</b>	General High School	66	11.4091	1.28874	Between	3.209	2	1.605	
	Anatolian High School	88	11.6932	.88873	Within	236.604	211	1.121	
	Others	60	11.6333	1.00788	Total	239.813	213		1.431 .241
	Total	214	11.5888	1.06108					

After one-way analysis of variance (ANOVA); to determine how changed in CCTDI-R scale and factors among sub-groups, considering the graduated secondary school variable, Tamhane test has been chosen from among the post-hoc analysis techniques; because of Analyticity and CCTDI-R Scale group variance are not homogeny according to the Levene's test ( $L=6.193$ ,  $L=6.320$ ,  $p<.05$ ), LSD test has been chosen from among the post-hoc analysis techniques; because of Inquisitiveness factor group variance is homogeny according to the Levene's test ( $L=2.440$ ,  $p>.05$ ). As a result of this test it has been stated that, graduated general high school and Anatolian high school students' score are significantly lower than graduated others (special, super, technical) high schools students' score for Analyticity, Inquisitiveness and CCTDI-R Scale total score.

As a result of one-way analysis of variance (ANOVA) which is done in order to determine whether the scores taken from the MUSOPCP factors show a significant difference according to the graduated secondary school variable; for both scale and factors scores the difference between the arithmetic average of the group has been found to be insignificant statistically.

Sub-Problem 3. Is there a connection between critical thinking dispositions and operational chemistry and physics problems solving skills of Engineering Faculty students?

As a result of Pearson Multiplication Momentum Correlation Analysis, conducted to define the relations between the MUSOPCP factors and CCTDI-R scale; MUSOPCP 1st Factor score and CCTDI-R scale Open-Mindedness, Inquisitiveness, Self-Confidence, Truth-Seeking and CCTDI-R scale total score have a significant negative, MUSOPCP 2st Factor score and CCTDI-R scale Analyticity and CCTDI-R scale total score have a significant positive (Table 5).

Table 5. Pearson Multiplication Momentum Correlation Analysis Results conducted to define relations of the scales and factors.

CCTDI-R scale and Factors	MUSOPCP	
	1 <sup>st</sup> Factor	2 <sup>nd</sup> Factor
Analyticity	$r=-.132$	$r=.165(*)$
Open-Mindedness	$r=-.186(**)$	$r=.066$
Inquisitiveness	$r=-.304(**)$	$r=.058$
Self-Confidence	$r=-.156(*)$	$r=.094$
Truth-Seeking	$r=-.177(**)$	$r=.093$
Systemacity	$r=-.105$	$r=.104$
CCTDI-R scale	$r=-.232(**)$	$r=.123(**)$

## 5.Results

When evaluated in terms of scores obtained from Mathematics usage scale in Operational Physics and Chemistry Problems scale the first factor Mathematics Anxiety in Operational Physics and Chemistry Problems factor and the second factor Conceptual knowledge and Mathematics Knowledge Relation in Operational

Physics and Chemistry, the students are conscious of Conceptual knowledge and Mathematics Knowledge Relation in Operational Physics and Chemistry but they have higher Mathematics anxiety than expected while solving operational Physics and Chemistry problems. In the literature, there are studies showing success in science of high anxiety lowers (Czerniak & Chiarelott, 1984; Yücel, 2008; Eddy, 2000). Researches can be found related to the necessity of operational problems and concept knowledge (Erdemir, 2009; Zhang & Watkins, 2001).

For the second factor of MUSOPCP the level is significantly higher for the female students in comparison with the male students. The study held among the students of Chemical Engineering, Electric-Electronic Engineering and Chemistry Department shows, that the first factor of MUSOPCP has a significant difference according to the department variable. According to the results, Chemistry engineering students was found to be significantly higher scores in comparison with the students of Electric-Electronics Engineering and Chemistry Department. This situation shows the differences between methods and perspectives of those disciplines. The score averages of MUSOPCP factors of the students don't significantly differentiate according to the graduated secondary school variance.

For Analyticity and Inquisitiveness factors, critical thinking dispositions of students were found to be higher compared to other factors. Analyticity, to find rational solutions to the problems and Inquisitiveness, trend learning new things of the people reflects (Kökdemir, 2003). Inquisitiveness factor results of our study were parallel with Facione, Giancarlo, Facione & Gainen (1995).

When the results analyzed according to gender; Analyticity, Self-Confidence, Truth-Seeking factor scores the difference between the arithmetic average of the groups have been found statistically significant. Female students' score average is significantly higher than the Male students. Similarly, according to Rudd, Baker & Hoover (2000), Yıldırım (2005), Gülveren (2007), Zayıf (2008), Beşoluk & Önder (2010), Çetinkaya (2011); gender, for critical thinking disposition is a variable that makes a significant difference.

Students of Chemical Engineering, Electric-Electronic Engineering and Chemistry Department, for Open-Mindedness factor of CCTDI-R scale have a significant difference according to the department variable.

When the results analyzed according to graduated secondary school; CCTDI-R total score and Analyticity, Inquisitiveness factors scores the difference between the arithmetic averages of the group has been found statistically significant. According to this, graduated general high school and Anatolian high school students' scores are significantly lower than graduated others (special, super, technical) high schools students' score for Analyticity, Inquisitiveness and CCTDI-R Scale total score. Results of our study were parallel with Beşoluk & Önder (2010).

The between Mathematics Anxiety in Operational Physics and Chemistry Problems factor average scores which is the first factor of Mathematics Usage Scale in Operational Physics with Chemistry Problems and CCTDI-R scale Open-Mindedness, Inquisitiveness, Self-Confidence, Truth-Seeking and CCTDI-R scale total score have a significant negative, the between Mathematics Anxiety in Operational Physics and Chemistry Problems factor average scores which is the second factor of Conceptual knowledge and Mathematics Knowledge Relation in Operational Physics and Chemistry and CCTDI-R scale Analyticity and CCTDI-R scale total score have a significant positive.

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# The relationship between attachment to God and identity styles with Psychological well-being in married teachers

Zhaleh Refahi<sup>a</sup>, Bahman Bahmani<sup>b</sup>, Ahmad Nayeri<sup>c</sup>, Ramezan Nayeri<sup>d</sup>

<sup>a</sup> Assistant Professor; Department of Counseling, College of Educational sciences and psychology, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

<sup>b</sup> PhD in Counselling, Assistant Professor of Counselling Department, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

<sup>c</sup> MA student of Family Counseling, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

<sup>d</sup> Head of Psychology and Counseling Department, Farhangiyen University, Shahid Beheshti Campus, Mashhad, Iran

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## Abstract

The purpose of this research was to examine the relationship between attachment to God and identity styles with psychological well-being in married teachers. The research method is descriptive and correlation type. The population of the current study includes all married teachers of Mashhad city in year 2013 who were studying in Farhangian university of Khorasan Razavi. 330 people were selected as the sample by using the simple random sampling method. In the current study, the three Ryff psychological wellbeing, ISI identity styles and Sim and Loh attachment to God questionnaires were used. The data were analyzed in descriptive such as frequency, average, standard deviation and inference statistic like Pearson correlation with SPSS-20 statistic program. The results indicate that attachment to God has a positive significant relationship with psychological well-being and all its 6 dimensions involving self Acceptance, positive Relations with others, autonomy, environmental mastery, purpose in life, and personal growth ( $P < 0/01$ ). Also, the informational identity style has a positive significant relationship with psychological wellbeing and its 6 dimensions ( $P < 0/01$ ). Nevertheless, the normative and avoidant/diffusive identity styles have negative significant relationship with psychological wellbeing and its 6 dimensions ( $P < 0/01$ ).

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*Keywords:* attachment to God, identity styles, psychological well-being, married teachers;

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## Introduction:

The effort to understand well-being and its causes is not new but it is an issue that throughout history has always raised interest (McMahon, 2006). In some sense, all medical and psychological interventions, as well as political, social and economic ones, aims at increasing people's quality of life as one of their main objectives (Vazquez, 2009b). As a matter of fact, we make many of our everyday decisions by weighing up the degree of happiness to be reached by us ourselves or by our loved ones (Gilbert, 2006). However, due to reasons related to the sociology of science and with the professional development of scientific disciplines, the focus of intervention for health related areas has historically more often been on the reduction of pain, suffering and deficiencies rather than on development of individual and collective abilities (Vazquez, 2009b). In field of psychology, the emphasis on positive psychological states taken as factors protective of physical and mental health, and especially the relation that exists between these positive psychological states and its repercussions on the development of illnesses has only started to be studied over the last two decades (Taylor, Kemeny, Reed, Bower & Gruenewald, 2000). Except for some rare attempts such as the one by Jahoda (1958), positive theories and models are generally recent (Deci & Ryan, 2000; Keyes & Waterman, 2003; Ryff, 1989; Ryff & Keyes, 1995; Seligman, 2002), especially if we compare them with the long historical development of models explaining mental disorders. In recent years, the pathological view to the human health study has been criticized by some psychologists and pundits and paying attention to positive aspects of health has increased. In the reviewers' view, lack of mental diseases symptoms is not a criterion for health. But, adjustment, happiness, self-confidence and

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\* Corresponding author. Tel.: +989151234982;  
E-mail address: ahmadnayeri67@gmail.com

positive features like this are indicators of health. After emerging these criticisms and new perspectives, a group of psychologists use psychological well-being instead of the term of mental health. Because they believe that, this term injects more positive dimensions to mind (Ryff, 1998). Psychological well-being refers to positive mental health (Edwards, 2005). Research has shown that psychological well-being is a diverse multidimensional concept (MacLeod & Moore, 2000; Ryff, 1989; Wissing & Van Eeden, 2002) which develops through a combination of emotional regulation, personality characteristics; identity and life experience (Helson & Srivastava, 2001). Psychological well-being can increase with age, education, extraversion, and consciousness and decreases with neuroticism (Keyes et al., 2002). Ryff model is accounted as one of the most important models in psychological well-being field. Ryff (1989) takes psychological wellbeing as an attempt to realize the potential abilities of an individual, or in other words progress of the potential and real talents of every person. He states 6 components for psychological well-being involving: 1- self acceptance: means positive attitude to one self and accept the diverse aspects of own self like bad and good traits and have positive feeling about the past life. 2- Positive relations with others: have a sense of satisfaction and intimacy in one's relations with others and comprehend the importance of these dependencies. 3- Autonomy: sense of having independency and impression in life events and the active role in behaviors. 4- Environmental mastering: means sense of mastery on environment, control the outer activities and take benefit of surrounding opportunities. 5- Purpose in life: having a goal in life and believing that there is a meaning in the past and present life. 6- Personal growth: feeling of having continuing growth and achieving the novel experiences as a creator with potential talents (Ryff, Singer, 1998; quoted by Khajeh, 2012).

One of the factors that its effect and relationship with psychological well-being is mentioned in diverse researches is the identity issue, especially the identity styles (Bersonsky, 1990; Vleioras & Bosma, 2005; Shokri and et.al, 2007; Siahpoosh and et.al, 2007). There are three different identity styles in Berzonsky's socio-cognitive identity model: information-oriented, norm oriented and diffuse-oriented identity styles. Information oriented individuals are keen to details, confident and respect their own thoughts in problem solving and decision making. This style is quite similar to Moratorium and Achieved Identity statuses proposed by Marcia (1966). Information oriented identity has a positive relationship with internal locus of control and negative relationship with authoritarianism. In this identity style the individual explores alternatives and decides on whatever is considered proper. They are aware of their individual emotions and believe that they are open to new horizons and experiences. They have liberal values, intellectual curiosity and intuition, in addition to complex cognitive schemata and consciousness. Norm-oriented individuals try to adapt to the norms of reference persons. This identity style is equivalent to the Foreclosure identity status reported by Marcia (1966). Norm-oriented individuals do not actively search for proper information to solve a problem. They use information valued by prestigious models. Their schemata are constructed by individualized norms. These kinds of schemata lead to biased commitments and thought processes. Norm-oriented style and social identity are intertwined. It depends on internalized social expectancies and tendencies. Diffuse/avoidant-oriented individuals are characterized by their defensive manners. They are reluctant to face problems and usually procrastinate stated wishes. External locus of control is dominant. They do not search for the best solution and proper information to solve a problem and rarely make long-term plans. They are sensitive, depressive, and have neurotic personal characteristics. These socio-cognitive identity styles are the outcomes of psycho-social intersections. Each helps a person to develop specific perspectives.

Previous researches pertaining to the subject area of religiosity and psychological well-being, eloquently speak volumes of, and provide sound evidence to support the positive association between religiosity and psychological well-being. One of the concepts which religion has been examined with it is attachment to God. Attachment theory is widely accepted as a broad encompassing model of psychosocial and emotional development. Recent work (Granqvist, 1998; Kirkpatrick & Shaver, 1990; TenElshof & Furrow, 2000) has suggested that attachment theory may be an appropriate framework for a believer's relationship with a God figure. Bowlby (1969, 1973, 1980) theorized that the early attachment bond formed internal working models through repeated daily experiences with caregivers and that these working models serve as a guideline for future social interactions throughout the lifespan. Some of the hallmarks of the attachment relationship are believed to be visible in behaviors toward the attachment figure seeking and maintaining proximity, serving as a secure base of explorative behavior, providing a haven of safety, and experiencing anxiety when separated (Ainsworth, 1985). Kirkpatrick (1999) cited evidence for the existence of these hallmark attachment behaviors in relationship with God. Generally, attachment to God can be defined in this way: the quality of affective, cognitive, and behavioural bond with God which is the underlying of many religious and spiritual behaviours and emotions (Miner and Ghobaribonab, 2011). One of the basic and influential parts in every society is the educational system of that society and teachers are among the most important pillars of this educational system. Therefore, carrying out surveys about this population in the society is so crucial and could resolve many problems. It is

obvious that existing a series of traits in teachers of a society like, balanced development, having strong identity, having positive and acceptable relationship with God, progress, vitality, mental happiness and high psychological wellbeing, could have considerable effects on personality aspects, personal and social development, emerging competent behaviours, nurturing more talented people and decreasing the personality and behavioural abnormalities of the people of that society. So conducting investigations about psychological wellbeing, identity styles and attachment to God in teachers not only help to develop and increase the quality of life level of the teachers but also leads to more growth and progress of the whole society.

Now with respect to what has been stated the purpose of this study was to examine the Relationship between Attachment to God and Identity Styles with Psychological Well-Being in Married Teachers.

### **Methodology:**

The research method of this study is descriptive and from the correlational type. The statistical population of the research included all man and women married teachers of Mashhad city who were teaching in the academic year of 2012-2013 in the elementary and secondary levels and simultaneously they were studying in different campuses of the Farhangian University of Khorasan Razavi. To reach the study goals, among the population with the size of approximately 2000 people, Krejcie and Morgan table suggested choosing 330 people as the sample. 330 people with the age average and standard deviation of 36.58 and 6.44 were selected as the sample by using the simple random sampling method. Thus, first of all a list of all members of the research population were taken from the Farhangian University of Khorasan Razavi and then the names were encoded and afterwards the sampling was done by using the random- number table and with the help of computer.

#### **Research tools:**

In this study, three Ryff psychological wellbeing, ISI identity styles and Sim and Loh attachment to God questionnaires were used.

#### **Ryff psychological well-being scale:**

This scale was developed by Ryff (1989) in the Wiskansin University of the United States of America and was revised in year 2000. The mentioned scale has 84 items which assess the 6 components of self-acceptance, positive relations with others, autonomy, mastery on environment, life with purpose and personal growth. The method of scoring in this scale is Likert type (1=completely disagree to 6= completely agree). It has 47 direct and 37 reverse items for scoring and the range of the total score of each person in this scale in all six components could fluctuate from 14 to 84. The reliability and validity of this scale has been reported in different studies. Ryff (1989) for examining the reliability of this scale calculated its relationship with the personality traits scales which at the same time are the psychological wellbeing criteria (like: Bradbourne affective balance scale, Newgorton life satisfaction and Rosenberg self-respect). The results of Ryff scale correlation with each of the mentioned scales were acceptable. Therefore, this scale is accounted reliable. For assessing the validity of this scale, Ryff (1989) used the Cronbach's alpha coefficient and acquired the following coefficients: self-acceptance 0.91, positive relations with others 0.84, autonomy 0.83, environmental mastery 0.86, purpose in life 0.88, personal growth 0.85 and the total psychological wellbeing 0.87. In Iran Shokri and et.al (2007) calculated Cronbach's alpha coefficients: self-acceptance 0.78, positive relations with others 0.74, autonomy 0.60, environmental mastery 0.77, purpose in life 0.75, personal growth 0.73 and the total psychological wellbeing 0.72. In the present study the Cronbach's alpha coefficients were achieved: self-acceptance 0.86, positive relations with others 0.84, autonomy 0.75, environmental mastery 0.81, purpose in life 0.85, personal growth 0.84 and the total psychological wellbeing 0.96.

#### **ISI identity styles scale:**

This scale was developed by Bersonsky for the first time and after that it was twice reviewed. The mentioned scale involves 11 items for informational style, 9 items for normative style and 10 items for diffusive/avoidant style and 10 other items for commitment scale which is used for secondary analysis and are not accounted as an identity style. Scoring method in this scale is Likert type (1= completely disagree to 5= completely agree). The minimum and maximum score in the informational style is in order 11 and 55, in normative style 9 and 45 and in diffusive/avoidant style is 10 and 50. For examining the reliability of this scale, White and et.al (1992) evaluated the people's responses in the three identity styles with the factor analysis method by using the varimax rotation with the main component. The correlation coefficient of each factor with the whole test for the first factor was 0.79, for the second factor was 0.81 and for the third factor was 0.84 that all of the amounts are high. In Iran, Farsinejad (2004) probe in the construct reliability with the factor analysis



method which the sampling adequacy was 0.75. For examining the validity of mentioned scale, Bersonsky (1992) in the last reviewed version, reported the Cronbach's alpha coefficient for the informational subscale 0.62, normative subscale 0.66 and for diffusive/ avoidant subscale 0.73. In Iran, Khosroshahi and Aliloo (2012) acquired the Cronbach's alpha coefficient for informational subscale 0.78, normative subscale 0.71 and for diffusive/ avoidant subscale 0.70. In this study, the Cronbach's alpha coefficient was calculated 0.81 for informational style, 0.81 for normative style and 0.88 for diffusive/ avoidant style.

Sim and Loh attachment to God scale:

This scale includes 16 items which evaluate the attachment to God in four dimensions of: God as a safety haven, God as a secure base, seek close relationship with God and detachment from God. The scoring method of this test is Likert type (1= completely disagree to 6= completely agree) and the range of total score for each person in this scale could fluctuate from 16 to 96. Jouis (2007) well described the reliability of this scale in a way that in a research, he calculated the correlation coefficient of this scale with the religious beliefs and religious activities orderly 0.83 and 0.85. For assessing the validity of this scale, Jouis (2007) in a study acquired Cronbach's alpha coefficient: 0.96 for safety haven, 0.97 for secure base, 0.96 for closeness and 0.97 for detachment and totally 0.99. According to this, attachment to God can be considered as a single construct which can be expressed in four different ways. In Iran, Nayeri and et.al achieved the amount of Cronbach's alpha coefficient for this scale equals to 0.96. In this research the Cronbach's alpha coefficient was also acquired 0.93.

## Results:

Descriptive results related to research variables can be observed in table number 1.

Table 1: the summary of the descriptive criteria calculations of psychological wellbeing, identity styles and attachment to God

	Attachment to God	psychological wellbeing	informational style	normative style	diffusive/avoidant style
N	330	330	330	330	330
Mean	90.47	365.06	40.13	30.17	26.19
Std. Deviation	7.72	57.82	7.24	7.22	9.62

**Research hypothesis:** there is a significant relationship between Attachment to God and Identity Styles with Psychological Well-Being in Married Teachers.

For examining the hypothesis of the research, Pearson correlation test were used and the results can be seen in table 2.

Table 2: the results of Pearson correlation test for examining the relationship between research variables

	Attachment to God	psychological wellbeing	informational style	normative style	diffusive/avoidant style
Attachment to God	1				
psychological wellbeing	.605**	1			
informational style	.604**	.707**	1		
normative style	-.392**	-.552**	-.423**	1	
diffusive/avoidant style	-.558**	-.772**	-.565**	.662**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

As seen in the second table, all the research variables have significant relationship with each other in the 0/01 level.

## Conclusion and discussion:

This research was done to examine the relationship between Attachment to God and Identity Styles with

Psychological Well-Being in Married Teachers. From the acquired results it can be supposed that people with higher scores in attachment to God presumably are in better psychological well-being state and also those who placed in the informational identity style category, might achieve higher scores in psychological well-being scale. People with better attachment to God scores may be located in the informational identity styles category, in contrast those with less attachment to God scores are likely to be placed in normative or diffusive identity style category. For justifying these results, it can be said that those who are attached to God have beliefs such as expecting pleasant events, seeking meaning in unpleasant events, being patient by expecting rewards, and having the chance to compensate through repenting, are highly likely to have features like positive attitude to one's self and that capability to accept all aspects of one's self, feeling of satisfaction and intimacy about relationship with others especially with God and perception of the importance of these attachments, feeling of independency and having influence on life events, having active role in behaviors, having purpose in life and believe that life is meaningful in the past and the present, and feeling of continuous and strong development and achieving the new experiences as a creature with the potential talents, which all these features refers to the concept of psychological well-being. On the other hand, one the features of secured attached people to God is that they can explore and evaluate their environment more relaxed, and persons with informational identity styles are active, explore and evaluate more and constantly are seeking to achieve proper information to form their identity. Therefore it can be expected that people with secure attachment to God due to having the mentioned features, are highly likely to have the informational identity style.

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# The relationship between knowledge conversion abilities and academic performance

Mohamad Noorman Masrek <sup>a,\*</sup>, Nurul Zaki Mohd Zainol<sup>b</sup>

<sup>a</sup>Accounting Research Institute / Faculty of Information Management, Universiti Teknologi MARA, 40150 Shah Alam, Malaysia

<sup>b</sup>Faculty of Information Management, Universiti Teknologi MARA, 40150 Shah Alam, Malaysia

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## Abstract

The main purpose of this research is to examine the relationship of knowledge conversion abilities and academic performance. Knowledge conversion abilities comprise of four dimensions, namely, socialization, externalization, combination and internalization. Using the survey research method involving 263 respondents from the Faculty of Information Management, Universiti Teknologi MARA, the four independent variables are found to have a significant relationship with academic performance. Further analysis showed that the four independent variables are significant predictors of academic performance. The present study provides both a theoretical and practical contributions to understanding the predictors of academic performance and should be of interest to both researchers and practitioners.

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*Keywords:* knowledge conversion abilities; academic performance; knowledge management; Malaysia.

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## Introduction

Students are most essential asset for any educational institute as the social and economic development of the country is directly linked to students' academic performance (Mushtaq & Khan, 2012). According to Alfian & Othman (2005), students' performance in universities attracts the concern of corporations which are often said to be the "end user" in the supply chain of graduates for the labor market. Realizing the importance of students' academic performance, scholars and researchers have developed various models and frameworks portraying the determinants or predictors of academic success. However, due to the on-going change that is taking place in the university landscape and the technology surrounding students' personal lives, the available models and frameworks for academic performance requires updates and revisions. According to Uyar & Gungormus (2011), determining the factors that affect the student performance is important because primarily institutions and lecturers have to find out ways to increase student performance and to motivate students for better performance. Various factors have been identified by researchers and scholars as determinants of academic performance. Among the mostly researched factors are gender, previous academic performance, living place and income level of family, social environment, the type and quality of the high school graduated, the high school grade point average, the score obtained from nationwide university entrance exam (OSS), time spend in studying, learning ability and living place during the university life (Erdem, *et al.*, 2007). Very few researchers have attempted to explore the role of knowledge conversion abilities of the students' academic success. Based on Nonaka's (1990) knowledge spiral theory, several researchers have conceptualized knowledge conversion abilities as the combination of socialization, externalization, combination and internalization. All of these factors are apparently consistent with the Theory of Educational Productivity developed by Walberg (1981) that suggest three groups of factors that influence students' academic performance, namely, affective, cognitive and behavioral. A good of Academic Institution's is depending on their student academic performance (Chow, 2003; Ali *et al.*, 2009). Although most academic or higher learning institutions in Malaysia have adopted knowledge management approach in their learning system, it is still uncertain to what extent it has been practiced in order to get a better performance result (Daud *et al.*, 2008). Likewise, a research on how the conversion of knowledge took place in an academic setting among students is still lacking.

Given the aforementioned background, this study is aimed at investigating the influence of knowledge conversion abilities on students' academic performance. Specifically, this study will examine the influence of the four dimensions of knowledge conversion which are socialization, externalization, combination and internalization on students' academic performance. In addition, it is aimed to identify which dimension is the strongest predictor of students' academic performance.

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\* Corresponding author. Tel.: +60379622134; fax: +60379622007.

E-mail address: mnoorman@salam.uitm.edu.my

## Literature Review

### 1. Students Academic Performance

Academic performance refers to how students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. In addition, it is also described as the ability to study and remember facts and being able to communicate knowledge verbally or down on paper (Ervina & Othman, 2005). Kuncel *et al.* (2004) noted that academic performance in the classroom is the end product of much other behavior. For example, obtaining a good grade after answering examination items is the result of effective performance, studying, managing goal conflicts, coordinating work with classmates, seeking additional information, negotiating with peers and faculty, avoiding counterproductive behaviors (e.g., drugs and alcohol), handling finances, and structuring effective communications (Kuncel *et al.*, 2004).

Presently, the standards of academic performance have been established in order to measure the students' achievement. Its' usually calculated with a grading system set up by the academic intuition. Grading systems came into existence in America in the late Victorian period, and were initially criticized due to high subjectivity (Kuncel *et al.*, 2004). The famously known of the grading system used by numerous higher learning today in measuring their student achievement is via grade point average (GPA) and cumulative grade point average (CGPA) i.e. a number which is the average mark received for all the courses a student takes and shows how well the student is doing. In Malaysia, most universities measure their student performance based on CGPA (Ervina & Othman, 2005; Ali, *et al.*, 2009).

In line with the Theory of Educational Productivity (Walberg, 1981) various factors associated with the students' affective (Olani, 2009; Richardson *et al.*, 2012), cognitive (Harb & El-Shaarawi, 2006; Olani, 2009; Uyar & Gungormus, 2011; Ren & Hagerdon, 2012), and behavioral abilities (Harb & El-Shaarawi, 2006; Olani, 2009; Uyar & Gungormus, 2011; Mushtaq & Khan, 2012; Richardson *et al.*, 2012) have been identified as the predictors of academic performance. Besides that, other demographic factors such as age and gender (Erdem, 2007; Olani, 2009; Ebuma-Okoh, 2010; Ren & Hagerdon, 2012); and other external factors such as the number of sisters/brothers in school, education level of parents, and expression of family expectations about the school (Erdem, 2007; Ebuma-Okoh, 2010; Mushtaq & Khan, 2012) have also been found to have a profound effect on students' academic performance.

### 2. Knowledge Conversion Abilities

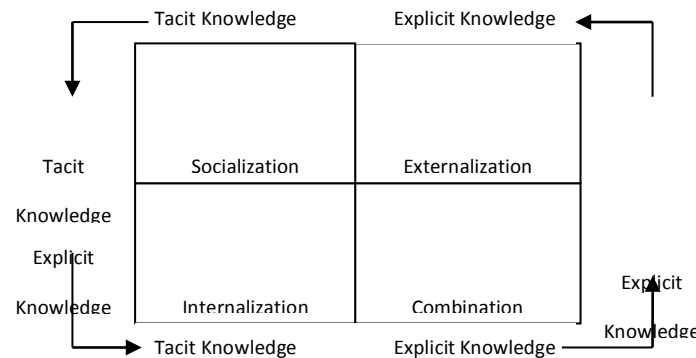
Marwick (2001) defined knowledge as an individual's experience and understanding. Davenport & Prusak (1998) defined knowledge as "a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information". Nonaka & Takeuchi (1995) classified knowledge into explicit and tacit. Tacit knowledge is linked to personal perspectives, intuition, emotions, beliefs, know-how, experiences and values. Tacit knowledge is intangible and not easy to articulate, making it difficult to share with others (Nonaka & Takeuchi, 1995). In comparison, explicit knowledge has a tangible dimension that can be more easily captured, codified and communicated. Knowledge creation refers to the ability of an individual or organization to develop novel and useful ideas and solutions.

Through the famous SECI (*socialization, externalization, combination and internalization*) model as shown in Figure 1, Nonaka & Takeuchi (1995) explained the term knowledge conversion. According to them, the process of knowledge conversion (the dynamic interrelationship between tacit and explicit knowledge) lies at the heart of knowledge creation which involves an interaction between socialization (tacit to tacit), externalization (tacit to explicit), combination (explicit to explicit), and internalization (explicit to tacit/implicit). Choo (2006) stated that the role of knowledge conversion process is to develop the conditions that would be enabled the creation of knowledge at the individual, group, organizational or inter-organizational levels. The elaborations of these SECI model are as follows:

- *Socialization* is the process of converting *tacit knowledge into tacit knowledge* through shared experiences, such as observation, imitation, and practice. Socialization typically occurs in a traditional apprenticeship, where apprentices learn the tacit knowledge needed in their craft through hands-on experience. Socialization also may occur in informal social meetings outside the workplace, where tacit knowledge, such as world-views, mental models and mutual trust can be created and shared.
- *Externalization* is the process of articulating *tacit knowledge into explicit knowledge* and involves the interchange of tacit knowledge to explicit knowledge. When tacit knowledge is made explicit, knowledge is crystallized, which allows it to be shared by others, and it becomes the basis of new knowledge. The tools of this conversion use different metaphors, analogues, concepts, hypotheses and models.
- *Combination* is the process of converting explicit knowledge into more complex and systematic sets of explicit knowledge (*explicit knowledge into explicit knowledge*). Explicit knowledge can be accumulated from inside or outside the firm and then combined, edited or processed to form new explicit knowledge.

Through presentations or meetings, this new explicit knowledge can be directly disseminated among the members of the organization.

- *Internalization* is the process of embodying *explicit knowledge into tacit knowledge* and may be embodied in actions and practice, so that the individual acquiring the knowledge can re-experience what others go through. Some of the means through which individuals may acquire knowledge through the internalization processes are learning by doing, learning by observing, face-to-face meetings, and on-the-job training.



### Research Framework

Fig.1 Modes of knowledge conversion (Nonaka & Takeuchi, 1995)

Figure 2 showcases the research framework used in the study. Theory on Educational Productivity (Walberg, 1981) and Theory on Knowledge Conversion (Nonaka, 1984) were used as the main theory for the development of the framework. In Nonaka's SECI model of knowledge conversion process, the interaction between the knowledge conversion patterns, i.e., socialization (from tacit to tacit), externalization (tacit to explicit), combination (from explicit to explicit) and internalization (from explicit to tacit); and this continuing process can generate a new knowledge between individual, team, organizational to inter organizational level. The SECI model suggests that the knowledge conversion processes, i.e. the four knowledge conversion abilities will encourage the process of knowledge creation to generate better outcomes (Huang & Wang, 2002). Daud *et al.* (2008) described that the four knowledge conversion abilities as active learning processes that will give an impact on innovation in academic performance. Ali *et al.* (2009) found that students who actively engaged in the learning process and involved in extracurricular activities obtained greater cumulative grade point average (CGPA). Based on this premise, the following hypotheses are established:

- H1 – Socialization is a significant predictor of a student's academic performance*  
*H2 – Externalization is a significant predictor of a student's academic performance*  
*H3 – Combination is a significant predictor of a student's academic performance*  
*H4 – Internalization is a significant predictor of a student's academic performance*

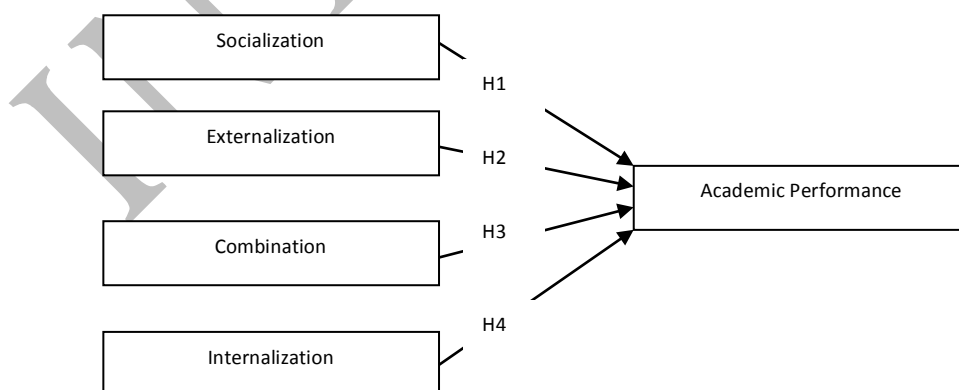


Fig. 2 Research Framework

### Research Methodology

The study used a survey method with questionnaire as the instrument for data collection. The questionnaire was developed based on the instruments used by a previous study by Huang & Wang (2002). Perceptual measures in the form of statements were developed for measuring each variable. For each statement or items, a corresponding Likert scale anchored as 1 for "Strongly Disagree"; 2 for "Disagree"; 3 for "Neither Agree Nor

Disagree”; 4 for “Agree” and 5 for “Strongly Agree” were also prepared. The questionnaire was pre-tested with several experts and prospective respondents. Subsequently, it was pilot tested with 30 students. The results of the pilot test are illustrated in Table 1 showed that the Cronbach Alpha for all variables were well above 0.7, indicating that the questionnaire was acceptably reliable.

The population of the study was students of Faculty of Information Management, Universiti Teknologi MARA Shah Alam. A total of 450 (i.e. 20% of the population of 2231) questionnaires were sent to the targeted students. The number is considered appropriate and in line with the suggestion of Sekaran (2003) that at least 15% of the total population must participate in the study. After the duration of the data collection was over, a total of 351 questionnaires were returned, yielding to 78.0% response rate. However, 88 were found to be unusable for further analysis as they were incomplete. The remaining 263 were analyzed using IBM SPSS. The statistical analyses carried out were frequency analysis; descriptive analysis focusing mean and standard deviation; factor analysis (EFA) for assessing common method bias; correlation analysis for looking into the relationship between variables; and multiple regression for testing research hypotheses.

Table 1. Sources of measurements of variables and results of pilot test

Variable	No of items	Sources of measurement	Cronbach Alpha of pilot test
Socialization	7	Huang & Wang (2002);	0.917
Externalization	7	Huang & Wang (2003);	0.824
Combination	6		0.879
Internalization	5		0.906

## Findings

Table 2 displays the demographic information of the respondents. Out of 263 respondents, 76.8% were female while the remaining 23.2% were male. In terms semester, the majority indicated to be in semester five (38.8%) while the minority indicated to be in semester seven (0.4%). Full time students contributed 85.2%, while the remaining were part-time (6.8%) and distance learners (8.0%). Students enrolled in BSc Library Science were also found to be the largest participants (31.2%). In comparison, students registered for BsC Records Management were the least (3.8%).

Table 2. Demographic Profile

		Frequency	Percent
Gender	Male	61	23.2
	Female	202	76.8
Semester	Part 1	2	0.8
	Part 2	13	4.9
	Part 3	60	22.8
	Part 4	36	13.7
	Part 5	102	38.8
	Part 6	49	18.6
	Part 7	1	0.4
Mode	Full-time	224	85.2
	Part-time	18	6.8
	FLP	21	8.0
Program	BSc Library Science	82	31.2
	BSc Information Management Systems	54	20.5
	BSc Resource Centre Management	48	18.3
	BSc Records Management	10	3.8
	Master of Information Management	40	15.2
	Master of Knowledge Management	11	4.2
	Masters in Library Science	18	6.8

In order to ascertain whether common method bias is a threat to the research data, Harman’s single factor test was executed. All items from all constructs under study were entered for analysis and constrained to only a single factor. The results showed that the single factor explained only 34.40%, less than the benchmark value of 50% of the total variance, implying that the collected data is free from the problem of common method variance. Accordingly reliability analysis was also performed and the results indicate that the Cronbach Alpha values are

well above the cutoff value of 0.7. The recorded Cronbach Alpha values are between 0.727 and 0.798 implying that the instrument used in this study is acceptably reliable.

The mean scores of all variable are well above the mid value (i.e. The middle value of the Likert scale is 3), suggesting that in general, the respondents of the study skewed to practice with the listed knowledge conversion practices, i.e. socialization, externalization, combination and internalization (refer Table 3). In comparison, the results of the correlation analysis suggest that, all independent variables have a moderate relationship with academic performance (CGPA). This finding denotes that each independent variable by itself, has some influence with academic performance. The strongest relationship is for variable combination ( $r = 0.396$ ,  $p < 0.01$ ), followed by externalization ( $r = 0.394$ ,  $p < 0.01$ ).

Table 3. Mean, Standard Deviation and Correlation Analysis

	Cronbach Alpha	Mean	Std. Deviation	[1]	[2]	[3]	[4]	[5]
[1] Socialization	0.798	3.9913	0.452	1.000				
[2] Externalization	0.748	3.6616	0.438	0.526**	1.000			
[3] Combination	0.749	3.7123	0.468	0.565**	0.587**	1.000		
[4] Internalization	0.727	3.8821	0.477	0.449**	0.516**	0.512**	1.000	
[5] CGPA	NA	3.279	0.4344	0.387**	0.394**	0.396**	0.362**	1.000

Regression analysis was performed to test the proposed hypotheses and the results are displayed in Table 4 and Figure 3. The F statistics produced ( $F = 19.284$ ,  $p < 0.01$ ), thus confirming the fitness for the regression model. The coefficient of determination,  $R^2$  was 0.23 which suggests that the four factors can significantly account for 23.0% in academic performance. Based on this result, all established hypotheses H1, H2, H3 and H4 are fully supported.

Table 4. Results of Regression Analysis

Independent variables	Dependent variable – CGPA Standardized beta
<i>Socialization</i>	0.165*
<i>Externalization</i>	0.153*
<i>Combination</i>	0.145*
<i>Internalization</i>	0.135*
$R^2$	0.230
Adjusted $R^2$	0.218
F value	19.284*
Notes: * $< 0.01$	

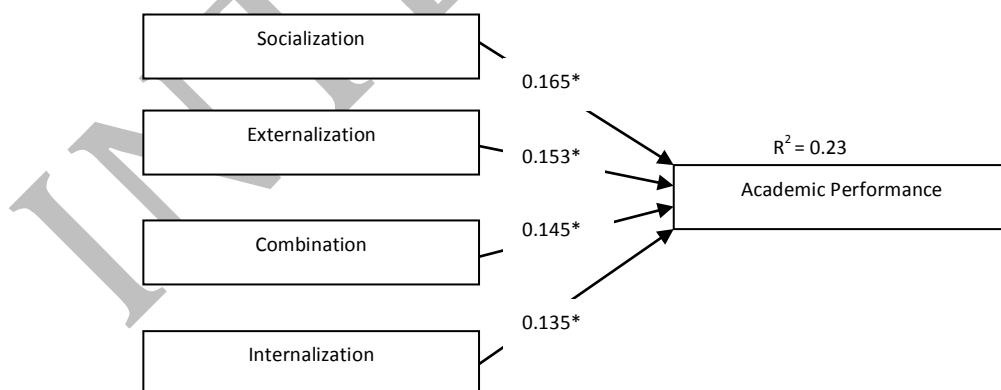


Fig. 3 Path Analysis

## Discussion

The present study provides both a theoretical and practical contributions to understanding the role of knowledge conversion abilities towards academic achievements. All the four dimensions of knowledge conversion abilities are found to have a significant relationship with students' academic performance. The combination of the four dimension accounts for 23.5 variances in students' academic performance. Out of the four dimensions, socialization turned out to be the strongest predictor ( $\beta = 0.165$ ,  $p < 0.01$ ). This result indicates the importance of socialization in shaping students' academic success. This result is almost consistent with that of Mushtaq & Khan (2012) who found that communication as a significant predictor of academic success.



Socialization requires an individual to heavily involve in various modes of communications. Being university's students, communications with lecturers, supervisors, colleagues and others is definitely inevitable. The implication of this study is that, the educators of the university should encourage their students to improve not only their communication skills, but also their intensity of communications with people of all ranks.

The second strongest predictor discovered in this study is the externalization ( $\beta = 0.153$ ,  $p < 0.01$ ). The finding suggests that the higher is the engagement of externalization, the better would be the performance of the student. According to Nonaka & Takeuchi (1995), externalization involves the converting tacit knowledge to explicit knowledge and the tools that can be used for the conversion include analogues, concepts, hypotheses and models. All these various conversion tools are no alien to the students as they are used to engaging them in their learning process. Nonetheless, this finding signals the need for educators to continuously engage students to visualize their tacit knowledge in the form of models or diagrams. This approach will enable other students to also learn and at the same time promotes knowledge sharing.

The third strongest predictor of students' academic performance is combination, which involves the conversion of explicit knowledge to explicit knowledge ( $\beta = 0.145$ ,  $p < 0.01$ ). The results suggest that, in the absence of combination, students' academic performance will be greatly impacted. Knowledge acquired from the class lecture combined with the knowledge obtained from fieldwork research among the student will definitely produce new explicit knowledge. As advocated by Nonaka & Takeuchi (1995), this new form of knowledge can be shared with others through the medium of presentations and meetings. This finding further stresses the significance of doing fieldwork research as it will further enrich the students' knowledge, which in turn improves their academic performance. Educators should respond to this finding by giving more exercise that will require the students to do fieldwork research.

The last significant predictor discovered in this study is internalization ( $\beta = 0.135$ ,  $p < 0.01$ ). Internalization involves the conversion of tacit knowledge into explicit knowledge. As suggested by Nonaka & Takeuchi (1995), activities such as learning by doing, learning by observing, face-to-face meetings, and on-the-job training are examples of which the internalization can occur. All these activities are very common for students because the nature of their learning process will require them to engage in these activities. Given this result, academics and educators should further intensify the activities as outlined by Nonaka & Takeuchi (1995), because by doing so, will further improve students' academic performance.

## Conclusion

The purpose of this article has been to examine the influence of knowledge conversion abilities which consists of four dimensions which are socialization, externalization, combination and internalization on students' academic performance. Drawing upon Nonaka & Takeuchi's (1995) model of knowledge conversion, this study developed an empirical based framework which connects the dimensions of knowledge conversion to students' academic performance. The results of the analyses suggest that all the four dimensions are significantly correlated with students' academic performance. Further analysis proves that socialization, externalization, combination and internalization are truly significant predictors.

While this study has achieved its objectives, it is still subject to several limitations. Firstly, this study collected data from one university only. Future researchers should consider testing the developed model in a bigger scope of the population. Secondly, this study collected data based on perceptual measures. Future studies can further extend this research by integrating the objective measurement or evidence-based measures.

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