

International Conference on
New Horizons in Education

INTERNATIONAL CONFERENCE ON NEW HORIZONS IN EDUCATION - 2010

Proceedings Book

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2010 – Turkish Republic of Northern Cyprus

Acknowledgement

Dear Guests…

Welcome to the International Conference of New Horizons in Education-2010.

"The International Conference of New Horizons in Education-2010 (INTE-2010)" is an international educational activity for academics, teachers and educators. It promotes the development and dissemination of theoretical knowledge, conceptual research, and professional knowledge through conference activities, the conference proceeding book. This year, INTE-2010 received almost 260 applications. The conference academic advisory board accepted 150 applications.

The International Conference of New Horizons in Education-2010 aims to diffuse the knowledge and researches among academicians and lead to development in educational sciences.

We have lots of participants from 19 different countries. These countries are Austria, Czech Republic, France, Germany, Iran, Israel, Lithuania, Norway, Poland, Portugal, Romania, Slovenia, South Africa, Turkey, Turkish Republic of Northern Cyprus, United Arab Emirates, United Kingdom, United States and Zambia.
Should you have any enquiries regarding INTE conference, please do not hesitate to contact with us for any additional information you may require.

Finally, we would like to wish you all a pleasant stay in Famagusta-Turkish Republic of Northern Cyprus and safe return back home. I hope that INTE-2010 will be a meeting you will pleasantly remember.
We hope we will meet again at the International Conference of New Horizons in Education
2011.

Thank you...

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Keynotes

Date	Time	Topic	Keynote Speaker	Session Chair
23.06.2010	10:30-11:30	Öğretim Yeterlikleri ve Sakarya Üniversitesi Örneği	**Prof. Dr. Aytekin İŞMAN**	**Prof. Dr. Zeki KAYA**
24.06.2010	09:30-10:30	Gifted Case Studies	**Prof. Dr. Hanna David**	**Ass. Prof. Dr. Hasan Basri GÜNDÜZ**

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KEYNOTE: CASE STUDIES OF ISRAELI GIFTED CHLDREN

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INTRODUCTION: ON THERAPEUIC CONSELING FOR GIFTED FAMILIES

> Unresolved in the research community for a number of years has been the question whether giftedness as such might cause socio-emotional difficulties or not. Are the gifted characterized by psychological well-being or are they prone to be in various ways dysfunctional? While the scientific community is somewhat divided on the issue one aspect has been largely overlooked in research, namely understanding giftedness also as a social function in a more evolutionary sense. To view socio-emotional adaptation as a function of type of giftedness and its degree or acceptance or tolerance in any given setting, may facilitate understanding why social belonging and psychological well-being are more difficult in some social contexts than in others. Certain types of giftedness invariably have a considerable certain appeal, while other types of giftedness are perceived more as inconvenient or even undesirable or threatening (Persson, 2010a).

As Persson (2010) has summarized, there are two contradicting theories about the mental health, social adaptation and general well being of gifted children. The more common one, held usually by the general public but also supported by educators and mental health professionals (e.g. Edmunds, & Edmunds, 2005; Janos et al., 1985; Mendaglio, 1995; Persson, 2009b, 2010; Porath, 2000) is that the gifted are "somewhat different", "too sensitive", "difficult to adjust socially", or even "boastful, arrogant, weird". The other theory, adapted by many researchers and educators, started with Terman et al. and Terman's successors (Burks et al., 1930; Janos, 1987; Oden, 1968; Seagoe, 1975; Sears, 1977, 1984; Sears & Barbee, 1975; Terman, 1925, 1930, 1954a, 1954b, 1959; Terman & Oden, 1935, 1947, 1951, 1954). According to them the gifted child was found to be superior to the regular one in most social and psychological aspects. Similar results have been found by many contemporary researchers and educators (Bracken & Brown, 2006; Neihart et al., 2002). Hollingworth (1926, 1931, 1936, 1942), who studies the extremely high IQ child, did find difficulties in adjustment to peers, school norms and standards, and to the educational pace if assigned to a non-accelerated track. A "compromise" has been achieved in the educational world by labeling the gifted according to their IQ. Silverman (1989) had suggested that the "profoundly gifted" would be those with IQ over 145; for Gross (2005) those consisting of the group with potential emotional and social problems were children with IQ higher than 160. The idea of the negative correlate between the IQ and the level of social suitability has been summarized by Janos & Robinson (1985): "the most highly talented are the most vulnerable; probably they are exceedingly 'out of sync', with school, friends, and even family" (p. 182). The "out of sync" concept, as a characteristic of the highly gifted has been discussed widely since (e.g. Hébert, & McBee, 2007; Robinson, 2002; Silverman, 2009; Smith, & Laura, 2009). A recently published research showed that that the gifted child is at higher risk to depression than the non-gifted matched group of ~11-year olds (Bénony et al., 2007). However, there are not enough studies to emphasis this one, and most of the existing studies consist of very small samples.

Our discussion should not be concluded without the theory most popular by the wide public and formulized numerous theoreticians of giftedness, mainly Sternberg et al. (Sternberg, 2003, Sternberg, & Grigorenko, 2002). This theory, relied mainly upon educational ideas and attitudes, minimizes the weight of measured IQ claiming that in order to succeed characteristics such as general mental strength, consistence, believability in own abilities and motivation are required, while the division of gifted versus non-gifted is not of much value.

The most recently published meta-analytic study discussing this issue (Martin et al., 2010) concludes with the recommendation:

> Further studies addressing the mental health of gifted youth would benefit from examining large, population-based cohorts or groups or individuals. Ideally, studies designed to examine whether gifted students are at higher or lower risk for mental or emotional problems compared with their nongifted peers would include a sample of gifted *and* nongifted youths who are assessed at the same time, with the same mental health measures, using the same methods, by the same study team. In addition, more diverse and representative samples would researchers to account for the effects of gender, age, and parental psychopathology, which may be related to both giftedness and mental health outcomes (ibid, p. 39).

Thus the case studies I am to present in length are, by no means, "representative" or "typical". They aim to show how important the role of individual counseling for the gifted is in a system that hardly offers any mental public support to the gifted student, as quantitative studies of giftedness and well being, which are the basis of rules and preferences, are still so scarce.

CHARACTERISTICS OF GIFTED FAMILIES SEEING COUNSELING

Families who turn to me for counseling, regarding their gifted child, usually share certain common characteristics.

1. In most cases at least one of the parents is a professional in education, counseling, or psychology. When not, they are well read in child development, educational psychology, sociology, educational in general and education of the gifted in particular;
2. The parents are usually of middle- and upper middle-class socio-economic status, but by no means are they rich. Both parents are salaried employees, and those who are not, have their own private practices as physical- or mental health professionals or experts of learning disabilities.
3. Almost all families have at least 2 children; the majority is a 3-child family and the minority – 4-child families.
4. The parents almost never come to consult with me as their first priority. They approach me as a last resort, after at least one other intervention – in some cases after three or even four other trials, some quite long, which had not improved the situation and had not solved the educational problem.
5. In spite of the fact that the book I have published about gifted girls (Zorman & David, 2000) had been recommended by the Israeli CEO of the Ministry of Education as a compulsory text for all educators, and most of my Hebrew publications focus on gifted girls of all sectors, parents of gifted girls and adolescent females, who approach me publicly in lectures and private meeting with concerns about their daughters, almost never seek paid counseling. Thus most of the families consult with me about their gifted boys, and even those who come to me because of their gifted daughters almost never seek a long intervention but rather an immediate answer for a pressing problem.

The number of families contacting me regarding educational and psychological problems of their gifted children is about five times higher than that of families actually coming to me for counseling. Analyzing the reasons such families have given to their decision not to start an intervention process with me has resulted in the following conclusions:

1. Many parents are not ready to accept the fact that their problem might not be solved in one meeting. They are prepared "to come to the doctor for a prescription", and when told I am "not this kind of a doctor" and the intervention needed might take a few meetings – in some cases even a few months – they give up on the counseling, explaining the reason as "financial".
2. There are parents, mostly mothers, who are unwilling to include their spouses in the intervention, no matter how hard I try to explain that it is extremely important that both parents are full

partners in every decision made about the future of their child. When such an agreement seems impossible, one cannot expect full support from both parents when the child has to make changes in her or his life, and go through complicated processes, changes that are not recommended without this support. Achieving full cooperation from both parents is not more common among married than among divorced couples; neither have I found any socio-economic or educational characteristics of the "non-cooperative parent".

3. At least one third of the parents contacting me wish for their child to acquire the "gifted" label, namely, to have some document, signed by an expert, stating that the child is "indeed" gifted. However, they are unwilling to accept the fact that such a document will not solve the problem causing them to find such an expert on the first place. These parents, once they are told where they can take their child for "giftedness examinations" give up on the counseling.
4. Many parents need an addressee for their complaints against the injustices they perceive as done to their child by the education system. When I explain that I have no position in this system, and thus unable to change it but rather find a solution within this system, they conclude, mostly, that I justify the system, and thus cannot help them.
5. Almost all parents require an immediate meeting. According to my counseling theory, the first meeting takes place with both parents after they had sent me all written materials about the child, and I read it carefully. When in spite of my efforts there is no way to set an immediate 90-minute meeting, some of the parents withdraw the counseling idea completely.

Unfortunately, the result of such parental behavior is, almost always, trying other solutions, and thus, only when realizing that "instant recipes" do not work, these parents come back to me. They hope that in spite of the disappointments they have experienced from the education system, after educational, social and psychological failures and sometimes after losing any hope that their child would ever be able to be a part of this system, some change will occur. This situation makes my work quite complicated. However, as obliged to do the best for the children, it has also helped me to set a new, somewhat revolutionary priority scale for aims of counseling gifted children.

PRESENTATION OF THE THREE BOYS

The three cases I am to present in this Keynote are of three gifted boys, aged 11, 14 and 15 at the beginning of the intervention, all in dropout risk. Only one of them will be described in length in this paper, as the other two have been described somewhere else (David, in press, 1; David, in preparation). Here are some common ingredients of all cases.

1. Ken (11), Lior (14) and Moses (15)[1] were gifted boys who have shared a common characteristic: unwillingness to attend school. They all lived in the center of Israel.
2. While Ken had lived in a community settlement, Lior lived in a large city and Moses – in a medium-size one. Ken was, at the time the intervention, a 6th grade student in the school all the families in his settlement had sent their children to; Lior was 9th grader in a junior high school located close to his home, and Moses was a 10th grade student in a comparatively good senior high school in his home town. Regarding the law of compulsory education they were in different phases: Ken and Lior were still obliged to attend school under that law, though only in Ken's case legal acts would have been taken had he not gone to school; Moses could have finished grade 10 and just leave school, as the compulsory education law was extended up to grade 12 only after he was 16 (Zuzovsky, & Donista-Schmidt, 2004) and it had not yet been forced.
3. All three families were concerned about the dropout possibility of their sons. All of them explained, that their children had never been disobedient, had been considered "good boys", "good students" and "good brothers", and that was why the parents took their sons' threat: "I am not taking this any longer. I rather transfer to homeschooling" very seriously.
4. All three boys suffered from boredom in school. However, the level of suffering, as perceived by them, was different in each case, and in Ken's- as well as in Moses' case that was not the main reason for heir dropout threat. While Lior was popular socially, that was not in the case of Ken

[1] I am grateful to the families who have given me permission to use their cases for the benefit of the researchers, practitioners and other families with gifted children. Nevertheless I have used pseudonyms and made a few more changes to eliminate the possibility of identification of the boys.

and Moses. Ken had been the victim of continuing verbal abuse by his peers, and it took him many years until he had enough courage to discuss it with his parents and tell them he was not to take it any longer. Moses had stopped all social activities at age 12, and he felt like a stranger in school. From age 12 until 15 he reduced his school attendance gradually, and in grade 10, when the first matriculation examinations were to be taken, he was told by this teachers they did not believe he could pass them. Lior, on the other hand, was a very good student, his teachers liked him and everybody – including the school counselor – was sure he was happy in his classroom. The truth was he felt isolated, not belonging, struggling with educational issues, philosophical thoughts, the need to choose between his various activities and the wish to share his inner thoughts with someone his age. He did not get any of these wishes and did not believe a change was possible in his school.

5. All three boys had been identified as gifted at age 8 or 9 by the same national system (David, 2008). However, this did not help them get access to a suitable educational constellation. Ken had started participating in the enrichment program for the gifted while in grade 4. He loved Monday mornings, when he had to prepare for the half hour drive to the enrichment center. He made a few friends here, and he was excited of what he learnt in most subjects. However, on Sundays, and Tuesdays through Fridays he was very unhappy. Lior was identified as belonging to percentile 97 of his age group, and thus was not invited to participate in the morning enrichment program held in his town but rather in the afternoon one which had cost a lot of money, provided no transportation and put extra pressure on his working parents to drive him to it and back. He did participate in a few activities, but left in grade 5 because he preferred to invest more time in music – he had started playing the piano at age 6 and two years later added the guitar; and chess: he gradually became an active member of his chess club and started competing against children much his senior in local and national tournaments. Moses had left the morning enrichment program in grade 6, as many other Israeli children do (David, in press 2), and at age 15 he practically had no company of young adolescents who were interested in mathematics, as he did, or were as well-read both in Hebrew and English as he was.
6. In the case of Ken there were actually two possibilities for his education: continuation of the daily suffering at school, which had already caused many psychosomatic phenomena, or staying at home, as for his age there was no gifted classroom operation 6 days a week he could get into. Lior's parents contacted me after he made an ultimatum: "either you solve my boredom problem immediately or I stay at home". Moses, who had already tried several psychological interventions before, hardly went to school since grade 8. At the time we first met he was a 10th grade student, still having to attend school under the law of compulsory education, but his participation in school activities, including attending regularly, doing homework, and setting down for examinations was very limited. As for the class social activities – he had ignored them completely.
7. The result in each of the interventions has been different, but in all three cases both the parents and the sons came to terms with the new situation resulted in the change done. This was achieved without breaking any law or having to use means of aggression against the system they had perceived as harmful to their children.

LIOR: A SUCCESSFUL INTERVENTION

I first met Lior, a 15-year old tall, broad shouldered boy, about two months after the beginning of his 9th grade school year. His parents had written to me right after the end of the High Holidays.[2] Here is their mail.

Dear Dr. Hanna David,

[2]The Jewish High Holidays start between the second and the last week of September, and end 3.5 weeks later The Jewish calendar is lunisolar. The Jewish year starts on the first day of the month of Tishri, the first month of the year followed by Elul (Turkish: Eylül), the 12th Jewish month. Thus, when the Israeli school year starts, on September 1, it is still on the month of Elul, while the end of the high holidays is already in October.

> We are the parents of a 15-year old gifted boy who finds it hard to decide about his future educational track. There are several difficulties we have to solve and overcome, and we are confused because of many contradictory opinions we have been exposed do.
>
> We would like to come to you for a counseling meeting as soon as possible.
>
> Thanks,
>
> Ruthie and Oded

As I have already explained all calls and emails I get request an urgent meeting. The reason is always the same: after a long frustration time of unsatisfactory situation, the parents suddenly face an ultimatum from their child or from the school authorities. In some more severe cases the mental situation of the child deteriorates and the parents become worried about her or him. However, when the parents believe that I can help them just by listening to their problem and prescribing them the right "solution" I do my best to make them understand that understanding he problem is usually a short process, but solving it – or at least – overcoming it – is, in most cases, complicated and requires a lot of patience. The letter of Ruthie and Oded expresses helplessness, but at the same time clarified that they knew they were not to be helped by unqualified "advice givers". Cross (2002) had accurately explained the phenomena of "inflation of giftedness experts":

> Myth 5. Virtually everybody in the field of gifted education is an expert on the social and emotional development of gifted students. An extension of this is that every adult (parent, teacher, school administrator) is an expert on the social and emotional development of gifted students (p. 44).

Ruthie and Oded were not willing to listen to various general advices, given sometimes even by people of authority, who were not knowledgeable in education- and psychology of the gifted. They preferred to be committed to a suitable intervention process.

In some of the cases, when the parents define the problem accurately, the process of resolving it starts right then. However, this happens quite rarely. Here is the list of the most common definitions-of-the-problem parents believe in:

***** The problem has been caused by the giftedness of their child. Many parents think that being gifted is a problem per se. One mother had once even gone as far as defining her child's giftedness as "disability" (David, in press 1). The examples they give are: "the class teacher harasses my daughter because her vocabulary is too rich"; or "my daughter has no friends in her class because she prefers older friends; had she skipped at least one class she would have had friends". It is not easy to change parents' opinions when they believe that giftedness is itself a problem, and as such always has educational and social negative effects. As I am unable to abolish the children's giftedness, holding to that belief makes it impossible to solve any problem until the process of investigation the source of the already-defined-problem is found. Only when the parents participate in the process the phase of solving the problem becomes visible.

* History of failures**.** The origin of one of the main difficulties I have to deal with lies in the fact that so many of the families I counsel have already experienced more than one former disappointment regarding their child's treatment. That is why I have adopted a rule practiced usually by clinical psychologists and psychiatrists: taking full responsibility of the mental and educational conditional situation of the child or adolescent for unlimited time, and promising both the parents and their child, that I was not going to leave them, but rather wait for them to leave me. I even say: "you should perceive the moment when you fell I am unneeded as a happy one: for me it is a professional success".

Success Criteria of an Intervention

An intervention is successful, by my definition, when:

1. The intervention comes to a "natural" end. At that point I am sure the child and the parents do not need me anymore, and in many cases the child or adolescent expresses this feeling aloud;
2. The child/adolescent has not only solved the problem he or she had started the counseling with, but also feels mentally stronger, has higher self confidence. They also feel more ready for the challenges to come, as well as to the difficulties and conflicts they will have to deal with during the growing and developing process to come.

The beginning of the intervention with Lior

Right from the beginning of the intervention I was sure Lior's case had good success prospects, even though many of the changes needed to be materialized were not in my power to make. I knew that no matter what decisions were to be made, after making them Lior would be much stronger, with a better self-image, and would believe in a successful future both professionally and socially.

The last straw in Lior case, as I found when I met his parents, was that he told them he did not want to go to school any more, and asked them to arrange homeschooling for him. Since 1994 The Israeli Ministry of Education allows, in exceptional cases, this possibility (e.g. Heller-Degani, 2003; Homeschooling, 2006). However, there had not been any documented precedent of homeschooling for the gifted. In addition, Ruthie and Oded objected to homeschooling out of practical reasons. They both had highly demanding jobs and they could not dedicate enough of their time for the teaching of their son. Neither could they afford to pay for enough private lessons that could have satisfied their curious, eager to learn and diligent son. They assured Lior that had it been possible, they would not have objected to homeschooling, but as it was practically impossible for them they asked him to "give a last chance" to finding another solution.

Even before meeting Lior, I was impressed by the unified front Ruthie and Oded had presented. Tough they told him explicitly that they were not able to supply homeschooling for him as they had no practical means to support it, but they still were highly empathic toward him, showed understanding to his situation and were willing to invest large amount of money and energy in order to find the optimal solution for him. In similar situations many parents would choose one of the more common options: 1. Tell their son: "we cannot respond to your unrealistic request" and leave him to cope alone with his difficulties, 2. Declare a no-prospects-to win battle against the teachers, the headmistress, the school counselor or even the Ministry of Education, a combat where the price is always paid by the pupil. This couple chose the long, but only effective way.

The 90-minute meeting with Lior's parents clarified the following facts:

1. Lior was versatile gifted boy, interested in a variety of subjects, and read a lot. He had said to his parents: "in the last 5 years I have learnt nothing in school". He was bored during classes, and felt tired of playing "the teachers' favorite" role. He was eager to learn challenging things that would be suitable to his level of knowledge, understanding and deep thinking.
2. Lior was very well emotionally developed. He described his situation clearly and openly. He was sensitive both to himself and to others.
3. In addition to Lior's academic interests, he was also an excellent chess player, dedicating three afternoons a week to his chess club. In addition he studied music for many years, played 2 instruments and perceived his musical activities as central in his life.
4. Lior was also very close to his 11-year old admiring brother. He supported him both socially and academically.
5. Lior was by no means a rebel, and thus his declaration: "I do not wish to go to school any more but rather be homeschooled" has been taken seriously by both parents. It made them understand that his problem had to be solved as soon as possible as it was not a temporary caprice.

Both parents were not only committed to their son's educational satisfaction and advancement, but also to his mental and social well being. They had difference concepts regarding education in general, and gifted education in particular, but they were open to listen to each other and to change their former beliefs. Here are some examples:

1. When we considered the various educational possibilities, Lior, a 10th grader at the beginning of the school year, could choose from, they held the same opinion about their full commitment to the law of compulsory education. As a result they were united by the understanding that in spite of their son's suffering from boredom they had to make everything within their power so that he would continue going to school. However, while the father believed that the solution to Lior's situation would be an immediate class skipping, to grade 10, which meant transferring to senior high school, the mother believed that class skipping was one of the possibilities and before deciding upon it a comprehensive inquiry had to be made.
2. Oded was sure that his son was not able to endure any more suffering and thus did not think that there was any possibility Lior would stay in his classroom until the end of the year. Ruthie, on the other hand, believed that graduation from junior high school at the end of the year was one of the options for Lior.
3. Oded was against the option of a gifted class for his son. Like many other Israeli parents, he was bothered by the possibility that his son would be a "small fish is a large pond (Zeidner & Schleyer, 1999). The fear of self-confidence lose, and the uncertainty regarding dealing with academic difficulties in a gifted classroom has been the main reason why a very large percentage of Israeli parents have preferred not to send their children to gifted classes in Tel Aviv, for example, for almost 40 years (David, 2008). The mother did not seem to prefer any solution and thus did not exclude any possibility at this stage.

At the end of the meeting I told Oded and Ruthie that I had the impression that Lior would not be referred to as a "boy" but rather as a mature adolescent, with high level of self-consciousness. As such he should play an integral role in decision-making process concerning his life. I told them I needed to meet him in order to explain and discuss all possibilities, and help him make the final decision. I also said that I was hoping he would understand that taking any decision has some risks, and Lior must be 100% sure that even if he made a decision they did not approve upon, they were to support him during the decision making process, after it – by helping him both with the administrative and the emotional aspects of materializing it, and after the new path is taken, no matter how "successful" they perceived it.

Next week, when I met Lior, I realized the description his parents gave of him was quite accurate. In addition to his high intelligence I discovered that Lior was very knowledgeable in biotechnology and brain sciences, as well as environmental sciences. He also had a great sense of humor and a very rare quality for a 14-year old: he was able to see things "through the lenses of the 'other'". When he talked about one of his teachers, for example, he would explain the potential reasons that might have caused her to harass him. He explained that the teacher had been receiving continuous support from the headmaster, to whom he had complained because of being harassed, saying: "I don't blame him. He could not say I had been right. He must have been afraid from the teacher as well"… He even explained the demand to help others in his class as: "the teacher can't teach pupils who lag behind, so why not 'use' me as help? And besides – how else could the teacher show everybody I did exactly what she had asked me to?" However, when Lior refused to do what he was expected to time and again, the teacher changed her behavior towards him. For example: she started insisting that he always did all his homework, and checked them, something she had never done before, as the "status quo" consisted of ignoring when Lior had skipped some boring exercises and routines summaries. According to Lior the teacher went as far as decreasing his examination grade substantially because of a minor mistake, a mistake that formerly she would not have even mentioned.

In spite of the understanding Lior showed towards thins behavior of the teacher, I knew he was hurt, and describing in detail what exactly happened assured me that he was disturbed by the injustice of the situation he faced while unable to change it. Thus I asked if he wanted to play a role game, when I was to be him and he was to be the teacher. He agreed happily, and was eager to create different scenarios about the teacher's life, that might have caused her to the behavior he accurately defined: "un-educational":

- The teacher felt she school not respond to all the need of the students, especially to those with learning difficulties, so she got used to rely upon Lior's help, forgetting that she was supposed to respond to Lior's needs as well. When his help was deprived from her she got angry at Lior.
- She had a son or a daughter who was learning disabled, and thus she found it hard to understand that all pupils – even the brightest – had educational needs.

- She herself had been a mediocre student, who was always jealous at the good students. As Lior "paid for his part in the deal" she felt it was but fair: one must give something back when he gets all the god cards. When she perceived his behavior as "refusing to continue the paying" she felt punishing him was the right reaction.

After the "ice breaking" we started to focus on: "what are we going to do". I told Lior that it was important to get to the conclusions as to "what road to take" as soon as possible, and then – make the move without letting anybody or anything be in our way. I assured him his parents were committed to do whatever it was going to take in order to enable him to take the path best for him.

We agreed upon the following facts:

1. Lior needed a change;
2. The change had to have an active direction rather than abstention: not going to school was no option;
3. The change must be done as soon as possible.

In addition I sent Lior's parents some articles about the educational options Lior could choose from, their pros and cons. These articles were about class skipping (David, 2007), transferring to a gifted classroom (Vorgan, 2006), joining an enrichment program for the gifted (ibid), and future studies in the Jerusalem Israel Arts and Science Academy (2010), a senior boarding high school with students from all over Israel. I asked both Oded and Ruthie to read these materials, so they knew more about the possibilities available for their son. I warned them that it might be difficult to have their get into their preferred school, as some schools and programs were not an option for all students identified as gifted: the Israeli Ministry of Education was to decide which possibility was available for each student, depending mainly on supply and demand. The Jerusalem Israel Arts and Science Academy, the only possibility opened to all students, was highly selective both for defined-as-gifted as for others. If that was their chose option a whole year was ahead of them to wait, as it started in grade 10 while Lior had to graduate from grade 9: there was no option to skipping a class before entering it.

In return, I received the following answer from Ruthie:

> Hi Hanna,
>
> Thanks for your mail.
>
> Lior has not discussed with me the options you had presented to him. I think that he is afraid of changes, and after asking us to help him make a change he got scared when such a possibility became closer.
>
> After reading the materials you had sent, Oded and I had been discussing the matter and now we both think that a special class for gifted students might not suit Lior. I, in person, became scared of the labeling thing, of the large variance among students in gifted classroom, the distance from our home, and the comparatively high rate of dropout. So I currently join Oded's opinion about class skipping, something I had been against for a long time, but after reading your article (David, 2007) I tend to think that this might be the best solution.
>
> However, as the school year had started 2 months ago, I wonder how it would be possible to skip from grade 9 in his junior high school to grade 10 which already belong to senior high school, and how to choose the appropriate school. I called the headmaster of the Green Hill high school, located close to our home, and asked about class skipping. The headmaster said he did not recommend this possibility. They rather recommended the gifted classroom located in another town, about an hour bus drive from our home.

As the gifted classroom is so far from our home, and Lior does not know anybody there, I think we should decide upon class skipping. In that case Lior would take the first 2 matriculation examinations, in Hebrew language and history, at the end of the current school year, at age 15, and thus feel he studies advanced materials and makes a substantial step towards higher education.

As a mother I am also aware of the fact that Lior had always participated in various activities with older children, has no problem adjusting to changes, and I do not think he should try the Jerusalem school as he loves being at home and students at the Academy must live in a dormitory.

What do you think? Is skipping a class not "too much" for him?

Thanks,

Ruthie

Here is my answer:

Shalom Ruthie,

You raised many important issues; all must be investigated carefully. I do not believe the educational questions can be separated from the emotional, and thus, all "truths" and statistical facts can be of help, but a final decision must be made only by examining Lior's situation carefully. The decision-making process is like haute couture, a dress made specifically for an individual, rather than a ready-made dress which fits the "average gifted" or "the adolescent gifted boy".

After meeting Lior I am absolutely sure he is to make the decision about his future, after consulting with you, of course. He cannot speak about it with you yet because he first needs to think about it by himself. He is going to need you, as I had already explained, during all steps taken, but you must be patient and let him digest everything in his own pace. Remember: you first came to me because he said he did not want to go to school. Right now he knows it is up to him whether to make any change at all, and what is that change going to be. He is smart enough to know that as soon as he decides the first step towards change can be made, and if he prefers not to decide yet you should be patient and respect his long thinking process.

Yours,

Hanna

After receiving this mail Ruthie asked me to meet Oded and her again. I had serious reservation regarding meeting them at this point. I suspected that in spite of my detailed answer, Ruthie was interested to learn about the practical aspects of grade skipping, and Oded seemed glad to realize that she had "accepted" his opinion. I realized that Lior might have felt pressured to "accept" the solution perceived as best by both his parents. Being always a good son Lior must have understood that coming to the "right" conclusion as soon as possible might save his parents time, money and a lot of energy, but he could not force himself to agree to it because deep inside him he felt that school must give him an opportunity to develop not only educationally but also socially and emotionally. Because of his connections with youths a year and 2-years his seniors – youngsters he had met at the pool, at the conservatory and in his neighborhood – he knew that learning with youngsters a year older than him might not be enough for him. As many other gifted children (Cross, 2002) he yearned for the company of smart adolescents with whom he could

connect. I felt I had no other choice but refuse to meet Ruthie and Oded, in spite of their deep involvement, unlimited support and good will.

That was why I wrote Ruthie the following:

> Hi Ruthie,
>
> I certainly can meet you, but I do not see the potential outcome of a meeting at this point. Lior had expressed his wish to meet me before we could come to the best possible conclusions in the present constellation. Only then it would be fruitful to meet with all three of you, or, at least, with you and Lior. Please remember that both you and Oded had granted me full credit with your son's decision, and once I stopped being your counselor and became his, my commitment is to him. Thus the pace of decision-taking is determined by him and his needs. Right now he needs time, and he needs sorting things out. When he comes to any conclusion we shall all discuss the steps needed in order to materialize it. Right now he has not made any decisions, and we all must respect whatever he finally decides.
>
> Yours, as always,
>
> Dr. Hanna David

The next meeting with Lior was quite relaxed. He told me that he had started suffering from boredom in grade 3. When I asked: "why didn't you do anything about it?" he said: "first I thought everybody was bored. Then I believed that growing up would lessen the boredom; maybe I was considered smart in grade 3 or 4, but certainly older children, in higher grades, have many interesting things to learn, so I would not be considered smart when older and have so much more to learn! When things did not change I was already known as 'the good boy', 'the boy who never causes problems'. How could I disappoint everybody?" I was impressed by Lior's high ability to postpone satisfactions, but told him that such extreme endurance might be double-edged. On the one hand it helped his through school boredom, but it might have been harmful to decision-making process. When one is able to suffer a great deal changes do not seem inevitable even when they are the best solution.

Right at the beginning of next week's meeting I realized that Lior had done a lot of thinking. He surprised me by saying: "Is our aim to choose the 'necessary evil'"? I complemented him for coming to such a mature conclusion, telling him that I used to avoid this figure of speech even with adults. I explained him that most people did not believe that in most cases there was no "perfect solution" for their children.

However, Lior's deep observation capability made him understand that he still needed time. He did not want to meet me with his parents; though he did not say it explicitly he made me understand he preferred that I did not meet them yet.

Just when I thought I could proceed with the process peacefully I got a phone call from Oded saying that ""Lior is under tremendous pressure. We must meet soon, come to a conclusion and start the process of registration". I tried to explain that Lior was under pressure because he knew he had to make a decision that might change his life, but he handled the pressure very well. Oded did not agree with me. He said that maybe Lior needed his parents in order to come to a decision. I objected strongly, and said I needed to think about it. When telling Lior about that phone call he got angry, saying that his parents should know "I never decide about anything without deep thinking". I promised him I would not force him to accelerate his thinking process, no matter what his parents would think. Then I called Oded and told him that he must be patient, as no pressure would accelerate the decision.

The next meeting with Lior had a breakthrough point. He told me that as much as he suffered from boredom, the real suffering was from the stupid conversation, from the inability to discuss interesting

books he had read, challenging ideas he had encountered. When asking about friends he said, that he was considered a "gifted with no social problems", many peers liked hanging out with him, and many more used his services for helping prepare for tests, copying homework, etc. "how does is make you feel"? I asked. "Until a few years ago it made me proud, but lately I have learnt to hate it. I listen to their problems, help them, laugh at their jokes – but I feel lonely. I want friends who would understand me; who would be there for me when needed. The way things are – it is always 'one way'. I do things for them".

"Do you think this situation is to change?" I asked. "Not by class-skipping", he said. So what about a gifted classroom? I asked. "Well, I am afraid of the competition in such a class, and besides – I know that many gifted boys are mathematically gifted, while I am not. These boys are usually self-centered, unsocial, or childish. If I am to learn 6 days a week with such a bunch of people, I would rather stay in my present classroom".

We dedicated the rest of the meeting to explain Lior the concept of "mathematically gifted". Lior was very enthusiastic to read Hadamar's book *Psychology of Invention in the Mathematical Field* (1996), so I gave him my copy of the book to read. I also asked him to read my Hebrew articles about mathematical giftedness (David, 1997, 2009). I explained him that indeed, among the mathematically gifted there is comparatively large rate of self-centered, immature and not very well developed emotionally youngsters, but in the gifted classroom a variety of gifted peers are to be found, and the best way to find out about it would be to participate in the meeting held right after the registration, in just a few weeks.

The next meeting with Lior was dedicated to answering his questions about various issues concerning the learning in gifted classes. His main concern was about the high level of competitiveness. I asked him how he usually functioned under pressure, and he said that being a swimmer and a musician taught him that pressure was "part of the game", and that during competitions he was usually much more concentrated than usually. "Maybe I love pressure", he said. "Do you think it is possible?" he asked smiling. I explained that many individuals flourish under moderate pressure; some even under intensive pressure. I also promised to send him written materials discussing this issue.

Lior said he was still worried, so I asked him to try focus on what really bothered him, and explain it to me in exact words. He said that for many years he was always the best pupil in his class, and he was scared of losing the "best student" title. I told him that he still had a few months to get used to "losing that title", and he laughed… He then described in detail what he felt when he got a very mediocre score in one of the swimming tournaments. He said that even though he felt, during the whole day of the competition, that "it was not his day", when actually seeing how bad he was he became really sad, even ashamed, and for a few days considered leaving his swimming group. "But you didn't leave, right?" I asked. "Well, so many others did not succeed, and we all were the 'swimming stars' before joining the club, so I said to myself: 'maybe it's good to know that things are not always so easy'". I was glad to hear this insight, and told Lior that one learns from mistakes and failures. I added: "do you think that had you discovered earlier that you couldn't always be the best, had been easier for you?" "Yes", he said. "I wish I had had real challenges before, I wish I had received compliments only for real achievements". "So maybe in your new school that is going to happen", I answered. He gave me one of his most beautiful smiles.

The process of "getting closer to a decision" took about 6 more weeks. Lior had told me, that each time he left my office, he felt he had many things to think about, and that this kind of counseling was completely new to him. I explained him, almost forgetting that he was just 14 that counseling was both a science and an art; it was based on scientific principles, but the matching between the counselor, the patient and the method chosen for the counseling was an art. He interrupted me saying: "and in my case, what was the method you had chosen? How did you know it would be right for me"? It was my turn to smile. "You are always so eager to learn, so it was obvious I had to use a cognitive method for you. In addition, you needed to re-gain control of what was going on in your life, especially because for too many years you felt there was no way you could change the situation that had made you unhappy. Thus it made sense you needed to know that from now on things would not 'happen' to you, but rather you would make them happen FOR you".

During all these weeks Lior had assured me that he was getting "close to making a decision", but did not want to discuss that decision. Instead he wanted to learn as much as possible about social processes in a gifted peer group, teachers of gifted children, future professions or occupations that might suit him, and especially about relationships in the "real" world. He was concerned about moral issues and had demonstrated a developed sense of justice, separating between ideals and the phenomena he was used to read about in the media. At the beginning of the sixth week he said: "I want to move next year to a gifted classroom".

I wrote to his mother the following:

> Congratulations!
>
> Lior has decided for a gifted classroom. He is fully aware of the fact that he must stay in his present class until the end of the year, and knows he is going to make it in spite of his boredom and the bad reactions he had received from his teachers when he stopped being their "model student".
>
> I feel Lior had built his believability in his own abilities – both academically and mentally. He knows he can compete with other gifted children, and is ready to work hard even though there are no prospects to be the best student in the gifted classroom.
>
> Yours,
>
> Hanna

Lior was interviewed by the school psychologist for the gifted classroom, and was appointed as eligible both academically and socially. The next step was meeting his future classmates. In the meeting organized during the Passover vacation he met with most of his future class-mates; he was glad to discover that he knew a few of them from the chess club and some others seemed: "not so weird" as well.

The next meeting with Lior was dedicated, upon his request, to lean "survival strategies" so he could "make it" until the end of the year. He realized that once he was finally to move to a gifted class he was able to endure boredom, what he called: 'foolishness of the teachers' as well as injustice much easier.

I then wrote to his mother.

> Dear Ruthie,
>
> I feel that it is the right time now to plan the future relationship with me.
>
> As I'm sure you remember, when we first met I told you that the end of the intervention process has to be initiated either by the parents, when their child is pre-adolescent, or by the adolescent herself or himself. That is one of the "successful intervention" characteristics.
>
> Lior is a young adolescent, but his relationship with both of you is very good, unlike the situation among many other youngsters his age. Thus, I believe, the decision about the end of the intervention should be common to you and him.

Because most children who come to me for counseling had already tried other, unsuccessful interventions, I have adopted a rule according to which I never tell any child, adolescent or adult that the intervention had come to an end. I always wait to hear that "I have solved my problem" or "I feel I can walk on my own feet without help". It is of special importance when the adolescent understands that though he had a problem, being in control means that he "had a say" both about the beginning and the end of the intervention.

The last time I met Lior was after a 4-week interval, mainly because of the Passover holidays. When we met I asked him: "how were the holidays"? and he said: 'I was very busy, so maybe that was why I did not have time to think about the new school and the changes. But maybe it was because there was no school during most of this time, and no school meant no problems…" I felt it was basically true, but I also knew, that being able to laugh about this subject meant that Lior had already stopped thinking about leaving school, and rather was looking forward to the opportunity to have a suitable peer group and challenging learning materials next year.

Lior also said that though he felt he could do without me, he needed to feel that "I was there for him" in case he needed me. I asked him if he had discussed this with his parents and he said he had. He also said, that the month he "was without me" made him understand that he did not really need me. However, he still felt insecure regarding the new school, especially because most of his future peers knew each other from junior high school or from the enrichment activities for the gifted. He asked, therefore to meet with me again in the next September, at the beginning of the school year. I explained him that sometimes the knowledge that help was there was enough, and maybe he would not need me in September, but if he did – I was there for him. We concluded that no "goodbye" was to be said yet, but rather: "see you".

The final meeting with the parents

After receiving this mail both parents decided they wanted to meet me even though I explained to them that the intervention starts and concludes with the parents meeting me, and in their son's case the counseling process might take a little longer, so we accepted the possibility that Lior would need some support from me until he was sure the new school suited him and he could "get rid of his crunches".

This 50-minute meeting was dedicated to questions about future concerns connected with the new possibilities opened for Lior. The main ones were:

1. How can they support their son who would certainly face academic difficulties in a classroom where the minimal IQ is higher than 140?
2. Were there any special characteristics of gifted adolescents they had to be aware of? If yes – how were they to deal with them?
3. Is the fact that Lior was so sensitive not going to harm him in a competitive classroom? What were they supposed to do I order to minimize his vulnerability?
4. How was the moving to the gifted classroom going to influence their younger son, Lior's brother?
5. Was there a risk that Lior would stop being the nice, polite boys they were so proud and happy to raise and transfer into an arrogant selfish one due to social influence from his new peers?
6. Was Lior to stop some of his extra-curricular activities once he is in the gifted classroom? If not – how was he to cope with so much tension? If yes – how was he to choose what to stop?
7. Was it true that I a gifted classroom there are very few girls? Was there not to interfere with Lior's social development?
8. Did graduation from a gifted classroom assure accepted to high prestige university departments? Was it true that most medical students in Israel were graduates of gifted programs? Were there any professions "recommended" for gifted youngsters?

I assured Oded and Ruthie that Lior was a very able young adolescent, both academically and socially, and they should do him a very god services by stopping worrying so much. I explained that all adolescents there are more unexpected than expected things ahead of them. However, I told the parents the most important think for their son was that he knew they were behind him, no matter what. I also said that they were lucky Lior loved to share with them his worries as well as his successes, and thus they had the opportunity to strengthen him when they felt it was needed, and be proud when materializing each goal. I stressed the importance of hard work – and said that lucky for Lior he was used to work hard both in music and in chess, so even though he had not practiced it in many academic fields, the same principle valid for success I music and chess would have to be applied to all subject matters Lior would be introduced to in his new classroom.

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10.SINIF KİMYA KONULARINDAN "KARIŞIMLAR" ÜNİTESİ İLE İLGİLİ PROBLEM SENARYOLARI GELİŞTİRİLMESİ

DEVELOPING PROBLEM SCENARIO ABOUT THE UNIT OF MIXTURE IN 10th GRADE CHEMISTRY SUBJECTS

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ÖZET

Fen bilimleri; insanın çevresini düzenli ve planlı çalışmalar yaparak keşfetme, keşfedilenler arasında yeni bağlantılar kurup bütünleştirme ve bu bütünleştirme sonucu elde edilmiş güvenilir bilgiler bütünü olarak tanımlanmıştır. Fen eğitimi ise elde edilen bu bilgi ve beceri süreçlerinin kişilere kazandırılması ve kazandırılan bu bilgilerin hayatta karşılaşılacak problemleri çözmek için kullanılması olarak ifade edilmektedir. Probleme dayalı öğrenme yaklaşımında kullanılan problem senaryoları öğrencilerin gerçek yaşamlarında karşılaştıkları problemler kullanılarak hazırlanmaktadır. Bu nedenle fen eğitiminde önemli bir yöntem olarak kabul edilmektedir.

Fen bilimleri eğitiminde probleme dayalı öğrenme yaklaşımının önemi dikkate alınarak bu çalışmada ortaöğretim 10. sınıf kimya programında bulunan "Karışımlar" konusu ile ilgili problem senaryoları geliştirilmesi amaçlanmıştır. Bu amaca uygun olarak Çözücü ve Çözeltiler konusu ile ilgili "Kuyumcudaki Altınlar", Çözeltilerin Derişimi konusu ile ilgili "Molarite", Seyreltme ve Deriştirme konusu için "Tuzlu Su", Çözeltilerin Derişime Bağlı Özellikleri (Koligatif Özellikler) konusu ile ilgili "Donmayan su", Ozmos ve Diyaliz konusu ile ilgili "Diyaliz" ve Heterojen Karışımlar konusu ile ilgili "Çimento harcı" olmak üzere 6 tane problem senaryosu geliştirilmiştir.

Anahtar Kelimeler: Kimya, Karışımlar, Probleme Dayalı Öğrenme, Problem Senaryosu

ABSTRACT

Science is known as discovering our environmental with orderly and planned studies, integrating the new connections from the discoveries and describing the reliable integrated information. Science Education is also defined as teaching these acquired information and process skills to people and using this information to solve problems in the life. Problem scenarios on problem based learning approaches are prepared using real problems that encountered in real life. So that this technique is regarded as an important method in science education.

Taking into account the importance of problem-based learning approach in science education, Problem scenarios was developed about "Mixtures" subject in secondary education 10th grade chemistry classes. For this purpose, 6 problem scenarios were developed about "Gold in Jewelry" related with Solvent and Solutions, "Molarity" related with concentration of solutions, "Salty water" related with concentration and dilution, "Non-frozen water" related with Properties (Koligatif Features), "Dialysis" related with the osmosis and dialysis "Cement Mortar" related with Heterogeneous Mixtures

Keywords: Chemistry, Mixtures, Problem-based Learning, Problem scenarios

GİRİŞ

Teknoloji çağı olarak tanımlanan günümüzde bilgi ve becerilerin aktarılması eğitim – öğretim sayesinde olmaktadır. Öğretim kurumlarında öğrencilere kazandırılması amaçlanan bilgi ve beceriler günlük yaşamda bireylerin karşılaştıkları problemleri çözebilecek nitelikte olmalıdır. fen eğitimi ve fen okuryazarlığının sağlanmasında, temel fen kavramlarını ezberleme anlayışıyla yapılan eğitimin toplumsal bazda ihtiyaç duyulan gerekleri gidermede yetersiz kalması anlamlı öğrenme gerçekleştiren öğrencilerin yetiştirilmesine doğru bir dönüşüm gerçekleşmesi gerektiği inancını doğurmuştur. Öğrencileri düşünme ve analiz etme becerisine sahip olarak yetiştirebilmek için eğitimde yeni arayışlara gidilmiştir. Bu arayışların ürünü olarak ta günümüzün eğitim dünyasında bilgi temelli eğitimden, öğretmenin rehberlik

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yaptığı öğrenci merkezli bir eğitim anlayışına geçiş yapılmaya çalışılmaktadır. Özellikle 1990'lardan sonra birçok ülkede; fen bilimlerinin temel ilke ve yöntemlerinin; öğretmek yerine ezberciliğe yol açan bilgi yığınlarından oluşan geleneksel programlarından uzaklaşıp bilime merak uyandıran düzen ve uyumu kavratmayı amaçlayan yeni çağdaş programlara yöneldiği gözlenmektedir. Bu amaçla ülkemizde de öğrenciye bilgi edinme yollarını öğreten, kişisel inceleme ve araştırmaların ön planda olduğu fen ile teknolojinin birbiriyle entegre edildiği yeni programlar hazırlanmıştır (Korkmaz, 2002). Yeni fen ve teknoloji (4-5 ve 6-8) programları ile yeni kimya (9-12) programları öğrenci merkezli, bireysel farklılıkları ve ön bilgileri göz önüne alan, yaklaşımlarla hazırlanmıştır. Bu yaklaşımlar beraberinde yeni öğretim yöntem ve tekniklerini zorunlu kılmıştır. Bu ihtiyaca yönelik olarak önerilen yöntemlerden biri de probleme dayalı öğrenme yöntemidir.

"Problem" kelimesi, sosyal hayatta karşılaşılan sıkıntılar, sorunlar için sıkça kullanılan bir kelimedir. Problem kelimesi; hissedilen zorluk, başarıdaki boşluk veya engel, bilinçli bir safhadaki hoşnutsuzluk veya biraz zorlama ile çözümlenebilecek istenmeyen durum olarak tanımlanabilmektedir (Mert,1997).

Problem çözme ise bir aktiviteler durumudur. Bu aktiviteler amaca ulaşmak için izlenmesi gereken yollardır (Parim, 2001). Problem çözme sürecinde birey, karşılaştığı problemle ilgili bilgi toplama, topladığı bilgileri karşılaştırma ve sorgulama yapar. Bunları yapabilmek için de bilgileri organize etmeyi ve bilişsel kaynakları etkili bir biçimde kullanmayı bilmesi gerekmektedir (Kor, 2002).

Problem çözmede süreç; problemi fark etme ve tanımlama ile başlayıp, ardından bilgi edinmeyle devam etmektedir. Problem hakkında bilgi edinebilmek için kaynaklar taranıp ve veriler toplanmaktadır. Toplanan bu verilerin kullanılması ile hipotezler geliştirilir. Hipotezlerin içinden seçim yapılır. Daha sonrasında olabilecek en iyi çözüm yolu kullanılarak problem çözülmüş olur. Eğitim kurumlarının temel amaçlarından biri de, öğrencinin karşılaştığı problemler karşısında problem çözmek için yeterli beceriye sahip olmasını sağlamaktır. Bu temel amaç yerine getirildiğinde öğrenci problemi çözen, sorgulayıcı, üretici, düşünen ve olaylar arasındaki neden-sonuç ilişkilerini sağlıklı yorumlayabilen birisi olarak yetişmiş olacaktır (Kuşdemir, 2010). Problemlerle ilgili çözümde en önemli adımlar; anahtar olayları tanımlamak, bilgi edinmek ve problem çözümünde kullanılabilecek yöntemleri geliştirmektir (Saban, 2000).

Öğrenmede gerçek yaşam problemlerine odaklanan Probleme Dayalı Öğrenme (PDÖ), temellerini Kilpatrick ve Dewey'den almıştır. PDÖ de problemler gerçek yaşamdan ve yarı yapılandırılmış bir form olarak rastgele oluşturulmuş 5–7 kişilik öğrenci gruplarına sunulur. Öğretmen, öğrenme durumları ve hedeflere yönelik olarak başta yardımcı olur. Ardından öğrenci araştırmalar yaparak grup içinde bilgileri paylaşır ve çözüme yönelik tartışırlar(Kuşdemir, 2010).

Problem durumları, PDÖ uygulamalarında önemli bir yer tutar. Hedef kavramlara yönelik problem durumları oluşturularak öğrencilere sunulur. Öğretmen hedef kavramla ilgili önceden bilgi vermez, öğrencinin araştırma yapmasına, düşünmesine ve olayları kritik etmesine rehberlik eder (Şenocak, 2005).

Hmelo-Silver(2004)'e göre ise problemler, öğrenciye öğrenmeye yönelik motivasyonu artırıcı etkisinin olabileceği şekilde, araştırmaya sevk edici, çoklu çözümler içeren ve açık uçlu olmalıdır. Basit çözümü olmamalı, çözümü yüksek düşünme becerileri gerektiren ve gerçek yaşamla ilgili yansımaları içeren olup, öğrencilerin iletişim becerisini geliştirerek çoklu disiplinlerle ilişkileri ve etkili işbirliğini sağlayabilmelidir.

Gerçek yaşam problemlerinin ortaya konulduğu sınıfta senaryolar, resimler, drama, video, teyp gibi araçlar kullanılır (Kaptan ve Korkmaz, 2002).

Bu çalışmada onuncu sınıf kimya dersi eğitim-öğretim programında yer alan "Karışımlar" ünitesi ile ilgili problem senaryolarının geliştirilmesi amaçlanmıştır.

YÖNTEM

Çalışmada "Karışımlar" ünitesi ile ilgili altı adet problem senaryosu geliştirilmiştir. Her bir problem durumu karışımlar ünitesi ile ilgili farklı bir kavramı içerdiği gibi birden fazla kavramı da içermektedir.

Problem durumları hazırlanırken; genel kimya kitapları, bilimsel dergiler, günlük olaylar, uzman kişiler gibi kaynaklardan faydalanılmıştır. Hazırlanan problem durumlarında konunun uzmanlarının görüşleri alınmış ve hedef kavramların kazanılması için problem durumlarının uygun oldukları belirtilmiştir. Çalışma hazırlanırken kullanılan problem durumları ve içerikleri tablo 1 de verilmiştir.

Tablo 1: Çalışmada Kullanılan Problem Durumları ve İçerikleri

PROBLEMİN ADI	AMAÇ	HEDEF KONUSU
Kuyumcudaki altınlar	Çözeltileri, çözücü ve çözünenin fizikseli hallerine göre sınıflayarak kavrayabilme	Çözücü ve Çözeltiler
Molarite	Molarite ve molalite tanımları üzerinden "molar derişim" ve "molal derişim" konularını kavrayabilme	Çözeltilerin derişimi
Tuzlu su	Saf maddelerden ve derişimi belli çözeltilerden yola çıkarak bilinen derişim ve hacimde çözelti hazırlamayı kavrayabilme	Seyreltme ve deriştirme
Donmayan su	Kriyoskopi ve ebülyoskopi konularını kavrayabilme	Çözeltilerin derişime bağlı özellikleri (koligatif özellikler)
Diyaliz	Ozmotik basıncı kavrayabilme	Ozmos ve diyaliz
Çimento harcı	Heterojen karışımları faz ayrılmasını önleyici alınan önlemleri inceleyerek kavrayabilme.	Heterojen karışımlar

Hazırlan problem senaryoları şunlardır;

1. **Senaryo: Kuyumcudaki Altınlar**



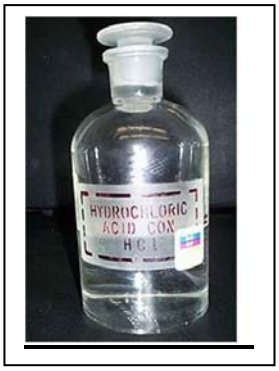
Babası kuyumcu olan Ayşe, kimya dersinde altının yumuşak ve kolay şekil verilebilir bir metal olduğunu öğrenir. Fakat babasının işyerinde yer alan altınların sert olduğunu görünce kafası karışır. Aynı şekilde çeşme suyunun yağmur suyu gibi saf olmadığını, havanın da göründüğü gibi tek bir gazdan değil de birden fazla gazın karışımı olduğunu öğrenen Ayşe saf olmayan altın ile saf olmayan çeşme suyunun ve temiz havanın kimyasal olarak benzerliklerini araştırmak ister. Elde ettiği sonuçlar neler olabilir?
***Anahtar Kelimeler**:* Çözücü, Çözünen

2. **Senaryo: Molarite**



Annesi kimya öğretmeni olan Orhan, dışarıdan geldiğinde annesinin kendisine meyve suyu hazırladığını görünce çok sevinir. Annesi iki bardağa aynı miktar meyve suyu konsantresi koyduktan sonra bardağın birine diğerine göre daha az su koyduğunu fark eder ve annesine bunun sebebini sorar. Cevap olarak annesi Orhan'a " Ben meyve suyunu derişik seviyorum sen ise seyreltik seviyorsun." cevabını verir. Orhan merakından bu kavramları annesine sorduğunda annesi kavramları nasıl anlatmış olabilir?
Anahtar Kelimeler: Seyreltik, Derişik, Molarite, Molalite

3. **Senaryo: Tuzlu Su**



Asya evde kimya dersinde öğrendiği şekliyle bir çözelti hazırlıyor. Öğretmenin anlattığına göre 1 litre çözeltide 23 gram NaCl yani sofra tuzu bulunduğunda 1 mol çözelti oluşuyor. Asya iki tane tuz çözeltisi hazırlıyor. İkisi de 1'er litre olmak üzere. İkinci çözeltiye 46 gram NaCl tuzu koyuyor. Her iki çözeltiyi karıştırdığında toplam hacim 2 litre olması gerekirken daha fazla bir hacimle karşılaşıyor. Sonuçta elde ettiği sonuç molaritesi de 1,5 yerine farklı bir rakam çıkıyor. Burada Asya'nın yaptığı hata ne olabilir?
Anahtar Kelimeler: Seyreltme, Çözünürlük

4. **Senaryo: Donmayan Su**



Mehmet onbeş tatilde memleketleri Erzuruma gitmektedirler. Hataydan ayrıdıklarında hava sıcaklığı yaklaşık 15^{o}C iken Erzuruma geldiklerinde -13 ^{o}C olduğunu termometreden görünce birden şaşırır. Çünkü 0^{o}C'de su donar ve arabaların radyatörleri parçalanırdı. Ama böyle bir şey olmadı. Bunun sebeplerini araştıran Mehmet hangi sonuçlara ulaşmıştır?

Anahtar kelimeler: Dış Basınç, Donma Noktası Düşmesi

5. **Senaryo: Diyaliz**



Karşı komşuları Nazmi Bey'in her gün bir servisle hastane gibi biryere gitmesi Melmini merak ettirir. Melmin sonunda Nazmi bey'in böbrek yetmezliği çektiğini ve bundan dolayı hergün diyaliz makinasına bağlandığını öğrenir. Diyaliz makinasının nasıl bir şey olduğunu araştıran melmin hangi sonuçlar elde etmiştir?

Anahtar Kelimeler: Ozmotik Basınç, Ters Ozmos

6. **Senaryo: Çimento Harcı**



İstanbul'a geziye katılan Semiha Süleymaniye Camisinin ihtişamına hayran kalır. Yapıldığı yıllar itibariyle kocaman kayaların nasıl üst üste getirildiğine pek akıl erdiremez. Dahası nizami olarak kesilip yerleştirilen bu kayaların yüzyıllarca nasıl sağlam kaldığını uygulanan betonun nasıl bir şey olduğunu merak eder. Öğretmeninin harçlarda yumurta sarısının kullanıldığını söylemesi O'nu daha da şaşırtır. Bugünlerde de çoğu alanda harçtaki yumurta sarısının işlevini gören başka maddelerin özellikle gıdalarda kullanıldığını öğrenen Semiha nasıl bir sonuca ulaşmış olabilir?

Anahtar Kelimeler: Heterojen Karışımlar, Emülgatör

SONUÇ VE TARTIŞMA

PDÖ yaklaşımında yer alan problem senaryoları üzerinde çalışan öğrenciler, konuyla ilgili temel kavramları iyi öğrenmekle beraber, işbirlikli öğrenme becerileri ve gerçek yaşam deneyimleri kazanmış olurlar (Dahlgren & Öberg, 2001). Bununla beraber öğrenciler, PDÖ yaklaşımı sayesinde problem çözme, öz-yeterlik, kendini yönlendirerek öğrenme ve takım çalışması becerilerini kazanırlar (Barrows, 2001; Murray-Harvey, *et* al.2005).

Öğrenciler; problemler üzerinde düşünür, araştırır ve tartışır vaziyete geldiklerinde öğrenme süreci daha hızlı gerçekleşmiş olur. PDÖ; öğrencilerin problemi tanımlama için motive edilmesini, kavramların araştırılmasını, grup çalışması yapmasını sağlayan bir yaklaşımdır. Problem çözme, araştırma, proje tabanlı öğrenme ve olay tabanlı öğrenmeyi içeren kapsamlı bir öğretim modeli olan PDÖ, öğrenci başarısını olumlu yönde etkileyen başarılı bir öğretim metodudur (Yaman, 2003).

Öğrenciler, problemlerin çözümleri sayesinde kazandıkları deneyimler ve önceden edindikleri bilgileri kullanabilmelerini aktif öğrenme ile gerçekleştirmiş olurlar (Chin&Chia, 2004; Sönmez&Lee, 2003).

Öğrenciler problem üzerinde düşünürken, arkadaşlarından ve öğretmenden aldığı geri bildirim ve açıklamalarla etkili bir öğrenme süreci yaşamış olup bağımsız öğrenme, kendi kendine öğrenme özelliklerini güçlendirmiş olur (Chin&Chan, 2004).

PDÖ süreci problemi anlama, hipotez geliştirme, araştırma, öğrenme, tartışma, hipotezi test ederek sonuca ulaşma ve değerlendirme aşamalarından geçerek gerçekleşmektedir. PDÖ'de öğretmenin rehberliğinde öğrenci, işbirliği içinde etkili öğrenme, düşüncelerini rahatlıkla ifade etmeye ve sorgulamaya yönlendirmektedir. Bu sayede öğrenci; problem çözme, düşünme, bilgiyi araştırma, değerlendirme, işbirlikli çalışma, iletişim kurabilme, zamanı yönetme becerileri kazanır (Tarhan, 2004).

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21.YÜZYILDA MÜHENDİSLİK ÖĞRENCİLERİ İÇİN MATEMATİK EĞİTİMİ

THE MATHEMATICS EDUCATION FOR THE ENGINEERING STUDENTS OF 21ST CENTURY

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ÖZ

Mühendislik, matematik bilimi için en önemli meslek gruplarından biridir. Mühendislikteki yeni gelişmeler, matematik araştırmalarında yeni çalışma alanlarının ortaya çıkışını da beraberinde getirmektedir. Kontrol teori, işaret işleme ve kodlama teorisi bunlara örnek olarak verilebilir. Mühendislik mesleği ve matematik bilimi arasındaki bu yakın ilişki göz önüne alındığında, mühendislik eğitiminde matematik öğretiminin yaşamsal bir öneme sahip olduğu rahatlıkla söylenebilir.
Son yirmi yılda hem mühendislik mesleğinin ihtiyaçlarında, hem de mühendislik fakültelerine gelen öğrencilerin matematik yeterliklerindeki değişiklikler, dünyadaki mühendislik matematik eğitiminin çehresinde önemli değişimlere yol açmıştır. Ayrıca eğitim teknolojilerindeki her zamankinden daha hızlı yaşanan gelişimler mühendislik eğitimindeki matematiğin içeriğini ve öğretim yöntemlerini de etkilemektedir. Bu değişimler, mühendislik bölümlerindeki matematik derslerinin içeriklerinde, öğretim yöntemlerinde, ölçme ve değerlendirme biçimlerinde ve pedagojik stratejilerde kendini göstermektedir.
Mühendislik eğitiminin önemli bir parçası olan matematik eğitimini, müfredat, öğretim ve ölçme-değerlendirme yöntemleri açısından incelemeyi amaçlayan bu araştırma ile 21. yüzyılın mühendisleri için nasıl bir matematik eğitimi olmalı konusuna bir ışık tutulacağı düşünülmektedir.

ABSTRACT

Engineering is one of the most important professions for the science of mathematics. New developments in engineering bring forward together new areas of studies for the mathematical researches. Control theory, signal processing and coding theory are all examples for this. When taking into account the close relationship between engineering and mathematics, we can easily say that mathematics have a vital role in the engineering education.
During the last twenty years, the changes in the needs of the engineering profession and in the mathematics ability of the engineering students result in a big change in the scope of the mathematics education. However the more rapid developments compared to all the times in the education technologies affect the mathematics course contents and teaching methods. Those changes can be seen in the curriculum, the teaching and measurement - evaluation methods and pedagogical strategies.
This research aims to shed some light on how the mathematics education, which is an important part of the engineering education for the 21st century engineers, must be, by investigating the curriculum, teaching and measurement - evaluation methods.

GİRİŞ

Son yirmi yılda hem mühendislik mesleğinin ihtiyaçlarında, hem de mühendislik fakültelerine gelen öğrencilerin matematik yeterliklerindeki değişiklikler, dünyadaki mühendislik matematik eğitiminin çehresinde önemli değişimlere yol açmıştır. Ayrıca eğitim teknolojilerindeki her zamankinden daha hızlı yaşanan gelişimler mühendislik eğitimindeki matematiğin içeriğini ve öğretim yöntemlerini de etkilemektedir.

Mühendislik fakültelerine gelen öğrencilerin matematik yeterliklerinde ciddi sorunlar yaşanmaktadır. Öğrencilerin çoğunun benzer adımlar kullanarak test ve yazılı sınavlardaki soruların doğru çözümlerini bulabildikleri, ancak teoremlerin altında yatanı kavramsal olarak idrak edemedikleri hatta yanlış anladıkları gözlenmektedir (Norbert & Klymchuk, 2002). Mühendislik öğrencilerinin sahip olması gereken en önemli becerilerden problem çözme ve yaratıcı düşünme konusunda da sorunlar yaşanmaktadır(Adams vd. 2007). Ayrıca son yıllarda öğrenci profili değişmekte, uluslar arası öğrencilerin sayısı artmaktadır.

Mühendislik mesleğinin hemen tüm dallarında, teknolojide yaşanan değişimlere paralel olarak yeni talepler de ortaya çıkmaktadır. Eğitim teknolojilerindeki değişimler, mühendislik mesleğinden beklenen yeni talepler ve öğrencilerin profil ve matematik yeteneklerindeki farklılaşmalar, mühendislik öğrencilerinin matematik eğitimine de yansımaktadır. Bu araştırmada, mühendisler için matematik eğitiminde yaşana değişimler, müfredat, öğretim ve ölçme-değerlendirme yöntemleri açısından ele alınmıştır.

YÖNTEM

21. yüzyılın mühendisleri için matematik eğitiminde yaşanan değişimleri ortaya koymayı amaçlayan bu araştırmada yöntem olarak tarama modeli kullanılmıştır. Tarama modeli geçmişte ya da halen var olan bir durumu var olduğu şekli ile betimlemeyi amaçlayan araştırma yaklaşımıdır.

BULGULAR

1. Müfredat

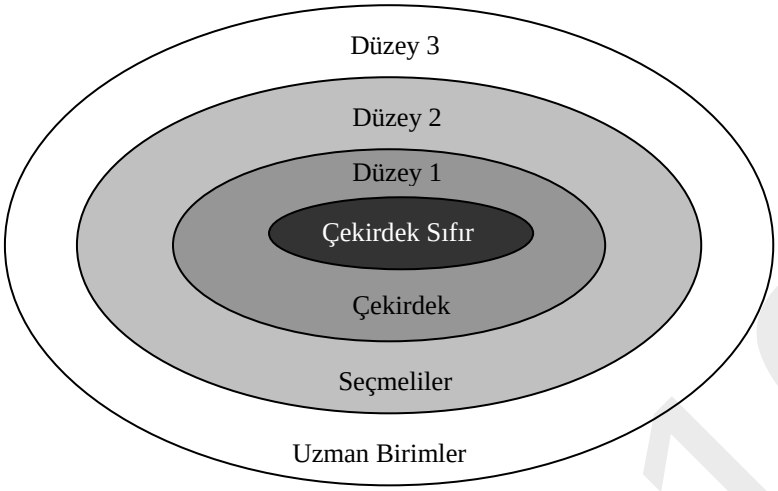
Mühendislik için ciddi bir matematik eğitiminin önemi pek çok çalışmada vurgulanmıştır. Her bir mühendislik disiplini için gerekli olan matematiğin içeriği ve miktarı konusunda fikir ayrılığı varken temel matematiğin gerekliliği konusunda fikir birliği vardır (Broadbridge& Hendersen, 2008). En etkili mühendislik matematik konuları, kavramların gelişimini gören ve ilişkili konuları anlamak için öğrencilere olanak tanıyan iyi tasarlanmış bir mühendislik programının bir parçası olmalıdır. Farklı mühendislik eğitim birimlerinde çeşitli matematik programları olmakla birlikte olması gerekli temel ihtiyaçlar vardır (Mustoe&Lowson, 2002).

The European Society for Engineering Education (SEFİ) Mathematics Working Group mühendislikte matematik eğitimi için 2002 yılında geniş bir müfredat çalışması gerçekleşmiştir. Bu çalışmada 4 düzeyden oluşan bir çekirdek program oluşturulmuştur. Bu düzeyler matematiğin hiyerarşik yapısını yansıtmaktadır ve öğrencinin mühendislik eğitiminde ilerlerken çok karmaşık gerçek uygulamalar ile bağlantı kurabileceği yolu göstermeyi amaçlamaktadır. Çekirdek programın şeması Şekil 1'de gösterilmiştir (Mustoe&Lowson, 2002).

Çekirdek sıfır öğrencinin mühendislik lisans programına başlamadan önce görmesi gereken konulardan oluşmaktadır. Bu konuların çekirdek sıfırda olmasının nedeni tüm mühendislik birimlerinde bu konuların tam bir bütünlük içinde ve yaygın olarak ele alınmamasıdır. Çekirdek sıfırdaki konular 5 alanda gruplandırılmıştır: Cebir, Analiz&Calculus, Diskret Matematik, Geometri&Trigonometri, İstatistik&Olasılık.

Programın 3 ana düzeyinin her birinde 5 alan yer almaktadır: Analiz&Calculus, Diskret Matematik, Geometri, Lineer Cebir, İstatistik&Olasılık.

Çekirdek 1 düzeyindeki konular, mühendislik problemlerinin analizi için araçların seçiminde, teorinin gelişiminde ve teoriyi anlamada kullanılabilir. İkinci düzeydeki konular, Çekirdek 1 düzeyi üzerine inşa edilmektedir. Konular, basit gerçek mühendislik problemleri için yeterince ileri seviyededir. Bu seviyedeki konular artık her mühendislik birimi için esas olarak görülemez.



Şekil 1. Önerilen Yapının Şematik Gösterimi

3. düzey, sanayide çalışan mühendislerin karşılaştıkları problemler için kullanılan matematik tekniklerini kapsar. Bu ileri yöntemler, programın 1. ve 2. düzeyindeki temeller üzerine inşa edilir. 3. düzeyde yer alan konular mühendislik birimlerinin her bir alanındaki konularla ilişkilendirilerek verilir.

2. Öğretim ve Ölçme- Değerlendirme Yöntemleri

21.yy'da öğrenci nüfusunda ve mühendislik mesleğinde yaşanan değişimlerin mühendislik eğitimine adaptasyonu ve eğitimcilerin ihtiyaçları konusunda pek çok araştırma yapılmıştır (Lopez, 2007, Henderson&Broadbridge 2009). Farklılaşan öğrenci nüfusu, daha kapsamlı öğrenme destek sistemine ihtiyaç duyar. Değişen sanayi ihtiyaçları, mühendislik programlarına yönetim ve iletişim konularının dahil olmasına yol açmıştır. Bunun nasıl yapılacağı konusunda pek çok tartışma yaşanmaktadır (Broadbridge&Henderson, 2008). Mühendislik eğitimi yürüten birimlerin matematik eğitiminde karşılaştığı zorlukların başında öğrencilerin matematik yeterliliklerindeki düşüş, konu, içerik ve ders saatlerindeki azalmalar, düşük üniversiteye giriş standartları, öğrencilerin matematik geçmişlerindeki farklılıklar, tek bir konuda tüm mühendislik dalları için matematik ihtiyaçlarının karşılaması ve bunda hem fikir olunmasının zorluğu ve öğretim elemanı eksikliği gelmektedir. Kalabalık ve yeterli donanıma sahip olmayan sınıflar da bu problemlere dâhil edilebilir.

Karşılaşılan bu problemlerin çözümleri için eğitim ve öğretimde kullanılan yeni yöntemlere bakıldığında; öğrenciler için artan destek programları, problem/proje tabanlı öğrenme, çevrimiçi destek, matematik yazılım programlarının kullanılması, elektronik ortamda öğretim materyalleri, görsel kaynaklar, sürekli değerlendirme gibi yöntemlerin ağırlıklı olarak kullanıldığı görülmektedir (Broadbridge&Henderson, 2008).

Öğrencilerin matematik derslerinde karşılaştıkları zorlukları aşmaları için onlara akademik destek amacıyla pek çok merkez ve proje birimi faaliyete geçmiştir. İngiltere'de pek çok üniversitedeki Matematik Destek Merkezleri (MathCentre) (örneğin Loughbough Üniversitesi, Coventry Üniversitesi, Leeds Üniversitesi), merkezlerin web siteleri üzerinden herkese ücretsiz ders materyallerine, alıştırmalara, testlere, ders videolarına erişim sağlamaktadır. Yine İngiltere'de 5 üniversitenin (Loughbough, Manchester, Reading, Hull ve Sunderland) 2002–2005 yılları arasında yürüttükleri Helping Engineers Learn Mathematics (HELM) (Green vd. 2003) projesi ile 50 çalışma kitabı, Web tabanlı bilgisayar destekli öğrenme paketleri, iki bilgisayar destekli değerlendirme modeli öğrencilere destek olarak sunulmuştur.

Amerika'da bazı üniversitelerde kurulan matematik laboratuarlarından (Deaware, MIT) mühendislik öğrencileri de yaralanmaktadır. Avustralya'da Adelaide Üniversitesi'deki Maths Drop –In Centre, Queensland Teknoloji Üniversitesi'deki Math Access Centre de örnek olarak verilebilir.
Mühendislik öğrencileri için matematik eğitimi konusunda son on beş yılda yapılan çalışmalarda 21.yüzyılın ihtiyaç ve şartlarına uygun öğrenme ve öğretme yöntemleri olarak aşağıdaki başlıklar ön plana çıkmaktadır:

- İleri bilgisayar tabanlı metotların kullanımı: web tabanlı interaktif uygulamalar, yazılım uygulamaları.
- Öğrenci farklılıklarını göz önüne almak.
- Çoklu disiplin yaklaşım.
- Problem temelli öğrenme stratejisi (Lopez,2007).

Aktif öğrenme, yaparak öğrenmedir. Öğrenen tarafından sürdürülen tüm öğrenmeleri ihtiva eder. Öğrenci geleneksel yöntemden faklı olarak aktif öğrenmede pasif dinleyici konumunda değildir. Öğrenci kendi öğrenmesine ne kadar çok katılırsa o oranda başarılı olur (Nirmalakhandan vd., 2007, Lopez, 2007). Problem tabanlı öğrenme ve bilgisayar tabanlı öğrenme de aktif öğrenme olarak sınıflandırılmaktadır. Son yirmi yılda bilgisayar teknolojisindeki hızlı ilerleme ile, bilgisayar yazılımları ve internet mühendislik matematik eğitiminin önemli bir parçası olmaya başlamıştır. En çok kullanılan yazılımlar; Matlab, Exel, Minitab, Mathematica, Maple, Mathcad'dır.
İşbirlikli öğrenme de mühendislik matematik eğitiminde kullanılan ve yüksek başarıyı güdeleyen yöntemlerden biridir (Johnson vd. , 2000).
Bazı yöntemlerin değişik versiyonları ve iki yöntemin beraber kullanıldığı yöntemler de günümüzde denenmektedir. Bunlardan bazıları: Proje tabanlı öğrenme, bütünleştirilmiş yaklaşım (integrated approach), dört yapraklı yonca mühendislik eğitim modeli vb (Broadbridge& Hendersen, 2008).
Öğrenme ve öğretim yöntemlerindeki değişimlerin değerlendirme yöntemlerine yansıması kaçınılmazdır. Katı değerlendirme yerine esnek, öğrencinin ders boyunca yaşadığı öğrenme ve öğretim deneyimlerinin dikkate alındığı yöntemler üzerinde çalışılmaktadır (Broadbridge& Hendersen, 2008). Sürekli değerlendirme öğretim elemanlarına hem bireysel hem de tüm sınıf için ihtiyaç duyulan yardım konusunda geribildirim imkânı sağlar. Esnek değerlendirmede öğrenci değerlendirme yöntemini kendi seçer. Bu da öğrenciyi öğrenmesinin kontrolünü kendi eline almaya zorlar ve başarısını en iyi gösterebileceği yöntemi seçmesine izin verir (Wood&Smith, 1999).
Yaygın olarak kullanılan yöntemler; yazılı sınavlar, dönem sonu sınavları, sınıf testleri, bireysel ve grup projeleri, çevrimiçi testler, bilgisayar destekli değerlendirme olarak sıralanabilir.
Bilgisayar destekli değerlendirmede öğrenci kendi hızında yeteneklerini geliştirebilir ve konuyu anlayıp anlamadığını kendisi sınayabilir.

Örnek olarak Loughbough Üniversitesi Makine Mühendisliği Bölümü'nün matematik derslerine ait, içerik, öğrenme, öğretim ve değerlendirme yöntemleri aşağıda verilmiştir (Broadbridge&Henderson, 2008):

Makine Mühendisliği Programı

Ders	Kredi	Ön koşul
Makine Mühendisliği İçin Matematik (MAA 310)	20	Yok
Makine Mühendisliği İçin Matematik (MAB 110)	10	MAA310

MAA 310: Makine Mühendisliği İçin Matematik
İçerik: Kompleks sayılar, vektör ve matris cebiri. Lineer denklem sistemlerinin çözümü: determinant, matris ve Gauss eliminasyonu. Nonlineer denklemlerin çözümü (Newton Rapson). Elementer fonksiyonlar. Adi ve kısmi diferensiyel: birinci mertebeden değişkenlerine ayrılabilir lineer denklemler, ikinci mertebeden sabit katsayılı lineer denklemler, uygulamaları. Laplace dönüşümleri: adi diferensiyel denklemlerin çözüm uygulamaları. Diziler ve seriler: sonsuz seriler, yakınsaklık, Binomial, Maclaurin ve Taylor serileri.
Öğretme ve Öğrenme: öğrencinin bu ders için harcayacağı çalışma saati ortalama 200'dür. 48 tane 1'er saatlik ders ve 26 tane 1'er saatlik tutorial ve özel çalışma, problem çözme ve sınav için tekrar.
Değerlendirme: 8 bilgisayar tabanlı ya da sınıf testleri (8x5,%40). Diğer sınavlar (%60).

MAA 110: Makine Mühendisliği İçin Matematik
İçerik: Elementer olasılık ve istatistik. Adi diferensiyel denklemlerin çözümleri için uygulamaları ile matris özdeğer problemleri. Kıstlı ve kısıtsız, çok değişkenli fonksiyonların optimizasyonu. Fourier Serileri ve kısmi diferensiyel denklemler.
Öğretme ve Öğrenme: öğrencinin bu ders için harcayacağı çalışma saati ortalama 100'dür. 24 tane 1'er saatlik ders ve 12 tane 1'er saatlik tutorial ve özel çalışma, problem çözme ve sınav için tekrar.
Değerlendirme: 2 tane denk bilgisayar tabanlı test (%20). Formal sınav (%80).

SONUÇ

Mühendislik eğitimi, yüksek öğretimin önemli bir parçasıdır. Matematik eğitimi de mühendislik için yaşamsal öneme sahiptir. Teknolojik gelişmelerin her alanı hızlı etkilediği günümüzde, özellikle mühendislik eğitiminde bilgisayarın ve internetin kullanımı göz ardı edilemez. Hem eğitim, öğretim ve değerlendirme yöntemlerine hem de müfredat geliştirmeye yön verecek olan iki araç bilgisayar ve internettir. Mühendislik eğitiminin önemli bir parçası olan matematik eğitimini, müfredat, öğretim ve ölçme-değerlendirme yöntemleri açısından incelemeyi amaçlayan bu araştırma ile 21. yüzyılın mühendisleri için nasıl bir matematik eğitimi olmalı konusuna bir ışık tutulacağı düşünülmektedir.

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3D VISUALIZATION AS A PART OF NATURAL SCIENCE COMPETENCES

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ABSTRACT

In many branches of natural sciences in education, such as physics topics, the three-dimensional (3D) spatial imagination is crucial for proper understanding of natural phenomena. Since the presentation of 3D objects is viewed on two-dimensional (2D) screens, it is important for students to gain the ability of correct interpretation of 2D presentation of real 3D objects. This ability is treated as one of the natural science competences. The visualization software uses two main approaches: either simulating 3D pictures (3D view) or showing 2D cross-sections of the 3D object (2D view). Each view has its advantages and disadvantages, predominantly depending on whether the students are at least partly familiar with the subject or not. Our investigations on presentation of liquid crystal structures in both views and testing them with students showed that the 2D view is preferable, when the students are not completely unfamiliar with the subject.

Keywords: natural science competences, 3D visualization, liquid crystals, physics education

INTRODUCTION

In October 2008 the Slovene national project Development of Natural Science Competences began and it will finish at the end of 2011. Its goal is to indicate better didactics strategies for systematic development of students' natural science competences in the frame of regular education. There are many topics in physics, e.g., mass-centre of the body, free rotation of rigid bodies, hydrodynamics, electrostatics, magnetism, etc., where a good three-dimensional (3D) spatial imagination of the physical system is needed in order to understand the problem properly. Since the 3D systems are shown on two-dimensional (2D) paper, panel or computer screen, the students should be able to interpret such images/representations concisely. Specific chemistry and biology topics also require appropriate 3D visualization, thus this ability can be treated as a crucial nature science competence (or a part of a more general scientific competence, such as the ability of using mathematical techniques and ideas).

With respect to visualization software, there are two main options for presenting 3D physical systems in 2D: either by simulating 3D pictures (for instance with VRML files) or by 2D cross sections of the system (Repnik et al., 2003, Kaučič et al., 2004. Repnik et al., 2005). These two possibilities are henceforth referred as 2D and 3D view, respectively. Each of them has its advantages and drawbacks. General experience shows that it is more appropriate to use 3D view as a starting point when the students are essentially unfamiliar with the topic, since the 2D view is not comprehensible enough for them. On the contrary, students familiar with the subject prefer using 2D view since it provides more information about the physical system in short time. In addition, building 3D view requires much more time than 2D view, at least by our experience.

In our investigation of the concepts and performance of 2D and 3D views, we chose the field of liquid crystals (LC) for several reasons. First, LC exhibit a rich variety of phases, structures and 3D patterns, including director field deformations, point and line defects and domain patterns, and are therefore perfect for studying various geometric views and aspects. Second, LC are important not only for practical applications, but are also a part of the human and animal bodies (although this is often an unknown fact). LC structures and corresponding mathematical models have many analogies in nature: theory of the development of defect structures in the universe, supra-fluidity, superconductors, ferromagnetics and

ferroelectrics, etc (Mermin, 1976, Spergel and Turok, 1992, Trebin, 1998). In this respect, the study of LC offers a nice example of science inter-connectivity. Next, although the field of LC is one of the professional areas of the authors and some other co-workers in our institutions, this subject is considered very poorly in regular education, even in high school. On the other hand, some of our students worked on LC extensively (graduation, seminar works and similar), and this makes a significant differences in our students' knowledge of LC, which is suitable for our research.

In our investigation the use of the web and some VRML files (created by one of the authors) is demanded and this is related to the digital competence, one of the eight key competences from the EU Legislation – Education, Training, Youth (Key competences for Lifelong Learning) (Summaries of EU Legislation, 2009). Digital competence, of course, is increasingly gaining on importance in sciences in general.

TEST FOR STUDENTS OF PHYSICS

Since our research on 3D visualization has started just recently, only the physics students and university graduates from the Faculty for natural sciences and mathematics at the University of Maribor have cooperated so far. The test (questionnaire) contains 19 questions with 4 possible answers for each. In most cases only one answer is correct, but for some questions two answers have to be selected (students were not told how many answers are right). The students were asked not to leave any question unanswered, but also to go straight through the test and not to return to previous questions and correct the answers (even if the solution of one task gives the student a hint about correct solution of any previous task), We think that this requirement improves the consistency of the test results. For each task the student gained 0 (completely wrong answer/answers), 1 (partially correct answer/answers) or 2 (correct answer/answers). For instance, when the question has only one correct answer, but the student chooses an incorrect answer besides the correct one, he earns only one point instead of two.

The physical contents of the tasks are the following. The first few questions are addressed to characteristic phases: isotropic, nematic and smectic A (de Gennes and Prost, 1995). The following questions are given in regard to different deformations of the nematic director field: splay, bend, twist and double twist. The third set of tasks touches the point and line defects in LC; these are the points or lines where the nematic director is not definite (i.e., where the nematic phase is melt). The last three questions are about LC domains. There are different structures of the tasks: deduction from 2D cross-sections to 3D picture or vice versa, relation between the mathematical model of the director field and the 3D structure, understanding the statements describing the structures, and last, in our opinion the most difficult task – deducing possible 2D view from 2D views in different cross-sections. To solve the last task, the composite 2D $\rightarrow$ 3D $\rightarrow$ 2D transformation must be done in one's imagination. But perhaps, the latter transformation is naturally performed in human's brain all the time, when the 2D pictures of 3D world are created in our eyes. Maybe, it is more difficult to do it for figures on paper or screen, just because they are too static and usually without features of objects in nature (shadows etc.).

A few questions with answers in the test are shown in Fig. 1. 3D visualization is conveniently done by VRML files where the user can perform some standard operations among which the rotation of the view may be the most important, particularly if the structure (and the entire physics topic) is completely unfamiliar to the user. However, the creation of VRML files demands a lot of programmer's time and effort.

3. task
What can you tell about the spatial distribution of the molecule mass-centres and their orientations in the phase presented on this VRML file?

Use the web page: http://www.repnik.com/complex/tk_vrml/index.htm and run the 3D file by clicking on the text "nematična faza" (nematic phase) NEKATERE TEKOČEKRISTALNE FAZE (podrobnejše informacije)  izotropna faza · nematična faza · smektična A faza · smektična C faza	☐ mass-centres of molecules are randomly distributed in space, and their orientations are evenly probable for all directions ☐ mass-centres of molecules are randomly distributed in space, while their orientations are randomly distributed in the 2D plane ☐ mass-centres of molecules are randomly distributed in space, but from their directions in space some definite average direction can be noticed ☐ mass-centres of molecules are randomly distributed within individual layers, and their orientations are randomly distributed in the 2D plane

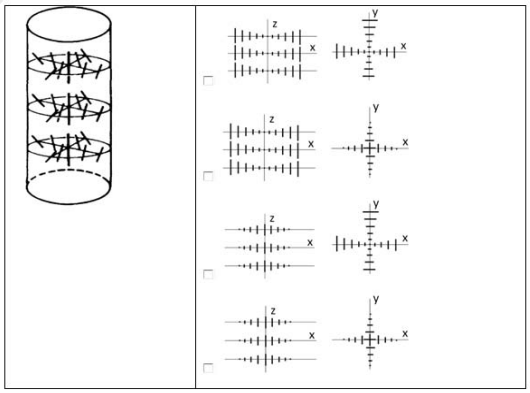
a) about nematic phase

6. task
Average local orientation of molecules is described by the unit vector ***n***. The 3D file below shows the splay structure with cylindrical symmetry. This structure is described here by Cartesian or cylindrical coordinate system with directional vectors $\boldsymbol{e}_r$, $\boldsymbol{e}_\varphi$ and $\boldsymbol{e}_z$ in radial, azimuthal and cylinder-axis directions, respectively. Which of the equations on the right is (are) correct?

Use the web page: http://www.repnik.com/complex/tk_vrml/index.htm and run the 3D file by clicking on the text "pahljačasta deformacija" (splay deformation) OSNOVNE DEFORMACIJE V NEMATIČNIH TEKOČIH KRISTALIH (podrobnejše informacije)  upogibna deformacija · zvojna deformacija · pahljačasta deformacija	☐ $\boldsymbol{n} = \boldsymbol{e}_r$ ☐ $\boldsymbol{n} = \boldsymbol{e}_\varphi$ ☐ $\boldsymbol{n} = \boldsymbol{e}_z$ ☐ $\boldsymbol{n} = (\cos kz, \sin kz, 0)$

b) about splay deformation

12. task
The following 3D sketch represents the structure where the molecules are everywhere perpendicular to the radial direction in the cylindrical coordinate system. The twist of the molecules with respect to cylinder axis is the same for all molecules equally distant from the axis: it is approximately linear in the distance from the cylindrical axis. Which pair of cross-sections on the right is the right one?



c) about double twist deformation

19. task

Run the 3D file below which represents the domain structure (different domains have different colours). Rotate the structure and find the view where the average directions of two neighbouring domains accidently nearly coincide. If the domains in the figure lost their colour, how would you distinguish two such domains with virtually similar directions anyway?

Use the web page: http://www.repnik.com/complex/tk_vrml/index.htm and run the 3D file by clicking on the text "domene" (domains) DOMENSKA STRUKTURA (podrobnejše informacije)  domene	☐ by virtual length of molecules ☐ by virtual density of molecules ☐ by virtual area of the smallest rectangular face ☐ by the angles between molecules within individual domain

d) about domain structure

Figure 1: The structure of different tasks about 2D and 3D visualization

RESULTS OF THE TEST AND DISCUSSION

There were 7 persons (post-graduate students and co-workers in our institutions) with some knowledge in LC and 8 students without any experience in this field who cooperated in this investigation. All persons will be called students for brevity although some of them in the first group are not students anymore. Table 1 shows the results for both groups of students (Group I for students with some LC knowledge and Group II for students without this knowledge). Tasks are grouped into categories and all points for the whole group of students and for all tasks in each category are summed in the table. The meaning of the seven categories (labelled from C1 to C7) is given below the table.

Table 1: Number and percentage of achieved points by categories for both students' groups. For instance, the denotation 30/42 points at the top of the first column means 30 points of 42 possible (42 = 3 × 2 × 7; 3 tasks in the C1 category – 1, 9 and 10, 2 maximum points for each task, 7 students).

Categories of tasks	Group I		Group II		Both groups	
	Points	Percent	Points	Percent	Points	Percent
C1: 1,9,10	30/42	71.4%	19/48	39.6%	49/90	54.4%
C2: 2, 3, 5, 6, 7, 8, 19	54/98	55.1%	42/112	37,5%	96/210	45.7%
C3: 4, 11, 17, 18	36/56	64.3%	36/64	56.3%	72/120	60.0%
C4: 12	7/14	50.0%	12/16	75.0%	19/30	63.3%
C5: 13, 14	17/28	60.7%	15/32	46.9%	32/60	53.3%
C6: 15	9/14	64.3%	11/16	68.8%	20/30	66.7%
C7: 16	11/14	78.6%	12/16	75.0%	23/30	76.7%
All tasks	164/266	61.7%	148/304	48.7%	312/570	54.7%

Meaning of the categories of tasks in Table 1:

- C1: textual interpretation of 2D figures
- C2: textual interpretation of dynamic 3D (VRML) views
- C3: textual interpretation of static 3D figures
- C4: translation of static 3D view into a pair of 2D cross-sections
- C5: translation of 2D cross-section into another 2D cross-section

- C6: translation of dynamic 3D view into 2D cross-section
- C7: translation of a pair of 2D cross-sections into dynamic 3D view

There are some interesting findings in regard to results presented in the table. The tasks in the first three categories (C1 – C3), where different figures have to be interpreted (for instance, by choosing the corresponding nematic director field), were solved by the first group of students significantly better than by the other group. This has been expected since the previous knowledge of LC is of great help here. Furthermore, the comparison between C1 and C2 indicates that for LC "experts" the 2D figures are more informative than 3D views while for "non-experts" the results of C1 and C2 are similar.

The main conclusion of this investigation is, however, the comparison of results for both groups of students when the tasks start from the 2D view (categories C1, C2 and C7) or 3D view (categories C2, C3, C4 and C6), respectively, regardless of the goal of the answer (either 2D or 3D view or textual interpretation). In the expert group I the results are generally better when the 2D view is the starting point as compared to the 3D view. On the contrary, the 3D view is preferable as the starting point for non-experts. As regards the comparison between the two students' groups, experts are much better in the interpretation of 2D figures while there is no significant difference in the interpretation of 3D views between the two groups.

The results of solving the task 12 (Fig. 1b, row C4: 12 in the table) bring a little surprise: the non-experts solved this task more successfully than the expert group. The reason for this may be that this structure (called radially twisted or double twisted in the literature) is commonly unfamiliar even to LC experts because it appears in rare circumstances: in chiral nematics in confined cylindrical symmetry with appropriate boundary conditions (Ondris-Crawford et al., 1994, Ambrožič and Žumer, 1999), and it probably also constitutes the "blue phases" of LC (Wikipedia). Experts are burdened with the LC knowledge and try to remind themselves of other commonly known structures of LC so that they choose the wrong answer while the non-experts just try to visualize and imagine the drawn structure.

CONCLUSION

The main conclusion of this preliminary research with a small sample of students can be stated as follows. The 2D representation of a physical 3D system is preferable for experts in the field since the proper 2D visualization gives more information than the 3D view. On the contrary, the 3D active representation of the system is more appropriate for the beginners.

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INTE 2010

6. SINIF MATEMATİK DERS KİTABINDAKİ ALIŞTIRMALARIN TIMSS-2007 BİLİŞSEL ALANLARINA GÖRE ANALİZİ

AN ANALYSIS OF EXERCISE PROBLEMS IN A 6TH GRADE TURKISH MATHEMATICS TEXTBOOK BASED ON TIMSS-2007 COGNITIVE DOMAINS

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ÖZET:

Bu çalışmada, 2008-2009 eğitim öğretim yılında 6. sınıflarda okutulan bir Matematik ders kitabındaki 974 alıştırma sorusu ile TIMSS 2007'de yayınlanmış olan 89 soru, TIMSS 2007 bilişsel alanları göz önüne alınarak sınıflandırılmıştır. Bulgulara göre, Matematik ders kitabında yer alan alıştırmaların %71'i bilgi, %25'i uygulama ve %4'ü akıl yürütme alanında yer almıştır. TIMSS 2007 Matematik testinde yayınlanan soruların ise %30'u bilgi, %52'si uygulama ve %18'i akıl yürütme alanında yer almıştır. Bu bulgulara göre, incelenen Matematik ders kitabındaki alıştırmaların %96'sı bilgi ve uygulama alanındayken, TIMSS 2007 Matematik testinde yayınlanan soruların ise %70'i uygulama ve akıl yürütme alanlarındadır. Sonuçlar Türkiye'nin geçmiş yıllarda TIMSS çalışmalarından aldığı sonuçlar ışığında değerlendirilmiş, ders kitaplarındaki alıştırma soruları ile ilgili bazı önerilerde bulunulmuştur.
Anahtar Kelimeler: TIMSS Bilişsel Alanları, Ders Kitabı Analizi.

ABSTRACT:

With this study, it is aimed to compare and analyze 89 released Mathematics items of TIMSS 2007 framework with 974 exercise problems of a 6th grade Turkish Mathematics textbook based on the cognitive domains of TIMSS 2007. According to the findings, 71% of the exercise problems of the 6th grade textbook are in knowing, while 25% is in applying and 4% is in the reasoning cognitive domains. On the other hand, 30% of the released Mathematics items of TIMSS 2007 framework are in knowing while 52% is in applying and 18% is in reasoning. As a result, while 96% of exercise problems of the textbook are in knowing and applying, 70% of TIMSS 2007 released Mathematics items are in applying and reasoning cognitive domains. The results are discussed in the light of Turkey's performances in the past years TIMSS frameworks, and some suggestions on textbooks exercise problems are given.
Keywords: TIMSS Cognitive Domains, Textbook Analysis.

1. GİRİŞ

Kızıloluk (2002)'un Ertürk (1984)'ten aktardığına göre eğitim, bireyin davranışında, kendi yaşantısı yoluyla ve kasıtlı olarak istendik değişme meydana getirme sürecidir. Eğitimin planlı, amaçlı, kasıtlı ve başkalarının kontrolü altında yapılmasına öğretim denir. Öğretimin yapılabilmesi için, öğrenciye kazandırılması istenilen davranışlar, davranışların nasıl kazandırılacağı, kazandırılıp kazandırılmadığının nasıl anlaşılacağını gösteren öğretim programı gereklidir (Kılıç ve Seven, 2005). Bir programın temel öğeleri hedef, içerik, öğrenme yaşantıları ve değerlendirmedir (Demirel, 2003).

Eğitim sürecinde en çok kullanılan araçlar ders kitaplarıdır. Milli Eğitim Bakanlığı ders kitabını "Örgün ve yaygın eğitim kurumlarında kullanılmak üzere, içeriği öğretim programları doğrultusunda hazırlanmış, gerektiğinde fasikül hâlinde de üretilebilen basılı eser" olarak tanımlamıştır (MEB, 2004). Matematik öğretiminde konu ile ilgili hedeflere ulaşmada ders kitabının önemi büyüktür. Etkili bir Matematik ders kitabında, değerlendirme etkinlikleri önemli bir yer tutar. Bu etkinliklerin çoğu alıştırmalardan oluşur ve bunlar öğrenilenin pekiştirilmesi açısından önemlidir (Duman, Karakaya, Çakmak, Eray ve Özkan, 2001: 153).

Değerlendirme süreci eğitimin son basamağı olup, programın amacına ulaşıp ulaşmadığını ortaya koyar (Doğan, 2004). TIMSS (The Trends in International Mathematics and Science Study), PISA (Programme for International Student Assessment), PIRLS (Progress in International Reading Literacy Study) gibi uluslararası çalışmalar ülkelere öğretim programlarını değerlendirme ve diğer ülkelerle

kendilerini karşılaştırma fırsatı sunmaktadır. TIMSS, IEA (International Association for the Evaluation of Educational Achievement) tarafından her 4 yılda bir yapılmakta olup, Matematik ve Fen öğretimini ve öğrenimini geliştirmek için ülkelerin başarıları hakkında karşılaştırmalı bilgi sağlamaktadır.

TIMSS 1995, 1999, 2003 ve 2007 yıllarında düzenlenmiş olup, Türkiye bu çalışmaya sadece 1999 ve 2007 yıllarında katılmıştır. TIMSS 2007'de Türkiye Matematikte 49 ülke arasında 30. sırada ve ortalama altında yer almıştır. Matematikte toplam 215 soru olup bu sorulardan 89 tanesi yayınlanmıştır. Delil (2006)'nın Martin, Mullis ve Chrostowski (2004)'den aktardığına göre öğrencilerin öğrenmelerinin bilişsel alanlarının değerlendirilmesi TIMSS'in önemli bir parçasıdır. TIMSS'in bakış açısından Matematikteki bilişsel alanlar, "Matematik içeriğiyle bağlantılı olarak öğrencilerden beklenen davranışların düzenlenmesi"dir. TIMSS 2007'de Bilgi, Uygulama ve Akıl Yürütme (Muhakeme Etme) olmak üzere 3 bilişsel alan bulunmaktadır.

Tablo 1: TIMSS 2007 bilişsel alanları.

	BİLİŞSEL ALANLAR		
DAVRANIŞLAR	(1) BİLGİ	(2) UYGULAMA	(3) AKIL YÜRÜTME
	(1.1) Hatırlama	(2.1) Seçme	(3.1) Analiz Etme
	(1.2) tanıma	(2.2) Temsil Etme	(3.2) Genelleme
	(1.3) Hesaplama	(2.3) Modelleme	(3.3) Sentez Yapma
	(1.4) Çıkarım Yapma	(2.4) Uygulama	(3.4) Doğrulama
	(1.5) Ölçme	(2.5) Rutin Olan Problemleri Çözme	(3.5) Rutin olmayan Problemleri, Çözme
	(1.6) Sınıflandırma/Sıralama		

1.1 Araştırmanın Önemi ve Gerekçesi:

Bu çalışmayla Matematik ders kitaplarında yer alan alıştırma sorularının bilişsel alanlara sınıflandırılmasıyla, ders kitabında yer alan alıştırma sorularının hangi bilişsel alanlara ait olduğu ve soruların bilişsel alanlara dağılımının dengeli olup olmadığı belirlenebilecektir. Ayrıca, Türk öğrencilerin başarısız sonuçlar aldığı TIMSS çalışmalarındaki sorular ile ders kitaplarındaki sorular bilişsel alanlar açısından karşılaştırılabilecektir. Bu çalışmanın önemli bir gerekçesi de, Türk Matematik ders kitaplarında yer alan soruların bilişsel alanlara sınıflandırılmasıyla ilgili çalışmaların çok az ve yetersiz oluşudur.

1.2 Araştırmanın Amacı:

Bu çalışmanın amacı, 2008-2009 eğitim-öğretim yılında 6. sınıflarda okutulan bir Matematik ders kitabındaki (Göğün, 2007) alıştırma soruları ile TIMSS 2007'de yayınlanan Matematik sorularını TIMSS 2007 bilişsel alanlarına göre sınıflandırarak karşılaştırmaktır.

2. YÖNTEM

Bu çalışmada doküman analizi yöntemi kullanılmıştır. 6. sınıf Matematik ders kitabında yer alan 974 alıştırma sorusu ile TIMSS 2007'de yayınlanan 89 Matematik sorusu, araştırmacılar tarafından TIMSS 2007 bilişsel alanları göz önüne alınarak ve birbirlerinden bağımsız olarak sınıflandırılmıştır. Daha sonra araştırmacılar bir araya gelerek soruları beraber değerlendirmişlerdir. Bu değerlendirme sırasında farklı bilişsel alana sınıflandırılan sorular ortak bir karar alınana dek araştırmacılarca tartışılmıştır. Ders kitabında yer alan soruların sınıflandırılmasında araştırmacılar arasındaki uyuşma oranı %84.8, TIMSS Matematik testinden yayınlanan soruların sınıflandırılmasındaki uyuşma oranı ise %86.5'tir. Bu oran Türnüklü (2000)'de sözü edilen; $P = Na \times 100/(Na + Nd)$ formülü ile bulunmuştur. Burada *P* uyuşma yüzdesi, *Na* uyuşum miktarı, *Nd* ise uyuşmazlık miktardır.

3. BULGULAR

6. sınıf Matematik ders kitabındaki alıştırma sorularının TIMSS 2007 bilişsel alanlarına göre sınıflandırılması Tablo 2'deki gibidir.

Tablo 2 incelendiğinde, 6. sınıf Matematik ders kitabında bulunan 974 alıştırma sorusunun %72'si "Bilgi" alanında iken %25'i "Uygulama" alanında, %4'ü ise "Akıl Yürütme" alanında yer almıştır. Bilişsel alanların alt davranışlarına bakıldığında ise, alıştırma soruları içinde en çok temsil edilen davranış %30'luk oran ile "Hesaplama" davranışı olurken, %15'lik oranla "Hatırlama" davranışı en çok

temsil edilen ikinci davranış olmuştur. "Hatırlama" davranışını %9'luk oranla "Uygulama" davranışı izlemektedir. "Sentez Yapma" ve "Doğrulama" davranışlarında ait ise hiç soru bulunmamaktadır.

Tablo 2: 6. sınıf ders kitabındaki alıştırma sorularının TIMSS 2007 bilişsel alanlarına ve alt davranışlarına göre sınıflandırılması.

	Davranışlar	*f*	%	Σ*f*	Σ%
Bilgi	1.1 Hatırlama	147	15.09	**694**	**71**
	1.2 Tanıma	52	5.34		
	1.3 Hesaplama	297	30.49		
	1.4 Çıkarım Yapma	36	3.70		
	1.5 Ölçme	83	8.52		
	1.6 Sınıflandırma/Sıralama	79	8.11		
Uygulama	2.1 Seçme	87	8.93	**244**	**25**
	2.2 Temsil Etme	35	3.59		
	2.3 Modelleme	20	2.06		
	2.4 Uygulama	88	9.03		
	2.5 Rutin Problemleri Çözme	14	1.44		
Akıl Yürütme	3.1 Analiz Etme	20	2.06	**36**	**4**
	3.2 Genelleme	13	1.33		
	3.3 Sentez Yapma	0	0		
	3.4 Doğrulama	0	0		
	3.5 Rutin Olmayan Problemleri Çözme	3	0.31		

TIMSS 2007'de yayınlanan soruların TIMSS 2007 bilişsel alanlarına ve alt davranışlarına göre sınıflandırılması Tablo 3'te verilmiştir. Görüldüğü gibi, yayınlanan 89 sorunun %30'u "Bilgi", %52'si "Uygulama", %18'i ise "Akıl Yürütme" alanında yer almaktadır.

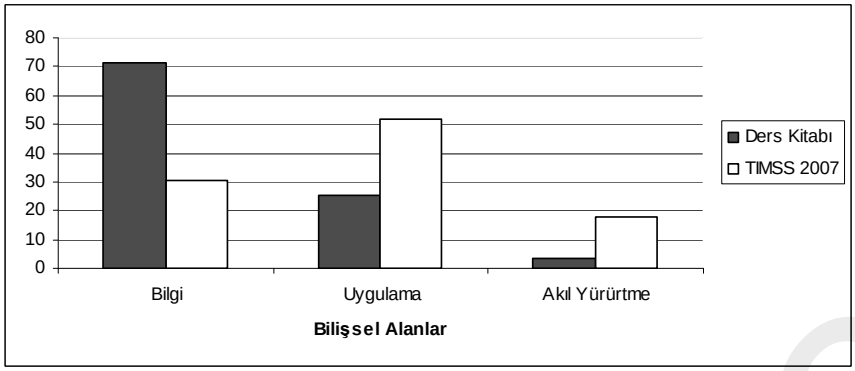
Tablo 3: TIMSS 2007'de yayınlanan Matematik sorularının TIMSS 2007 bilişsel alanlarına göre sınıflandırılması.

	Davranışlar	*f*	%	Σ*f*	Σ%
Bilgi	1.1 Hatırlama	1	1.12	**27**	**30**
	1.2 Tanıma	5	5.62		
	1.3 Hesaplama	15	16.86		
	1.4 Çıkarım Yapma	3	3.37		
	1.5 Ölçme	1	1.12		
	1.6 Sınıflandırma/Sıralama	2	2.25		
Uygulama	2.1 Seçme	1	1.12	**46**	**52**
	2.2 Temsil Etme	5	5.62		
	2.3 Modelleme	0	0		
	2.4 Uygulama	33	37.08		
	2.5 Rutin Problemleri Çözme	7	7.87		
Akıl Yürütme	3.1 Analiz Etme	9	10.11	**16**	**18**
	3.2 Genelleme	1	1.12		
	3.3 Sentez Yapma	6	6.74		
	3.4 Doğrulama	0	0		
	3.5 Rutin Olmayan Problemleri Çözme	0	0		

Yayınlanan soruların TIMSS 2007 bilişsel alanlarının alt basamaklarına göre sınıflandırılmasında, %37 ile "Uygulama" davranışı en çok temsil edilen davranıştır. %17'lik oranla "Hesaplama" davranışı ve %10'luk oranla "Analiz Etme" davranışı en çok temsil edilen diğer davranışlardır. "Modelleme", "Doğrulama" ve "Rutin Olmayan Problemleri Çözme" davranışlarına ait ise hiç soru bulunmamaktadır.

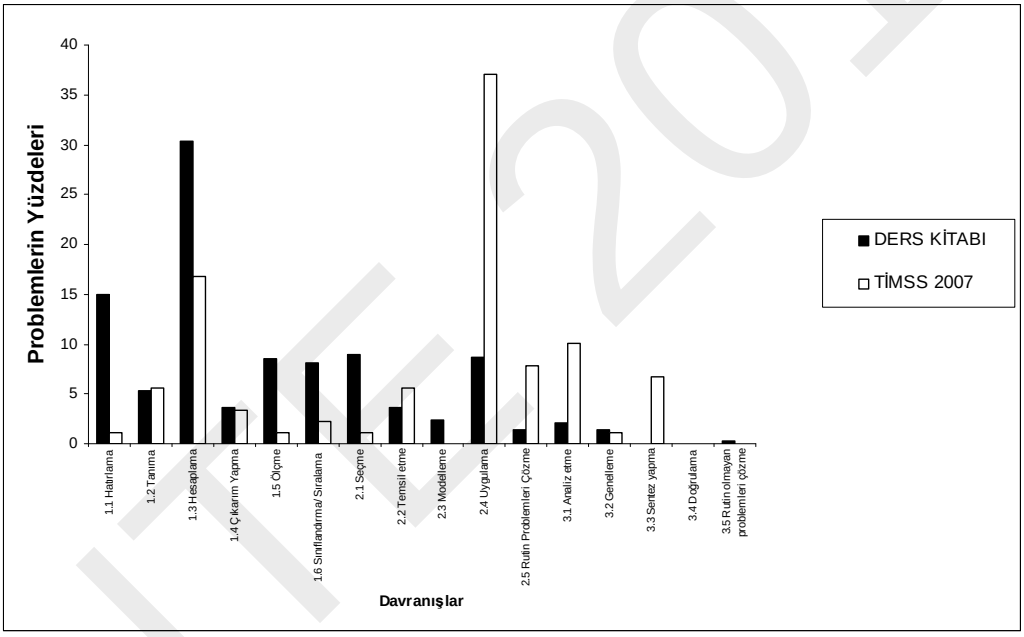
4. TARTIŞMA, SONUÇ VE ÖNERİLER

Grafik 1'de görüldüğü üzere, ders kitabında en çok "Bilgi" alanında soru bulunmaktadır. "Bilgi" ve "Uygulama" alanlarında toplam 938 soru bulunup, tüm soruların büyük bir çoğunluğu bu iki alanda toplanmaktadır. "Akıl Yürütme" alanında ise sadece 36 soru bulunmaktadır.



Grafik 1: 6. sınıf Matematik ders kitabındaki alıştırma soruları ile TIMSS 2007'de yayınlanan Matematik sorularının TIMSS 2007 bilişsel alanlarına göre karşılaştırılması.

Grafik 2'den elde edilen bulgulara göre ise, 6. sınıf Matematik ders kitabında 297 soru ile en fazla "Hesaplama" davranışına ait sorulara yer verilmiştir. "Sentez Yapma" ve "Doğrulama" davranışlarına ait hiç soru bulunmazken, "Rutin Olmayan Problemleri Çözme" davranışına ait sadece 3 soru bulunmaktadır.



Grafik 2: 6. sınıf Matematik ders kitabındaki alıştırma soruları ile TIMSS 2007'de yayınlanan Matematik sorularının TIMSS 2007 bilişsel alanlarının alt davranışlarına göre karşılaştırılması.

TIMSS 2007'de yayınlanan Matematik sorularının %30'u "Bilgi" alanında, "%52'si "Uygulama" alanında ve %18'i de "Akıl Yürütme" alanında bulunmaktadır. "Bilgi" ve "Uygulama" alanında toplam 73 soru bulunmaktadır. Bilişsel alanların alt davranışlarına bakıldığında ise %37'lik oranla en fazla soru "Uygulama" davranışında bulunmaktadır. 6. sınıf Matematik ders kitabındaki alıştırmaların %96'sı bilgi ve uygulama alanındayken, TIMSS 2007 Matematik testinden yayınlanan soruların ise %70'i uygulama ve akıl yürütme alanlarındadır.

6. sınıf Matematik ders kitabında yer alan alıştırma soruları ile TIMSS 2007'de yayınlanan Matematik sorularının sınıflandırılmaları açısından görülen benzerlikler şöyledir:

Ders kitabı ve TIMSS sorularının her ikisinde de "Akıl Yürütme" alanı en az temsil edilen alan, "Doğrulama" davranışı da hiç soru bulunmayan davranıştır. Hem ders kitabında hem de TIMSS'te yayınlanan sorularda, "Hesaplama" davranışı en çok tekrar edilen davranışlardandır. 6. sınıf Matematik ders kitabı ve TIMSS 2007'de yayınlanan Matematik sorularının TIMSS 2007 bilişsel alanlarına göre sınıflandırılmasının sonucunda her ikisinde de soruların bilişsel alanlara dağılımı dengesizdir.

6. sınıf Matematik ders kitabında yer alan alıştırma soruları ile TIMSS 2007'de yayınlanan Matematik sorularının sınıflandırılmaları açısından görülen farklılıklar ise şöyledir:

6. sınıf Matematik ders kitabındaki soruların yarısından fazlası "Bilgi" alanında yer alırken, TIMSS 2007'de yayınlanan Matematik sorularının yarısından fazlası "Uygulama" alanında yer almaktadır. 6. sınıf Matematik ders kitabında en çok tekrarlanan davranış "Hesaplama" iken TIMSS 2007 Matematik sorularında en çok tekrarlanan davranış "Uygulama"dır. En çok tekrarlanan ilk 3 davranış, ders kitabında "Hesaplama", "Uygulama" ve "Hatırlama" davranışları iken TIMSS 2007 Matematik sorularında "Uygulama", "Hesaplama" ve "Analiz Etme" davranışlarıdır. "Akıl Yürütme" alanı hem ders kitabında hem de TIMSS'in yayınlanan sorularında en az temsil edilen alan olsa da, ders kitabında tüm sorular içinde %4'lük orana sahipken, TIMSS 2007 Matematik sorularında bu oran %18'dir. Yani TIMSS 2007'de yayınlanan Matematik soruları 6. sınıf Matematik kitabındaki alıştırma sorularına göre daha üst bilişsel alan davranışlarını gerektirmektedir. Ayrıca, TIMSS 2007'de yayınlanan soruların bilişsel alanlara dağılımının ders kitabındaki alıştırmaların dağılımına göre daha homojen olduğu söylenebilir.

Bulgulara göre ders kitabındaki alıştırma soruları görece alt bilişsel alan basamaklarını gerektirmekte olup, soruların bilişsel alanlara göre dağılımında dengesizlik vardır. Bazı davranışlara ait çok soru bulunurken, bazı davranışlar yeteri kadar temsil edilmemiştir. Bu sonuçlar literatür ile de paralellik göstermektedir: Olkun ve Toluk'a (2002) göre Matematik ders kitaplarında sözel problemlerin tüm standart tipleri yeteri kadar temsil edilmemiştir. Yine Olkun ve Toluk (2002) çalışmasının sonucuna göre, öğrenciler ders kitaplarında yer verilmeyen tipteki sorularda, diğerlerine göre daha düşük bir başarı elde etmektedirler. Delil (2006)'ya göre Matematik ders kitaplarındaki Geometri sorularının %70'inden fazlası "Hesaplama" ve "Uygulama" davranışını gerektirmektedir.

Araştırmanın sonucuna bakıldığında ders kitaplarındaki soruların dağılımının dengesiz olduğu görülmüştür. Bu sonuç göz önüne alınarak, ders kitaplarındaki alıştırma sorularının bilişsel alanlara göre dengeli dağıtılmasına dikkat edilmelidir. Matematik ders kitaplarındaki alıştırma sorularının gerektirdiği bilişsel alanlar, TIMSS 2007'de yayınlanan soruların gerektirdiği bilişsel alanlara göre daha düşük seviyededir. Bu yüzden, ders kitaplarındaki alıştırma soruları hazırlanırken, üst düzey bilişsel alanları temsil eden alıştırma sorularına daha çok yer verilmelidir.

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A BLENDED LEARNING APPROACH USING MAPLE T.A. TO IMPROVE THE MATHEMATIC SKILLS OF ENGENEERING STUDENTS

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ABSTRACT Due to different reasons new students at universities have a widely varying knowledge of mathematics. In this paper we present a refreshing course concept aimed to give new students enough elementary mathematical skills to be able to follow the applied introductory lectures of different curricula. As an e-learning tool Maple T.A. was used, since it allows for free learning, and thereby enables students to specifically train that fields in which they lack expertise. Maple T.A. also allows as for randomized, supervised tests. Although the examples can be highly randomized, they can be constructed with this software in such a way, that the solution has a limited complexity. Therefore the effort to solve the problems can be adjusted to a reasonable level. School students tested the software platform in advance, and their feedback was incorporated. The effectiveness of this approach was evaluated statistically. The mathematics competence of the students increased significantly.

1. INTRODUCTION

When new students come to universities in Austria they have a very widely spread knowledge of mathematics. This is due to several reasons: firstly there exists a very highly differentiated school system in Austria, where school students can choose between a wide range of specialized schools. To give a few examples there are secondary schools specialized in natural sciences, in languages or in music. Then there are professional schools, where students are trained in mechanical or electrical engineering, in economics or in informatics, and many other fields. No matter where the students got their secondary school degree from, they are allowed to start at any university in any curriculum. Only very few curricula have entrance exams. Secondly the male students are doing their military service right after school, so many of them are out of training when starting their university career. Thirdly there are also some students who worked or studied something different before they begin their engineering education. And fourthly there are also some students from other countries. Overall the first semester students in the engineering sciences at the Vienna University of Technology are a very heterogeneous group and they show very different levels of skills in mathematics.

In this paper we present refreshing courses held at the Vienna University of Technology for students of mechanical and electrical engineering in the winter term 2009/2010. These courses were aimed to repeat, advance and consolidate the mathematical tools, which are essential for the understanding of the elementary applied lectures, like electrical engineering one or mechanics one. We used a blended learning approach, consisting of frontal lecture elements, exercises in small groups, and free learning.

The structure of the paper is as follows: firstly we will describe the structure of the courses. This also includes how the courses were built. Secondly we describe the abilities, the advantages, and the disadvantages of the Maple T.A. software. And finally we give the statistics, which show the success of our method, and draw some conclusions.

2. STRUCTURE OF THE COURSES

In figure 1 we give a timeline of the courses, and then we will explain the different phases in detail. The courses were prepared over summer and then they started two weeks before the semester with a setup phase. In the first two weeks of the semester the frontal lectures and the exercises were held, and finally there was the exam followed by an evaluation.

2.1 Preparation Phase

The courses were built with the experience of the previous year. Three school classes of the twelfth grade were invited to test the examples beforehand, and their feedback was incorporated in the design of the training exercises. Almost all the programming of the Maple T.A. platform was done in this time. Also the layout of the course in the TUWEL, the TU Wien (Vienna) E-Learning system, which is a Moodle platform, was done in this time. And of course the lecture notes of the frontal lectures were prepared at this time. These lecture notes were designed in such a way, that they were also suited for learning by the students themselves, without any help of others. And also the log-in and the registration interfaces were programmed at this point. The school students were especially asked to absolve the anonymous

knowledge test, which with which the students at the university could then asses their knowledge by themselves. This leads directly to the second phase.

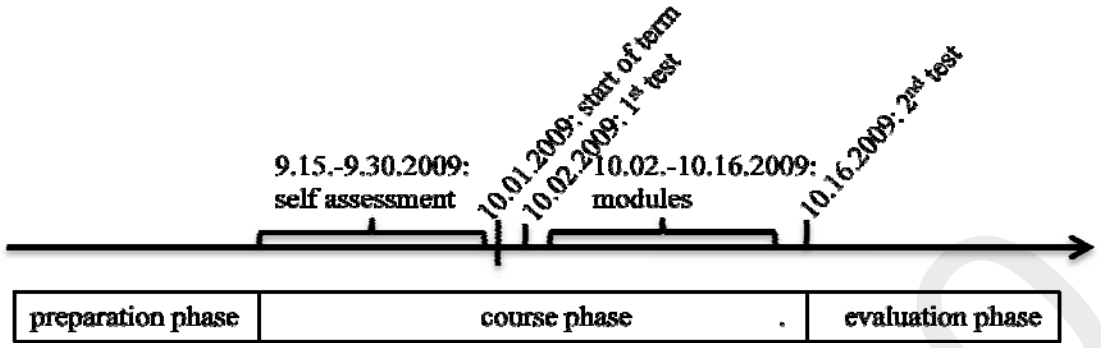


Figure 1: timeline of the courses

2.2 Course Phase

The course phase started two weeks before the semester, at which the anonymous self-assessment test went online and could be taken by the students. They were allowed to take this test an infinite number of times. The test consisted of examples out of all the fields of study, which the courses would cover. The idea behind this test was, that the students should learn which topics they already know and in which topics they lack skill. In this way they could decide which modules they wanted to attend afterwards. Although this test took place before the start of the semester it was well appreciated, over 200 students from approximately 500 beginners in total took the test.

On the first of October the semester started and the students were given an overview of the courses. Of course the refreshing courses were scheduled in such way that they didn't collide with other lectures. On the second of October the students where asked again to take a knowledge test. This test lasted one hour, and it wasn't mandatory. The results of this knowledge test were logged with the Maple T.A. system. The idea why they should take this test was again self-assessment. Over 160 students took this test.

In following two weeks the modules were held, each module was offered at two different times, allowing the students to choose which modules to attend or even to repeat. There were eight well-defined modules: fractions and exponents, terms, elementary functions one, elementary functions two, differentiating, integrating, vector calculus, and finally complex numbers. These contents were chosen in accordance with the professors of the applied lectures of the first semester. Each of the modules represents a central aspect of mathematics in school, which are necessary to be able to follow the applied lectures. The eight modules consisted each of 60 minutes frontal lectures and 90 minutes exercises in small groups with maximal 30 participants in each group. The exercises were done in a mixed way, calculating examples at the blackboard and students trying to solve examples in Maple T.A. under supervision of a tutor. For every module between 12 and 30 examples were implemented in Maple T.A., and the examples were grouped together to exercise units. These examples were available for the students freely. The students could train them as often as they wanted. Through the e-learning platform they got immediate feedback, hints and even the correct solution if needed.

2.3 Evaluation Phase

After all the modules the students were asked to take the same knowledge test again. In this way the increase of their knowledge could be measured, their studying advance could be measured and the courses could be evaluated. The students were also asked to fill out a feedback form. Over 240 students took this final test. This is remarkable in so far, as the students didn't get any credits for the test, which could be used for the fulfillment of their respective curricular. So these were completely voluntary courses.

3. MAPLE T.A.

We are now going to discuss the Maple T.A. platform and its abilities in more detail. Here we will explain how the platform works in general, and we will discuss the feasibility of examples. More technical information concerning the programming will be reported elsewhere [1].

3.1 Structure And Abilities

Maple T.A. is software running on a server. The main idea is that Maple T.A. provides an interface to generate and answer randomized questions, while in the background Maple is running to provide the computational power. The whole software can be administered and accessed via a web interface. After the installation different kinds of accounts can be created. In our case the software was adopted, so that the students could use their generic TU-Vienna accounts. Maple T.A. features a class system, so the students could theoretically be members of different classes, that is courses. Examples generated by the instructors can be shared between the classes.

Content can be crated by a step-to-step basis with the help of an editing mask. There a variety of predesigned question types available, like multiple choice, clickable graphs, or free mathematical syntax. Maple T.A. takes the free syntax and translates it, more or less skillfully, into Maple syntax. In this way it is possible to check results for mathematical equivalency. Hints and feedback can be provided for the questions, like giving hint if the answer is wrong, and then the students can try again. The questions can be put together to different assignments, like practice, homework, or proctored tests. An equation editor simplifies the input, and students can preview their input. The use of randomized variables allows for the generation of many different examples by one template. The selection of the random variables can be limited, e.g. exclude the zero as a choice for a random integer between -3 and 5. In this way it is possible to generate randomized examples where the trouble to solve the example is limited. These random variables can also be used in plots.

And finally Maple T.A. can be used for electronic testing. One option would be to give a time-window and the students can then make their test from home. Another example would be that the students need to come to a testing computer-room, where they need to identify themselves, and then they can start their test. They have then a limited amount of time. Maple T.A. grades the tests as soon as they are finished.

3.2 An Example

Here we give an example in pseudo-code:

Question: Calculate the derivative of: $f(x) = a \sin(x) + b\, x^c$

Answer: f'(x) = _____

In this example a and b were chosen as random integers between -9 and 9, without the 0, and c was chosen as a random integer between 1 an 9. And finally instead of sin(x) also cos(x) and exp(x) were possible. The answer could be entered as 'a*cos(x) + b*c*x^(c-1)' or with the help of the equation editor.

3.3 Advantages And Disadvantages

The use of random variables is a huge advantage, since students can't simply copy one example. And the students can always train with fresh examples in this way. Also that in exams the sequence of the questions can be randomized is advantageous. As an additional feature one can then make statistics of the outcomes of tests. And of course that the tests are corrected instantly reduces the amount of human working power needed.

But this leads directly to the disadvantages: it is a huge effort to implement a sufficient number of examples. Sometimes the construction of the examples in such a way, that the solution is a 'nice' number is quite sophisticated. Of course, once the question banks are generated, they can be used for years to come, and only minor adaptations are needed. Another disadvantage is that not all steps of the calculation are monitored. While in a written exam an instructor could follow all the steps of the calculation, in Maple T.A. a simple miscalculation can lead to a completely wrong answer with zero grading. This can be counteracted to some extent by the appropriate formulation of the questions. But if you ask for all the steps you will guide the students to the right answer, since they would not need to think about what step they should make next. Also the syntax can sometimes be cumbersome, so we introduced new classes, e.g. that students could enter a line or a column vector and the answer is still right. And finally Maple T.A. does not work well with all web-browsers.

Additionally one has to realize, that while human resources could be saved after the initial setup phase, Maple T.A. is commercial software, so you have to pay the license fees. And you need to invest quite some money into the hardware, to make it possible for many hundreds of students to access the software at the same time and to make it redundant. A loss of data during an exam would be unacceptable.

4. RESULTS

We finally come to the statistical evaluation of the success of these courses. For this we compared the results of the first knowledge test and the second knowledge test. We give here the accumulated values for both, the students of electrical engineering and the students of mechanical engineering. In figure 2 we clearly see that the knowledge of the students increased, on the average about 20%.

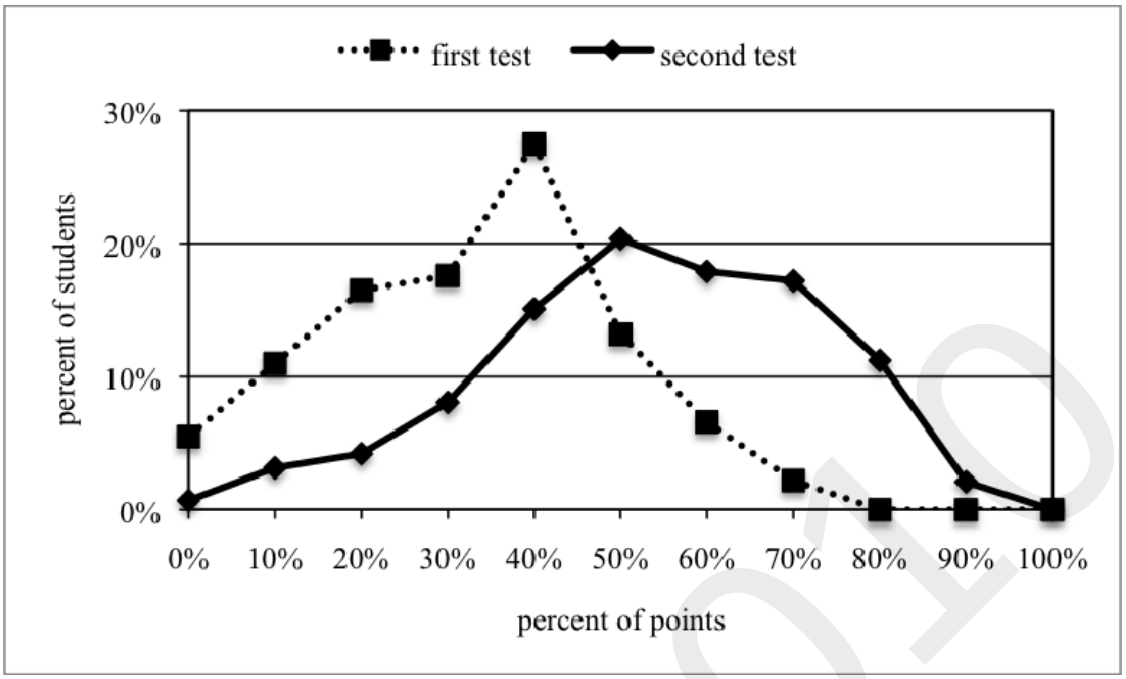


Figure 2: evaluation of test results

The evaluation by the students was done at the end of the semester. The high number of returned evaluation sheets and their content show, that the courses helped the new students to overcome the difficulties at the beginning of their studies. Fewer students were overburdened, and fewer students in percent changed their study compared with the year before. Especially the self-controlling and the resulting learning value was appreciated. Here some quotes: “A great offering!”, “You helped very many students with the introduction to their study!”, “Surely an improvement compared to the years before!”.

5. CONCLUSIONS

In this paper we have shown, that blended learning, when done in the right way, uses all competencies and possibilities optimally, and increases the teaching and the learning success. Although there are many difficulties to overcome, this approach can be used to optimize the always-scarce resources of universities.

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A CRITICAL INQUIRY INTO EDUCATION

-AN ACTIVE LEARNING PERSPECTIVE-

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Social, economic and cultural problems experienced today have reached to the point which requires efficient measures and urgent solutions. In this context, there is a great responsibility of social science education in order to improve human beings and increase their quality of life. In order to fulfill this responsibility, first of all, there is a strong need for graduating people who are equipped with all the skills to answer the needs of the society. In this framework, constant review of the curricula is an ordinary process for educators. This paper discusses the changing roles and statutes of the teachers and students, both of whom are the main components of education, within the context of the new approaches to education. The paper specifically focuses on active learning in university education with reference to its potential for a student-centered practice due to the fact that it raises an ontological opposition to the hierarchical relationship between the teacher and the student. Student-centered approaches believe in the capacity of individuals for development and believe further that such a capacity is inherently available.

Keywords: Active Learning, University Education.

INTRODUCTION

Educators are supposed to review curricula constantly as a regular process. It is only this way that contemporary developments in education could be reflected into the process. Traditional approaches to education cover only accepted topics among a variety from a certain discipline, which results in the fact that courses happen to be usual and unchangeable, scope of the courses is restricted to the curriculum and course materials, and the content is disseminated only via seminars, laboratory work, and lectures, etc. Secondly, the curriculum could be easily implemented by increasing the capacity of classes and laboratories according to the changing student groups. Finally, curricula in traditional approaches are confirmed by academic circles and so legitimized automatically (Little and Sauer, 1991).

The worry of creating a high quality education environment for the instructors who assume the responsibility of university education stems from the enthusiasm for meeting the needs of the students who wish to get better prepared for the field or their profession. Taking the reflections in the field (practice dimension) into consideration, the answer of university education given to the extent to which the determined goals and objectives are reached seems not satisfactory enough. In Turkish case, since research data on the subject are so restricted, subjective interpretations may easily evolve.

The importance of making use of research data and holding these researches by a certain systematic approach in education process has been emphasized and exampled enough in literature. Gambrill (1997) emphasizes that not making use of researches will cause loses in terms of education. The fact that the research tendency on education is limited may be evaluated in reference to the traditional approaches' understanding of keeping and consolidating the current structure, and so of the resistance to change.

Another aspect of traditional education is, by definition, its structure of relying on a conservative and didactical teaching, and closing the gate for independent and critical thinking. In the context of learning

by exploration, on the other hand, it is observed that students may clarify (without dictation) some important principles in process by peer discussions. In a sense, besides the content and subject, the learning process itself gains a great importance. On the contrary, students in traditional approach are in a position of "believers" instead of "inquirers." Not taking time for inquiry decreases the cost of reaching knowledge to a great extent.

However, contemporary tendencies on educational approaches in university education have brought about some changes on the roles of educators in the system. In other words, it has been inevitable that the changes and developments foreseen in the whole educational system have been reflected in the educator system as a subsystem. Contemporary tendencies in especially social science education are prone to alternative perspectives such as active learning, which question the mainstream approaches and target dynamism, creativity and lifelong motivation. Having a deep rooted history in the developed countries, alternative approaches comply with the basic goals and objectives of the higher education. In this framework, one of the stand points of the dynamism experienced in the process of education is to meet the needs of students at the maximum level as taking into consideration the multifaceted features of this group of early adulthood in higher education. Thus, it is required that the ones who assume the educational authority revise their roles and responsibilities.

The fact of "learning" rather than "teaching" in social science education not only requires a change in the roles and responsibilities of educators, but also determines the direction of this change. Therefore, what needs to be discussed is to clarify what kind of a dynamic of interaction this determined change process foresees and determine how this would be made function. At this point, it would be useful in terms of identifying the parties of the interaction to start with the structure whose dynamic of interaction to be defined.

The Student Dimension

As the professionals of the future, students participate in the process of social science education with the purpose of gaining the required formation and improving this in line with their individual equipments. Taking the scope of the individual and professional formation students are expected to gain in the process of education into consideration, there appears a relationship between these two facts "feeding" each other. Due to this, it seems important that the individual and professional formation follow a parallel process of development.

Another dimension to be emphasized is the fact that in order to provide this parallel development, it would be meaningful if both educational approaches and the educators with their roles and responsibilities performed a complementary functioning in a quality to meet the needs. Reaching the expected outcomes in a desired level seems not possible within a system which is built upon traditional educational approaches and educator roles. Another dimension to be discussed as one of the rationales for this fact is about the process of learning. Are there any differences between the meanings educators and students attribute to the process of learning in university education? What are the characteristics of the students in relation to learning? To what extent these characteristics are taken into account by the educators in the process? Answers to these and similar other questions will provide clues about the change needs of the roles and responsibilities of educators.

Since the learning process is indeed defined as the teaching process in the traditional approach, educators are perceived as teachers and students as learners. While teachers omnipotently own the power and authority, students passively get what they receive. Students' success is measured in accordance with their ability to state the subjects included in the structured course outline in the exams. In fact, since they cannot participate in the evaluation process, they do not have any idea on neither the criteria determined by educators nor how they are assessed. Haste of educators to complete the course content is a factor which limits student participation which is an extremely important issue in terms of learning motivation. Because of this, majority of the students whose views do not count from the beginning of the planning phase of education process onwards are not aware of why they take the courses within the determined scope. In such a structure, the rational goal of the students is to take enough grades and pass the class. So, it is impossible to mention about a goal of learning.

Students' characteristics and performances in relation to learning are linked with their life experiences on this matter. Having been a part of the dominantly traditional education systems before higher education, it would be unfair to expect students to change their attitudes and behaviors on learning rapidly and radically. Gradually advancing toward adulthood in higher education, students experience dilemmas in line with their changing multifaceted needs. On the one hand, they want to reflect the dynamism of change in parallel with developmental features into education in the form of active participation; on the other hand, being passive in the traditional education system happens to be the easier way. Dealing with this dilemma necessitates primarily new definitions of educational approaches and the educator roles.

Finally, taking a look at the issue in terms of the student-educator relationship; students need human dimensions in their relations with educators. Education's dimension of understanding human beings should also be functional in the student-educator relationship. Meeting such needs sufficiently in the level of "distance" relationships within the traditional education system seems impossible. In this sense, sometimes conflictual experiences appear in the student-educator interaction. Dominance of human dimension in the basis of interaction and relationships is important because it creates respect which originates from love (İl, 2002a; İl, 2002b).

The Educator Dimension

The traditional education system not only affects students, but also educators who constitute the other part of the system with its structural qualities. Thus, educators' experience of dilemmas and resistance to the dynamism of change become possible. Whether educators are affected by the traditional education positively or negatively is linked with whether they comply with the roles defined within the system. In this sense, it is possible to talk about two kinds of educators. The first group interacts with the current system adoptively. Being teachers and holding the power and authority is a requirement of the system. A distance relationship with the students strengthens their authoritarian positions. Failure of students is seen as individual problems and vicious circle of failure is consolidated through negative feedbacks.

The educators in the second group cannot be claimed as in compliance with the traditional education system. Most of the time, they feel difficulty in fulfilling the requirements of the system. Their tendency to emphasize the component of learning in the process of education appears in their interactions with students directly. One of the most positive outcomes of the different interaction dynamics is to provide the students with multifaceted motivation. These educators are always ready to change with their questioning perspective. However, usually it is the inflexible conditions of the education system which determine the boundaries of change. Because of this, redefining the educator role will be meaningful by new approaches about the whole system rather than alone. Moreover, the features in the literature outlining the changing roles and responsibilities of educators are always discussed within the scope of new approaches. The role of facilitator in the process of education is a dimension which has come to the fore within the framework of the active learning approach developed as an alternative to the traditional style (İl, 2002a; İl, 2002b).

Teaching or Facilitating?

Many educators both in the international and national level share similar ideas. Related literature emphasizes the fact that reaching the determined goals in education necessitates a dominance of contemporary approaches and reflection of these onto the roles and responsibilities of educators (Rogers, 1983; Taylor, 1986; Burgess, 1992; Jenkins, 1992; İl, 1995). In this context, the traditional role of educator as teacher is redefined as facilitator which focuses on learning.

Assuming the facilitator role in education brings about a different type of student-educator interaction. Educators are the persons who help students learn (Boud, 1988). However, this style does not mean that students be left alone or educators be isolated. In contrast, educators are in a position to assume the role of being the source person with their approaches which target planning, assessment and learning, and being individuals who foresee social action and change. In an atmosphere of interactional dialog between

educators and students, the participation, creativity and motivation of the students who assume the responsibility of learning come to the fore (Brookfield, 1986). In other words, the student-educator interaction which includes the one way dependency in the traditional approach is transformed into a more dynamic, independent and productive structure. The new roles and responsibilities of educators in the facilitator role include the following components:

- As keeping the atmosphere of positive learning, making the facts functional such as collaboration, support and creativity,
- Providing the equality of opportunity in student participation,
- Helping students form the basic rules to be functional in the learning process,
- Helping students combine their past knowledge and life experiences with the subjects discussed,
- Encouraging students to assume more responsibility in learning,
- Supporting individual efficiency,
- Helping the student group learn within the framework of group interaction,
- Noticing the learning targets which are not discussed by the students,
- Providing an anti-discriminatory perspective in learning,
- Evaluating students in the end of the learning process with their participation (Burgess, 1992).

In this context, what is expected from educators is a more active facilitation rather than a didactic lecturing. Main resistance points to the changing roles of educators include the complaints about the fact that educators are no more traditional teachers, they lose their power and authority, and they are questioned about to what extent they may trust students in fulfilling the responsibility of learning. But, as stated above, in direction of contemporary tendencies, both educators and students greatly need the alternative approaches to education. Particularly, the dynamic of change and development should be reflected in the field of education just like in all fields. The change and development dynamism of educators in their field will be the source of both model and motivation for students. Creation of an atmosphere of education based on trust and providing the students with more democratic and participatory environment carries a special meaning in terms of reaching the goals and objectives of education.

The one way didactic education which educators contribute to with their traditional roles may no way bring about the outcomes expected from higher education. In Gibbs' words (Gibbs, 1992), spoon feeding in lectures, seminars and practices require a dependence on educators. Gibbs lists the features of the traditional education in which superficial learning is realized as the following (Gibbs, 1992): Students are expected to carry a heavy workload; hours in class are quite a lot; there is a rather comprehensive course material; there is no chance to examine the subjects in detail; students do not have the right to choose the subjects and learning techniques; and a tension creating assessment system is valid.

Despite the fact that they assume the traditional educator role, educators aim at being useful for their students and making them benefit the education process at maximum. Because of this, they transfer a deep level of knowledge to the students in the above defined atmosphere, but do not assess them as if they learnt in debt. Nevertheless, students should comprehend the fact that learning is not just remembering and/or produced knowledge, but also include producing a functional meaning from what they have learnt. Otherwise, the result would be a superficial gain (Gardiner, 1989).

Expectations from the Contemporary Education

As a higher education process the primary purpose of education should be reaching, interpreting and using the scientific knowledge. The learning features of the students in the young adulthood require the approaches peculiar to the adult education. On the other hand, today's rapid change process in the fields of information and technology makes it almost impossible to meet the social needs with the traditional educational approaches that are limited with certain times and contents. In this context, contemporary educational approaches require a "life long learning." Hence, individuals' assuming of the responsibility in learning has brought about the importance of facilitation in direction of the individual needs.

The curriculum to be planned as taking these conditions into consideration emphasizes the student autonomy in education. Rogers, one of the pioneers of the student based education, claims that individuals may determine their needs of learning in a healthy way and if given the opportunity, may meet their needs (Rogers, 1983). In this context, teachers and students should share the learning experience in the process and determine how they could meet each other's needs. The objectives in the student based education could be stated as the following (Lasson, 1985):

- Making students determine their learning needs,
- Making teachers express the changing forcing components in the education process,
- Encouraging teachers and students to form a curriculum to meet the needs of students both as individuals and groups,
- Making the methods to be used in the learning process be planned by the joint participation of both teachers and students,
- Making the teacher "source person" and be sensitive to the needs of students,
- Making students and personnel evaluate the client needs as a participatory activity.

The notions of "self-directed learning" and "student autonomy in education" constitute the basic dimensions of the student based education. These are on the fore in realizing the problem based and combined educational tendencies expected from today's university education. Another reflection of contemporary approaches in education is the problem based learning. Since the problem based learning emerged as an alternative to traditional approaches, evaluation of the traditional style in education and some related issues will help determine the rationales for tending toward new searches in education.

Little and Sauer discuss the differences between the traditional approaches and the problem based learning in three dimensions. First, in the traditional education process courses include just the accepted ones among the subjects of a discipline. Second, the curriculum could be applied easily by increasing the number of classrooms and laboratories educating to the number of students. Finally, the traditional curricula are accepted by the academic spheres and so become automatically legitimized. In this sense, the authors state that the problem based learning may bring some special costs because it is less traditional. First of all, there is a reactive tendency in the problem based learning in terms of the scope. Problem solving and combining the materials of different disciplines are the core. Taking their different assessment and aspects of developing production models into consideration, courses are extraordinary both in terms of design and presentation. Secondly, the problem based learning process defines an unusual educator role compared to the traditional education. Thirdly, as the problem based learning process deviates from the traditional norms its level of academic acceptance will be affected (). As a result, educators emphasize some guidelines of the problem based approach such as the fact that if gives the opportunity for research and learning to combine academic and functional characteristics and creates motivation for learning which provides higher level of skills in problem solving (İl, 2002c; İl, 2002d).

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A GENERIC MODEL OF COOPERATION BETWEEN ACADEMIA, INDUSTRY AND NGOs TO BOOST EDUCATION

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ABSTRACT

An ecosystem approach to set up workable and sound cooperation mechanisms between academia and industry has been gaining significance and support. Bilateral collaboration between universities and industrial entities are enhanced by inviting various types of NGOs to the cooperation. The role of the latter is not only in providing awareness, lobbying or being a concealed marketing channel. They become valuable partners for identifying needs and trends, specifying products and services, monitoring market and providing feedback on the offered commodities. The paper proposes a generic model of cooperation based on a square: academia, research labs, industry, and NGOs. This model will be exemplified by the case of a mobile technology laboratory and spin-offs incubator, called BRAMA, placed at the Faculty of Electronics and Information Technology (Warsaw University of Technology) which collaborates with a large mobile telephony operator, with a MOST Foundation (Mobile Open Society through wireless Technology), and with a Polish eMobility Technology Platform. In collaboration with its partners BRAMA has worked out new educational patterns that have attracted talents out of the Faculty's students and also from other faculties. An example of a lecture's curriculum on leadership and management in ICT will be given.

Keywords: cooperation model, academia, industry, NGO, education, corporate social responsibility.

INTRODUCTION

Discussions and talks on collaboration between academia and industry have become almost a daily routine and a mandatory point on the agendas of conferences devoted to innovativeness in business and industry and new research and education models in academia. A number of papers, books and reports have been tackling this problem, e.g. Wink (2004), but we still do not have a definitive and general methodology to effectively cope with the phenomenon and issues of academia–industry cooperation. There have been cases and moments when it has seemed that the Holy Grail was eventually found, but after a scrutiny we can see that still some aspects are not covered and certain questions remain unanswered. A general model of such cooperation recalls the Loch Ness Monster randomly emerging from a deep lake in the Scottish Highlands yet hardly identifiable, reachable and instrumental. The fact that for a long time so many knowledgeable, experienced and authoritative people have fruitlessly attempted to work out a general approach to the problem is a clear hint that most likely there is no such a thing like a general methodology of academia–industry collaboration, that owing to the complexity and amorphousness of the subject matter, its dynamics and constant change the expectation that such a methodology could ever be established is hopeless. In this paper we share this conviction, but it does not discourage us to elaborate on possibly less ambitious yet useful solutions. The one proposed in the paper goes beyond the axis academia–industry by adding another stakeholder to the cooperation process, which is a non-governmental organization (NGO). By having entered this actor to the stage a qualitative added value could be provided to the process. The role of NGOs is not only in providing awareness on social aspects and implications of technological developments, lobbying or being a concealed marketing channel for industrial or business actors; NGOs become valuable partners for identifying needs and trends, specifying products and services, monitoring market and providing feedback on the offered commodities. The paper proposes a generic model of cooperation based on a square: academia, research labs, industry, and NGOs. This model will be exemplified by the case of a mobile technology laboratory and spin-offs incubator, called BRAMA, placed at the Faculty of Electronics and Information Technology (Warsaw University of Technology) which collaborates with Polska Telefonia Cyfrowa that is a large countrywide mobile telephony operator, with a MOST Foundation (Mobile Open Society through wireless Technology), and with a Polish eMobility Technology Platform. In collaboration with its partners the Faculty and BRAMA have worked out new educational patterns that have attracted talents out of the Faculty's students and also from other faculties and organizations. The structure of the paper is as

follows. The architecture of the cooperation ecosystem will be presented, then characteristics of the system stakeholders will be provided, and aftermath, examples of projects undertaken by the ecosystem will be quoted, and eventually a curriculum of a 30 hour lecture on management and leadership developed for and addressed to students of the Faculty and prospective entrepreneurs will be given.

ARCHITECTURE OF THE COLLABORATION ECOSYSTEM

Over its almost 60 years of existence and operation the Faculty of Electronics and Information Technology, *http://www.elka.pw.edu.pl*, has been collaborating with a number of industries. The subjects, scope and thematic coverage of the cooperation is determined by the structure of the Faculty that is based on six institutes, namely: Institute of Computer Science, Institute of Electronic Systems, Institute of Radioelectronics, Institute of Telecommunications, Institute of Control and Computation Engineering, Institute of Microelectronics and Optoelectronics. The Faculty teaching and research staff accounts for 310 people, the number of students reaches the level of 4,000, and the number of Ph.D. students is 200. This is a large research and teaching establishment, indeed.

Throughout the long period of the Faculty contacts and joint projects and initiatives with industry the essential lesson learned is that the major obstacle to devise and implement smooth, fruitful, and rewarding cooperation is the difference of cultures, in particular the difference of languages employed by academia and industry. One of the indications of the difference is the pace in which the both worlds proceed: the industry is a hectic environment, driven by the pursuit of tangible and positive results and profit, replete with competition and almost military discipline, whilst academia goes slower, profit is not a relevant term, the work is very much based on self-discipline and self-responsibility of researchers and scholars, negative outcomes of experimentations are so welcome as positive ones, and so on and so forth. Experience proves that having overcome cultural and langue differences, the problem of different pace can last much longer and usually has to be addressed by special measures.

At the forefront of the Faculty cooperation with industrial entities is placed the BRAMA laboratory, *http://brama.elka.pw.edu.pl*, that has been set up as a joint venture of the Faculty with the Polska Telefonia Cyfrowa company (PTC) which is one of the largest mobile telephony operators in Poland with some 13.5 million subscribers as of June, 2010. PTC has equipped the laboratory with the ICT devices that allow one to emulate the functionality of an actual cellular network. BRAMA was conceived as a technology incubator of innovative solutions and applications in the area of mobile technologies and communications. The intent of the founders was to set up a bridge between industry and academia. On the average some 60 students and Ph.D. students are involved in projects executed by the laboratory each semester. Often, the projects contribute to M.Sc. and Ph.D. theses done by the students. They carry out 3rd and 4th generation mobile technology research and application projects. The projects are either proposed by the Faculty staff and students or are commissioned by PTC, or other agents, including small and medium ICT Polish companies and large international ICT firms operating in Poland. Recently, the priority has been given to projects related to the IMS (IP Multimedia System) that is a platform for next generation mobile applications based on the IP protocol, which briefly can be characterized as the main facility of the mobile internet. Here are a few examples of projects executed in the laboratory:

- Secure mobile agents
- VideoStreaming–mobile private multimedia access
- GSM QoS testing–Symbian application
- PGP dynamic library for Windows Mobile
- Secure multiuser mobile game
- Road traffic routing based on traffic statistics submitted by users of GPS navigation systems (Web 2.0 service)
- Bluetooth proximity game
- "Mobilia"–mobile MMORPG game (Multi-party mobile RPG game)
- Personalized Internet radio for Symbian platform
- Biomedical data transmission in 3G network
- "Cars"–Bluetoooth Java game
- GSM data as a basis of traffic jam detection (WEB 2.0 service)
- Security issues of mobile technologies

Some of the projects can qualify for what C. Christensen (2006) called disruptive projects as they offer new and/or alternative solutions in comparison to the existing ones. Altogether the laboratory has been home for some 110 projects since its establishment in July, 2006. An interesting topic that has not found a final solution so far is the way how students' successful projects, namely those that have not been

commissioned by industrial partners but were proposed just by students or their supervisors can be commercialized. The present solution is that BRAMA offers assistance in establishing spin-off firms for such students. Till now, three firms of this kind were set up. The BRAMA laboratory, in addition to executing projects, offers an array of training and professional courses out of which particularly appreciated and attended are those devoted to open source software, including the ones on the Android operating systems for mobile handsets, and on Linux. Thanks to its extensive program of seminars, workshops, and meetings the laboratory has become an agora of people and minds on the map of mobile technology communities in Poland. It is the place to be, especially for young researchers and developers of mobile solutions.

Inspired by the concept of Open Innovation proposed by H. Chesbrough (2003) the Faculty, the BRAMA laboratory and the PTC company have decided to enhance its model of collaboration by inviting two organizations, namely a Foundation of Mobile Open Society through wireless Technology, known as MOST, *http://www.most-program.org*, and Polish eMobility Platform, *http://www.emobility.pl*, to join their cooperation setting. The MOST Foundation is a non-governmental organization that operates in Central Europe with the mandate to boost democracy and economic growth by means of mobile technologies. MOST provides awareness through conferences, seminars, training, and publications on the potential and pros and cons of mobile technology regarding various facets of society, be it health, education, or governance. The Foundation is especially focused on youth and under the name MYLNORK provides leadership training and promoting best practices among 25- to 35-year-old mobile high-tech managers, policy analysts, financial officers, lawyers, lobbyists, and other professionals working in the telecom and e/m-content industry.

The eMobility technology platform associates some 45 members which are Polish ICT and mobile ICT companies. The mission of the platform is to twofold. On the one hand, it is to help identify research directions and topics of mobile technology vital for the Polish economy and society, and on the other hand, to help companies, especially SMEs, to develop and put on the market innovative products and services based on mobile technologies. Towards this end eMobility performs such tasks as:

- advising the government on research directions in the field of mobile technology and its applications;
- matching partners for projects applications and execution (building consortia);
- helping to apply for funds available in the framework of Structural Funds (which is a large source of money managed by the Polish government and amounting for a few billion euro); and
- to provide professional training, mainly to its members.

Noteworthy, the eMobility platform is a Polish counterpart of the European technology platform dealing with mobile technology matters.

As mentioned the four stakeholders of the ecosystem have structured their collaboration according to the model of Open Innovation. An important enhancement to this model introduced by the stakeholders is the component, promoted for instance by Visser et al. (2008), of Corporate Social Responsibility (CSR). It has been done because it is believed that CSR is not only a noble ideology to align business and industrial activities with the principles of sustainable development mainly motivated by ethical reasons and concerns about the environment that is our common good with limited capacities to renew its resources, but that there is also a demonstrable business case in this approach.

EXAMPLARY LECTURE–CURRICULUM

The BRAMA Lab, among other functionality and activities, serves as an incubator of spin-offs. Since the very first days of the lab and incubator operation the entrepreneurial students of the second level (according to the Bologna scheme) who envisage establishing their own start-ups or to join the corporate world with the ambition to become managers have expressed the interest in acquiring knowledge and skills with respect to management techniques and tools, as well as, in getting acquainted with the features of leadership in the domain of ICT. Typically, some 10 percent of the students who are in touch with the lab are interested in setting up their own firms. This demand pushed the supervisor of the lab to commission from the Faculty of Electronics and Information Technology a 30 hour lecture on "Leadership and Management in ICT", along with a series of practical workshops accompanying the lecture. The curriculum of such a lecture was prepared, and under the auspices of the lab has been delivering to students of the Faculty and external people interested in the matters management and leadership. The lecture describes and explains the notions and practices of leadership and management, and demonstrates differences between the two. The narrative includes a number of real life examples borrowed from various domains such as politics, economy, business, and education; yet, a particular emphasis is put on the cases taken from and characteristic to the domain of ICT. A leitmotiv of the lecture that helps to maintain participants' attention is the question: Can I be a manager? The curriculum of the

lecture is given in the table below. Noteworthy, one of the elements of the lecture agenda includes the topic of academia–industry collaboration and related problems.

Subject	Topics
Introduction.	– Short self presentation of the lecturer. – Purpose and synopsis of the lecture.
Who are the leaders and what are the leaders for?	– Definition of a leader and leadership and their many dimensions taking into account cultural and social context. – Leaders make meaning. – Examples (case studies). – Bad leaders.
Leadership styles.	– Does an ideal leader exist? – Is there anything like a Born Leader? – Are charisma and EQ/IQ intelligence necessary pre-requisites? – Leadership qualities, requirements, and styles (action-cantered leadership, situational approach, transformational approach, servant leadership, moral leadership, quite leadership, team leadership, distributed leadership). – Best practices. – Measurements of leadership outcomes.
Leadership vs. and ? Management.	– Features of management. – Features of leadership. – What is the actual relationship between management and leadership?
Short survey of leadership theories.	– The “Trait Approach”. – McGregor’s Theory X and Theory Y. – Kurt Lewin’s leadership styles. – LPC Contingency Theory. – Blake-Mouton managerial grid. – Path-Goal Theory. – etc. Note: The survey will be very short. Its final content will be discussed with the Workshop organizers and the decision which theories will be eventually presented will be made with them prior to the Workshop.
The art of communicating.	– Crucial role of communications skills. – Body language (examples) and its importance. – Role of conflicts and conflicts resolution. – Art of negotiations and basic rules of negotiating.
Discover your own leadership style. Leadership in action.	– Tools to identify potential leaders. – Self-assessment tools of leadership competencies. – Make staff to follow you. – Coaching.
Team and organization building principles.	– A set of basic principles for setting up and leading teams. – Note on career development strategies. – Strategic planning.
How to deal with stress?	– Positive and negative roles of stress. – Techniques/exercises to reduce stress.
How to consume success?	– “Success breeds success”. – Beware of success (“seduced by success”).
Does ethic matter?	– The role of moral values and ethics. – “The Prince” by N. Machiavelli.
Academia–industry cooperation.	– The need for innovation. – Specificities of corporate and academia cultures. – Forms and procedures of academia–industry collaborations.
Summary.	– The workshop key points will be summarized and concluded, and results of the questionnaires presented. – The participants will be requested to fill out the Workshop Assessment questionnaire and deliver it to the Workshop organizers.

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The authors of this paper coached this lecture for the students of the Faculty of Electronics and Information Technology of Warsaw University of Technology, for the students of the Institute of Scientific Information of Warsaw University, and also for international students from around Europe within the ATHENS Programme, *http://www.athensprogramme.com*, encompassing major European universities. Prior to the lecture students are inquired (by means of a questionnaire and class discussions) about their expectations and knowledge on management and leadership. The lecture is finished with a written and oral examination as well as a questionnaire evaluating the course. The comparison of "in-questionnaires" with "out-questionnaires", and feedback from the students received from the class discussions clearly indicate that the increment of knowledge being the result of the lecture activities is in most cases significant, sometimes far beyond students' expectations. Indeed, for many members of the audience the lecture is the first opportunity to confront common stereotypes and clichés on management and leadership with actual knowledge and practices.

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A SEARCH FOR EFFECTIVE HIGHER EDUCATION TO MEET THE PRIORITIES OF THE PROFESSIONAL WORLD

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ABSTRACT

The purpose of this study is to discuss what could be done in higher education to cope with the recent trends observed in the professional world. The aim does not include any specific prescription in terms of the educational method(s) to be adopted for no single method is believed to respond to all the requirements of the priorities. Instead, a kind of flexibility in paving the roads is underlined. As an example for such a diversity in the educational approaches to be adopted, what has been done at Dokuz Eylul University Maritime Faculty is summarized. This summary provides the overall perceptions of the learners studying at this Faculty, where a combination of educational methods, e.g. problem-based ,task-based and project-based methods; have been adopted.

Key Words: *higher education mission, professional world priorities, transferable skills, problem-based learning, task-based learning, project-based learning.*

1. INTRODUCTION

As extracted from Dewey's observation running as ''it is not whether the schools shall or shall not influence the course of future social life, but in what direction they shall do so and how ''(Stanley, 2000:71), education has played a considerable role in changing the social life. On the other hand, however, it has had to change itself depending upon the needs and wants of the society it is involved in. Hence, there has been an ongoing interrelationship between the two. One affects and is affected by the other. The most important as well as affective stage of education in this interaction seems to be '' higher education'', which has been loaded the three legged mission comprising ''teaching, research and community service'' (Duke, 1992:41). On the one side of this conflict is placed a fact that '' there has been a massive shift in recent years in the curriculum of higher education, as indeed of education generally, towards an utilitarian and vocational emphasis'' (Kelly, 1995:119), on the other side lies a view that ''… it is clear that people are to be invested in as potential economic units rather than all things are to be evaluated in terms of what they are for rather than of what they are'' and which '' offers a form of critical capacities in the learner and thus must leave society in a very real sense without its capacity to think'' (Kelly, 1995:125-127). Likewise, while one side of the conflict claims that ''education is the means by which humans deal critically and creatively with reality and discover how to participate in the transformation of their world'' (Marker, 2000:137) focusing on '' the kind of vocational education that is not one which will adopt workers to the existing industrial regime, but one which will alter the existing industrial system and ultimately transform it'' (Hursh and Ross, 2000:3) the other side complains about the focus of governmental and privately funded groups on '' developing student knowledge and skills to make them more productive workers, which has shifted the educational goal away from the humanities and critical thinking toward incorporating 'appropriate' workplace behaviors and so called traditional values.'' (Hursh, Goldstein and Griftit 2000:191). Gutmann (1999:184) on the other hand, favors universities that '' try to establish an environment conducive to creating knowledge that is not immediately useful, appreciating ideas that are not presently popular and rewarding people who are – and are likely to be – intellectually but not necessarily economically productive".

The debates on the interaction having been witnessed between the mission of higher education and the priorities of the world of industry seem to have agreed on the cornerstone of the higher education mission which could be highlighted as follows: formation in the mind of higher order states of cognition; the acquisition of a philosophical view, through which an independence of intellect is acquired; the development of individual students autonomy: formation of general intellectual abilities and perspectives;

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enhancement of the individual student's personal character; developing competence to participate in a critical commentary on the host society. (Barnett, 1993 : 20-29)

2. RECENT TRENDS RE-FORMING THE HIGHER EDUCATION MISSION

The rapid developments increasingly experienced in technological movements have eventually brought about certain changes in the needs and wants in the world at large and particularly in that of industry. These changes in return have affected the overall curriculum and outlook of higher education. In parallel with the recently emerging needs of business and industry, '' the focus of university teaching is shifting away from the corpus of knowledge in favor of the process of learning'' (Evans and Abbott, 1998:46) and hence a new look is said to have emerged in teaching and learning in higher education '' which exceeds the more transmission of knowledge through didactic methods, embracing a mere student-centered ideology and incorporating mechanisms for developing intellectual skills and analytical competence.''

The frame of the recent changes and movements witnessed in the world of business and industry, which have in turn been reflected in the overall view of higher education, could be summarized in the following table, reformed and adapted from (Barnett, 1992:155-170)

	Specific	**General**
Theoretical	Subject-Based Competencies	General Intellectual Competencies (analyzing, synthesizing, critical thinking, communication skills)
Practical	Specific Professional Competencies	General Transferable Skills (interpersonal skills, ability to work in a team, decision-making, problem-solving, risk-taking, leadership, communication skills)

The new trends are said to have moved in the above table, from left to right and from top to bottom. This means that there has been a movement from theory to practice, from subject-based knowledge to specific professional knowledge, from general educational aims to general transferable skills; on the other hand, a shift from specific subject-based knowledge to general educational aims and from specific professional skills/knowledge to general transferable skills.

3. How to Cope with the New Trends

No single method is believed to respond to all the requirements having emerged from the new trends in higher learning. Instead, an overall set of principles could be underlined, taking into consideration the cornerstone of the higher education mission. Keeping this in mind, a combination of methods could be practiced depending upon the specific nature, needs of the learners as well as those of the context.

Some of the main points to be considered about learners could be highlighted as follows: '' There are two fundamentally different ways of investigating what students bring to their learning of a topic. One approach considers student-specific characteristics (motivation, approach to study, epistemological belief and intellectual development)… The other illuminates the task – specific aspects important for understanding. '' (Laurillard, 1993:31). Besides, the dimensions of learning styles (sensory/intuitive, visual/auditory, inductive/deductive, active/reflective and sequential/global) should be taken into account so that how learners perceive, input, organize, process and understand the content could be clarified and the proper/effective teaching styles as concrete/abstract (content), visual/verbal (presentation), inductive/deductive (organization), active/passive (student involvement) and sequential/global (perspective) could be adopted. (Felder and Silverman, 1988:675 ; Cardellini, 2002:62-65; Felder, Woods, Stice and Rugarcia, 2000: 26-39).

Providing intrinsic motivation in learning (and teaching) is another point of great importance. Some of the main aspects of accomplishing a motivating learning environment could be highlighted as follows: "model interest in learning; lower anxiety in classrooms ; induce curiosity and suspense; make abstract material more personal, concrete, and familiar; let students know the learning objectives; provide

informative feedback; offer students choices: provide as much student autonomy as possible"(Pressley and McCormic, 1995:109). Laurillard (1993:2) reminds/ emphasizes another crucial point of involving students in learning activity, which "is the most attractive vision of academic learning- that of a community of scholars pursuing their own course towards knowledge and enlightenment, inspired but not directed by their teachers."

As a concluding comment on how to cope with the new trends in higher education, it could be emphasized that "no one or two instructional approaches are appropriate for all contexts……..good teachers interconnect various types of teaching." "(Pressley and Mc Cormic, 1995:79) and as Felder et al (2000:6) point out, "it will never be possible to teach…… students everything they will be required to know when they go work. A better solution may be to shift our emphasis away from providing training in an ever-increasing number of specialty areas to providing a core set of … fundamentals, helping students integrate knowledge across courses and disciplines, and equipping them with lifelong learning skills." Felder et al (1995:7) then underlines another crucial point to be complied with in higher education, stating that " a significant part of our responsibility is to move students from the dependent stance to being "independent learners" and taking the claim to a further step that "students should be helped to go beyond independent learning to interdependent learning, recognizing that all knowledge and attitudes must be viewed in context; that getting information from a variety of sources is more likely to lead to success than relying on a narrow range of sources and viewpoints…"

4.A RESEARCH ON THE PERCEPTIONS OF THE DEUMF STUDENTS

4.1. The Aim and the Scope of the Research

The overall aim of the research is to evaluate the educational methods adopted by DEUMF since 2002 from the learners' view points. The research involves the first-year and the fourth-year students of DEUMF. The research conducted through the first-year students aims to reveal the perceptions of the students on the problem-based learning method they have been exposed to in terms of the types and level of the gains. The research conducted through the fourth-year students aims to reveal their perceptions on either the project-based or task-based learning method.

4.2. Methodology

4.2.1. *Formulating the Questionnaire*

The questionnaire has got three sections; the educational activity, the structure of the activity (cooperative, competitive, individualistic, subject-based or process-based) and the type of the gain (1.theorical knowledge, 2.professional knowledge, 3.analytical skills, 4.synthesizing skills, 5. integrating skills, 6.communication skills, 7.ability to work in teams, 8. problem – solving skills, 9. decision – making skills, 10. time management, 11. motivation, 12. ethical approach). Item 1 represents "specific subject – based knowledge", item 2 stands for "specific professional knowledge" , items 3,4,5 and 6 are for "general educational aims", and items 6-10 constitute "general transferable skills".

For each type of the competencies, the learners were asked to chose one of the 5- point Likert scale to indicate the level of the gain they have benefited (1. to very little extent, 2. to a little extent, 3. to a reasonable extent, 4. to a great extent, 5. to a very great extent)

4.3.2.*Data Collection and Sampling*

The questionnaire was conducted through the first-year students studying at Dokuz Eylul University Maritime Faculty, Maritime Business Administration Department and Marine Transportation Engineering Department with the aim of gathering their perceptions on to what extent Problem – Based Learning Method contributes to gaining the skills required by the new trends having emerged in higher education in parallel with the priorities of the world of business and industry. The questionnaire was also conducted through the fourth – year students of the two mentioned departments with the aim of gathering learners' perceptions on the achievement level of Task – Based Learning Method adopted at Marine Transportation Engineering Department and Project-Based Learning Method at Maritime Business Administration Department. The questionnaires were given, on May 24 through May 28-2010, to the instructors teaching each group involved in the research and they were asked to hand out questionnaires to the students giving them enough time during the sessions to complete the task required. At the end of

each session, the questionnaires were collected from the instructors. A total of 242 questionnaires were given to the instructors and a total of 190 were responded, corresponding to around 78 %.

4.2.3.*Results of the Research*

TABLE 1 : Perceptions on the Structural Nature of the Educational Activity Experienced

Educational Activity	*Structural Nature of the Activity*	*Perceptions of Marine Transportation EngineeringDept. (valid Percentage)*	*Perceptions of Maritime Business Administration Dept (Valid Percantage)*
Problem Based Disscussion Sessions	Subject-Based	38.5	21.2
	Process-Based	7.7	7.7
	Cooperative	30.8	36.5
	Competitive	3.8	15.4
	Individualistic	19.2	19.2
Conclusions Drawn		Cooperative	Cooperative
Lectures / Presentations	Subject-Based	51.9	63.6
	Process-Based	7.7	9.1
	Cooperative	15.4	13.6
	Competitive	13.5	11.4
	Individualistic	11.5	2.3
Conclusions Drawn		Subject-Based	Process-Based
Professional Skills	Subject-Based	32.1	28.3
	Process-Based	11.3	19.6
	Cooperative	11.3	15.2
	Competitive	7.5	6.5
	Individualistic	37.7	30.4
Conclusions Drawn		Invidiualistic	Invidiualistic

As can be seen in Tables 1 and 2, reflecting the results of the descriptive statistics carried out on the relevant questionnaires, the problem – based discussion sessions are perceived to be cooperative, the lectures / presentations subject – based (theoretical and conceptual), and the professional skills individualistic. The structural nature of the activities carried out in compliance with the task – based approach and project-based approaches are perceived by the learners to be subject – based, but the sessions with the team members are perceived by the project-based learners.

Table 3 reveals the perceptions as follows: The ‘’problem – based’’ learners believe that they are equipped with general transferable skills, general educational aims and specific professional competencies from the basic educational activities they have been exposed to. The task – based learners believe that all the three activities provide them with the general transferable skills. They also think that the Tanker Operations and Safety ‘’ sessions help them gain certain specific professional competencies and through ‘’ Ship Manuevering and Emergency Process’’ they gain certain general intellectual competencies (general educational aims). The project – based learners perceive that they enjoy gaining certain general transferable skills through all the three different sessions. The sessions with the representative from the industry, however, is believed to provide them additionally with specific professional skills as well as certain general intellectual competencies.

TABLE 2 : Perceptions on the Structural Nature of the Educational Activity Experienced

Educational Activity	*Structural Nature of the Activity*	*Perceptions of Marine Transportation EngineeringDept. (valid Percentage) Task- Based Approach*	*Perceptions of Maritime Business Dept. (Valid Percantage) Project-Based Approach*
Tanker Operations and Safety (*for Marine Transportation Engineering*)	Subject-Based	50.0	42.9
	Process-Based	30.0	14.3
	Cooperative	5.0	25.0
	Competitive	15.0	7.1
- Sessions with the Mentor(*for Maritime Business Administration*)	Individualstic	-	10.7
Conclusions Drawn		Subject- Based	Subject-Based
Ship Maneuvering and Emergency Procedures(*for Marine Transportation Engineering*)	Subject-Based	60.0	23.8
	Process-Based	11.8	33.3
	Cooperative	-	23.8
	Competitive	2.9	9.5
- Sessions with the Team Members (*for Maritime Business Administration*)	Individualstic	2.9	9.5
Conclusions Drawn		Subject-Based	Process-Based
Bridge Team Management and Navigational Safety (*for Marine Transportation Engineering)*	Subject-Based	47.1	40.0
	Process-Based	23.5	16.0
	Cooperative	17.6	12.0
	Competitive	5.9	8.0
- Sessions with the Representative from the Industry (*for Maritime Business Administration*)	Individualstic	5.9	24.0
Conclusions Drawn		Subject-Based	Subject-Based

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TABLE 3: Perceptions on the Competencies Gained

Competencies Gained	Perceptions of the Problem-Based Learners (Means)						Perceptions of the Task-Based Learners (Means)			Perceptions of the Project-Based Learners (Means)		
	Marine Transportation Engineering Term.1			Maritime Business Adm. Term.1			Tanker Operations and Safety	Ship Maneuvering and Emergency Procedures	Bridge Team Management Navigational Safety	Sessions with the Mentor	Sessions with the Team Members	Sessions with the Representative from Industry
	PB1 discussions	Presentation	Professional skills	PBL disc	Presentation	Prof. skills						
Specific Subject-Based theoretical/Conceptual	2.75	3.07	3.19	3.86	3.87	3.90	3.41	3.37	3.44	3.39	3.00	3.54
Specific Professional	3.28	3.50	3.55	3.96	3.85	4.08	3.94	4.00	3.67	3.44	3.06	3.81
Analitical abilities	2.84	3.09	3.40	3.79	3.63	3.62	3.74	3.87	3.74	3.51	3.28	3.62
Synthesizing abilities	2.89	3.16	3.29	3.98	3.63	3.62	3.74	3.90	3.82	3.41	3.41	3.76
Integrating abilities	2.74	3.09	3.31	3.96	3.59	3.77	3.68	4.03	3.74	3.49	3.28	3.68
Communication skills	3.30	3.07	3.14	4.36	3.76	3.85	4.03	4.03	4.00	3.82	3.50	3.97
Teamwork skills	3.55	3.36	3.21	4.15	3.52	3.77	3.91	4.20	4.15	3.62	3.31	3.38
Problem-solving abilities	3.16	3.17	3.38	4.13	3.57	4.02	4.03	3.97	4.06	3.59	3.22	3.59
Decision-making abilities	3.25	3.14	3.24	4.15	3.63	3.88	3.94	3.97	3.97	3.82	3.47	3.81
Time-management abilities	3.09	3.50	2.98	3.92	4.04	3.83	3.97	4.07	3.91	3.38	3.25	3.62
Research/Discovery Motivation	3.26	3.22	3.26	4.25	3.72	3.81	3.44	3.57	3.73	3.51	3.16	3.57
Ethical Approach	2.96	3.07	3.24	3.89	3.89	3.92	3.53	3.63	3.94	3.51	3.19	3.65
Conclusion Drawn	GTS*	GEA* SPC*	GEA SPC*	GTS	SPC STC	SPC STC	GTS SPC	GTS GEA	GTS	GTS	GTS	SPC,GTS, GEA

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GTS: General Transferable Skills
GEA: General Educational Aims
STC: Specific Theoretical Competencies
SPC: Specific Professional Competencies

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Conclusions

There has been an ongoing debate on the overall mission of education in general and the higher education in particular. The pursuit of higher education seems to have been affected by the needs of the industry.

The recent trend in higher education seems to have moved from specific to general (from '' subject – specific competencies'' to '' general intellectual competencies '' and from ''vocationally specific competencies '' to '' general personal competencies '') (Barnett, 1992:155). Still another shift in this new trend seems to be from '' educational '' to ''vocational''. Higher education is expected to provide the new generations with such general transferable skills as interpersonal skills , teamwork spirit, decision – making skills, problem – solving skills, communication skills, risk taking ability and leadership ability along with such general intellectual competencies as analytical skills, critical thinking, synthesizing ability and integrating ability.

A vocational higher education institution, Dokuz Eylul University Maritime Faculty has been aware of the above mentioned recent trends and particularly since 2002 has adopted certain new educational methods, starting with '' Problem – Based Learning Method '' and replacing it, in the last year of the undergraduate curriculum, with '' Task – Based Learning Method '' at the Marine Transportation Engineering Department and '' Project – Based Learning Method'' at the Maritime Business Administration Department. The Faculty has tried to cope with the newly emerged requirements.

The purpose of this research is to gather and share the learners' perceptions on the recent adoption. To do this, a questionnaire was conducted and 5- point Likert scale was used and the statistical results were interpreted. The structural nature of the learning activities, the types of competencies supposed to be provided and the level of the gain provided by each of the activities were the basic aspects of the research aim.

The overall results reveal that the learners perceive the overall curriculum quite favorable , the structural nature of the sessions is perceived in compliance with the basic educational principles and the aim of providing the learners with certain general transferable skills seems to have been reached to an acceptable extent.

This research, however, has not set any hypotheses based on certain dependent and independent variables, which would have been a lot more informative. The future research on this particular topic could take "the perceptions on the structural nature of the educational activities" as independent variables and "the perceptions on the contributions of each activity to gaining the required competencies" as dependent variables and set hypotheses accordingly. Although this is a descriptive type of research, it should be considered as an exploratory one for the conclusions reached were based on a rather limit number of responses. Hence, a future research on the same topic could be carried out through descriptive and causal studies which would result in more detailed findings.

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ACADEMIC WRITING WITH 'NON' ACADEMIC LEARNERS

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ABSTRACT

We, teachers of English Language, have been struggling with the difficulties of teaching how to THINK, how to EXPRESS and how to WRITE for centuries. In this presentation we aim to focus on common and legendary problems which give English teachers a really big headache in language teaching, especially in academic writing. However, we, two beloved teachers, strongly believe that we can come up with some ideas that will help us sort these problems out to some extent without losing our and students' PATIENCE, BELIEF and ENTHUSIASM.
This interactive workshop will look at the problems confronted by the preparatory school teachers while teaching Academic Writing to the students that have had no academic background. First, the problems will be set with the participants using different kinds of teaching techniques. After categorizing the problems, we will have a big picture to discuss the suggested solutions and writing model which is currently applied by the Bahcesehir University Preparatory program instructors. While doing this, the importance of letting the students be aware of the writing criteria and assessment will be pointed out. The workshop will end with some suggestions on setting the criteria so as to have objective results.

What is Academic Writing?

Academic writing is the way through which university students communicate with their lecturers or which academicians communicate with their colleagues. They use specific styles and genres in order to communicate their ideas, thesis, solutions and statements. Its objective is to inform the audience rather than to entertain. There are six main features of academic writing that are often discussed: Complex, formal, objective, explicit, hedged, and responsible.

Why is Academic Writing in our Curriculum?

In our institution, we aim to teach English which is the language through which the students are instructed, tested and expected to do research and submit their projects and thesis during their education at university. However, we are aware that knowing the language per se is not the only concern. The students should be able to use it in the way that academia approves. With academic writing classes, we aim to prepare our students for the fore-mentioned academic environment and its requirements in terms of academic ways and its style of writing. Therefore we want to make sure that our students are equipped with the necessary skills to be able to succeed in transmitting their ideas and solutions with an appropriate way and style as required.

Who is a 'non'academic learner?

The term '*non' academic* may sound like a learner who learns the second or foreign language only for communication purposes rather than academic ones. However, we decided to use this term to imply the idea that our learners are high school graduate young adults who have never been to or experienced an academic environment and therefore may not be able to meet the requirements of academia and are not mature, knowledgeable and critical enough to overcome the difficulties that academic writing presents.

As we all know, writing is a productive skill that requires the learners to be able to generate ideas, and express these ideas in a certain way. Apart from the language skills that the learners should have, the learners' ability to have or generate an idea, to discuss and prove it is also a must. This leads us to the term 'critical thinking'. But what is critical thinking? The description of critical thinking on wikipedia is as below:

> *'Critical thinking is the purposeful and reflective judgement about what to believe or what to do in response to observations, experience, verbal or written expressions..... Critical thinking can occur whenever one judges, decides or solves a problem; in general whenever one must figure out what to believe or what to do and do so in a reasonable and reflective way.'*

As the definition suggests, critical thinking requires 'judgement', 'problem solving' and 'decision-making' skills which are not learned from someone else directly but gained through questioning and interpreting information by oneself. Fisher 'unpacks' Dewey's definition of critical thinking which is;

> *'Active, persistent, and careful consideration of a belief or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends'* ***(Dewey, 1909, 9)***

by highlighting the term *'active'* which is thinking through for yourself by raising questions (inquiry), finding relevant information yourself and is the fundamental component of critical thinking, and by contrasting it with the 'passive' which is learned from someone else. **(Fisher, 2001, 2)** In the light of the questionnaire we conducted in preparatory school, it can be claimed that our learners are not capable of questioning, generating ideas and proving them or taking risks which we should admit to be the key aspects of critical thinking Nuray Alagozlu from Baskent University also states in her article reminding us of the other researches in Turkey.

> *" There are several other studies that pinpoint many university students lacked necessary critical thinking and reflection skills to cope with the requirements of academic life such as skills of how to plan, conduct and evaluate research (Karasar, 1984; Buyukozturk, 1996; Karagul, 1996; Öner, 1999; Buyukozturk, 1999; Koklu and Buyukozturk, 1999)."* ***(Alagöz,2007, 123)***

In this situation, students' experience in writing would be a great help to both the student and the teacher **before, during** and **after** the writing process. However, it was also found that they had had almost no experience of even free writing in the target language. Therefore, the students are to gain both academic writing skills and the skills that critical thinking requires in the time that is allocated for academic writing lessons only. Since so many of our acquisitions are based on what our learners do not know and what critical thinkers should have, it should not be ignored that their attitude towards second language learning and academic writing is not professional enough to perceive and gain critical thinking strategies. As a solution to these problems, we endeavour to design our curriculum to have interdisciplinary subjects. This way, students get ideas from the reading texts, audio or visual materials and transfer this knowledge to their writing.

Another issue that should be pointed out is that the learners do not have critical thinking abilities due to their age. In the survey that we conducted in our school, we found out that our students range from 18 to 24 years of age and this is also another reason why they do not have improved critical thinking abilities. Bilgin and Eldeleklioğlu proved it as a result of their research as below;

> *'The results showed that the late adolescent university students, ranging in age from 19-22 years old, had a tendency towards using emotional sentences more frequently (43.27 %) during their discussions. This was followed, in decreasing frequency, by rational speech (31.28 %), speaking based on some documents (20.88 %), and speaking as referencing somebody (5.5 %).' (Bilgin & Eldeleklioğlu, 2007, p.58).*

As a result, it can be said that the 'non' academic learners do not have the improved critical thinking skills which are needed to be able to do academic writing, owing to lack of experience and their age.

The Facts beyond the Act of Writing

Although the problems that we have set forth prevent the learners from being perfect writers, we - as the instructors or curriculum designers - can provide the learners with simple yet effective solutions so as to help them be successful in the academic writing lessons. These solutions do not eradicate their deficiency in critical thinking but minimize its effects by providing back-up and improving other skills such as using the correct format and appropriate language for a specific style.

- First of all, when we first start to introduce a type of a paragraph or an essay, it is quite beneficial to show an example and exploit it for several purposes. First of all, the students can find out the outline of the text which can be used as a guideline for their own work. Students tend to view outlining as drudgery and they just want to start writing and finish it as soon as possible without 'unnecessary' brainstorming or outlining process. As a result, by the help of the sample text, it is possible to highlight the importance of creating an outline and making use of it while we are writing. They also deduce a lot from the sample text and get familiar with particular expressions and vocabulary dedicated to the given genre.

- Writing a sample paragraph or an essay with the students from the very beginning with brainstorming and outlining to the conclusion is also advantageous. They witness each and every step of the process by generating ideas, putting these ideas in an appropriate form, and using the correct linkers and vocabulary with the guidance of the teacher. Alternatively, the teacher can ask the students to write in groups or pairs and the teacher can monitor them.

- We found out that if the students are aware of the criteria, they become more successful in writing. We carry out the writing lessons with an array of process writings where the students get detailed feedback and a writing task where the students submit their final product respectively. The teachers use criteria in order to assess the writing tasks. We also attach a checklist to their process writings so that they can see whether they are weak or strong at a specific skill such as style, use of English, vocabulary / word formation and organisation. This raises the students' awareness. Their grades also prove this idea as well as the result of the survey. Almost **90%** of the students admitted that getting the criteria before or during the process writings helped them be more successful.

- Another issue that supports the students in writing is being involved in the assessment. In other words, we asked them to be a teacher for just one class hour and assess a paper written by another student. They also got the criteria and marked the paper according to the criteria. This lesson not only created enthusiasm among the students because of 'being a teacher' for a while but also gave the opportunity to be able to evaluate their performance comparing the sample with their own writing. Moreover, seeing mistakes on the paper is also good practice for them which means that they will try not to make the same mistake in their own writing.

As a result, There is no doubt that the solutions that we stated above are not sufficient enough to sort these learners' problems out but it is still possible to get these learners be successful in 'academic writing' by providing them with sample texts, useful expressions and involving them to the assessment process gradually.
As we are drawing the big picture of what critical thinking is, We ,as teachers, should also have these critical thinking skills . This is the only way of being a model and leading the students along this writing adventure.

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ACTIVE ELEARNING PARADIGM IN HIGHER EDUCATION

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Abstract
Recently, higher education goes through a paradigm shift. The instructor based education changes into the learner based education in this new paradigm. Another paradigm change taking place is the design, delivery, and assessment of courses totally in a different way. This is called e-Learning and enforced by information revolution. There are also some methodologies of learning such as active learning and social constructivism recently applied in many courses.

This paper first describes the paradigm change in higher education and discusses recently used learning methodologies of active learning and social constructivism being used in Engineering ProCVgrams and finally illustrates how to apply all these in an eLearning environment.

In this paper, an attempt has been made to join active learning principles with new paradigm of eLearning in a pilot common course titled 'Engineering Management' taught in Engineering Faculty. The paper gives the details of the design, delivery, and assessment of courses in an active eLearning environment. The paper summarizes the results and experience of two semester pilot study related to the aforementioned course.

Keywords: Paradigm shift, higher education, outcome based education, active learning, distance learning, eLearning

1. Introduction

Paradigm is a name given to all of the written and unwritten established rules and practices in any field. In other words, paradigm is the name of a perspective, comprehension and understanding. A paradigm may cover the long lasting experiences and proven processes. This does not mean that the mentioned paradigm will always become successful. When the new paradigm destroys all the stereotypes and establishes its own rules so as to invalidate the old paradigm, the old paradigm will no more have any grounds to succeed.

A classical example of paradigm shift and paralysis is the Swiss firm. Although this firm was the only leader in the world watch industry and introduced the digital watches to the world, it has then lost most of its market share to the Japanese watch firms within only 2 years because it failed to comprehend the new paradigm which included new watches without the ticking sound and because it was caught paradigm paralysis in its classical terms.

2. Paradigms in Education

Today, paradigm shift is observed in the field of education as in many other fields. It is useful at this point to consider the old and the new paradigms in higher education. The education and

training programmes to be followed in the classical paradigm are prepared as lectures (courses) provided in one term and the curriculum of these courses. The labour market which employs students is not consulted while preparing or revising the programmes. Demands and expectations of the industry and service sector are not taken into account as they should be.

Various courses (term lectures) in each programme, their contents and credits are defined in an academic hierarchy. Moreover, in some of the universities, the courses may be subjected to the academicians' intensive demands of change, which aim at maintaining their own course potentials rather than considering the relevant sector's concerns. Although there are some elective courses in a programme having such structure, in general a rigid programme is provided to the students. Also goals and levels of students are ignored. Always certain problems arise in including the demands of the labour market, which is the client, into the programmes and designing the courses accordingly.

Another problem of the classical paradigm is that it considers students as having the same background and forces them to synchronously enter the courses which are scattered into the weeks in one term. The fast learning students who can rapidly progress in courses and the ones who learn with less speed are subjected to the same courses. In the classical educational model of schools, structuring of the classes are fixed to tight schedules for all students while the learning is variable.

Synchronized education is one of the most common rules of the classical paradigm. As the optimum duration of learning is different among the students, synchronized education creates a problem in terms of learning efficiency.

The learning efficiency is not related to how much time the instructor spends for which course and how much credit, but it is related to how much learning takes place in the total duration (by showing that the defined knowledge and skills are acquired). It is necessary to shorten the time a student spends for learning a certain skill or knowledge in order to increase the learning efficiency.

It is clear that the efficiency will increase if the students can take the courses which will help them realize their goals or which they are willing to take synchronously. In the classical paradigm, students could graduate by taking any course which is appropriate to their schedule and which will probably be opened, because they cannot graduate without completing a certain amount of credit. How well may the learning efficiency be in case it is maintained through such a choice?

One of the most defended issues in the classical paradigm is the justification that interactivity with the students should be high in the instructor-based classes. The point, which needs to be considered here, is the rate and quality of this interaction and the learning, which should take place as a result of this interaction. It is an important problem that the multimedia equipment necessary for increasing the quality of interaction cannot be used in all the classes because of its cost. As a fact, the main factors in communicating knowledge are:

- the communicator,
- the receiver,
- the platform on which the knowledge is communicated or the infrastructure (media), and
- the message itself.

As the student who is the receiver here should be focused on the subject or should be at a level appropriate for perceiving the message, the learning efficiency which may be reached as a result of the interaction in education will decline. Such complaints are frequently made by the instructors in the traditional education and training: "*There are many subjects to cover and it is impossible to complete them by the end of the term*". The problem here is that the subjects to be covered may be outdated until the student graduates or will become old and obsolete because of the new technologies.

We now live in the informatics era in which the knowledge is updated rapidly and no university library can reach the speed of accession to knowledge. It seems more meaningful to describe certain goals for the students for each course and help them acquire this knowledge in the way they prefer, instead of adding more subjects to the course content. And this brings us to the concept of outcome-based education. Although outcome-based education is a concept, which can be used at the course designing stage in the traditional education and training, it complies better with the new learner-based paradigm.

The paradigm has now started to turn into a learner-based paradigm instead of the instructor-based education. The most important characteristic of the traditional paradigm is that it requires huge investment costs and it necessitates the receivers (students) to be present in certain places at certain times.

3. Informatics Revolution and the New Paradigm

It can be said that the old paradigm is a form of education, which appeared following the transition to industrial society from the agricultural society. In this model, in which the production sector is prevalent, production means creating a physical product by using the inputs (raw material) and certain transformation resources (labour and machinery) in certain processes. The resulting product involves an economic added value. Mainly high investment and operation costs are required in order to create the product. However, in the informatics era, for instance an intelligent newly graduated programmer may turn an idea into software, which may be purchased by anyone in the world. The resulting product is not a physical entity. The reproduction of this product is as much as the cost of a CD or disk. However, the resulting value is much more than the value resulting from the other type of production. In developed countries, we can see that the service sector is highly developed and the industrial production has shifted towards developing or underdeveloped countries. Thanks to the informatics revolution, information is rapidly produced, made widespread and updated.

Now neither the university libraries nor the course contents and programmes can challenge the new paradigm within the existing paradigm. The power against the old paradigm is nothing more than the informatics revolution itself. Now many approaches in the existing higher education need to be questioned and changed.

As it was mentioned in the introduction section, it seems difficult to seek help from the existing paradigm in order to escape from the paradigm paralysis; because it is difficult for the people in the paradigm to escape from their habits which were shaped as a result of the long lasting experiences in a period when the paradigms are the strongest.

The time of emergence of the new paradigms generally roots back to the strongest time of the old paradigm. For example, the Swiss firm used to have the highest share of the world market in the year when the Japanese firms started to sell the new digital watch.

As it is difficult for the paradigm shift to emerge from the ones who rule the old paradigm, in general external paradigm pioneers are needed. Although the paradigm pioneers have many important characteristics, mostly the following groups are considered as candidates [1]:

a) The newly graduated young people who come from a different and new educational process
b) Old and experienced people who are open to change (lifelong learners) and who change their fields of expertise or shift to the new fields
c) Independent souls. These are the people who are in the old paradigm, but can think independently. They are named as *Maverick*. *Maverick* is the name of the person who won a big cattle herd in poker, but set this herd free instead of using it commercially as expected.
d) The people who poke their nose into anything, who love to repair or try to jimmy the objects, and who try to acquire knowledge in every subject (tinkerer).

By looking at the above groups, it is possible to say that a single-type education approach cannot create individuals who may produce new paradigms. The paradigm pioneers are the ones who establish the rules of a new game.

The new paradigm, which is called the learner-based education, seems to create a paradigm shift in the traditional education system along with virtual education, distant education or blended learning. The instructors who are stuck to the traditional paradigm make hasty decisions on these methods like “I do not believe in distant or online education”, but these methods are being applied by many institutions in various forms.

4. A New Paradigm

The place and time of learning is not a limiting factor any longer. Now people can reach what they look for rapidly through Internet and its tools. Many well-known universities and Higher Education Institutions (HEI) conduct many of their programmes to people all over the world through distant education. Here a number of characteristics of a new paradigm which include a distant education system benefiting from the informatics revolution are described. These characteristics can be realized as a pilot project with the support of a suitable software.

The most important characteristic of the new paradigm is that the student takes the whole responsibility. Students may choose courses from the desired programme within the entire system in line with their goals and the course objectives stated in the programmes. The course objectives should be defined in the course design within the programme.

In this learner-based system, the subject topics are determined so as to realize certain objectives/outcomes during the design of each programme/ course. The programme objectives and outcomes are determined specifically or in accordance with the criteria of certain organizations, which control the quality, such as ABET (Accreditation Board for Engineering and Technology) [2] or the needs defined by the organization itself. Then subject topics are turned into a matrix so as to correspond to the outcomes of the programme objective as seen in the example below (*Figure1*).

Programme: Industrial Engineering
Course Name: Engineering Management
Accreditation Programme: ABET (Accreditation Board for Engineering and Technology)

	Criteria or Outcomes (Outcome Elements)										
Subjects (Topics)	a	b	c	d	e	f	g	h	i	j	k
Describe fundamental scientific and engineering principles in engineering organizations as relevant to management	1	-	-	-	-	-	-	-	-	-	-
Apply scientific principles to the decision making problems in management	3	-	-	-	-	-	-	-	-	-	-
Classify software tools available for solving management problems	-	-	-	-	-	-	-	-	-	-	2
Select appropriate techniques and tools for a specific management task in an engineering organisation	-	-	-	-	-	-	-	-	-	-	4

Figure 1. Classification of a number of topics in the Engineering Management course according to the ABET a-k outcome elements

5. a-k ABET Criteria

Examples
Outcome a: An ability to apply knowledge of mathematics, science, and engineering
Outcome k: An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

In the above matrix, the cells at the intersection points of the topics in the lines and the criteria in the columns are rated from 1 to 6. The points correspond to the taxonomic levels defined by Bloom [3]. Number 1 corresponds to the lowest level of learning that is knowledge and number 6 corresponds to the highest level of learning that is evaluation. The levels and their meanings according to the Bloom Taxonomy are described below.

1. Knowledge: Recalling the previously learned knowledge. This is the lowest level of learning. It is based on memorization. Some of the **verbs** to be used while asking questions to the students in order to understand if they have acquired the level of knowledge are:
Arrange, Define, Repeat, Select.
2. Comprehension: Grasping the meaning of knowledge. Comprehending the knowledge and telling in their own words.
Sample verbs: Classify, Defend, Discuss, Explain, Express, Extend, Give Examples, Summarize.
3. Application: Applying the knowledge in real life
Sample verbs in the questions: Apply, Demonstrate, Modify, Solve, Use
4. Analysis: Dividing the objects of ideas into simpler components and seeing how the components are connected with each other and how they work
Verbs: Analyze, Categorize, Discriminate, Model, Question, Test
5. Synthesis: Making up a new integral idea out of different ideas and components
Verbs: Reconstruct, Plan, Design, Compose, Rearrange, Develop
6. Evaluation: Making judgments and evaluations based on the evidences, indicators or external criteria

Verbs: Choose, Compare, Conclude, Explain, Justify, Evaluate

The matrices are prepared in a similar way for each course. If the average point of topics in a course is more than 3, then it means that this course can at least take the student to the level of Application. If the average is 1, then it means that this course can take the student to a maximum level of Knowledge. The student should be able to go up to the higher levels in the Bloom taxonomy when the averages of all the courses are obtained in the same manner. It is important to measure the student outcomes after the courses are designed in this way. To this end, the measurement and evaluation tests are needed which will be performed according to the values in the course matrix. All the tests such as the quizzes, assignments and projects should be prepared according to the outcomes stated in the matrix in order to understand how well the student meets the expected outcomes of the matrix. A number of sample questions are given in the table below which may be used to test the outcomes defined in the matrix. Software should be developed and used while preparing the examinations in order to provide help on what type of questions to ask.

Table 1. Sample questions in order to measure the course outcomes (Engineering Management Course) and certain criteria (ABET in this example) at a number of levels (Bloom Level)

Sample Questions to measure the outcome of Engineering Management Course Objective Matrix	**Measured ABET Criteria**	**Measured Bloom Level**
Define as a list the scientific methods which may be used by the managers in an engineering institution	a	1 (Knowledge)
Solve the decision making problem given below using the decision tree method	a	3 (Application)
Which software can the engineers use in an enterprise when they are about to make a risky decision?	k	2 (Comprehension)
Which software tools would you choose in the decision-making problem defined below in detail?	k	4 Analysis

At the design stage of the courses, the exam questions may be prepared automatically by drawing from a question database at the determined dates after the topics to produce outcomes at various levels are determined according to certain criteria (e.g. ABET) and it is defined through which measurement (quiz, test, examination, assignment, etc.) the student will be tested.

This course designing system may be operated in integration with a distant education system. Then the outcomes are automatically evaluated using such tools as online quizzes and assignments and an electronic portfolio may be formed for each student. Thus, it may be questioned how the student has graduated after meeting which criteria at which level as a result of the courses.

All the possibilities and activities provided by distant education may be used in an outcome based educational system. These are:

a. Resources such as presentations, multimedia files and links to the other pages related to the course. All the students may reach these at anytime and anywhere.
b. Assignments. The assignment and projects submitted online or offline.
c. Chat rooms. The live discussion media where the instructors, students and learners can attend for various topics. The media where interactivity can be used intensely. It is

superior to the traditional classroom medium in the sense that everyone has a chance to select any room according to their goals and levels.

d. Forums. They can be defined as the offline form of chat rooms. An unlimited number of forum subjects may be formed and everyone may subscribe to any forum, participate in the discussions and improve themselves in line with their goals.
e. Glossaries of general concepts. These glossaries are to be created for each course and include the technical terms and various other terms related to the course. It will be useful if for instance the individuals who do not know these terms can reach these glossaries using certain fonts or shortcuts during a forum or chat.
f. Journal. The files and notes kept by the students as they follow a course. These can be used for evaluation at the end of the course. This is useful for student monitoring.
g. Lessons. The source files which may be used by the students asynchronously whenever they want to learn certain topics step by step. This may be more useful than live lessons with a rich multimedia support (e.g. a video file recorded during a real operation and supported with step by step explanations for a medical course). This may be designed so as to enable the students' reach the desired topic using the next and previous buttons during the step-by-step lecture or to permit transition to the next course if the students successfully pass the short quizzes at the end of each topic.
h. Quizzes. These may be designed as multiple-choice tests, tests with one numeric answer, true or false, or fill in the blanks type. It will be possible to prepare an online quiz in a few minutes if each question is categorized in the Bloom taxonomy according to the level and outcome the question will measure and placed in the question database. The outcomes are evaluated automatically and this procedure takes a very short time.
i. Survey. These tools are used in order to obtain information from the students from time to time in order to be used for feedback.
j. Wiki (What I know is ...). Everyone may establish their own place and open it to be managed in a collaboration. Wikipedia project itself is the most example of this style.
k. All types of interaction are kept in the logs and it can be monitored when the students enter the system, how long they stay in the system, how long does it take for the students to complete which course, how long does it take for the students to complete the quizzes, and which forums and chats they participate in. Detailed statistics can be obtained for an individual student or for the entire group.
l. Teamwork is one of the most important outcomes. Workgroups can be established and monitored more conveniently in an online course. Detailed statistics can be obtained about how the groups participate in the activities and what they do during these activities.

Definition page of the course should include the objectives and demanded learning outcomes for each course prepared in distant education. Thus, the students will be able to choose the courses in line with their goals. The students should be able to take any course without a place, time and course limitation. It should be possible to make a wide range of choices during the course selection. If the programme/ course is prepared perfectly, then it is possible to eliminate the must courses. For example, let's assume that a programme's outcome definition is based on one of the ABET criteria "A". Criteria "A" of ABET measures students' ability to apply knowledge on maths, science and engineering. If the student is asked to reach this outcome at the application level in various courses he/she selects, then the student will take the relevant courses or learn this topic in some way in order to reach his/her goal even if "Maths" is not a must course; because the related outcome can be reached through learning the maths subject in order to realize his/her goal. It should be noted here that the learner takes the responsibility with the guide of a facilitator. The important point here is to facilitate the ways to be used by the student to realize his/her goals. Thus, the instructor concept is replaced by the facilitator concept. Also the concept of term or year in the classical paradigm becomes invalid, because the time required to reach these goals

depends on the individual. This process may take 2 years for certain people while 5 years may be necessary for others. The important issue is that the student should be able to graduate when he/she reaches the outcomes. The student goals and programme outcomes can be realized through the aforementioned activities, which are carried out asynchronously under the supervision of facilitators in the distant education systems.

Distant learning may be opened online for benefit of students in many of the programmes or may include a later campus education in some of the certificate programmes and the programmes that require practical education (e.g. vocational training). The students may receive the theoretical and part of the practical education in advance with multimedia support. And then they may complete their practical training in a centre in order to learn or reinforce the practice.

6. Pilot Study with Engineering Management Course

A pilot study has taken place for testing the new outcome based education paradigm for several semesters. Open source Virtual Learning Environment (eLearning environment) namely Moodle [4] has been utilized with its feature rich environment. A common course titled Engineering Management taken by students of Engineering Faculty was set at a pilot site [5]. Modules requiring discussion to promote active learning have been set around every topic such as forums, glossaries and projects. Before every topic of activities, the learning outcomes were clearly stated.

For measuring the achievement of outcomes, two special exams were conducted without affecting grading of students. They are namely course entry exam and a course exit exam which have been set and opened before each term and at the end of term respectively. The quiz module, the richest module in Moodle was utilised for this purpose. The quiz contained 227 questions reflecting the learning outcomes of all topics in the course as illustrated in Figure 2. In the first question below, it asks *'Can you APPLY break-even analysis method for different production planning problems?'*. The three choices for all questions were same as *'Yes, I can. I can answer this question.'*, *'I can answer at least 50 percent of this question.'*, and *'No answer at this time with my existing knowledge.'* The marking scheme for each question was associated with the level of learning in Bloom Taxonomy as *'Knowledge'* level being the lowest with '1' and the *'Evaluation'* level being highest with '6' points. As the verbs *'Apply'* and *'Describe'* are associated with *'Application'* and *'Comprehension'* levels in Bloom Taxonomy in the following questions, the first question is marked as '3' and the second as '2'.

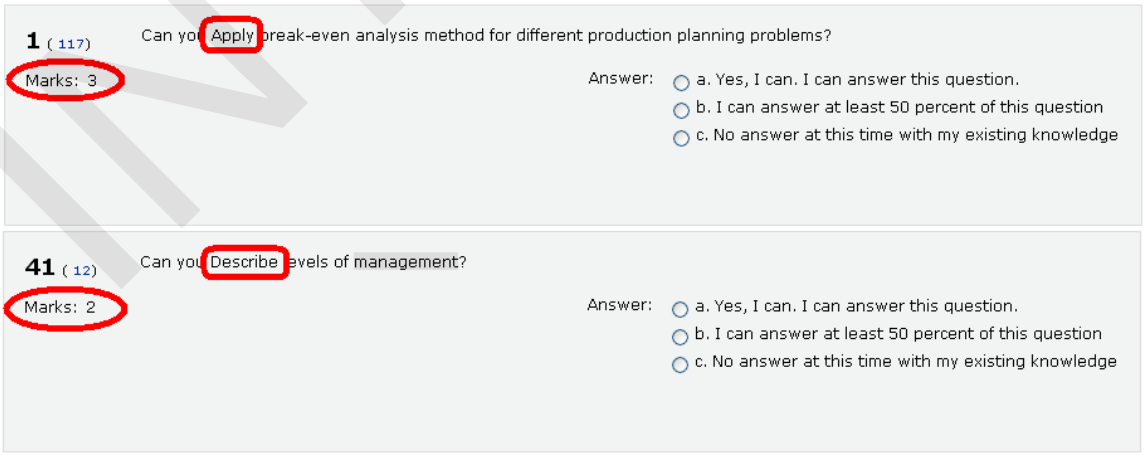


Figure 2. The sample questions from course entry and course exit exam

Figure 3 shows the results of course entry exam and course exit exam. The first questions are *'Knowledge'* level ones (the first level in Bloom Taxonomy) and they have highest achievement. The graph clearly shows that the last questions in last topics have relatively less performance. This is due to time constraint (specially close to end of term) where final exams start before the topics are discussed well in forums and supported by other activities. The overall performance for all learning outcomes was around 22 % at the beginning of course while it was nearly 70% at the end of semester. The results were based only on the first choice *'Yes, I can. I can answer this question.'*. When evaluated with also the second choice of '50% answer' the questions, the overall performance achievement in outcomes exceeds 80%.

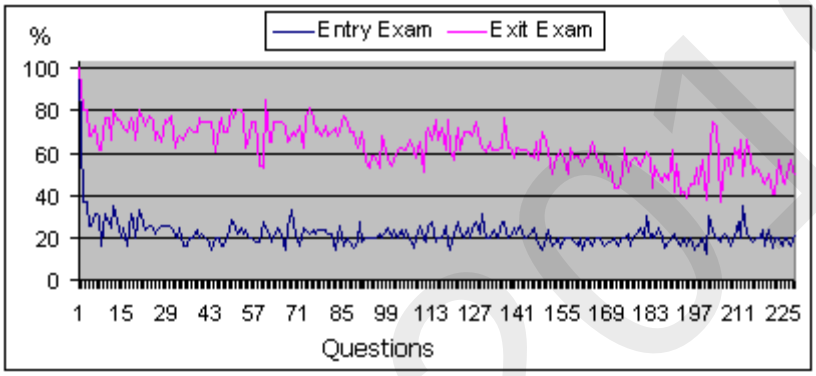


Figure 3. Comparison of Learning Outcomes for all questions in course entry and course exit exams

7. Conclusion

Education paradigm is shifting from instructor based education to learner based education. In the era of information revolution, this shift is progressing faster than predicted. Elearning, distance learning, outcome-based education, active learning are new described instruments of the new learner based education paradigm. A pilot study with Engineering Management course is showing us that the new paradigm is explicitly superior to the traditional one. By the time elapsed, this paradigm would out-date many more traditions in the education system.

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AN INVESTIGATION AND ASSESSMENT OF THE IMPORTANCE OF RESEARCH PROJECT STUDIES AND TEAM WORK IN THE NAVAL ARCHITECTURE EDUCATION

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Abstract

The Naval Architecture education aims to educate engineers who will be responsible for the design, construction and repair of ships, boats, other marine vessels and offshore structures. The project execution and construction of a ship requires the cooperative work of many engineers specialized in their own field and assigned in different stages of the project. Besides the professional abilities gained during the education, the professional life requires from graduates an ability to improve a good understanding for team work. To integrate the possibility of team work in an engineering education the courses on research projects give a good opportunity. The cooperative work force the students working on different fields selected according their personal inclinations of the same project to share information and calculated data. In this study the importance of research projects and team work during the education of Naval Architecture are investigated and exemplified by a design project for a pleasure boat designed for a competition organized by the International Centre of Hydrogen Energy Technologies which requires an interdisciplinary study of students from different departments and by the European Project Semester in the scope of the LLP-Erasmus program.

Keywords: Naval Architecture Education, research project, team work, European Project Semester, CDIO

1. INTRODUCTION

A Naval Architect is a professional engineer who is responsible for the design, construction and repair of ships, boats, other marine vessels and offshore structures, both civil and military (www.rina.org.uk). Shipbuilding is of strategic importance for countries. It develops advanced technologies that offer considerable spin-offs to other sectors, provides essential means of transportation for international trade and supplies the navies with advanced vessels (Abdel-Maksoud et. al., 2007). Working areas of Naval Architects are:

- Design
- Construction and Repair
- Consultancy
- Marketing and Sales
- Operations
- Regulation, Surveying and Overseeing
- Research and Development
- Education and Training

The Education of Naval Architecture comprehends lectures to develop an understanding for the design, construction and operation of all kinds of vessels and marine structures. For fit out the students with accurate professional knowledge, lectures such as Hydrostatics and Stability, Ship Resistance and Propulsion, Ship Structures, Ship Hydrodynamics, Ship Design, Shipyard Management and Organization are taught. For developing relationships of social thinking besides the fundamental courses, social elective courses are offered during the education. Research project studies which are executed after the 5th

semester of the bachelor program in the Yıldız Technical University give an opportunity to use the theoretical knowledge and to understand the relationships of the courses taught. While the professional life requires from graduates a deep understanding of the technical issues, additional qualities such as communication skills, leadership, time management and conflict resolution are required during a project execution. To develop those skills the research project studies give a good opportunity. Improving a project based education allows students to deal with appealing problems and generate solutions that turn into innovative products (Alkan, 2008). In this scope since 1995 the LLP-Erasmus program offers the possibility of European Project Semester (EPS) where the students work on a given topic with a company which makes the problem description. The Yıldız Technical University is part of this program since the 2007-2008 academic year. Projects and competitions supported by institutions such as TÜBİTAK (The Scientific and Technological Research Council of Turkey) or UNIDO-ICHET (International Centre for Hydrogen Energy Technologies) give also good opportunities for students to work on sophisticated projects. In this study a project made by students for a competition organized by UNIDO-ICHET and the European Project Semester in which students take part in the scope of the ERASMUS program are described.

2. TARGET SKILLS IN THE NAVAL ARCHITECTURE EDUCATION

The description of engineering is made as those who work to develop economic and safe solutions to practical problems, by applying mathematics, scientific knowledge and ingenuity while considering technical constraints (Ref.1). Integration of practical problems during the education is possible with the research project studies. Graduates who begin to their professional life must be equipped with good technical knowledge in their field and with complementary skills such as teamwork qualities. Teamwork describes the work performed by a team and its quality is measured by the effectiveness of the collaboration in:

- Communication
- Coordination
- Balance of contributions
- Mutual support
- Effort
- Cohesion (Martin and Gemuenden, 2001).

An interview made with nearly 100 engineers in several countries across all disciplines in a study by J.P. Trevelyan suggests that the work which dominates engineering practice is the coordination of technical work made by other people. The coordination of the work is not just a matter of communication skills it requires a deep understanding of the technical issues and the ability to predict the consequences of compromises are essential to do this effectively (Trevelyan, 2007). The target knowledge and skills which are gained by the education program offered in the Yıldız Technical University are described as follows;

a) The ability to apply the mathematical, science and engineering knowledge in order to solve the Naval Architecture and Marine Engineering problems.
b) The ability to design and execute an experiment, analysis and evaluation of the results and use of modern engineering techniques and technical tools.
c) The ability to analyze a system, system component or process and design in accordance with requirements.
d) The ability to work in multidisciplinary teams and/or have leadership skills.
e) The ability to determine, describe, model and solve the problems regarding her/his working area.
f) To have professional and ethical responsibility.
g) The ability to communicate oral and written in Turkish and English languages.
h) To have knowledge regarding the effects of Naval Architecture and Marine Engineering in national and global levels.
i) The ability to self-renew by following the developments in science and technology with recognition of the importance of lifelong learning.
j) To have knowledge regarding the updated and modern topics of Naval Architecture and Marine Engineering.
k) The ability to use the modern engineering techniques and tools together with informatics technologies.

l) To have more detailed information and an experience on one of the practical areas of Naval Architecture and Marine Engineering (Naval Architecture, Marine Engineering, Ship Hydromechanics)

3. PROJECT BASED STUDIES

Project studies in universities are a good opportunity to develop a deep understanding for the practice of theoretical knowledge obtained in lectures. Project studies also provide an occasion to develop relations with the industry which serve for students to see the requirements of the professional life. Traditionally a ship design project consists of several steps as shown in Figure 1.

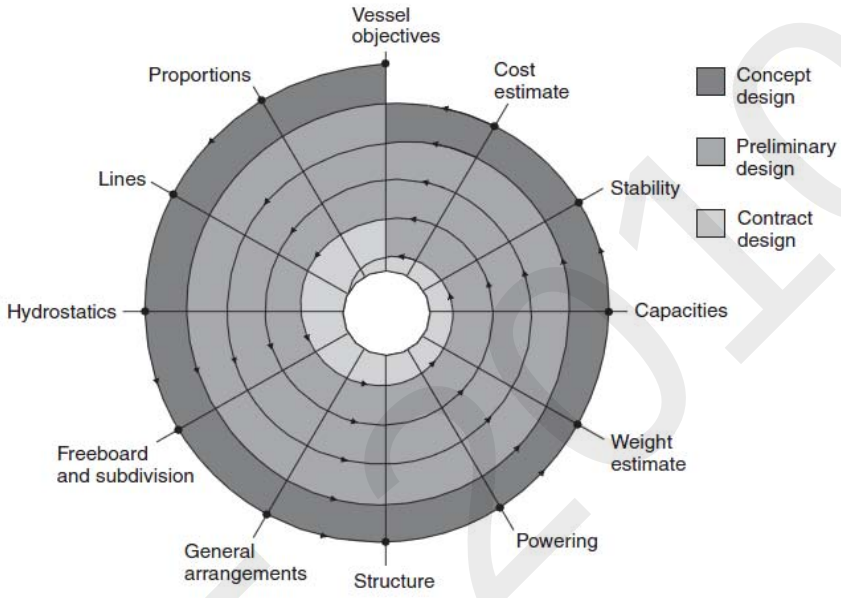


Fig.1. Ship Design Spiral (D.J. Eyres, 2001)

A research project study can be composed from one step of this spiral or from several steps. For the boat design competition the tasks in the work team were created according this spiral. Each student was responsible for one or several steps of the project.

3.1 Competition

The pleasure boat design contest is a competition organized by the International Centre for Hydrogen Energy Technologies UNIDO-ICHET which is founded in 2004 in Istanbul and is supported by the Turkish Ministry of Energy and Natural Resources. Its role is to support, demonstrate and promote viable hydrogen energy technologies with the aims of enhancing future economic development, particularly in emerging countries, and of preventing the widening of the energy and technology gap while helping skipping over the fossil fuel phase (www.unido-ichet.org). The pleasure boat project aims to show the usability of hydrogen energy systems, fuel-cells, in electric vehicles such as a boat. By a call for proposal the International Centre for Hydrogen Energy Technologies announced the design contest where university students have the possibility to participate by creating their own boat design. The winning teams are awarded by the support of their project with the fuel-cell and storage systems. The project aims to improve the creativity and ingenuity of students with the cooperative work of university and industry since the project execution needs sponsors for the realization.

The aim in the design of the pleasure boat project contest was to carry out the stages for the concept design, the preliminary design and in the final stage, the contract design. The project requires an interdisciplinary work of students from different departments. The work distribution is made according the departments of the students. The work distribution of the students of naval architecture is made as groups for hull design, superstructure design, form calculations, power estimation and structural design. The beginning of each step can be realized independently but the project needs the sharing of information and a common view for the design. With meetings every week and public surveys in occasions where a common opinion is required the preliminary design was made in one semester. With the design obtained a project file and presentation was created and presented to UNIDO-ICHET. With the rating of UNIDO-

ICHET the project was selected between the supported projects. In the following semester the project was executed in the preliminary design step where changes were made and detailed calculations were carried out. For the structural design, regulations of the class societies were taken into account. By the support of a Lloyd foundation and by laboratory tests the structural design is made and developed. Hull design, superstructure design, form calculations and power estimations are made with commercial design programs which are also frequently used by the maritime sector. The project has many contributions to the student since it has nearly no difference between a project which is realized in the maritime industry.

3.2 European Project Semester

Another attracting activity which is executed in the scope of the ERASMUS program is the European Project Semester. Our Department takes part in this organization since the 2007-2008 academic year. The project is a problem based learning activity (PBL). By the problem description of a company from the industry, students which are part of the Erasmus program have the possibility to work in a team for the problem resolution. The project semester consists of two parts. The first part includes a series of seminars, project specific courses and grammar education. The knowledge and skills required during the project execution are provided by the theoretical education. The second part consists of the applied education given by the problem describing company. The team of the European Project Semester consists of Project Manager (Academician), Project Advisors (experts in different fields), Project Arrangements Officer (project arrangement and solution of problems), and Project Staff (post graduate and under graduate students).

In order to meet the aims and objectives of the team-based project, students are advised to adopt the following procedures:

1. Problem identification, project formulation, aims, objectives, tasks to be carried out and specification.
2. Analysis of available knowledge, techniques, constraints and resources.
3. Synthesis of the relevant components of this information to indicate possible routes to problem solution.
4. Evaluation of possible routes and a decision made upon the optimum route to be adopted.
5. Production of a planned timetable of goals and milestones to be reached at various stages in the activity in order to meet the problem specification.
6. Execution of the plan with modifications made for obstacles to progress not foreseen at the beginning.
7. Careful recording of the results achieved and evaluation of their importance
8. The achievement of the planned goal.
9. Comparison of the achievement reached with the initial specification and the planned achievement.
10. Communication of the entire project activity for assessment, in terms of the documentation and presentation requirements (Ref.2).

4. NEW LEARNING TARGETS

A new approach in education is the CDIO concept. CDIO stands for Conceive, Design, Implement and Operate. By the integration of the CDIO concept the realisation of many new engineering projects is possible. The concept begins by the search of a project idea which is also determined by the research of the students in the conceive step. In the second step, the students work on the development of a detailed design. In the third stage the performance of the product is observed. The fine-tuning procedure is included in the final step. The end product can be presented to external parts, so that additional presentation skills are also developed. The earnings of the CDIO concept are described by Pee and Leong as follows:

- Persistence in project execution
- Increase in the motivation to learn
- Learning how to learn
- Flexible thinking
- Striving for accuracy and precision
- Applying knowledge to new situations
- Data gathering

- Creating, imagining and innovation
- Integration of learned theories (Pee and Leong, 2005)
-

5. CONCLUSION

Project based learning and problem based learning concepts are two approaches which aim both to develop the technical skills and teamwork abilities of students. By the pleasure boat design project and the European Project Semester it is showed that new learning styles have multiple contributions on education. The implementation of the CDIO concept will have also great benefits in the naval architecture education where design based studies are of great importance. It is aimed to continue the study by a public survey made on students for determining the benefits and contributions of project based learning and team-work.

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AN INVESTIGATION OF THE LEARNING STYLES OF PROSPECTIVE EDUCATORS

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ABSTRACT

One of the most important aspects of today's education is the learning styles of students since their success is dependant to the way they learn best. This can be achieved by understanding their individual differences and considering this in their education. When teachers become aware of different learning styles and the way they learn best, their teaching will highly benefit from this. Therefore, the aim of this study is to investigate the learning styles of prospective teachers in different departments in the Faculty of Education such as Turkish Language Teaching, Guidance and Psychological Counselling, Pre-school Teacher Education, and Computer and Instructional Technology Teacher Education at Eastern Mediterranean University during the Academic Year 2009-2010 Spring Semester. Prospective teachers have been asked to complete a Learning Styles Inventory. The data was analysed by using SPSS Statistical Program. It is expected to find differences in the learning styles of prospective teachers according to their departmental choices.

Keywords*: learning styles, prospective teachers, education faculty, learning styles inventory*

INTRODUCTION

It has been accepted as a valid truth that understanding the ways students learn is the key element for a better education (Collinson, 2000). All people vary in how they perceive and acquire information, conceptualize, form ideas, process and memorize, form value judgments, and how they behave (Hickinson and Baltimore, 1996). The effects of individual differences in learning styles has been investigated in the education field since the way students learn is has a very important role on the academic achievement of students.

There has been various information-processing models that have been developed throughout the history until today. One of these is the model developed by David Kolb. Kolb's Learning Cycle is based on John Dewey's notion that learning must be grounded in experience, Kurt Lewin's ideas of the importance of active learning, and Jean Piaget's emphasis on the interaction between person and environment on intelligence (Teixeira, 2001). Therefore, his theory developed from the learning theory 'experiential learning'. In this theory, learning is a process where knowledge is created through the transformation of experience.

In the Experiential learning Theory of Kolb, learning is conceived in a four-stage cycle. Kolb claims that people learn through experience and as they learn, they move through this four-stage cycle (Kolb, 1985). The four distinct learning styles are based on the four-stage cycle as he points out that the cycle is the essential element of his experiential learning theory.

Kolb's four-stage cycle:

- *Concrete Experience - (CE)*: This stage focuses on personal involvement with people in everyday situations. In this stage, people rely on their feelings more rather than considering problems and situations in a systematic way. The abilities to be open-minded and flexible for changes is important while learning. In short, this is the stage that learning is achieved by feeling.
- *Reflective Observation - (RO)*: In this stage, people understand ideas and situations from different perspectives. People has a tendency on patience, objectivity, and careful judgmenet but they do not prefer to take any actions. While forming opinions thoughts and feelings are considered. In short, this is the stage that learning is achieved by watching and listening.
- *Abstract Conceptualization - (AC)*: Learning involves using logic and ideas rather than feelings while understanding situations and solving problems.Systematic planning and developing theories and ideas for the solutions of problems are considered in this stage. In short, this is the stage that learning is achieved by thinking.

❖ *Active Experimentation - (AE)*: Learners start being active in this stage. There is a practical approach that what really works is important, instead of watching situations only. In short, this is the stage that learning is achieved by doing (Kolb, 1985).

Kolb states that most people go through these stages in the order of concrete experiences, reflective observation, abstract conceptualization and active experimentation. This means that learns have a concrete experience, then observe and reflect it from different perspectives, then form abstract concepts and generalizations in theories and finally actively experience these theories and test what they have learned in complex situations. He also developed Learning Style Inventory to measure learning styles of learners according to the theory of experiential learning. The scores of individuals from this inventory describe their learning styles as one of the four different types (Atkinson, 1991).

Kolb's four types of learning styles:

- Converger: Those with highest scores in Abstract Conceptualization (AC) and Active Experimentation (AE). Convergers greatest strength is the practical application of ideas. They are very good when there is a single correct answer or solution to a question or problem and can focus on specific problems or situations. Research on this style of learning shows that Convergers are relatively unemotional, preferring to deal with things rather than people.

- Diverger: Those with highest scores in Concrete Experience (CE) and Reflective Observation (RO). Divergers have the characteristics opposite from convergers. Their greatest strengths lie in creativity and imaginative ability. They are able to view concrete situations from many perspectives and generate many ideas. Research shows that Divergers are interested in people and tend to be imaginative and emotional.

- Assimilator: Those with highest scores in Abstract Conceptualization (AC) and Reflective Observation (RO). Assimilators are able to understand and create theories. They are good at inductive reasoning and synthesizing various ideas and observations into an integrated whole. Like convergers, They are less interested in people and more concerned with abstract concepts, but are less concerned with the practical use of theories. For them it is more important that the theory be logically sound and precise; in a situation where a theory or plan does not fit the facts.

- Accomodator: Those with highest scores in Concrete Experience (CE) and Active Experimentation (AE). Accommodators are polar opposites form Assimilators. The are good at carrying out plans and experiments and involving themselves in new experiences. They are risk-takers and excel in those situations requiring quick decisions and adaptations. They often solve problems in an intuitive trial and error manner, relying heavily on other people for information. Accomodators are at ease with people but may be seen as impatient and pushy (Kolb, 1985).

Studies have proven that when teachers are aware of the learning styles of their students and the way they learn best, the success rate of students tend to be much higher as their teaching will highly benefit from this. Therefore, the aim of this study is to investigate the learning styles of prospective teachers in different departments in the Faculty of Education such as Turkish Language Teaching, Guidance and Psychological Counselling, Pre-school Teacher Education, and Computer and Instructional Technology Teacher Education at Eastern Mediterranean University.

METHODS AND PROCEDURES

Participants

The participants of the study were the students of various departments of the Faculty of Education at Eastern Mediterranean University. In total there were 153 students who have partıcıpated ın thıs study; 15 of them were from the department of Computer and Instructional Technology and Teacher Education, 11 of them were from department of Turkish Language and Literature Teacher Education, 2 of them were from department of Science Teacher Education, 10 of them were from Middle School Mathematics Teacher Education, 3 of them were from department of Music Teaching, 68 of them were from department of Psychological Counselling and Guidance, 6 of them were from department of Social Sciences Teacher Education, 19 of them were from

department of Turkish Language Teaching and 19 of them were from department of English Language Teaching.

Instrument

There were two sections in the instrument of the study. In the first section there were 5 questions aimed to get some demographic information about the participants. In the second section the Turkish version of Kolb's Learning Styles Inventory was used. The Turkish version of the inventory was taken from the unpublished Ph.D. dissertation of Güven (2004). In this section there were 12 items and the participants were asked to rank order each statement that best described them from most descriptive, 4, to least descriptive, 1.

Procedure

The inventories were given to the participants during their course hour. With the help of the course instructors necessary explanations were given to the participants in advance. After the collection of the data, it was analysed by using SPSS 14.00. Then, the learning style of each participant was identified for finding out the frequencies of the learning styles as a whole and for each group.

RESULTS

In this section the answers for two research questions of the study will be answered.

What are the general learning styles which are dominant among the prospective teachers in various departments?

Table 1 shows the distribution of learning styles in general for the prospective teachers who study in various departments of Faculty of Education, Eastern Mediterranean University. When Table 1 is considered, it can be said that the learning styles of the participants in different departments of the Education Faculty at EMU were almost equally distributed. Nearly 25% of each style was preferred by nearly the same amount of participants. It can easily be seen that the percentages of different learning styles were very close to each other.

Table 1: Frequency Distribution of the Prospective Teachers' Learning Styles in General

	Frequency	Percentage
Converger	33	21.6
Diverger	47	30.7
Assimilator	31	20.3
Accelerator	42	27.5

How learning styles of participants in different departments vary?

In this section the learning styles of the participants will be analyzed and the results were given in Table 2. There were nine different departments and the numbers of participants in each department vary, therefore percentages were used to see the differences.

As it can be clearly seen from Table 2, for the department of Computer and Instructional Technology Teacher Education the majority (60%) of the students in this department use converger and diverger learning styles.In the department of Turkish Language and Literature Teacher Education, participants mainly use converger (45.5%) style and accelerator (27.3%) style mainly. For Science teacher education department unfortunately the researchers could manage to reach only two students where one of them (50%) stated that he/she use converger and the other one (50%) assimilator learning strategy. For Middle School Mathematics Teacher Education department again there was a uniform distribution of the learning styles among the students. Around 25% of each style was used by 25% of the students. Again the researchers could reached only three students of the department of Music Teacher Education and one of them (33.3%) claimed that he/she used diverger and the other two (66.7%) used accelerator learning styles. In Guidance and Psychological Counseling department, mainly the participants use diverger (32.4%), accelerator (26.5%) and assimilator (25%) learning

styles. In Social Sciences Teacher Education department the majority of the students (50%) use diverger learning styles. In Turkish Language Teaching department again the majority of the students (47.4%) use diverger learning styles when they are learning something. For English Language Teaching Department it is evident that participants mainly use accelerator (36.8%) and converger (31.6%) learning styles mainly.

Table 2: Learning Styles of Participants According to their Departments

	Converger	Diverger	Assimilator	Accelerator
Computer and Instructional Technology Teacher Education	33.3	26.7	20	20
Turkish Language and Literature Teacher Education	45.5	18.2	9.1	27.3
Science Teacher Education	50	--	50	--
Middle School Mathematics Teacher Education	20	20	30	30
Music Teacher Education	--	33.3	--	66.7
Psychological Counselling and Guidance	16.2	32.4	25	26.5
Social Sciences Teacher Education	16.7	50	16.7	16.7
Turkish Language Teaching	10.5	47.4	15.8	26.3
English Language Teaching	31.6	21.1	10.5	36.8

CONCLUSION

When participants were examined in general it can be said that the learning styles of them varied. As they have different interests and abilities it can be accepted normal. Then their learning styles were examined according to their departments and differences among departments were identified. For some departments converger learning style was dominant, for some others diverger was dominant and for others accelerator learning style was dominant. When the results were analyzed closer, it can be said that students from departments with similar subjects have similar dominant learning styles.

For further study students who study in similar departments can be examined in more detail to find out what makes the students in these departments use same kind of learning styles. Also, student's learning styles can be correlated with their success rates and identify if there is a correlation between their learning styles and their success.

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ANALOGIES AND RECURRING MATHEMATICAL MODELS IN PHYSICS AS A PART OF NATURAL SCIENSE COMPETENCES

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ABSTRACT

In a time when information is easily available it becomes increasingly important to teach people how to interpret this information, especially in the field of natural sciences, where it is often presented in the form of graphs and equations.

In the framework of a national project, whose main objective is to initiate better didactics strategies for a systematic development of students' natural science competences, we use different physical phenomena described by the same mathematical model to teach students how to identify the similarities and eventually predict models for similar processes that they are observing for the first time. Furthermore, by presenting a model on a process that students are more familiar with we may facilitate understanding of less familiar processes described by the same model.

INTRODUCTION

Our country's educational system has a compulsory 3-year course in physics for general secondary education. The aim of this is to provide the basics needed for engeneering and scientific careers since a sucessfully completed maturity exam which does not necessarily include physiscs is the only prequisite to apply to almost any higher education (including all engeneering and scientific studies). However, many of the secondary school students will not pursue a career in either of these fields. To these, the course should provide a basic understanding of the scientific method, interpretation of scientific data and enough knowledge to be able to act as responsible citizens when asked to decide on scientific matters. The project Developement of Natural Science Competences aims to provide methodical suggestions and aids to teachers to allow them to develop scientific competences in students while remaining within the boundaries of the current curriculum.

Aquireing factographic knowledge on scientific subjects and the ability to solve problems are important parts of any scientific course. Nowadays, when information is readily available from multiple sources, we feel that another focus should be on teaching students how to interpret this information. In addition to that, students should acquire some knowledge and experience on how to form a hypothesis, set up their own experiment to test it, and evaluate the results to either confirm or reject the hypothesis.

We believe that in order to do that students must acquire some so called scientific intuition. We believe that showing students that the same mathematical models occur in many scientific fields and that analogies can be drawn between many phenomena helps in this task. Seeing the same mathemetical model in different contexts should allow students to predict in what circumstances such a model is likely to occur. Even though there are many exact methods to predict a model, we believe that achieving this throug intuition based on experience is more appealing to students.

EXAMPLE OF THE METHOD

To illustrate this method let us look at an example.

Combined coefficient of multiple springs

One of the activities developed by the team is a laboratory project that requires students to determine the elastic coefficient of a system of two springs. The springs are connected either in series or parallel (see Figure 1). The combined coefficient is measured in the traditional way: by measuring the displecement of one end of the system (x) with respect to the applied force (F). The dependence is linear (F = kx) Students must first analyze the graph they plot from the measurements and from there determine the coefficient. This is a basic linear graph analysis procedure. Next, they are given the individual coefficients of each spring and are asked to try to determine if the combined coefficient can be calculated from the individual ones and how. To ease the task, two reciprocal coefficients are given: force versus displacement (we

denote it k) and displacement versus force (let us denote it l), which is, of course, the reciprocal value of the former (l = 1/k). Students are expected to notice that suming the individual coefficients gives the combined coefficient. For the parallel combination the sum of the k coefficients gives the combined k coefficient ($k_1 + k_2 = k$) and for the serial combination the sum of l coefficients gives the combined l coefficient ($l_1 + l_2 = l$). Putting the later in terms of k coefficients, the sum of the reciprocal values of k gives the reciprocal value of the combined k ($1/k_1 + 1/k_2 = 1/k$). We believe that if students are given the time and guidance to discover this on their own, they will remember better the result.

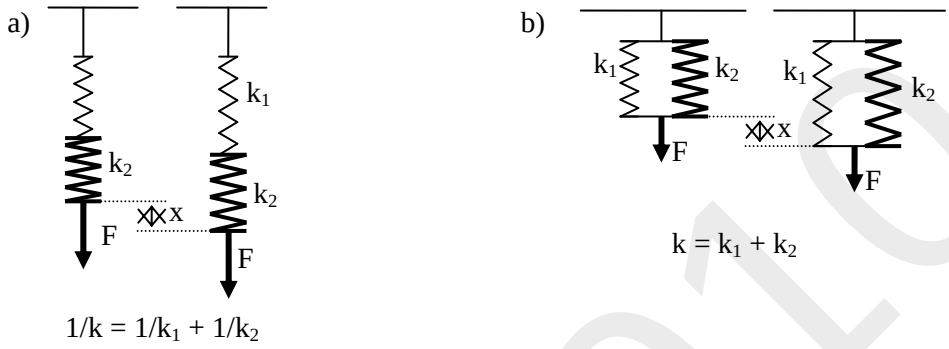


Figure 1: Two springs with different coefficients in a) series and b) parallel combination. The relation between the displacement x and the applied force F is F = kx. The combined coefficient k is calculated from individual coefficients k_1 and k_2 either as a) $1/k = 1/k_1 + 1/k_2$ or b) $k = k_1 + k_2$.

The same model applies to many phenomena: a series or paralel combination of capacitors, resistors, heat conducting materials, pipes (see Figure 2). The general rule is that this model is valid for all systems where we have a linear dependence between two variables and in the system of multiple elements the value of either one or the other variable is the same for all elements. In our case, for the parallel combination the displacement is the same for both, and for the serial the force is the same for both.

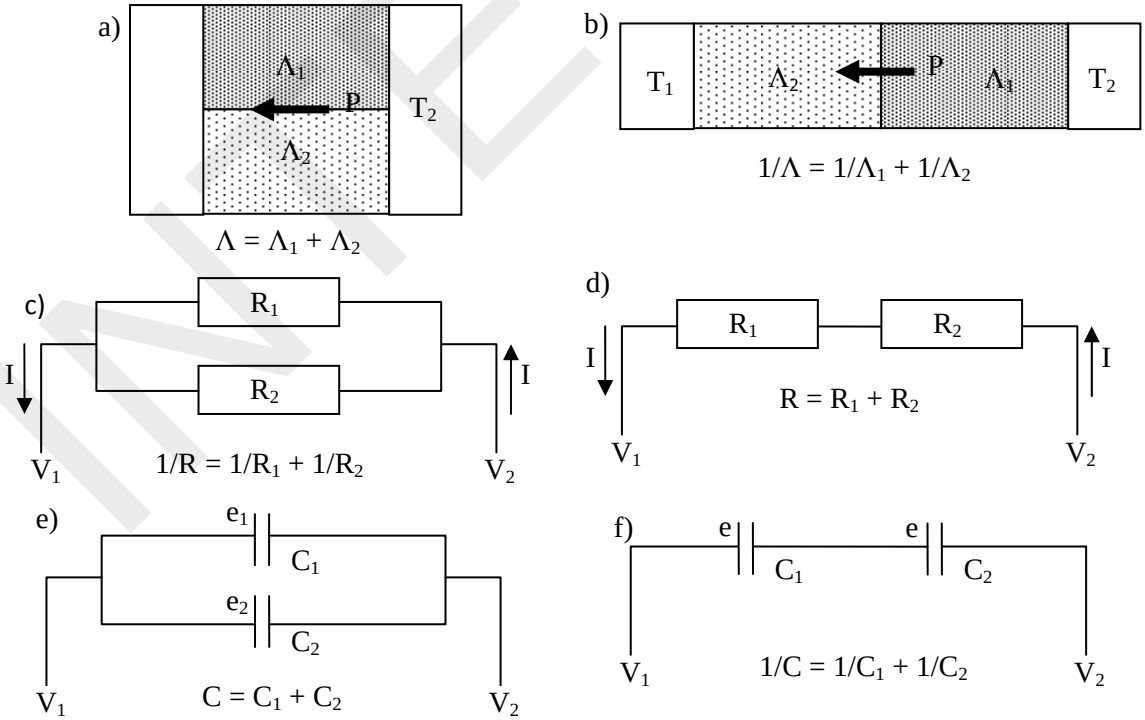


Figure 2: The mathematical model for the combined properties of a series and parallel combination of two elements applies to several different pfenomena. The figure shows it applied to heat conduction (a) and b)), electric conduction (c) and d)) and electric capcitance (e) amd f)).

From the fact that we observe the same mathematical model applied to different fields, we can draw analogies between the fields. Sometimes they only apply to the one phenomenon, but often they can be expanded to other models and be found to hold well even for other phenomena. A known case is the analogy between water flow and electric current. The analogous quantities are voltage and height (we assume hydrostatic pressure only), current and water flow, charge and mass, electric and viscous resistance, generator and pump, electric and gravitational field. There are differences that can be important for some phenomena, but here we will only consider the similarities.

Let us take a look at some of the instances the model shows up in secondary school physiscs

instance	relation	parallel combination	serial combination	calculation from specific property	specific property	pheno-menon involves
spring/ elastic	$F = kx$	$k = k_1 + k_2$	$\frac{1}{k} = \frac{1}{k_1} + \frac{1}{k_2}$	$k = \frac{1}{E}\frac{S}{d}$	E	storage capacity
electric resistance	$\Delta V = RI$	$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$	$R = R_1 + R_2$	$R = \zeta \frac{d}{S}$	ζ	flow rate
heat conduction	$P = \Lambda \Delta T$	$\Lambda = \Lambda_1 + \Lambda_2$	$\frac{1}{\Lambda} = \frac{1}{\Lambda_1} + \frac{1}{\Lambda_2}$	$\Lambda = \lambda \frac{S}{d}$	λ	flow rate
electric capacitance	$q = C\Delta V$	$C = C_1 + C_2$	$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$	$C = \varepsilon\varepsilon_0 \frac{S}{d}$	$\varepsilon\varepsilon_0$	storage capacity

F – force, k – spring coefficient, x – displacement (stretch), E – elastic module, S – cross section of the observed piece of material, d – length of the observed piece of material, ΔV – electric potential difference (voltage), R – electric resistance, I – electric current, ζ – electric resistivity (specific resistance), P – energy flow, Λ – thermal conductance, ΔT – difference in temperature, λ – thermal conductivity, q – electric cherge, C – electric capacitance, ε – relative elctric susceptibility, ε_0 – electric constant (susceptibility of vacuum). Terms »flow rate« and »storage capacity« are just used to point uot that the model can be used to describe phenomena involving a flow and ohenomena involving storage (usually of energy).

Table 1: The table shows similarities in the mathematical description of different phenomena. It turns out that mathematics-wise the models in all four instances are exactly the same, only the meaning of the physical quantities is different. No water flow instance is included, firstly, because it is above secondary school level physiscs, and secondly, because the details of water flow are much more complex than in the shown models, and therefore the model is not exactly the same.

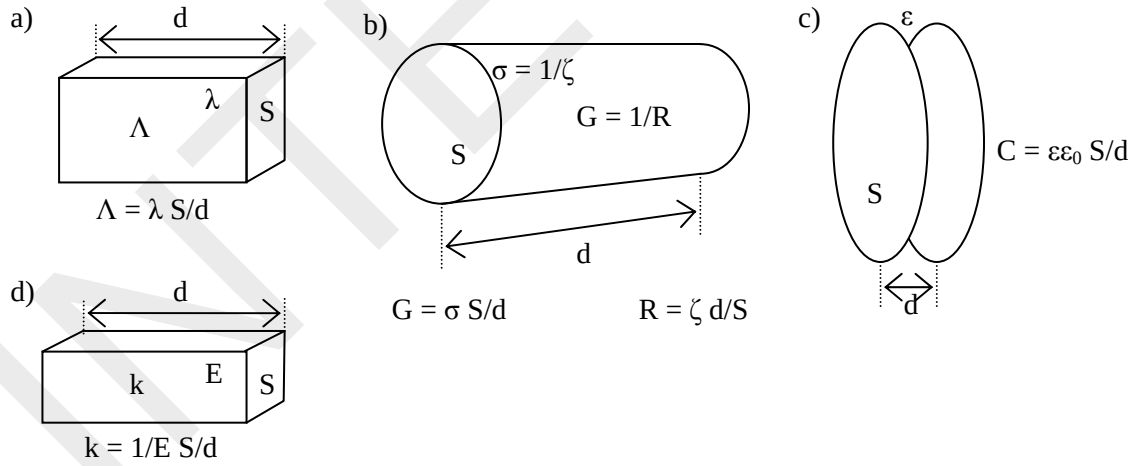


Figure 3: The properties of an element made from a given material with given dimesions (S – surface or cross section, d – length) can be calculated from the specific properties of the material with explicit dependence on dimensions. The mathematical model for doing this can be applied to many instances: a) heat conductor (λ is the specific property), b) electric conductor (ζ is the specific property), c) electric capacitor (ε is the specific property), d) a piece of elasic material (E is the specific property).

One more similarity between various applications of the model is the way the coefficient in question is calculated from the properties of the material and its dimensions. In many instances, the coefficient is calculated from a specific coefficient associated only with the material and a ratio between the crossection and the length of the material.

It is interesting to note that the model also applies to two fundamentally different phenomena: energy storage and flow. Let us take a look at these two instances of the model: the capacitance of a parallel plate capacitor and the resistance of a conductor wire.

The capacity of the capacitor can be calculated from

$$C = \varepsilon\varepsilon_0 \frac{S}{d}$$

where ε ε_0 is a property of the material inside the capacitor (electric permeability), S is the surface of one plate and d is the distance between the plates. We apply voltage to the plates (each plate is at a different potential, the difference in potential is called voltage) and as a result we can store electric charge on the plates. The relation is given by

$$q = C\Delta V$$

where q is the charge stored on one plate, C is the capacitance of the capacitor and ΔV is the difference in potential between the two plates (the voltage).

For two paralel capacitors of capatitances C_1 and C_2 respectively, the capacitance of teh combined system is $C = C_1 + C_2$

and for a serial combination the combined capacitance is

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$$

The resistivity of a wire of cross section S and length d the total resistance is given by

$$R = \zeta \frac{d}{S}$$

where ζ is a property of the material (specific restivity). We can describe the same phenomenon (conduction) with the reciprocal value of resistance, called conduction. This approsch is less common in electricity but more common in thermodynamics. The two descriptions, however, tell the same story: a material with higher resistance (lower conductance) will conduct less current at a given applied voltage, and vice versa. Conductance (G) is therefore given by

$$G = \sigma \frac{S}{d}$$

where σ is a property of the material (specific conductivity). If we apply a difference in potential between the two ends of the conductor, the current (I) flowing through it is given by

$$I = G\Delta V$$

If we put two conducting wires with conductances G_1 and G_2 respectively, paralel to each other, the combined conductance is

$$G = G_1 + G_2$$

For a serial combination, the combined conductance is

$$\frac{1}{G} = \frac{1}{G_1} + \frac{1}{G_2}$$

We can see that the mathematical model is exactly the same for both cases, however, the capacitance case tells us how much charge we can store on the plates with a given difference in potential, the conductivity case tells us how strong the flow of the charge is, again, due to a given difference in potential.

ACKNOWLEDGEMENT

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ARE BELIEFS THAT MUCH EFFECTIVE IN LANGUAGE LEARNING?

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ABSTRACT

As people go into the area of education, they bring their beliefs as well so their beliefs affect the teaching-learning process at school. Also, the beliefs vary from person to person. There are different beliefs on learning a foreign language, especially English, which is considered as vitally important in today's world. As a result, the aim of this study is to find out the beliefs of prospective teachers in Guidance and Psychological Counselling Department on language learning. Additionally, this study aims to investigate whether there is a correlation between the beliefs of prospective teachers and the high school they graduated from. In the study, the participants were the prospective teachers in the Department of Guidance and Psychological Counselling at the Faculty of Education at Eastern Mediterranean University in the Academic Year 2009-2010 Spring Semester. The participants were asked to fill in an inventory, 'Beliefs About Language Learning Inventory' (BALLI) prepared by Horwitz (1999) in order to find their beliefs on language learning.

***Keywords**: language learning beliefs, prospective teachers, guidance and psychological counselling, high school, foreign language*

INTRODUCTION

There has always been an interest to the area of learner beliefs in language learning. The beliefs are defined as the assumptions of students on language learning and the factors that influence learning and understanding the target language (Victori and Lockhart, 1995). Additionally, Horwitz (1987) mention beliefs on language learning as the "notions, perceived ideas, insights, concepts, opinions, representation, assumptions or mini theories of the language itself and language learning". These are brought to the class with individuals and consciously or uncounsciously affect the students and how they learn the language. Learner beliefs influence learning behavoiur (Cotterall 1995; Huang 2006) and learners' motivation as well as their experience and achievement (Bernat, 2004) in the learning-teaching process.

Hong (2006) points out that understanding learner beliefs provides better understanding of learner approaches to language learning and learners. As the beliefs are brought into classroom with a "complex set of attitudes, expectations, experiences", teachers are expected to understand the learning beliefs of students in language classrooms (Benson, 1991; Nyikos and Oxford, 1993).

Besides the learners' beliefs in class, teachers' beliefs are also crucially important in order to better the education in classrooms. As Kagan (1992) mentioned, the teachers' beliefs can be defined as "pre- or in-service teachers' implicit assumptions about students, learning, and the subject matter to be taught". Furthermore, Richards (1998) prefers a more comprehensive definition of the concept as "… the information, attitudes, values, expectations, theories, and assumptions about teaching and learning that teachers build up over time and bring with them to the classroom".

From the definitions mentioned above, it can obviously understood that beliefs has an important role in language classrooms and when beliefs are considered, teachers' beliefs are as essential as learner's beliefs. Therefore, teachers' beliefs have been studied over a long time in various teaching contexts from kindergarten to university on various subjects such as mathematics, science, history, and languages as well as specific sections of language (grammar, reading, writing, vocabulary, readiness, etc.) (Kagan, 1992; Borg, 2003).

Kamijo (2004) carried out a study with two experienced EFL teachers, who were native speakers of English, on their beliefs and error correction behavior in grammar lessons. The results of this study revealed that

the participants' beliefs were consistent with what research in second language acquisition suggested about error correction.

Another study investigated eight teachers' beliefs about course planning in writing instruction and the effect their beliefs had on their course planning in an EFL context (Lan, 2004). It was concluded in the study that the participants' beliefs about course planning were a result of their beliefs about writing instruction and their beliefs strongly influenced their teaching behaviors.

Woods (1996) conducted a longitudinal study on in-service language teachers' beliefs and investigated the relationships between teachers' beliefs, planning and decision making processes and classroom practice. In this study, it was found out that one of the factors influencing teachers' decisions and their practices in the classroom, among many others, was teachers' beliefs.

Another study investigated two high school teachers' beliefs about EFL teaching in Taiwan and how their beliefs influenced their classroom practices (Yi, 2004). The results of the study revealed that the two teachers held completely different beliefs about EFL teaching. It was found that their classroom practices were highly consistent with their beliefs about EFL teaching.

Although there has been various studies in many different countries and by many different researchers, these samples shortly emphasise the importance of investigating the teachers' beliefs in education. Therefore, the aim of this study is to find out the beliefs of prospective teachers in Guidance and Psychological Counselling Department on language learning. Additionally, this study aims to investigate whether there is a correlation between the beliefs of prospective teachers and the high school they graduated from.

METHODS AND PROCEDURES

Participants

The participants of the study were the students of the Psychological Counselling and Guidance Department. There were 78 participants in the study and 48 of them were female and 30 of them were male. Most of the participants, 62, were from Turkey and 18 of them were from Northern Cyprus. For this study the students were compared according to the medium of language in their high school education so 53 of them graduated from high school where the medium of education was Turkish and 25 of them graduated from high school where the medium of education was English.

Instrument

There were two sections in the instrument of the study. In the first section there were 5 questions aimed to get some demographic information about the participants. In the second part, the translation of BALLI, Beliefs about Language Learning Inventory, was used. BALLI is an inventory prepared by Horwitz, (1987) and aimed to find the beliefs of students about language learning. The Turkish version was used by Yürük (2008) in her unpublished master thesis. The items were translated from English and instead of mentioning English as 'foreign language', the word 'English' was used in parallel to the aim of the study.

In the inventory, there were 34 items and participants were asked to decide whether they (a) strongly agree, (b) agree, (c) neutral, (d) disagree or (e) strongly disagree with the items given. The inventory was divided into five different sections or areas related with language learning and these were (i) Foreign language aptitude, (ii) Difficulty of language learning (iii) Nature of language learning (iv) Motivation and expectation and (v) Learning and communication strategies (Batumlu, 2006).

Procedure

The inventory was given to the participants during their course hours. As the course instructors were two of the researchers, necessary explanations were given to the participants in advance. After the collection of the data, it was analyzed by using SPSS 14.00. In the analysis, the mean for each factor was taken into consideration, first as a whole group and then according to the school types of students were considered in order to compare the differences among the groups.

RESULTS

Overall Language Learning Beliefs of Participants

Table 1 shows the participants' overall language learning beliefs. As the inventory used in the study has five sections, the results obtained from the participants were categorized into five sections. In order to find the most important factor for the participants, their responses to 'strongly agree' and 'agree' were taken into consideration. When these two responses were taken into consideration, it can be clearly seen from Table 1 that for the participants, 'Motivations and Expectations' factor is the most important factor with 32% strongly agree, and 56.3% agree. The second important factor for them was 'Nature of Language Learning' with 20.5% strongly agree and 65.3% agree. Then, 'Learning Communication Strategies' came with 15.3% strongly agree and 70.4% agree. The participants considered 'Foreign Language Aptitude' as the fourth important factor with 66.8% agree. The last factor for the participants was 'Difficulty of Language Learning' with 3.9% strongly agree and 56.3% agree.

Table 1 Overall Language Learning Beliefs

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Foreign Language Aptitude	--	66.8	30.7	--	--
Difficulty of Language Learning	3.9	56.3	28.2	1.3	--
Nature of Language Learning	20.5	65.3	10.3	--	--
Motivations and Expectations	32	56.3	7.7	--	--
Learning Communication Strategies	15.3	70.4	9	--	--

Language Learning Beliefs of Participants according to the type of their High Schools

The aim of the study was to find out whether there was a difference between the participants who graduated from Turkish-medium High Schools and the participants who graduated from English-medium High schools. Table 2 shows the results of these. While examining the results, the 'strongly agree' and 'agree' responses of the participants were taken into consideration while ranking the results of the participants. According to Table 2, for the participants who graduated from Turkish-medium high schools (Type I), the most important factor was 'Motivations and Expectations' with 32.2% strongly agree and 58.5% agree. On the other hand, for the participants who graduated from English-medium high schools (Type II), two factors were the most important ones and these were 'Nature of Language Learning' and 'Learning Communication Strategies' and the percentages were 12% strongly agree and 80% agree, 28% strongly agree and 64% agree respectively. For Type I participants 'Nature of Language Learning' took the second place whereas for Type II participants the second important factor in language learning was 'Foreign Language Aptitude'. For Type I participants the third important factor was 'Learning Communication Strategies'. On the other hand, for Type II participants it was 'Motivations and Expectations'. For Type I participants, last two factors were 'Difficulty in Language Learning' and 'Foreign Language Aptitude', respectively, whereas, for Type II participants, the least important factor was 'Difficulty in Language Learning.'

Table 2 Language Learning Beliefs of Participants according to the type of their High Schools

	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	HIGH SCHOOL TYPE I *	HIGH SCHOOL TYPE II **	HIGH SCHOOL TYPE I	HIGH SCHOOL TYPE II	HIGH SCHOOL TYPE I	HIGH SCHOOL TYPE II	HIGH SCHOOL TYPE I	HIGH SCHOOL TYPE II	HIGH SCHOOL TYPE I	HIGH SCHOOL TYPE II
Foreign Language Aptitude	--	--	56.5	88	41.5	8	--	--	--	--
Difficulty of Language Learning	1.9	8	62.2	44	30.2	24	--	4	--	--
Nature of Language Learning	24.6	12	58.4	80	13.3	4	--	--	--	--
Motivations and Expectations	32.2	32	58.5	52	7.6	8	--	--	--	--
Learning Communication Strategies	9.5	28	73.4	64	11.6	4	--	--	--	--

* High School Type I : Turkish-medium High School
** High School Type II: English-medium High School

CONCLUSION

From the results above it is possible to say that the beliefs of individuals can change according to the amount of foreign language they are exposed to. While the participants who graduated from English-medium high schools considered communication strategies as the most important factor in language learning, for the participants who graduated from Turkish-medium high schools considered motivations and expectations as the most important factor because they need to have reasons to learn a language.

Another important point from the analysis was the language aptitude was very important for the participants who graduated from English-medium high schools but for the participants who graduated from Turkish-medium high school ranked it as less important. This can be because the participants who know English feel themselves more confident than the others.

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ARE CONDUCTING SCIENTIFIC RESEARCH STUDIES AND STUDYING IN GRADUATE PROGRAMS ENOUGH TO ACQUIRE SOPHISTICATED UNDERSTANDINGS ABOUT THE NATURE OF SCIENCE?

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Abstract

The purpose of this study is to determine NOS understandings of graduate students from different departments. The study consisted of seven graduate students who were enrolled in universities as researchers. The data collection method was selected as face-to-face interview. Collected data was analyzed by assigning the participants to four categories; expert, naive, mixed and not applicable. The results showed that majority of the participants were expert on "social and cultural embeddedness of science" and "role of creativity and imagination in science" while all of them were naive in terms of "definition of science" and the aspect of "hierarchy between theories and laws". Majority of them had mixed understandings on the aspects of "existence of only one method in science", "subjectivity" and "tentativeness."

INTRODUCTION

Scientific literacy as a requirement for living in future society has many aspects including science content knowledge, nature of science (NOS) and affective characteristics about science. As the most frequently emphasized aspect, NOS has been studied for a long time. The studies on the aspects of NOS were frequently conducted on pre-service teachers or middle, high school students and these studies showed the existence of many misunderstandings on NOS (Khisfe & Lederman, 2006; Khisfe & Abd-El-Khalick, 2002; Ryan & Aikenhead, 1992; Palmquist & Finley, 1997). In a small number of the studies, certain indicators of change and difference in epistemological understandings of graduate students as a different group for studying NOS aspects were presented by not focusing on the specific NOS understandings. For example; Chang (1995) found that Taiwanese graduate students in the fields out of education had firmly logical positivist epistemological position about scientific knowledge. In a different study, Jehng, Johnson and Anderson found that graduate students have more sophisticated ideas on tentativeness of scientific knowledge than lower grade students (Jehng, Johnson & Anderson, 1993). Paulsen and Wells (1998) added that age is an important contributor of difference in epistemological understandings. They stated that the more the people get older, the more they have sophisticated epistemological understandings. Marzooghi, Fouladchang and Shemshiri (2008) also found the change in age as an important factor to explain epistemological differences between younger and older university students.

As speculated by Paulsen and Wells (1998) and Jehng et al.(1993); understandings about nature of science aspects have been varying toward graduate level education. Especially, variation might increase

due to more focused and narrower specialization/field experiences. So the studies in higher grades such as graduate level students or researchers are required to see a clearer picture in terms of nature of science.

Based on lack of studies on and existence of the conflicting results on NOS understandings of graduate students and importance of having informed NOS understandings for graduate students, this study has aimed at determining NOS understandings of graduate students from different departments.

METHODOLOGY

In this study, interpretive approach was adopted. Face-to-face interview was utilized by using the questions of VNOS-C developed by Lederman, Abd-El-Khalick, Bell and Schwartz (Lederman, Abd-El-Khalick, Bell & Schwartz, 2002). The data obtained was analyzed by assigning the participants to four categories; expert, naive, mixed and not applicable. To increase the trustworthiness of the analysis, two independent examiners assigned the participants into profile categories. The percent agreement was found as 81%. The study included seven graduate students who were enrolled in universities as researchers. The participants studied on the disciplines of social studies education, electric and electronic engineering, philosophy, mathematics education, physiology, curriculum and instruction, business administration. The participants were selected concerning the variation in the disciplines in which they studied.

RESULTS AND DISCUSSION

The results of the study showed that majority of the participants were expert on social and cultural embeddedness of science and the role of creativity and imagination in science while all of them were naive in terms of definition of science. At the same time, majority of the participants were also naive on the aspects of "hierarchy between theories and laws". Majority of them had mixed understandings on the aspects of existence of only one method in science, subjectivity, tentativeness. In the literature, there are studies supporting the results of this study (Samparapungavan, Westby & Bodner , 2006; Schwartz & Lederman, 2008) . The results of this study are an indication of the lack of improved understandings on the NOS aspects to use in informed decision making. The group of the study is expected to be experts in understanding NOS aspects due to their continuous involvement in scientific process and being informed decision maker on daily life situations. Elimination of naive understandings and effective teaching ways has been required. The explicit-reflective implications embedded in graduate courses might be helpful to increase expert understandings of the participants (Khishfe & Abd-El-Khalick, 2002). When the individuals are concerned, it has also been seen that experience in research and taking on any course and participating in any activity related to epistemology, history and nature of science might be not effective factors to improve NOS understandings. Since, the participant who was a graduate student in philosophy department also presented naive views similar to other graduate students. Besides, the participants presented varied profiles on observation and inference difference and empirical basis of science while they presented less varied understandings on the others. This might be an indication of effect of individual experiences and the contexts on NOS understandings.

This study was conducted on limited number of the participants and the study relied upon interview answers. In future studies more varied and increased number of participants should be studied by using triangulation data resources.

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INTE 2010

ARTİKÜLASYON PROBLEMİ GEÇMİŞİNE SAHİP BİREYLER: BİR TAKİP ÇALIŞMASI ÖRNEĞİ

INDIVIDUALS HAVING THE HISTORY OF ARTICULATION PROBLEMS: AN EXAMPLE OF THE FOLLOW UP STUDY

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ÖZET

Dil ve konuşma bozukluklarının farklı gelişimsel alanlarla ilişkileri bilinmektedir. Her birey farklı gelişim, eğitim, psikososyal ve konuşma özellikleri göstermektedir ve herhangi bir alanda ortaya çıkacak bir bozukluk, diğerleri üzerinde farklı etkilere yol açacaktır. Sunulan çalışmada bu nokta üzerinde durulmuş ve "*Artikülasyon problemlerine sahip bireyler, konuşma bozukluğu sendromundan başka normal konuşan akranlarından hangi açılardan farklılaşmaktadır*?", "*Artikülasyon problemlerinin iyileştirilmesi/düzeltilmesi durumunda farklı gelişimsel alanlarda değişimler olur mu? Bu değişimler hangi alanlarda nasıl olur*?" sorularına yanıt aranmıştır. Artikülasyon problemi geçmişine sahip 2 kişi ile yürütülen anket ve mülakat çalışmaları sonucunda elde edilen veriler; artikülasyon problemlerinin iletişimi sekteye uğrattığını ve bu probleme sahip bireylerde konuşma kaygısı, çekingenlik, içine kapanma, özgüven eksikliği, sosyal ortamlardan kaçma gibi sorunların ortaya çıktığı belirlenmiştir. Bununla birlikte kendini istediği gibi ifade/temsil edemeyen bireylerin eğitim ortamlarında hak ettikleri başarıyı elde edemedikleri tespit edilmiştir. Bu çalışmada incelenen iki kişinin yaşadıkları deneyimlerin geneli yansıtmadığı göz önünde bulundurulmakla birlikte toplumumuzda böyle eksiklikleri olan bireylerin yeterince tanınmadığı/kabul edilmediği de yürütülen mülakatlar sonucu elde edilen bulgular arasındadır.

Anahtar Kelimeler: Artikülasyon Problemleri, Gelişimsel Alanlar

ABSTRACT

It is known that speech and language disorders are relevant to the different developmental areas. Each individual has the different characteristics of development, education, psychosocial and speech and a disorder that will arise in any field will lead to different effects of others. It is focused on this point in the study and searched for the answers of the questions: "What other ways do the individuals with articulation problems differ from their peers of normal speakers apart from the speech disorder syndrome?", "Does any changes occur in different developmental areas in the situation of improving / correcting articulation problems?'', "What areas does these changes occur and how?". With the data obtained from the survey and study results carried out with two people having the histpry of articulation problems, it is identified that articulation problems interrupt the communication and the individuals having this problem face with speech anxiety, shyness, introvers,on, lack of self confidence, escape from the social environments. However it is determined that individuals who don't have self expression can not deserve the success in educational environments. Taken into consideration that the experience of the two individuals in this study do not reflect the whole,the information of the individuals having such problems are not known/accepted sufficiently in our society are among the findings of the interviews.

Keywords: Articulation Problems, Developmental Areas

GİRİŞ

Dil, iletişim için etkili bir dinamiktir. Dilin anlamlı sembollerin kullanımını içeren geniş yapısı, ağız iletişiminin mekanik boyutlarını kapsayan konuşmayı bir alt küme olarak içine almaktadır (Gouvier, Baumeister ve Ijaola, 2009). Farklı gelişimsel seviyelerin düzenli ve sıralı bir şekilde işlemesine bağlı olarak biriktirilen, değişen ve gelişen dil; temel olarak fonolojik, gramatik, anlambilim ve pragmatik alanlarda gerekli becerilerin kazanılmasıyla ortaya çıkmaktadır. Seslerin algılanması, üretimi, anlamlı cümleler oluşturma için söz dizimsel ve morfolojik kuralların kullanımı gibi işlevler fonolojik, gramatik ve anlambilim alanlarının alt gruplarını oluştururken; anlamı güçlendirmek ve duyguları iletmek için belirli sosyal durumlara dilin nasıl adapte edilmesi gerektiğini bilmek pragmatik alanın kapsamı içine

dahil edilmektedir (Schirmer, Fontoura ve Nunes, 2004; Cohen, 2005). Dil gelişimi söz konusu alanları içine alan oldukça karmaşık bir süreçtir ve duygusal, davranışsal, sosyal ve öğrenme yaşantıları ile kritik bir ilişki içerisindedir. Normal dil ve konuşma gelişimi, yaşamda başarılı sonuçlar elde etmek için bir mihenk taşıdır ancak dil ve konuşma yeterliliği çocukların oldukça büyük bir miktarında normal olarak ilerlememektedir (Beitchmen, 2005; Schirmer, Fontoura ve Nunes, 2004). Bununla birlikte, dil ve konuşma bozukluklarının duygusal, davranışsal, bilişsel ve sosyal problemleri de beraberinde getirdiği akademik tartışmalarda sıkça vurgulanmaktadır (Garvey ve Gordon, 1973; Silva, Williams ve McGee, 1987; McAndrew, 1999; Gallagher, 1999; Botting ve Conti-Ramsden, 2000; Lindsay ve Dockrell, 2000; Cohen, 2005; Lindsay, Dockrell ve Strand, 2007).

McCabe ve Marshall (2006), dil bozukluklarıyla 30 , normal dil gelişimiyle 18 okul öncesi çocuğun sosyal yeterliklerini öğretmen ve ebeveyn görüşlerine bağlı olarak belirlemeye çalışmışlardır. Yapılandırılmış ve yapılandırılmamış ortamlarda çocukların sosyal, duygusal ve davranışsal işlevlerini çeşitli oranlama ve kodlama ölçekleriyle değerlendirmişlerdir. Bulgular, dil bozuklukları olan çocukların normal akranlarından daha az sözel iletişim eğiliminde olduklarını, partner olarak yetişkinleri tercih ettiklerini, göz ardı etme eylemini daha çok kullandıklarını, görev alma/tamamlama yeteneklerinin düşük olduğunu ve geniş sosyal etkileşim gerektiren oyunlardan ziyade yan yana oynanan oyunları daha çok tercih ettiklerini, kişisel azim, liderlik ve girişkenlik özelliklerinin daha düşük olduğunu göstermiştir.

Botting ve Conti-Ramsden (2000), İngiltere'de dil ve konuşma eğitimi alan 6-7 yaş aralığındaki 242 çocuğun sosyal ve davranışsal durumlarını incelemeye yönelik iki aşamalı bir çalışma yürütmüştür. Birinci aşamada çocukların duygusal/davranışsal durumlarını öğretmen görüşlerinden yararlanarak değerlendirmeye çalışan araştırmacılar ikinci aşamada çocukların 214'ünü 7-8 yaş aralığında 1 yıl süreyle takip etmişlerdir. Sonuç olarak dil bozukluğuna sahip çocukların davranışsal problemlere de sahip oldukları ve dil bozuklukları ile duygusal/davranışsal zorluklar arasında bir bağlantı olduğunu doğrulamışlardır.

Willinger ve arkadaşları (2003), 4-6 yaş aralığındaki dil gelişim bozukluğuna sahip olan 94 çocukla normal dil gelişimine sahip akranlarıyla davranışsal problemler açısından incelemiş ve Botting ve Conti-Ramsden ile benzer sonuçlara ulaşmışlardır. Araştırmacılar, dil ve konuşma bozukluklarına sahip bireylerin davranış problemleri açısından risk altında olduklarını doğrulamışlar ve çocukların kendilerini ifade edemeyişinin veya diğerlerini idrak edemeyişinin davranışsal problemlere ek olarak ciddi duygusal ve eğitimsel riskler ortaya koyacağını ileri sürmüşlerdir.

Getty ve Summy (2006), duygusal/davranışsal bozukluklarla dil eksikliklerinin arasındaki bağlantıyı irdeledikleri çalışmalarının amaçlarını şu şekilde sıralamışlardır: (a) duygusal/ davranışsal bozukluklar ve dil eksikliklerine sahip çocuklarla ilgili literatürü incelemek, (b) birbirine eşlik eden bu bozuklukların etkilerini tartışmak, (c) okullarda çalışan konuşma ve dil patolojistleri ve öğretmenler için öneriler sunmak, (d) duygusal/davranışsal bozukluklar ve dil araştırmalarında ihtiyaç alanlarını belirlemek. Bu çerçevede yapılan araştırmalar, duygusal/ davranışsal bozukluklar ve dil eksikliklerine sahip çocukların aynı zamanda anti sosyal davranışlara sahip olabileceğini, algısal dil eksiklikleriyle çocukların ifade edici dil eksikliklerine sahip çocuklardan daha fazla davranışsal problemlere sahip olduğunu, duygusal/ davranışsal bozukluklara sahip çocukların dil eksikliklerine sahip olma olasılığının normal popülasyona göre 10 kat daha fazla olduğunu, duygusal/davranışsal bozukluklara sahip çocuklarda dil bozukluklarının toplumsal ilişkilerde yıkıcı bir etkiye sahip olduğunu göstermiştir. Bununla birlikte toplanan bilgilerin etnik köken, sosyo-ekonomik durum ve ortam gibi değişkenler üzerine eksik bilgilerle sınırlı olduğu; duygusal/davranışsal bozukluklar ile dil eksiklikleri arasındaki bağlantının birçok çalışmada vurgulandığı halde bağlantının doğası ve kapsamının hala yeterince açıklanmadığı belirlenmiştir. Ayrıca, duygusal/davranışsal bozukluklara sahip bir çocuğun dil becerilerinin yaşamında nasıl bir rol oynadığını anlamak için daha fazla araştırma yapılmasının gerektiği, bugüne kadar genellikle ilköğretim öğrencileri üzerine odaklanıldığı ancak ergen popülasyonu üzerindeki araştırmaların yetersiz kaldığı ifade edilmiştir. Ayrıca, eğitimcilerin öğrencilere en iyi şekilde nasıl hitap edeceklerini bilmeleri açısından duygusal/davranışsal ve dil bozukluklarının doğasını anlamalarının kritik olduğu belirtilmiştir. Tommerdahl (2009), Getty ve Summy ile benzer şekilde sosyal, duygusal, davranışsal zorluklar ve dil/konuşma problemleri arasındaki bağlantıyı irdelediği çalışmasında; bu zorluklara sahip çocukları tanımak ve desteklemek için eğitimcilerin alanla ilgili bilgilendirilmelerinin gerekliliğine işaret etmiştir.

Snowling ve arkadaşları (2006), dil ve konuşma bozuklukları geçmişine sahip çocukların gençlik dönemlerindeki psikososyal durumlarını irdelemişlerdir. Dil ve konuşma bozuklukları ile psikiyatrik bozukluklar arasındaki bağlantının biraz abartılmış olduğunu ileri süren araştırmacılar, anket, röportaj ve

ebeveyn raporlarını kullanarak 15-16 yaş aralığında bulunan 71 gencin (okul öncesi yıllarda dil ve konuşma problemi yaşamış) psikososyal durumlarını incelemiştir. Yaş olarak eşleştirilmiş bir kontrol grubu ile karşılaştırılarak değerlendirilen gençlerin okul yıllarında sürüp giden bir dil ve konuşma bozukluğu ile karşı karşıya kalmadıkları sürece herhangi bir olumsuz sonucun elde edilmediğini belirtmişlerdir. Bununla birlikte araştırmacılar, dil bozukluklarına sahip bireylerin sadece dil müdahalelerine değil duygusal ve davranışsal desteğe ihtiyaç duyan hassas bir grup olduğunu ifade etmişlerdir.

Özcebe ve Belgin (2004), 6-10 yaş aralığındaki fonksiyonel artikülasyon bozukluklarına sahip 33 çocuğun bilgi işleme becerilerini inceledikleri çalışmalarında; anlık hafıza, son hafıza, genel bilgileri anımsama, oryantasyon, organizasyon, problem çözme ve soyut düşünme becerilerine yönelik skorlarını hesaplamışlardır. 33 kişiden oluşan deney grubunu benzer özelliklerle 160 kişilik bir kontrol grubu ile kıyaslamışlardır. Tüm çocuklar için hesaplanan skorlar temel alınarak hafıza katsayısı, oryantasyon katsayısı, düşünme ve muhakeme katsayısı ve bilgi işleme katsayısı belirlenmesinde kullanılmıştır. İstatiksel analizler, deney grubunun hafıza katsayısı, düşünme ve muhakeme katsayısı ve bilgi işleme katsayısının kontrol grubuna göre dikkate değer bir oranda daha düşük skorlara sahip olduğunu göstermiştir. Sonuç olarak fonksiyonel artikülasyon bozukluklarına sahip çocukların bilgi işleme becerilerinin daha detaylı bir biçimde incelenmesi gerektiği, bu çocukların farklı alanlardaki açıklarının tespit edilip uygun eğitim programlarının düzenlenmesi gerektiği vurgulanmıştır.Dil ve konuşma bozukluklarının farklı gelişimsel alanlarla ilişkileri ortaya koyulmuş ve bu ilişkilerin daha detaylı incelenmesi gerektiği, çocukların ilerlemeleri üzerindeki olası etkilerinin daha yakından izlenerek ortaya koyulması gerektiği vurgulanmıştır.

Her birey farklı gelişim, eğitim, psikososyal ve konuşma özellikleri göstermektedir ve herhangi bir alanda ortaya çıkacak bir bozukluk, diğerleri üzerinde farklı etkilere yol açacaktır. Sunulan çalışmada bu nokta üzerinde durulmuş ve "*Artikülasyon problemlerine sahip bireyler, konuşma bozukluğu sendromundan başka normal konuşan akranlarından hangi açılardan farklılaşmaktadır*?", "*Artikülasyon problemlerinin iyileştirilmesi/düzeltilmesi durumunda farklı gelişimsel alanlarda değişimler olur mu?Bu değişimler, hangi alanlarda nasıl olur*?" sorularına yanıt aranmıştır.

YÖNTEM

Bu çalışmada özel durum çalışması yöntemi kullanılmıştır. Özel durum çalışması, ilgilenilen araştırma konusu hakkında derinlemesine bilgi elde etmeyi ve olayı her yönüyle anlamayı amaçlayan bir araştırma yöntemidir (Ayas, Tekin, 2005). Araştırmanın amacı çerçevesinde çalışmada incelenen bireylerin durumlarının derinlemesine incelenmesi ve takip edilmesi amaçlanmaktadır. Bu doğrultuda, özel durum çalışmasının konunun etraflıca ve önyargısız bir şekilde incelenmesi için fırsat sunacağı düşünülmüştür.

Örneklem

Bu çalışmada, artikülasyon problemleri geçmişine sahip 2 kişi örneklem olarak düşünülmüştür. Karal (2009), artikülasyon bozukluklarına bilgisayar destekli materyallerin çözüm getirip getirmeyeceğini irdelediği çalışmasında; farklı yaş, cinsiyet ve eğitim seviyelerindeki artikülasyon problemlerine sahip 6 öğrenciyi 36 hafta boyunca takip etmiş ve geliştirmiş olduğu materyali kullanan bireylerin problemlerinin üstesinden geldiğini belirlemiştir. Sunulan çalışma, söz konusu bireylerin izlenmesi maksadını taşımaktadır ve bu 6 kişiden 2'si çalışmanın örneklemini oluşturmaktadır. Çalışma içerisinde S1 ve S2 kod adlarıyla sunulan örneklemin demografik özellikleri aşağıda sunulmuştur.

Tablo1. Örneklem

Kişi	Yaş	Eğitim Durumu	Cinsiyet	Artikülasyon Problemi
S1	25	Lisans	Bayan	c/ ç/ j/ s/ ş/ z seslerini çıkarmada problem yaşıyordu.
S2	22	Önlisans	Erkek	r/ için ğ/ kullanıyordu.

Veri Toplama Araçları

İlk olarak, artikülasyon problemlerine sahip bireylerin problemlerine yönelik geçmiş yaşantılarını belirlemek amacıyla farklı anketler kullanılmıştır. Anketlerin birinci bölümleri yaş, cinsiyet, eğitim

durumu ile ilgili sorular, ikinci bölümleri problem yaşanan ses/seslerin neler olduğu, bu problemin düzeltilmesine yönelik çalışmaların yapılıp yapılmadığı, bu doğrultuda kimlerden ne şekilde destek alındığı/alınmadığı, sosyal, akademik ve psikolojik yaşantılar üzerindeki etkileri ile ilgili açık uçlu sorular içermektedir. Açık uçlu sorular, katılımcıların serbestçe cevap vermeleri, araştırılan konu hakkında daha geniş ve ayrıntılı bilgi edinilmek istendiğinde faydalı bilgiler sağlamaktadır (Büyüköztürk, 2005). Birçok araştırmacı bu soru çeşidini mülakat metodu kapsamında ele almakta ve sözlü olarak konuşmak istemeyen bireylerden yazılı görüşlerini bu yolla istemektedir(Çepni, 2007). Bu doğrultuda, anket metodu ve içeriğini oluşturan açık uçlu sorularla; örneklemin problemlerini derinlemesine incelemek, problemlerine yönelik öykülerini tüm detaylarıyla öğrenmek ve mülakat metodu ile elde edilen verileri pekiştirmek amaçlanmıştır. Ayrıca, yarı yapılandırılmış mülakat metodu kullanılarak çalışmanın örneklemini oluşturan bireylerin görüşleri alınmıştır. Artikülasyon problemleri süreci ve sonrasında duygusal, davranışsal, akademik ve sosyal yaşantılarını betimlemeleri istenmiştir. Bu süreçlerde, mülakatların orijinalliğinin ve gidişatının bozulmaması için mülakatlar video kaydına alınmıştır. Bununla birlikte, elde edilen verilerin gerçeği yansıtması ve geçerli olması amacıyla tüm katılımcılarla samimi ve güvenilir mülakat ortamlarının oluşturulmasına özen gösterilmiştir.

BULGULAR

Artikülasyon problemleri sürecinde S1 ve S2 ile yürütülen anket ve mülakat çalışmaları incelenmiştir. Kodlamalar yapılmış, çıkarımlar oluşturulmuş ve elde edilen veriler çeşitli temalar altında sunulmuştur.

Artikülasyon Probleminin Türü

S1 ve S2'nin problemlerini tanımlamalarına yönelik ifadeleri incelenmiştir. Problemlerinin tanılanması, değerlendirilmesi ve iyileştirilmesine yönelik uygun uzman desteğinin alınmadığını ortaya koyan veriler, geleneksel çözümlere ve hatta yanlış değerlendirmelere işaret etmektedir. S1, söyleyemediği sesleri "c/ç/s/ş/j/z" olarak sıralarken probleminin tanılanması sürecini "*İlk olarak ilkokuldayken belirgin bir şekilde sesleri söyleyemediğimi fark ettim. Doktora gittim ama sorunun burnumdaki etten kaynaklandığını ve 18 yaşına kadar bu etin alınamayacağı söylendi. Lise 1' e kadar bekledim. 18 yaşına geldiğimde asıl sorunun burnum değil, yanlış alışkanlık olduğunu öğrendim. Dilimi yanlış kullanıyordum. Dil ve diş harflerini çıkaramıyordum. Bunu nasıl gidereceğim hakkında bir fikrim yoktu.*" sözleriyle anlatmıştır. S2 ise, "r" sesini söylemediğini ifade etmiş ve bu problemini "*İlkokuldan beri bu probleme sahibim. Bu sesi düzgün çıkarabilmek için bireysel olarak çalıştım. Arkadaşlarım bu konuda bana yardımcı olmaya çalıştılar ancak olmadı.*" şeklinde tanımlamıştır.

Sosyal Yaşantı

S1 ve S2 bu problemlerinin iletişim olanaklarını ve dolayısıyla sosyal yaşantılarını kısıtladığını ifade etmişlerdir. S1, "*İlk kez diyalog kurduğum insanlar söylediklerimi anlamıyordu. İfade etmek istediklerimi ifade edememem sosyal hayatımda beni her zaman geri planda bıraktı.*" derken S2, bu problemin sosyalleşmesi üzerinde olumsuz etkiye sahip olduğunu "*Sınıf arkadaşlarım dışındaki kişilerle pek konuşmam. İnsanlar normal karşılasa bile farklı hissediyorsun kendini. Toplumdan çekilmiş hissediyorsun. Sınıfta tahtaya kalktığım andan itibaren üstümden soğuk terler akıyor. Konuya çok hakim olmama ve çok iyi sunum hazırlama rağmen 'Bir an önce bitse ve otursam.', 'İnsanların bu durumu anlamalarını biraz daha geciktirmem benim faydama olur.' diye düşünüyorum. En yakın arkadaşımla baş başa konuşurken bile seçtiğim kelimelere dikkat ediyorum. "* sözleriyle anlatmıştır.

Duygusal Yaşantı

S1 ve S2 problemlerinden duygusal anlamda etkilenmişlerdir. S1, bu probleminin gittikçe içine kapanmasına neden olduğunu ve neticede bir psikoloğa gitmeye karar verdiğini ifade etmiştir. Durumunu, "*Psikolog, bu durumla barışık olmam ve bunu kabullenmem gerektiğini söyledi. Ne kadar barışık olsam da olmuyordu. İlk girdiğim ortamda yine çekingendim, yine konuşmuyordum. İnsanların problemim hakkında soru sormasından çekiniyordum. Bu olay hayatımda birçok şeyden geri kalmama neden oldu. Bu o kadar kötü bir duygu ki.*" şeklinde anlatmıştır. S2 ise "*İnsanlarla konuşurken benimle dalga geçerler, toplum içinde küçük düşerim diye düşünüyorum. Toplum içinde hatta aile ortamında bile çok fazla konuşmamaya dikkat ediyorum. İnsanlar bana gülmesin, canımı sıkmasınlar diye.*" ifadeleriyle durumunu ortaya koymaya çalışmıştır.

Akademik Yaşantı

Artikülasyon problemleri yaşadıkları süreçte eğitim yaşantılarına devam etmekte olan S1 ve S2 bu durumun olumsuz etkileri üzerinde durmuşlardır. S1, "*İfade etmek istediklerimi ifade edememem*

derlerimde geri planda kalmama neden oldu. Hocalar soru sormadıkça cevap vermiyorum. Sorunun cevabını bildiğim halde bu sorunum yanıt veremememe neden oluyor. Dolayısıyla derse aktif katılımımı azaltıyor. Sahne sanatlarına ilgi duyduğum halde geri kalmama neden oldu." ifadelerine yer vermiştir. İnsanın tüm başarılarında en önemli etkenin konuşma yeteneği olduğunu ifade eden S2, bu durumunun akademik yaşantısını nasıl etkilediğini "*Askeri okula başvurmuştum. Mülakat sırasında bir metin okutuyorlardı ve problemimi fark ettiler. 'Sen kalabalık bir grubun karşısında konuşma yapamazsın. Normal konuşmayla senin konuşman arasındaki farkı insanlar anlar. Bu nedenle seni kabul edemeyiz.' dediler. O hayatımın en kötü günüydü.*" örneğiyle anlatmıştır. Bununla birlikte okul ortamında yaşadığı sıkıntılardan bahsetmiştir. S2, "*Derste bir soru sorulduğunda cevabını bilsem bile eğer cevabın içinde 'r' sesini içeren bir kelime varsa söz almaktan vazgeçiyorum.*" demiştir.

Artikülasyon problemlerinin iyileştirilmesi/düzeltilmesi sürecinden yaklaşık 105 hafta sonra S1 ve S2 ile mülakat çalışmaları yapılmıştır. Yapılan mülakatlar incelenmiş ve S1 ve S2'nin artikülasyon problemleri süreci ve sonrasındaki sosyal, duygusal, akademik yaşantıları kıyaslanmıştır.

Artikülasyon Problemlerine Bakış Açıları

S1 ve S2 artikülasyon problemlerinin tamamen üstesinden geldiklerine inanmaktadırlar. S1, Karal (2009) ile yürüttükleri çalışma sürecini ve probleminin üstesinden nasıl geldiğini şöyle anlatmaktadır: "*Benim için önemli olan dilimi nasıl kullanacağımdı. Bu noktada bilgisayar destekli materyal bana çok yardımcı oldu. Oradaki iki boyutlu şekle bakarak dilimi nereye vuracağımı, ağız şeklimi ve sesimi nasıl çıkaracağımı anladım. Harfleri düzgün bir şekilde söyledikçe mutlu oluyordum ve bu durum gözle görünür bir şekilde fark edilmeye başlandı. Bu çalışma için hayatımın dönüm noktasıdır diyebilirim.*" S1 ile benzer şekilde S2'de probleminin üstesinden geldiğine inandığını ifade etmiş ve süreci "*Araştırmalar yapmıştım ve bu problemin düzeltilemeyeceği şeklinde yorumlar çoğunluktaydı. Bilgisayar destekli materyalle çalışmaya başladıktan sonra başaracağımı anladım ve bütün hayatımın değişeceğini düşündüm. Çok fazla mutlu oldum ve aşırı bir heyecan oldu bende*." şeklinde anlatmıştır.

Sosyal Yaşantıda Değişim

S1, iletişim probleminin ortadan kalkmasının onu çok mutlu ettiğini ifade etmiş ve "*İlk kez diyalog kurduğum kişilerin beni anlaması, söylediklerimi tekrar ettirmemesi beni sevindiriyor. Tabiî ki bu duyguyu tarif etmem mümkün değil.*" sözlerine yer vermiştir. S2 ise "*İnsanlara daha çok zaman ayırıyorum artık ve muhabbetim daha iyi oluyor. Herkesle istediğim gibi rahat konuşabiliyorum. Arkadaş edinme isteğim arttı.*" diyerek soysal ortamlarda yaşadığı yeni durumları açıklamıştır.

Duygusal Yaşantıda Değişim

S1, "*Sanki konuşmayı yeni öğrenmiş gibiyim. Neler kaçırdığımı fark ettim. Daha önce çalışmada yer alsaydım eminim şu anda çok farklı olabilirdim. Çünkü nelerden vazgeçtiğimi bir ben bilirim.*" diyerek duygularını dile getirirken S2, "*Birisiyle konuşurken çekinmiyorum artık. İnsanlar benimle alay edemeyecekler. Özgüvenim arttı. Kendime güvenim var ve diğer insanlar gibi olmaya başladım. Şimdi artık rahatım.*" sözlerine yer vermiştir.

Akademik Yaşantıda Değişim

S1 artikülasyon problemlerinin düzeltilmesine yönelik yürütülen çalışmalardan kısa bir süre sonra okulunu bitirmiş, işe başvurmuş ve kabul edilmiştir. S1 durumu şöyle anlatmaktadır: "*Şu an sözlü iletişime çok önem veren bir sektörde çalışıyorum ve çok mutluyum. Bu problemimden kurtulmuş olmasaydım daha sakin ya da çok fazla iletişim gerektirmeyen bir işte çalışıyor olacaktım.*" S2, artikülasyon problemlerinin düzeltilmesine yönelik yürütülen çalışmalardan 1 yıl sonra okulunu bitirmiş ve işe başlamıştır. S2, yeni ortamındaki durumunu eski durumuyla kıyaslayarak şöyle anlatmaktadır: "*Bir gemide işe başladım. Herkesle iletişim içerisindeyim. Eskiden olsa sadece tanışıp bırakırdım. Artık işimle ilgili her şeyin peşini kovalayabiliyorum. Eskiden olsa olmuyorsa olmuyor derdim. Sorumluluk alıyorum, insanlara sorumluluklarını/görevlerini tek tek anlatıyorum. Eskiden konuşmanın olduğu her yerden kendimi çekiyordum ve soğuk hissediyordum. Konuşmanın içine girmek istemiyordum. Bu çalışmayı keşke yıllar önce yapabilseydik.*"

SONUÇLAR

Artikülasyon problemlerinin sosyal, duygusal, eğitimsel, mesleki yaşam gibi birçok farklı alanda olumsuz etkileri gözlenmektedir. Bu çalışmada artikülasyon problemlerinin üstesinden gelmiş iki kişinin problem süreci ve sonrası bu boyutlardan incelenmiştir. Artikülasyon problemlerinin iletişimi sekteye uğratması

bu probleme sahip bireylerde konuşma kaygısı, çekingenlik, içine kapanma, özgüven eksikliği, sosyal ortamlardan kaçınma gibi psikolojik ve duygusal sorunların ortaya çıkmasına neden olmaktadır. Bununla birlikte kendini istediği gibi ifade/temsil edemeyen bireylerin eğitim ortamlarında hak ettikleri başarıyı elde edemeyecekleri açıktır. Bu çalışmada incelenen iki kişinin yaşadıkları deneyimlerin geneli yansıtmadığı göz önünde bulundurulmakla birlikte toplumumuzda böyle eksiklikleri olan bireylerin yeterince tanınmadığı/kabul edilmediği de yürütülen mülakatlar sonucu elde edilen bulgular arasındadır. Bu doğrultuda, artikülasyon problemlerine ve diğer dil ve konuşma problemlerine sahip bireylerin toplumumuzda kabul edilmesi/anlayış gösterilmesi doğrultusunda işe dönük çalışmaların yapılması önem taşımaktadır. Ayrıca, artikülasyon problemleri ve benzer dil ve konuşma problemlerinin tanı ve tedavisinde rutin olarak izlenmesi gereken yolun veya başvurulacak kurum, kuruluş ya da merkezin problemlere sahip bireyler tarafından bilinmediği tespit edilmiştir. Bu durum, alanla ilgili otoritelerin acil olarak dikkatine sunulmalıdır. Sonuç olarak, çalışmada sunulan artikülasyon problemlerine sahip bireyler için terapi/tedavi ve bilgilendirme faaliyetlerinin sağlanması durumunda yaşanan sosyal, duygusal, akademik sorunların kalıcı izli olmadığı tespit edilmiştir.

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ASSESSMENT IN EARLY CHILDHOOD EDUCATION: CURRICULUM MODELS AND TURKISH CURRICULUM

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ABSTRACT

Assessment is an important part of early childhood education system. Changes in theoretical issues, increasing emphasis on interventions in early childhood and growing influences of parental concerns foster early childhood educators to use more trendy assessment techniques in early years (Gredler, 2000). In the current paper, assessment strategies of four early childhood education models including High Scope, Montessori, Waldorf and Project approach are reviewed. In addition to this review, Turkish Ministry of Education Curriculum (TMEC) is also examined in order to determine similarities and differences among these different curricula. The review of the different curriculum models revealed that apart from High Scope curriculum model, the other three curriculum models and TMEC do not have specific guidelines to assess development of young children.

INTRODUCTION

A dictionary meaning of assessment is taking stock of a situation. The stocks of growth and development in the systems of education should be taken or assessment should be done to learn whether the purpose of schooling is reached or not. In early childhood years, since development is so rapid, it is very difficult to assess development of young children (Gober, 2002) therefore assessment in early childhood education is different from the concepts of education in older ages. Difficulty of assessing this rapid development does not mean not assessing development of young children. Even in what form it is, more information is considered to be better information and it is important to gain information related to children's different developmental areas (Strand, Cerna & Skucy, 2007).

According to Wortham, (2007) due to its importance, assessment in early childhood education should have some principles. First of all, assessment should use many sources of information and learning measures. Furthermore, it should improve learning of the child and/or it should be beneficial to the child. The third issue mentioned is about its fairness. All the techniques used should be fair for all children. The last issue mentioned on the principles of assessment is that it should involve both the child and his/her family.

Today, assessment is the crucial part of early childhood education system because the changes in theoretical issues, the increasing emphasis on interventions in early childhood, increased focus on assessments on determination of at risk children, growing influence of parental concerns and legal decisions foster educationalists to focus on more trendy assessment techniques in early childhood years (Downs & Strand, 2006; Gredler, 2000). There are various methods to use to accomplish this goal. Assessment methods can be used in formal and informal ways (Wortham, 2008). Both formal or informal, measurement and evaluation of young children require criteria since using only one method may sometimes not draw accurate picture of the child. It is also difficult for teachers to decide on the behaviors, skills or activities to assess in forms of either observation or documentation or other methods of assessment (Gober, 2002).

In early childhood years the most common used assessment ways are norm referenced standardized performance tests and teacher ratings. Standardized tests mostly measure child's differences on tasks which are considered as representing important theoretical construct (Bagnato, 2005 as cited in Downs & Strand, 2006). Standardized tests are generally conducted two or three times in a year, with limited capacity to provide continuous information supply. Another assessment technique is called as authentic assessment. In this method an individual's growth and development is evaluated by using real life events (Taylor & Nolen, 2008). Some examples of authentic (informal) assessment techniques are; observation, teacher designed measures, checklists, rating scales, rubrics, performance and portfolio

assessments, interviews, directed assignments, portfolios, narrative reports and technology based assessments (Wortham, 2008).

Regardless of the type of method used, its results can be used in variety of ways while planning for instruction, reporting progress or evaluating instructional program (Wortham, 2008). To exemplify, a form of authentic assessment technique used in fields of early childhood special education and psychology is curriculum-based assessment (CBA). CBA is assessing mastery of specific skills leading a desired outcome. This approach does not directly rely on teacher ratings. It relies on repeated direct performance assessments of skills of young children. CBA provides educators with continuous formative assessment of child's mastery of skills which help them to develop important outcomes (Downs & Strand, 2006).

Assessment is to be considered as a process and each child should be followed in this process, not in a form of product. In Turkey, assessment is done in a structured way, in predetermined times to learn about the development of an individual. However, it is important to know the process of that development and use constructivist assessment techniques (Kan, 2007). A number of studies are conducted in Turkey related to assessment and evaluation techniques used by teachers. The results revealed that the teachers face with problems in implementing new assessment and evaluation techniques in their classrooms (Gelbal & Kelecioglu, 2007). These problems might emerge due to teachers' lack of knowledge about implementation of these new constructivist assessment techniques. As a result of their lack of knowledge they mostly prefer to use the most familiar assessment technique for them as exams or face to face interviews. For instance, in the study conducted with elementary school students, researchers investigated assessment strategies used by primary school teachers (Gelbal & Kelecioglu, 2007). Teachers stated that they mostly prefer to use traditional assessment techniques while assessing their students' progress. The least likely used method is students' self evaluation. However, as stated above, in constructivist education teachers can use various assessment and evaluation techniques (Gelbal & Kelecioglu, 2007). In line with the findings of the previous study, according to the study conducted by Karakus & Kösa (2009) teachers find constructivist assessment tools time consuming and leading to extra effort. However, the findings of the study showed that although the teachers face with problems in using new assessment strategies, they also believe that these new techniques are helpful for them to learn about characteristics of children and the program used in their schools (Karakuş & Kösa, 2009).

The major purpose of this review is to gain detailed information about the assessment strategies used by different curriculum models and early childhood curriculum program used in Turkey. Under this goal, a brief information about four widely known early childhood education curriculum models including High Scope, Montessori, Waldorf and Project approach and their assessment strategies is provided .Then information about their current early childhood education curriculum assessment strategies are presented along with information related to Turkish Ministry of Education Curriculum (TMEC).

CURRICULUM MODELS AND ASSESSMENT

High Scope Curriculum Model & Assessment

The beginning of High Scope model goes back till 1960's to Ypsilanti, Michigan, USA. The model is a mixture of traditional teacher experience and Jean Piaget's constructivist theory of child development (Wortham, 2006). The curriculum aims to help children gain knowledge and skills in the areas of literacy, initiative and social relations, movement, music and classification. The model has a major goal of helping an individual to be able to think independently and be a good problem solver. In the model, a child is seen as an active learner and also assessment, adult child interaction, daily routines and learning experiences are the crucial parts of the curriculum (Peyton, 2005).

After implementing the curriculum model many years, the High Scope research foundation created an assessment model of High Scope curriculum. The assessment tool is called as High Scope Child Observation Record (COR). COR aims to help teachers and administrators to do their best in their program to support each child's developmental needs. The model has got three assessment tools. The first two of them, infant Toddler Child Observation Record and Preschool Child Observation Record are developed for infants and toddlers; whereas Early Literacy Skills Assessment (ELSA) is developed for measuring literacy skills of children who enroll in preschool program (Highscope, 2009).

Montessori Curriculum Model and Assessment

Montessori curriculum model, emerged in the early 20th century, divides education into three main parts: motor, sensory, and language or intellectual education. The classroom is a prepared environment with materials that are carefully sequenced and structured. Materials are introduced by teacher and also children can select materials freely during their independent work projects. One of the major principles of the curriculum model aims to promote self discipline in children. Montessori education's another key aspect is its use of hands. Throughout the day children use their hands and this supports their sensory development (Blount, 2007; Wortham, 2006).

In Montessori schools assessments is done through teacher observations, anecdotal records, and parent-teacher conference forms. Roemer (as cited in Dunn, 2000) found out that besides those methods, 90% of Montessori schools of her sample used some form of standardized tests. Additionally, some are using state assessment tests. In the Montessori ECE settings, anecdotal records, informal conferences with students, observation of students, one-to-one interviews with students, checklists of lessons, demonstration of skill mastery and standardized achievement tests are used to assess each child's development areas independently (Dunn, 2000).

Waldorf Curriculum Model & Assessment

The first Waldorf schools were founded in Stuttgart, Germany, in 1919 (Ashley, 2008). The major goal of Waldorf schools was to help young children to adjust to both physical and spiritual facts of their existence and use them in the best way. In Waldorf curriculum, a teacher is seen as a gardener of the child's soul and cultivator of environment (Ogletree, 1996).

According to Rudolf Steiner, who is the founder of Waldorf education, human being is composed of threefold being which are spirit, soul and body. The capacities of these three mechanisms are unfold in early childhood, middle childhood and adulthood. In the early childhood years, which are considered as from birth to age of seven, the educational focus of Waldorf model is on play, bodily intelligence and oral language (Schimitt-Stegmann, 1997). In his process imitation is the crucial aspect of life which will help to identify the self with the environment by the help of active will. Therefore, environment of child should provide opportunity to imitate in a meaningful way. In Waldorf curriculum, standardized tests that are used to assess children's educational progress are problematic because they generally present an incomplete picture of student's abilities. On the other hand, children's products or three dimensional paradigms help adults to recognize emotional, physical, cognitive development of young children. Because of this reason Waldorf teachers assess the development of young children in many ways to understand their balanced whole development. Consequently, portfolio method (teachers observe, describe and characterize a child's school performance) is found to be more appropriate for Waldorf curriculum's assessment (Petrash, 2002).

Project Approach & Assessment

Project approach was the central of progressive education in 1960s and 1980s. In today's early childhood education system, it is used by many schools as a way of curriculum. Projects are defined as in depth investigation of a topic which is undertaken with a small group of children or as a whole class. The main focus of the project works is finding answers for the questions which are proposed by teacher, children or both the teacher and the children (Helm & Katz, 2001).

In the project approach, the topic, the learning process and the results are parts of a whole and indispensable. Moreover, children focus on many skills of themselves in forms of selecting a topic, investigating questions, characterizing findings and contributing to others (Schuler, 2000). Because of this reason active learning of a child should be fostered through helping them use their own questions and directions used as steps for learning. In order to be able to understand the functions of the objects, an individual should have hands on experiences with various objects (Feng, 1989).

Assessment in project approach is done through informal assessment techniques. In detail, individual portfolios and observations are done by the teachers through use of developmental checklists and anecdotal notes. Children's self reflections based on understandings of their own and narratives of learning experiences of whole class, individual or small groups are the major forms of assessment used in project approach classes (Helm & Katz, 2001).

Assessment in Turkish Ministry of Education's Early Childhood Education Curriculum

Assessment in the system of Turkish Ministry of Education Curriculum (TMEC) is considered in three basic headings, assessment of the child, assessment of the program and self assessment of the teacher.

According to teacher handbook of TMEC in an early childhood setting, a child is to be known by a teacher very well. For this reason, the teacher is to know the developmental characteristics of each child in reference to concrete tools. Teachers can use observational forms, anecdotal records, developmental checklists, standardized tests, portfolios and developmental reports. In the booklet of TMEC, example of each tool is provided for the teachers.

In the TMEC, assessment of a program is done through analyzing the objectives and goals of activities done in the classroom. Teachers are advised to plan the objectives and goals of their activities by considering each child's reflections to activity. Moreover, teachers can also asses yearly or monthly program by using their own reflective viewpoint. Additionally, teachers are advised to assess their own effectiveness by considering both child's and program evaluation results in the TMEC. Indeed, by analyzing development of their students and the effectiveness of their program, teachers assess their own progress in an informal way.

CONCLUSION

Assessment might give dangerous results under two mismatch conditions (Taylor & Nolen, 2008). The first one occurs when there is a mismatch between a school and the world beyond the school. The second one emerges when there is a mismatch between assessment tools and instruction. The curriculum models in early childhood education consider education from different perspectives. Since the models reflect different viewpoints towards education, they might have different assessment strategies. Because of this reason, mismatches between the world beyond the school, assessment tools and instruction can be seen often.

In the current paper, mainly four models which are High Scope, Montessori, Waldorf and Project approach are analyzed in relation to their cores and assessment strategies used. Except from High Scope curriculum model, the other three curriculum models do not have a standardized system of assessing the development of young children, curriculum or teacher. Indeed, the assessment system of the High Scope curriculum seems informal but it has a standard, some of which are open ended rubrics to be completed at all High Scope schools.

Apart from the curriculum models analyzed, the TMEC is also analyzed in terms of assessment strategies used. The TMEC teacher handbook provides some information for teachers for the assessment of young children by providing examples of them. However, it does not have a detailed rubric or guideline for teachers to use while assessing young children's development, the curriculum and their own teaching skills. Yet, studies conducted with teachers in Turkey related to assessment issues indicate that teachers still need well structured assessment and evaluation guidelines for them. Especially in recent years, educational system in Turkey has changed. A new model of education, which can be placed under the heading of "constructivist education", is still not able to meet all the requirements of constructivist education in terms of assessment.

Assessment is to be considered as a process and in relation to this development of a child at any age should be considered in a process, not in a form of product. The studies conducted in Turkey on this issue indicate that assessment is done in a structured way, in predetermined times to learn about the development of an individual. However, it is important to know the process of that development and use appropriate constructivist assessment techniques (Gelbal & Kelecioglu, 2007; Karakuş & Kösa, 2009; Kan, 2007; Öncü, 2009; Ünver, 2007).

In order to keep balance between the goals of education and ways of assessment that can be used throughout the process, teachers are to know assessment and evaluation techniques in accordance with the curriculum models they are implementing. At this point it is important to consider their viewpoints, needs, and deficiencies related to assessment and evaluation methods they use (Karakuş & Kösa, 2009). Also, it is important to reconsider the issue that through traditional methods it is difficult to assess development of each child in the classroom environments where constructivist education techniques are implemented. Teachers should use different assessment and evaluation techniques. To reach this goal, it is important to provide some in-service training sessions or some other types of professional development activities for teachers to help them to be able to use different assessment and evaluation techniques in their classrooms effectively (Gelbal & Kelecioglu, 2007).

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INTE 2010

BİLGİ TOPLUMUNDA ÖĞRETMEN ADAYLARININ MEDYAYI TAKİP ETME DÜZEYLERİ

MEDIA LITERACY LEVELS OF THE CANDIDATE TEACHERS IN INFORMATION SOCIETY

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ÖZET

Bu çalışmada, öğretmen adaylarının medyayı takip etme düzeylerinin belirlenmesi amaçlanmıştır. Ayrıca cinsiyet ve bölüm değişkenlerinin etkilerinin belirlenmesi araştırmanın alt problemlerini oluşturmaktadır. Gündemi takip etme, düzenli olarak gazete ,kitap ve dergi okuma, düzenli olarak takip ettikleri haber programı, televizyon dizisi,spor programı,magazin ve show programları değişkenlerinin medya okuryazarlık düzeyine etkisi araştırılmıştır..Araştırma grubu 2009-2010 eğitim-öğretim döneminde Bahar yarı yılında Sakarya Üniversitesi Eğitim Fakültesinde 4.sınıfta öğrenim görmekte olan Fen ve Teknoloji öğretmenliği 25 ,Sınıf öğretmenliği 75 ,Türkçe öğretmenliği 32 ,psikolojik danışma ve rehberlik öğretmenliği 69,sosyal bilgiler öğretmenliği 29,okulöncesi öğretmenliği 54,zihin engelliler öğretmenliği 54,İlköğretim matematik öğretmenliği 14 öğretmen adayı olmak üzere ,toplam 418 kişiden oluşmaktadır.Araştırmada araştırmacılar tarafından geliştirilen "Türkiye ve dünya gündemine ilişkin öğretmen adaylarının bilgi düzeylerini belirleme " anketi uygulanmıştır.
Anahtar kelimeler: Eğitim,Medya Okuryazarlığı,Teknoloji

ABSTRACT
The aim of this study is to monitor levels of media according to various variables which are gender and department. Universe of the study is undergraduate students attending Sakarya University in total 22, 000. The sample of study is composed of 529 students out of 22,000. In order to determine the sample in case of knowing the number of participants in the universe is used as method of determining the sample. The number of the participants from each department is determined by the method of ratio sampling. Data were collected by a questionnaire which was developed by researchers and finalized according to expert views.
Keywords: Education,Media literacy,Technology

GİRİŞ

"Yazılı, sesli ya da görsel tüm kitle iletişim araçları" (Koçak ve Alkan 1999: 923), "İletişim ortamı, iletişim araçları, kitle iletişim araçlarının tümü" ve "yığınlarla iletişimi sağlayan radyo, televizyon, gazete ve dergiler gibi basın yayın organlarının tümünü kapsayan ortak ad, kitle iletişim araçları" (Püsküllüoğlu 1995: 1085) biçiminde tanımlanan medya kavramı, insan yaşantısının güncel kesitlerinden ve meşguliyetlerinden biri olarak oldukça dikkat çekmektedir. 20. yüzyılda başlayan ve hâlen devam etmekte olan bilim ve teknolojideki hızlı gelişme, her alanda olduğu gibi iletişim alanında da etkili olmuş ve bilim adamlarının geçtiğimiz yüzyılı "enformasyon çağı" olarak tanımlamalarına yol açmıştır. Kitle iletişim araçlarının gelişimine paralel olarak iletişim kanallarının çeşitliliğinin artması, bir yandan içerik doldurma sorununu beraberinde getirirken, diğer taraftan bu "bilgi" ve "enformasyon" bolluğunda "doğru bilgi"ye nasıl ulaşılabileceğine ilişkin sorunsalı da ortaya çıkarmıştır. (MEB,2007) Medya okuryazarlığının son otuz yılda özellikle Batılı ülkelerde yaygın bir ilgi görmekle birlikte Türkiye'deki gelişmeler 2004 yılından sonra başlamıştır. Radyo ve Televizyon Üst Kurulu medya okuryazarlığı konusuna ilk kez 20–21 Şubat 2003 tarihlerinde düzenlenen İletişim Şurasında dile getirerek ve konuya

Şuranın sonuç bildirgesinde yer vererek, Türkiye'de konuya yönelik ilk kurumsal vurgulamayı yapmıştır.(RTÜK, 2006).

Çeşitli bağlamlarda ve çeşitli biçimlerdeki medya iletilerine erişebilme ,bu iletileri doğru algılayabilecek donanıma sahip olma ve en sonunda bizzat iletiler üretebilme yeteneğini içeren medya okuryazarlığı,kitlelere kontrol gücü veren ,gercek dünya ve medya tarafından yaratılan dünyanın arasındaki sınırın fark edilmesini sağlayan bir kavramdır.Medya okuryazarlığının demokratik toplumlardaki önemli bir işlevi de katılımın sağlanması ,sosyal adaletin ve eleştirel vatandaş olmanın gereklerinden birini oluşturmaktır.Medya okuryazarlığı sosyal ve bilinçli vatandaş olmanın gereği kapsamında; TV ekranın ya da diğer yazılı veya yazılı olmayan kitle iletisim araçlarının bireye sunduğu her bir karenin, her bir haberin ya da yorumun, kisi tarafından algılanması, sonrasında bu bilginin doğruluğuna ilişkin eleştiriye tabi tutulması ve bu surecin ardından eğer yanlış ise, söz konusu bilginin kabul edilmemesidir. (Türkoğlu ve Şimşek'in kitabında; İnceoğlu;2007,23).

ARAŞTIRMANIN AMACI

Bu çalışmanın amacı öğretmen adaylarının Türkiye ve dünya gündemine ilişkin medya okuryazarlık düzeylerini ortaya koymaktır. Gündemi takip etme, düzenli olarak gazete ,kitap ve dergi okuma, düzenli olarak takip ettikleri haber programı, televizyon dizisi,spor programı,magazin ve show programları değişkenlerinin medya okuryazarlık düzeyine etkisi açıklanmaya çalışılacaktır.

YÖNTEM

Araştırma yöntemi olarak Betimsel araştırma yöntemlerinden ilişkisel tarama kullanılmıştır. Araştırma grubu 2009-2010 eğitim-öğretim döneminde Araştırma grubu 2009-2010 eğitim-öğretim döneminde Bahar yarı yılında Sakarya Üniversitesi Eğitim Fakültesinde 4.sınıfta öğrenim görmekte olan Fen ve Teknoloji öğretmenliği 25 ,Sınıf öğretmenliği 75 ,Türkçe öğretmenliği 32 ,psikolojik danışma ve rehberlik öğretmenliği 69,sosyal bilgiler öğretmenliği 29,okulöncesi öğretmenliği 54,zihin engelliler öğretmenliği 54,İlköğretim matematik öğretmenliği 14 öğretmen adayı olmak üzere ,toplam 418 kişiden oluşmaktadır.Araştırmada araştırmacılar tarafından geliştirilen "Türkiye ve dünya gündemine ilişkin öğretmen adaylarının bilgi düzeylerini belirleme " anketi uygulanmıştır

BULGULAR VE YORUMLAR

Tablo 1 Örnekleme İlişkin Bulgular

Cinsiyet	N %	FBÖ	SNÖ	TRÖ	PDR	İME	SBÖ	OÖÖ	ZEÖ	TOPLAM
Kadın	N	14	42	15	36	10	14	58	42	231
	%	56,0	56,0	46,9	52,2	71,4	48,3	96,7	77,8	64,5
Erkek	N	11	33	17	33	4	15	2	12	127
	%	44,0	44,0	53,1	47,8	28,6	51,7	3,3	22,2	35,5
Toplam	N	25	75	32	69	14	29	60	54	358
	%	7,0	20,9	8,9	19,3	3,9	8,1	16,8	15,1	100,0

Tablo 1 göre, 25 FBÖ, 75 SNÖ, 32 TRÖ, 69 PDR, 14İME, 29 SBÖ, 60 OÖÖ ve 54 ZEÖ'den olmak üzere toplam 418 katılımcı araştırmanın örneklemini oluşturmuştur.

Tablo 2 Cinsiyet değişkenine göre Günlük Haberleri (Gündemi) Düzenli Takip Etmeye İlişkin Kay-Kare (X^2) Sonuçları

Cinsiyet	N %	Günlük Haberleri Takip Etme Evet	Hayır	Toplam
Kadın	N	117	114	231
	%	50,6	49,4	100,0
Erkek	N	97	30	127
	%	76,4	23,6	100,0
Toplam	N	214	144	358
	%	59,8	40,2	100,0

X^2=22,56, sd=1, P<0,05

Tablo 2'e göre, kadın öğrencilerin %50,6'sı erkek öğrencilerin %76,4'ü günlük haberleri düzenli olarak takip ettikleri; kadın öğrencilerin %49,4'ü, erkek öğrencilerin %23,6'sı günlük haberleri düzenli olarak takip etmedikleri yönünde görüş bildirmişlerdir. Kadın ve erkek öğrencilerin günlük haberleri düzenli olarak takip etmelerine ilişkin görüşleri arasında fark olup olmadığını belirlemek için yapılan Kay-Kare analizi sonucunda farkın [$X^2_{(2)}$=22,56, p<0,05] erkek öğrencilerden kaynaklandığı bulunmuştur. Erkek öğrencilerin, günlük haberleri düzenli olarak takip etmeleri kadın öğrencilere göre daha fazla olarak değerlendirmektedirler.

Tablo 3 Bölüm Değişkenine Göre Günlük Haberleri (Gündemi) Düzenli Takip Etmeye İlişkin Kay-Kare (X^2) Sonuçları

Günlük Haber Takip Etme		BÖLÜM FBÖ	SNÖ	TRÖ	PDR	İME	SBÖ	OÖÖ	ZEÖ	TOPLAM
EVET	N	15	41	24	36	8	19	34	37	214
	%	60,0	54,7	75,0	52,2	57,1	65,5	56,7	68,5	59,8
HAYIR	N	10	34	8	33	6	10	26	17	144
	%	40,0	45,3	25,0	47,8	42,9	34,5	43,3	31,5	40,2
Toplam	N	25	75	32	69	14	29	60	54	358
	%	7,0	20,9	8,9	19,3	3,9	8,1	16,8	15,1	100,0

X^2=7,95 , sd=7 , P>0,05

Tablo 3'e göre, FBÖ öğrencilerinin %60'ı, SNÖ öğrencilerinin %54,7'si, TRÖ öğrencilerinin %75,0'ı, PDR öğrencilerinin %52,2'si, İME öğrencilerinin %57,1'i, SBÖ öğrencilerinin %65,5'i, OÖÖ öğrencilerinin % 56,7'si ve ZEÖ öğrencilerinin %68,5'i Günlük haberleri düzenli olarak takip ettikleri yönünde görüş bildirmişlerdir. Eğitim Fakültesi öğrencilerinin Günlük haberleri düzenli takip etme yeterliklerine ilişkin görüşleri arasında fark olup olmadığını belirlemek için yapılan Kay-Kare analizi sonucunda farkın [$X^2_{(2)}$=7,95, p>0,05]olmadığı görülmüştür.

Tablo 4 Cinsiyete Göre Gündemi nereden takip ettiklerine İlişkin Kay-Kare (X^2) Sonuçları

Cinsiyet	N %	Günlük Haberleri takip yeri gazete	televizyon	internet
Kadın	N	69	66	96
	%	29,9	28,6	41,6
Erkek	N	44	36	47
	%	34,6	28,3	37,0
Toplam	N	113	102	143
	%	31,6	28,5	39,9

X^2= 1,01, sd=2, P>0,05

Tablo 4'e göre, kadın öğrencilerin %29,9'u erkek öğrencilerin %34,6'sı günlük haberleri gazeteden takip ettikleri; kadın öğrencilerin %28,6'sı, erkek öğrencilerin %28,3'ü günlük haberleri televizyondan takip ettikleri; kadın öğrencilerin %41,6'sı erkek öğrencilerin %37,0'ı günlük haberleri internetten takip ettikleri yönünde görüş bildirmişlerdir. Kadın ve erkek öğrencilerin günlük haberleri nereden takip ettiklerine ilişkin görüşleri arasında fark olup olmadığını belirlemek için yapılan Kay-Kare analizi sonucunda farkın [$X^2_{(2)}$=1,01, p>0,05] olmadığı görülmüştür.

Tablo 5 Bölüm Değişkenine Göre Gündemi nereden takip ettiklerine İlişkin Kay-Kare (X^2) Sonuçları

Günlük Haber Takip Etme		BÖLÜM								
		FBÖ	SNÖ	TRÖ	PDR	İME	SBÖ	OÖÖ	ZEÖ	TOPLAM
Gazete	N	10	20	13	30	7	11	14	8	113
	%	40,0	26,7	40,6	43,5	50,0	37,9	23,3	14,8	31,6
Televizyon	N	7	25	10	15	1	12	13	19	102
	%	28,0	33,3	31,2	21,7	7,1	41,4	21,7	35,2	28,5
İnternet	N	8	30	9	24	6	6	33	27	143
	%	32,0	40,0	28,1	34,8	42,9	20,7	55,0	50,0	39,9

X^2= 30,07, sd=14, P<0,05

Tablo 5'e göre, FBÖ öğrencilerinin %40,0'ı, SNÖ öğrencilerinin %26,7'si, TRÖ öğrencilerinin %40,6'sı, PDR öğrencilerinin %43,5'i, İME öğrencilerinin %50,0'si, SBÖ öğrencilerinin %37,9'u, OÖÖ öğrencilerinin % 23,3'ü ve ZEÖ öğrencilerinin %14,8''i Günlük haberleri gazeteden takip ettikleri; FBÖ öğrencilerinin %28,0'i, SNÖ öğrencilerinin %33,3'ü, TRÖ öğrencilerinin %31,2'si, PDR öğrencilerinin %21,7'si, İME öğrencilerinin %7,1'i, SBÖ öğrencilerinin %41,4'ü, OÖÖ öğrencilerinin % 21,7'si ve ZEÖ öğrencilerinin %35,2'si Günlük haberleri televizyondan takip ettikleri; FBÖ öğrencilerinin %32,0'si, SNÖ öğrencilerinin %40,0'ı, TRÖ öğrencilerinin %28,1'i, PDR öğrencilerinin %34,8'i, İME öğrencilerinin %42,9'u, SBÖ öğrencilerinin %20,7'si, OÖÖ öğrencilerinin % 55,0'i ve ZEÖ öğrencilerinin %50,0'si Günlük haberleri internetten takip ettikler yönünde görüş bildirmişlerdir. Eğitim Fakültesi öğrencilerinin Günlük haberleri nereden takip ettiklerine ilişkin görüşleri arasında fark olup olmadığını belirlemek için yapılan Kay-Kare analizi sonucunda farkın [$X^2_{(2)}$=30,07, p<0,05] internetten haberleri takip etme yönünde olduğu görülmüştür.

Tablo 6 Cinsiyete Göre Düzenli Olarak Gazete Okuyup – Okumadıklarına İlişkin Kay-Kare (X^2) Sonuçları

Cinsiyet	N %	Düzenli Olarak Gazete Okurmusunuz		
		Evet	Hayır	Toplam
Kadın	N	61	170	231
	%	26,4	73,6	100
Erkek	N	46	81	127
	%	36,2	63,8	100
Toplam	N	107	251	358
	%	29,9	70,1	100

X^2=3,76 , sd=1 , P>0,05

Tablo 6'a göre, kadın öğrencilerin %26,4'sı erkek öğrencilerin %36, Düzenli Olarak Gazete Okuduklarını; kadın öğrencilerin %73,6'sı, erkek öğrencilerin %63,8'sı Düzenli Olarak Gazete Okumadıkları yönünde görüş bildirmişlerdir. Kadın ve erkek öğrencilerin Düzenli Olarak Gazete Okuyup okumadıklarına ilişkin görüşleri arasında fark olup olmadığını belirlemek için yapılan Kay-Kare analizi sonucunda farkın [X^2=3,76 , sd=1 , P>0,05] olmadığı görülmüştür.

Tablo 7 Bölüm Değişkenine Göre Düzenli Olarak Gazete Okuyup – Okumadıklarına İlişkin Kay-Kare (X^2) Sonuçları

Düzenli Gazete Okuma		BÖLÜM								
		FBÖ	SNÖ	TRÖ	PDR	İME	SBÖ	OÖÖ	ZEÖ	TOPLAM
Evet	N	7	25	11	22	3	8	16	15	107
	%	28,0	33,3	34,4	31,9	21,4	27,6	26,7	27,8	29,9
Hayır	N	18	50	21	47	11	21	44	39	251
	%	72,0	66,7	65,6	68,1	78,6	72,4	73,3	72,2	70,1
Toplam	N	25	75	32	69	14	29	60	54	358
	%	7,0	20,9	8,9	19,3	3,9	8,1	16,8	15,1	100,0

X^2=1,86 , sd=7 , P>0,05

Tablo 7'e göre, FBÖ öğrencilerinin %28'ı, SNÖ öğrencilerinin %33,3'ü, TRÖ öğrencilerinin %34,4'ü, PDR öğrencilerinin %31,9'si, İME öğrencilerinin %21,4'i, SBÖ öğrencilerinin %27,6'i, OÖÖ öğrencilerinin % 26,7'si ve ZEÖ öğrencilerinin %27,8'i düzenli olarak gazete okuyup takip ettikleri yönünde görüş bildirmişlerdir. Eğitim Fakültesi öğrencilerini gazete düzenli gazete takip etme yeterliklerine ilişkin görüşleri arasında fark olup olmadığını belirlemek için yapılan Kay-Kare analizi sonucunda farkın [$X^2_{(2)}$=1,86, p>0,05] olmadığı görülmüştür.

SONUÇ VE ÖNERİLER

Bu çalışmada, öğretmen adaylarının medyayı takip etme düzeylerinin belirlenmesi amaçlanmıştır. Gündemi takip etme, düzenli olarak gazete ,kitap ve dergi okuma, düzenli olarak takip ettikleri haber programı, televizyon dizisi,spor programı,magazin ve show programları değişkenlerinin medya okuryazarlık düzeyine etkisi araştırılmıştır.

Cinsiyet değişkenine göre Günlük Haberleri (Gündemi) Düzenli Takip Etme, Gündemi nereden takip ettiklerine, Gazete Okuyup – Okumadıklarına ilişkin veriler incelendiğinde ,yalnızca Günlük Haberleri (Gündemi) Düzenli Takip Etme açısından erkekler yönünde anlamlı bir fark bulunmuştur. Günlük Haberleri (Gündemi) Düzenli Takip Etme oranı % 59,8 oranında ortaya çıkmıştır.

Bölüm Değişkenine göre Günlük Haberleri (Gündemi) Düzenli Takip Etme, Gazete Okuyup – Okumadıklarına ilişkin veriler incelendiğinde cinsiyet ve bölüm değişkenleri açısından incelendiğinde farkın anlamlı olmadığı ortaya çıkmıştır. Bölüm Değişkenine Göre Gündemi nereden takip ettiklerine İlişkin bulgularda ise, internetten takip etme yönünde olduğu görülmüştür.

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BİLGİSAYAR KULLANIM AMAÇLARIYLA ELEŞTİREL DÜŞÜNME BECERİLERİ ARASINDAKİ İLİŞKİ

RELATIONSHIP BETWEEN CRITICAL THINKING SKILLS AND COMPUTER USING AIMS

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Özet

21.yy neredeyse tüm bilim çevresi tarafında bilgi çağı olarak adlandırılmakta ve insanların ulaşması gereken bilgi miktarı gün geçtikçe artmaktadır. Bu nedenle bilgi çağının gereklerinden birisi, bu hızlı gelişimle mücadele edebilecek nitelikli insan yetiştirmektir. İnsanların internet, bilgisayar gibi farklı kaynaklardan bilgi akışına maruz kalmaları, bilgi teknolojilerini doğru kullanmayı ve doğru tepkiler vermeyi gerektirmektedir.
Eleştirel düşünme becerisi kimileri tarafından iyi bir muhakeme yeteneği, kimileri tarafından da problem çözme yeteneği olarak tanımlanmaktadır. Bilgisayar kullanımı, olumsuz etkileri giderildiğinde bireylerin öğrenmeleri için fırsatlar yaratmaktadır.
Bu araştırmanın amacı eleştirel düşünme becerisinin, bilgisayarı kullanma amaçlarına göre farklılaşıp farklılaşmadığını belirlemektir. Bilgisayar oyunları oynamak, internete girmek, eğlenmek, zaman geçirmek, sohbet etmek, e-posta göndermek ve ödev yapmak amacıyla bilgisayarı kullanma ile eleştirel düşünme becerileri arasında fark araştırılmaya çalışılmıştır. Araştırmada ilişkisel tarama modeli kullaanılmıştır. İstanbul Üniversitesi Eğitim Fakültesinde okuyan 287 öğrenci araştırma örneklemini oluşturmaktadır. Araştırmada Öğrenci Bilgi Formu ve Eleştirel Düşünme Becerileri Ölçeği kullanılmıştır
Bilgisayarı ödev yapma amacıyla kullanma ile eleştirel düşünme becerisi arasında anlamlı bir ilişki çıkmıştır. Bazı Ana Bilim Dalları ile toplam eleştirel düşünme puanları arasında anlamlı düzeyde farklılıklar gözlemlenmiştir.
Anahtar Sözcükler: Eleştirel düşünme becerisi, Bilgisayar kullanımı

Abstract

21st century is called information age by almost the entire science world and the amount of information that people needs to reach is increasing day by day. Therefore, one of the requirements of information age is to grow qualified people who can struggle with this rapid development. People's exposure to the information flow from different sources such as internet, computer requires to use information technology and give the correct response.
Some people define critical thinking as reasoning skills and others define it as problem solving skills. Computer usage creates learning opportunities for individuals when negative effects are eliminated.
The purpose of this study is to identify the critical thinking skill if it varies according to computer using. The difference between critical thinking and computer using for playing computer games, using internet, having fun, spending time to chat, sending e-mail, doing homework; has been tried to investigate. Research is relational scan model. Research sample consist of 287 Istanbul University education faculty students. Student Information Form and Critical Thinking Skills Scale were used in the study.
There is a significant relationship between critical thinking with using computers for doing homework. Total critical thinking scores shows significantly difference between departments.

Key Words: Critical Thinking Skills, Computer Using

1.GİRİŞ

Eleştirel düşünme becerileri eğitim-öğretim açısından son derece üzerinde durulması gereken becerilerden birisidir. Günümüz eğitim anlayışları öğrencilere sadece bilgi aktarıp, verilen bilgileri hatırlamalarını değil; öğrencilerin bilgiye kendilerinin ulaşabilmesini, araştırma yapabilmelerini, elde ettikleri bilgileri kullanabilmelerini hedeflemektedir. Yani sorgulayan, merak eden, eleştiren, farklı açılardan bakabilen bireyler yetiştirmek önem kazanmıştır.

Bilgi teknolojilerinin çok hızlı gelişimi ile birlikte bilgiye ulaşmada bilgisayarın etkili kullanımı önem kazanmaya başlamıştır. Bilgisayarın farklı amaçlarla kullanıldığı bazen bireylerde psiko-sosyal gelişimini engellemesi, öğretimsel niteliğinin zayıf olması, eğitim programını desteklememesi gibi olumsuz sonuçlara neden olurken, doğru kullanıldığında öğrenme motivasyonunu güçlendirdiği, yeni bilgilere en hızlı şekilde ulaşabilmeyi ve tekrar yapmayı sağladığı, öğrenmeyi bireyselleştirdiği bununla birlikte bazı bilişsel yeteneklerin gelişmesine yardımcı olduğu görülmektedir.

Düşünme genel olarak sonradan kazanılan bilişsel bir süreç ve zihinsel bir aktivitedir. Algı, mantıklı düşünme ve sezgi gibi bilginin birçok yönünü kapsamaktadır (Presseisen,2001). Eleştirel düşünme, bireyin ne yapacağına ve neye inanacağıyla ilgili karar verirken, akla uygun ve derinlemesine düşünme olarak tanımlanmaktadır (Ennis,1989). Eleştirel düşünme üst düzeyde bilişsel becerileri gerektiren, karmaşık ve kapsamlı bir süreçtir (Güven ve Kürüm,2004).

2004 yılında, Harvard Üniversitesinin rektörü eğitimcilerin %90'ından daha fazlasının eleştirel düşünmeyi eğitimin en önemli parçası olarak gördüğünü ifade etmiştir (Bushey, 2007). Bu açıdan baktığımızda eleştirel düşünmenin önemi bir kez daha ortaya çıkmaktadır. Çünkü demokratik toplumlardaki birçok çalışma alanında karar verebilme, başarılı olma, etkili katılım sağlama gibi becerilerde eleştirel düşünme hayati değere sahiptir (Yang ve Chou, 2008). Jenkins 1998'de yaptığı çalışmasında eleştirel düşünme becerisi ile akademik performans arasında pozitif bir ilişki olduğunu saptamıştır. Hem eğitim hayatı, hem de iş hayatında bireye lazım olabilecek olan eleştirel düşünme becerilerinin kazanılması ve kullanılması önemlidir.

Eleştirel düşünceye sahip bireyler genellikle meraklı, doğru bilgilere sahip olan, güvenilir bir düşünme yeteneğine sahip olan, konular hakkında şeffaf ve açık fikirli kişiler olarak tanınırlar. Aynı zamanda azimli, çalışkan, esnek, adil ve kendi önyargılarının farkındadırlar. Onların düşünme süreçleri genellikle tamamen mantıksal ve odaklanmış biçimde çalışır (Redding, 2001). Akademik açıdan bakıldığı zaman gerekli olan birçok özellik onlarda mevcuttur.

Eleştirel düşünme üzerinde çalışmalar yapmış olan pek çok bilim adamının (Boostrum, 1994; Brookfield, 1987; Facione, 1990; McPeck, 1990) dediği gibi; eleştirel düşünme öğretilebilir ve öğrenilebilir bir beceridir. Eleştirel düşünme becerilerinin öğretilebilir olması bize onu en etkili olarak öğretebileceğimiz öğretim materyalleri gerektirmektedir. Bu konuda eğitim ortamlarının artık değişmez bir parçası olan bilgisayarlar en büyük yardımcımız olabilir.

Swain, Greer and Van Hover (2001) okul ortamında bilgisayarların öğretim ortamının esnek olmasını sağlayan en önemli eğitim araçlarından olduğu söylemektedirler. Bu esneklik ve teknoloji temelli öğretim ortamı sayesinde öğrenciler eleştirel düşünme becerilerini başka bir öğrenme ortamına aktarabilmektedirler.

McMahon'a (2009) göre teknolojik yönden zengin ortamda eğitim fırsatı sunulan öğrencilerin eleştirel düşünme ile ilgili çalışmalarda daha yüksek puanlar aldıkları belirtilmiştir. Bu veriden hareket ederek bilgisayarlar öğrencilerin yüksek düşünme becerilerini geliştirmelerini sağlamaktadır diyebiliriz.

Yapılan bir araştırma sonucuna göre aynı toplum ve kültürden gelen ve beş yıldan daha az teknolojik yönden zengin öğrenme ortamı fırsatı bulan öğrencilerle, beş ve ya daha fazla yıldır bu imkânı alan öğrencilerin eleştirel düşünme becerisi puanları arasında anlamlı düzeyde farklılık bulunmaktadır. Daha uzun süredir bu ortamdan faydalanan öğrencilerin puanları daha yüksek çıkmıştır. Yine aynı çalışmanın sonuçlarına göre bilgisayar kullanma beceri yüksek olan öğrenciler eleştirel düşünme puanları da yüksek olduğu görülmektedir (McMahon, 2009).

Hitchcock'ın 2004 yılında "Eleştirel Düşünmede Bilgisayar Destekli Öğretim" üzerine yaptığı çalışmanın sonuçları göstermiştir ki; eleştirel düşünme becerileri üzerine lisans programlarında verilecek olan bir dönemlik bir ders; sadece geleneksel yöntemler kullanılırsa etkili olabilir, bilgisayar destekli öğretim yöntemi ve çoktan seçmeli sınavlar kullanılırsa daha etkili olur, hem bilgisayar destekli öğretim hem de yazılı sınavlar kullanılırsa ise en etkili yöntem olacaktır.

Donohue ve arkadaşları (2002) tarafından bilgisayar yardımı ile geliştirilen Resenoble (Donohue, van Gelder, Cumming & Bissett, 1999) adlı tartışma haritası programı aracılığıyla, programı kullanan öğrencilerin bir dönem sonunda eleştirel düşünme beceri puanlarında önemli artışlar olduğu tespit edilmiştir (Donohue et al, 2002). Bilgisayar destekli tartışma haritası öğrencilerin eleştirel düşünme

becerileri geliştirmesinde çok önemli bir araçtır. The Rationale (Donohue, van Gelder, Dimming, & Bissett, 2006) programı da öğrencilerin eleştirel düşünme becerilerini öğretmede çok etkili bir program ihtiyacından geliştirilmiştir. Literatürde bilgisayar destekli tartışma haritası programlarına baktığımızda, bu programı kullanan öğrencilerin eleştirel düşünmeleri ile kullanma özellikleri arasında pozitif bir korelâsyona rastlanmıştır (Donohue et al., 2002). Eleştirel düşünme gelişimi aktif öğrenme stratejileri ile sıkı bağlantıları vardır. Akıl haritaları ve tartışmalar kullanıldığında eleştirel düşünmenin gelişimi ile her zaman pozitif bir korelasyon vardır (van Gelder et al. 2004; Ellerman et al., 2006; Jonassen & Ionas, 2008; Meuller et al., 2002). Günümüzde de bilgisayarla aracılığı ile geliştirilen çeşitli programlarda eleştirel düşünmenin gelişimine pozitif etki etmektedirler. Eleştirel düşünme becerilerinin öğrenilebilir olması ve bu konuda bilgisayarların yardımcı olabilmesi, diğer pek çok amaçla kullandığımız bilgisayarın dolaylı olarak eleştirel düşünme becerilerini geliştirmede katkısının olup olmadığı sorusunu akıllara getirmektedir.

2. AMAÇ VE YÖNTEM

2.1.Araştırmanın Amacı

Bu çalışmanın amacı İstanbul Üniversitesinde öğretim gören öğretmen adaylarının bilgisayar kullanım amaçlarıyla eleştirel düşünme becerileri arasındaki ilişkiyi incelemektir. Bu amaçla eleştirel düşünme becerilerinin; cinsiyete, okudukları Ana Bilim dalları ve bilgisayar kullanım amaçlarına göre farklılaşıp farklılaşmadığı araştırılmıştır.
Bu araştırmayla elde edilen verilerin, öğretmen adaylarının daha etkin olarak bilgisayar kullanmasının sağlayacağı, eleştirel düşünme becerilerinin geliştirilmesinde bilgisayar kullanım amaçlarının etkinliğinin ortaya konulacağı, bu konuda yapılacak araştırmalara katkı sağlanacağı umulmaktadır.

2.2. Araştırma Modeli

Araştırma ilişkisel tarama modelindedir. Araştırmada öğrencilerin bilgisayarı kullanma amaçlarıyla eleştirel düşünme becerileri arasındaki ilişki incelenmiştir.
2009- 2010 öğretim yılında, İstanbul Üniversitesinde Eğitim Fakültesinde öğrenim gören, öğrenciler araştırma evrenini oluşturmuştur. Araştırma evreninden küme örnekleme yöntemi ile seçilen 188 kız ve 99 erkek olmak üzere toplam 287 öğrenci örneklemi oluşturmuştur.

2.3. Verilerin Toplanması

Araştırmada, araştırmacı tarafından geliştirilen Kişisel Bilgi Formu ve Derelioğlu (2004) tarafından geliştirilmiş olan "Eleştirel Düşünme Becerileri Ölçeği" kullanılmıştır. Araştırmanın bağımsız değişkenleri hakkında veri toplamak amacıyla hazırlanan kişisel bilgi formu; öğrencinin cinsiyeti, okudukları Anabilim Dalları, bilgisayarı kullanma amaçları ve bilgisayardan yararlanma ile ilgili bilgiler edinmeye yöneliktir.

2.4. Verilerin Çözümü Ve Yorumlanması

Araştırmada kullanılan kişisel bilgi formu ve Eleştirel Düşünme Becerileri Ölçeğinden elde edilen veriler bilgisayara girilmiş, SSPS 13.00 (Sosyal Bilimler için İstatistik Paket programı,13.00) kullanılarak istatistik işlemler yapılmıştır. Öğrencilerin cinsiyeti, okudukları Anabilim Dalları ve bilgisayar kullanım amaçlarına ilişkin veriler frekans ve yüzdelik tabloları şeklinde sunulmuştur. Eleştirel düşünme becerilerindeki boyutların cinsiyet, bilgisayar kullanım amaçlarına göre farklılaşıp farklılaşmadığını belirlemek için t testi, okuduğu Anabilim Dallarına göre farklılaşıp farklılaşmadığını belirlemek için ise ANOVA istatistik analiz tekniği kullanılmıştır. Bu işlemlerde en az .05 düzeyinde anlamlılık aranmıştır.

3.BULGULAR VE YORUM

İstanbul Üniversitesinde yükseköğretim görmekte olan öğretmen adaylarının eleştirel düşünme becerileri puanlarının cinsiyete, bilgisayar kullanım amaçlarına, okuduğu Anabilim Dallarına göre farklılaşıp farklılaşmadığı araştırmak amacıyla yapılmış olan bu araştırma sonucunda; 287 öğrenciden elde edilen veriler değerlendirilerek aşağıdaki sonuçlara ulaşılmıştır.

Örneklemi oluşturan öğrencilerin 188'i kız, 99'u erkek öğrenciden oluşmaktadır. Araştırmanın örneklem grubunu oluşturan öğrencilerin bilgisayar kullanımlarına ilişkin uygulanan ankete verdikleri yanıtların yüzdelik dağılımları aşağıdaki gibidir.

Tablo 1 . Bilgisayar Kullanımına İlişkin Yüzdelik Değerleri

Anket maddeleri	**Evet**	**Hayır**
Fakültedeki bilgisayar sayısını yeterli buluyor musunuz?	%16	%84
Fakültedeki bilgisayarlardan yararlanabiliyor musunuz?	%13	%87
İnternet ve Bilgisayar kullanımına ilişkin yeterli bilginiz var mı?	%96	%4

Araştırmaya katılan öğrencilerin %84'ü fakültedeki bilgisayar sayısını yeterli bulmazken, %16'sı yeterli bulmaktadır. Öğrencilerin %13'ü fakültedeki bilgisayarlardan yararlanabildiklerini ifade ederken, %87'si yararlanamadıklarını belirtmişlerdir. İnternet ve bilgisayar kullanımına ilişkin %96'sının yeterli bilgisi varken, %4'ü yeterli düzeyde bilgiye sahip değildir. Bu bulgulardan hareket ederek öğrencilerin büyük çoğunluğunun internet ve bilgisayar kullanımına ilişkin yeterli düzeyde bilgi sahibi oldukları halde, fakültedeki bilgisayar sayısını yeterli bulmamaları ve bilgisayarlardan yararlanamamalarının nedeni olarak fakültedeki boş zamanlarının çok olmayışı, olan boş zamanlarını da farklı etkinliklerle değerlendirmeleri ve fakültedeki bilgisayar laboratuarında genellikle bilgisayar derslerinin yürütülüyor olması düşünülebilir.

Araştırmaya katılan öğretmen adaylarının Eleştirel Düşünme Becerileri Ölçeği'nden elde edilen toplam puanları, bilgisayar kullanımına ilişkin çeşitli değişkenlere göre incelenmiştir. Elde edilen bulgular aşağıdaki gibidir.

Tablo 2. Eleştirel Düşünme Becerileri Ölçeği Toplam Puanının Öğrencilerin Cinsiyet Değişkenine Göre Farklılaşıp Farklılaşmadığını Belirlemek Üzere Yapılan Bağımsız Grup t Testi Sonuçları

Puan	**Gruplar**	N	$\bar{x}$	ss	$Sh_{\bar{x}}$	t **Testi**		
						t	Sd	p
Cinsiyet	Kız	99	205,95	21,160	2,127	-1,450	285	,148
	Erkek	188	209,55	19,330	1,410			

Öğrencilerin eleştirel düşünme becerileri toplam puanının, cinsiyet değişkenine göre farklılaşıp farklılaşmadığını belirlemek üzere yapılan bağımsız grup t-testi sonuçlarına göre istatistiksel olarak anlamlı bir farka rastlanmamıştır(Tablo 2). Öğretmen adaylarının aldıkları formasyon dersleri kapsamında daha esnek düşünme, bilgileri sorgulama, problem çözme gibi eleştirel düşünme becerileri toplam puanını etkileyen becerilerinin geliştirmiş olmaları nedeniyle kız ve erkek öğrenciler açısından anlamlı farka rastlanamadığı söylenebilir. Kaya da (1997), üniversite öğrencilerinde eleştirel akıl yürütme gücünü ele aldığı araştırmasında, eleştirel düşünme puanlarının cinsiyete göre farklılık göstermediğini saptamıştır.

Tablo 3. Eleştirel Düşünme Becerileri Ölçeği Toplam Puanının Öğrencilerin Bilgisayarı Etkin Kullanmaları Değişkenine Göre Farklılaşıp Farklılaşmadığını Belirlemek Üzere Yapılan Bağımsız Grup t Testi Sonuçları

Puan	**Gruplar**	N	$\bar{x}$	ss	$Sh_{\bar{x}}$	t **Testi**		
						t	Sd	p
Bilgisayarı etkin olarak kullanabildiğinizi düşünüyor musunuz?	Evet	217	210,67	19,320	1,312	3,592	285	**,000**
	Hayır	70	200,99	20,502	2,450			

Öğrencilerin eleştirel düşünme becerileri toplam puanının, bilgisayarı etkin kullanabilme değişkenine göre farklılaşıp farklılaşmadığını belirlemek üzere yapılan bağımsız grup t-testi sonuçlarına göre; bilgisayarı etkin olarak kullanabildiğini düşünenlerin eleştirel düşünme becerileri toplam puanı, bilgisayarı etkin olarak kullanabildiğini düşünmeyenlere göre istatistiksel olarak anlamlı derecede yüksektir (Tablo 3). Eleştirel düşünme becerileri gelişmiş olan öğretmen adaylarının düşünceleri düzene koyma, bilgileri sorgulama, kendini geliştirme akılcı düşünme gibi becerileri gelişmiş olduğu için bilgisayarı daha etkin kullanabildiği söylenebilir.

Tablo 4. Eleştirel Düşünme Becerileri Ölçeği Toplam Puanının Öğrencilerin Bilgisayarda En Çok Ne Yaptıkları Değişkenine Göre Farklılaşıp Farklılaşmadığını Belirlemek Üzere Yapılan Bağımsız Grup t Testi Sonuçları

Puan	Gruplar	N	$\bar{x}$	ss	$Sh_{\bar{x}}$	t Testi t	Sd	p
Bilgisayarda en çok ne yaparsınız? **Ödev yaparım.**	Evet	220	210,18	19,566	1,319	2,913	285	**,004**
	Hayır	67	202,15	20,389	2,491			

Öğrencilerin eleştirel düşünme becerileri toplam puanının, bilgisayarda en çok ne yaptıkları değişkenine göre farklılaşıp farklılaşmadığını belirlemek üzere yapılan bağımsız grup t-testi sonuçlarına göre; bilgisayarda en çok ödev yaptığını belirten öğrencilerin eleştirel düşünme becerileri puanı, ödev yapmayan öğrencilere göre istatistiksel olarak anlamlı derecede yüksektir. Bu sonucun bilgisayarı etkin kullanmayla doğrudan ilişkili olduğu ve amacına uygun kullanıldığında eleştirel düşünme becerilerini etkileyen akılcı düşünme, bilgileri sorgulama, kendini geliştirme, düşünceleri düzene koyma, metotlu çalışma gibi becerilerin gelişmesine katkı sağladığı söylenebilir.

Tablo 5. Eleştirel Düşünme Becerileri Ölçeği Toplam Puanının Öğrencilerin Bilgisayarda Harcadıkları Zamanı Kayıp Zaman Olarak Görme Değişkenine Göre Farklılaşıp Farklılaşmadığını Belirlemek Üzere Yapılan Bağımsız Grup t Testi Sonuçları

Puan	Gruplar	N	$\bar{x}$	ss	$Sh_{\bar{x}}$	t Testi t	Sd	p
Bilgisayarda geçirdiğiniz zamanların büyük bölümü sizce kayıp zaman mıdır?	Evet	101	205,29	20,719	2,062	-1,909	284	**,049**
	Hayır	185	210,00	19,524	1,435			

Öğrencilerin eleştirel düşünme becerileri toplam puanının, bilgisayarda harcadıkları zamanı kayıp zaman görme değişkenine göre farklılaşıp farklılaşmadığını belirlemek üzere yapılan bağımsız grup t-testi sonuçlarına göre; bilgisayarda geçirdikleri zamanı kayıp zaman olarak görmeyen öğrencilerin eleştirel düşünme becerileri puanı, kayıp zaman olarak görenlere göre istatistiksel olarak anlamlı derecede yüksektir(Tablo 5). Öğretmen adaylarının bilgisayarda etkin zaman geçirmesinden ve eleştirel düşünme toplam puanını etkileyen bilgileri sorgulama, açık fikirlilik ve hoşgörü, kendini geliştirme alt boyutlarında gelişim sağlamasından dolayı bilgisayarda geçirilen zamanı boş zaman olarak değerlendirmedikleri düşünülebilir.

Öğrencilerin eleştirel düşünme becerileri puanı bilgisayarda bir günde ortalama geçirdikleri ortalama süreye göre ve bilgisayarı/interneti bir parçaları olarak görme değişkenlerine göre anlamlı derecede bir farklılık göstermemektedir.

Tablo 6. Anabilim Dallarına Göre Eleştirel Düşünme (Toplam) Puanları için Yapılan Tek Yönlü Varyans Analizi (ANOVA) Sonuçları

	f, $\bar{x}$ ve SS Değerleri				ANOVA Sonuçları					
Puan	**Grup**	N	$\bar{x}$	SS	**Var. K.**	KT	Sd	KO	F	p
Toplam	Din Kültürü	26	212,03	15,06	**G.Arası**	13206,76	8	1650,845	5,191	**,001**
	İlk. Mat.	35	213,20	20,011	**G. İçi**	101382,3	278	364,6844		
	Almanca	34	203,92	20,470	**Toplam**	114589	286			
	Fen Bilgisi	46	203,47	18,828						
	PDR	32	224,21	17,746						
	Sınıf Öğrt.	46	203,19	20,058						
	BÖTE	24	207,12	19,819						
	Sosyal Bilg.	4	215,50	31,890						
	İngilizce	40	204,00	17,802						

Araştırmaya katılan öğretmen adaylarının Eleştirel Düşünme Becerileri Ölçeği toplam puanının Anabilim Dalı değişkenine göre farklılaşıp farklılaşmadığını belirlemek üzere yapılan tek yönlü varyans analizi (ANOVA) sonuçları açısından bölümler arasında istatistiksel olarak anlamlı derecede fark çıkmıştır. ANOVA sonrası anlamlı farklılığın hangi anabilim dalları arasında olduğunu belirlemek üzere tamamlayıcı post-hoc analiz teknikleri uygulanmıştır.

Bu sonuçlara göre:

Rehberlik ve Psikolojik Danışmanlık bölümünde okuyan öğrencilerin eleştirel düşünme becerileri toplam puanı, diğer bütün Anabilim Dallarında okuyan öğrencilerden istatistiksel olarak anlamlı derecede yüksek bulunmuştur (Tablo 6). Bu Anabilim Dalında okutulan derslerin içeriklerinin; öğrencilerde bilgileri sorgulama, problem çözme, akılcı düşünme, düşünmede esneklik, fikirlerde ayrıntıya dikkat, eleştiriye açıklık gibi eleştirel düşünme becerilerini geliştirdiği ayrıca katıldıkları etkinlikler ve uygulamalar açısından kendilerini daha çok geliştirme fırsatı buldukları söylenebilir.

Ayrıca İlköğretim Matematik Öğretmenliği'nde okuyan öğrencilerin eleştirel düşünme becerileri toplam puanları, İngiliz Dili Eğitimi Öğretmenliği, Alman Dili Eğitimi Öğretmenliği, Fen Bilgisi Eğitimi Öğretmenliği ve Sınıf Öğretmenliği bölümünde okuyan öğrencilerden istatistiksel olarak anlamlı derecede yüksek bulunmuştur (Tablo 6). Matematik Öğretmenliği Ana Bilim Dalındaki eğitim ve öğretimin problem çözmeye daha çok fırsat yaratması, soyut düşünme, karar verme, soru sorma, akılcı düşünme becerilerinin gelişmesini sağlaması açısından öğrencilerin toplam eleştirel düşünme puanlarının yüksek çıkmasına neden olduğu söylenebilir.

Literatürde üniversite öğrencilerinin eleştirel düşünme puanlarının okumakta oldukları fakülte veya bölümlere göre ele alan az sayıda araştırmaya rastlanmaktadır. Simon ve Ward (1974:Akt: Çıkrıkçı,1992) okudukları bölümlere göre farklılığa rastlamazken, Kaya (1997) Mühendislik ve Tıp öğrencilerinde daha yüksek puana ulaşmıştır.

Derelioğlu (2004)üniversite öğrencilerinin toplam eleştiri puanları açısından farka rastlamazken, bilgileri sorgulama, kendini geliştirme alt boyutlarında İlahiyat fakültesi öğrencilerinin; problem çözme boyutunda Fen ve Tıp fakültesi öğrencilerinin; düşüncede esneklik puanında Eğitim fakültesi öğrencilerinin ve akılcı düşünme ve bilgileri sorgulamada Hukuk fakültesi öğrencilerinin anlamlı düzeyde farklılaştığı görülmüştür (Derelioğlu,2004).

4.SONUÇ

Araştırmadan elde edilen bulgulara göre öğrencilerin büyük çoğunluğunun bilgisayar konusunda yeterli düzeyde bilgiye sahip olduklarını, fakültedeki bilgisayar sayısını yeterli bulmadıklarını, fakültedeki bilgisayarlardan yararlanamadıklarını söyleyebiliriz. Buna ek olarak bilgisayarı etkin olarak kullandığını düşünen, bilgisayarda en çok ödev yaparak zaman geçiren ve bilgisayar başında geçen zamanını kayıp zaman olarak görmeyen öğrencilerin eleştirel düşünme becerileri yüksek bulunmuştur. Ayrıca Rehberlik ve Psikolojik Danışmanlık ve İlköğretim Matematik Öğretmenliği bölümlerinde okuyan öğrencilerin eleştirel düşünme becerileri diğer bölüm öğrencilerinden yüksek bulunmuştur.

Öğrencilerin bilgisayar kullanımında etkin olmaları, doğru ve yerinde kullanımı konusunda ortaöğretim hatta ilköğretime dayanan eğitimleri, ileriki yıllarda başta eleştirel düşünme becerisi olmak üzere birçok beceri ve yeteneğin gelişimine katkı sağlayacağından eğitimcilere ve ailelere farkındalık kazandırılmaya çalışılmalıdır.

Öğretmen adaylarında eleştirel düşünme becerilerini geliştirmek için ders içeriklerinin dışında bir takım etkinlikler ve aktiviteler düzenlenebilir.

Verilen araştırma çalışmaları ve yaptırılan alanda uygulamalarla hem bilgisayarı etkin kullanma alışkanlığı sağlanabilir hem de akılcı düşünme, düşünmede esneklik, problem çözme, bilgileri sorgulama gibi becerilerin gelişmesine katkıda bulunulabilir.

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BİLİŞİM TEKNOLOJİLERİ ÖĞRETMENLERİNİN ÖĞRETİM SÜRECİNDE YAŞADIKLARI SORUNLARIN BELİRLENMESİ

DETERMINING THE PROBLEMS OF THE TURKISH COMPUTER TEACHERS IN TEACHING PROCESSES

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Bu çalışma Öznur KUVAN'ın Sakarya Üniversitesi Sosyal Bilimler Enstitüsü'nde ikinci yazarın yönetiminde tamamladığı "Bilişim Teknolojileri Öğretmenlerinin Karşılaştıkları Sorunlar ve Tükenmişlik Düzeyleri" adlı yüksek lisans tezinin bir kısmının özetidir.

ÖZET

Bilim ve teknolojinin hızla ilerlediği günümüzde toplumu oluşturan bireylerin bilişim teknolojilerini etkin bir biçimde kullanmaları zorunlu bir hale gelmiştir. Bilişim teknolojileri eğitiminin verilmesinde önemli bir etmen bilişim teknolojileri öğretmenleridir. Alanyazındaki araştırmalar bu öğretmenlerin görevlerini yerine getirmede bir çok sorunla karşı karşıya olduklarını göstermektedir. Bu sorunlarla ilgili birçok araştırma bulunmakla birlikte doğrudan öğretim sürecine odaklanan nitelikli araştırmalara gereksinim duyulmaktadır. Bu araştırmanın amacı bilişim teknolojileri öğretmenlerinin sorunlarını belirlemek üzere bir ölçek geliştirmek, bu ölçeğin psikometrik özelliklerini ve sorunlarla ilgili elde ulaşılan bulguları incelemektir. Araştırma evrenini 2008-2009 öğretim yılı güz döneminde İstanbul İli/Avrupa yakasındaki resmi ve özel ilköğretim okullarında görev yapmakta olan 639 bilişim teknolojileri öğretmeni oluşturmaktadır. Ancak analizler geri dönen ve düzgün bir biçimde yanıtlanan 259 anket üzerinden yapılmıştır. Analiz sonuçları Bilişim Teknolojileri Öğretmenlerinin Sorunlarını Belirleme Ölçeği'nin geçerli ve güvenilir bir veri toplama aracı olduğunu göstermektedir. Ölçeğin son formu 7 faktörde toplanan 43 maddeden oluşmaktadır. Bu yapı toplam varyansın .59'unu açıklamaktadır. Yapıdaki faktörler bilişim teknolojileri öğretmenlerinin öğretim sürecinde karşılaştıkları sorunların ana boyutlarını tanımlamaktadır. Açımlayıcı/keşfedici yaklaşımla ulaşılan bu faktörler uzman görüşü alınarak: Bilişim Teknolojileri Sınıfı (BTS)/Bilgisayar Laboratuvarı (BL)'nin Yazılım ve Donanımıyla ilgili sorunlar, BTS/BL'nin Fiziki Ortam Açısından Yetersizliğiyle İlgili Sorunlar, BT Öğretmenlerinin Görev Tanımlarının Yanlış Algılanmasından Kaynaklanan Sorunlar, Öğrencilerden Kaynaklanan Sorunlar, BT Ders Kaynakları Ve Materyallerden Kaynaklanan Sorunlar, Velilerden Kaynaklanan Sorunlar, BTS/BL' nin Ağ Sisteminden Kaynaklanan Sorunlar şeklinde adlandırılmıştır. Bu faktörlerin güvenirlikleri için hesaplanan iç-tutarlık katsayıları .76 ile .88 arasında değişmektedir. Ölçeğin bilişim teknolojileri öğretmenleri ve bu dersle ilgili araştırmalarda kullanılması beklenmektedir. Araştırmada elde edilen sonuçlara göre bilişim teknolojileri öğretmenlerinin karşılaştıkları sorunlar önem sırasına göre azalan sırayla BTS/BL'nin Fiziki ortam açısından yetersizliğiyle ilgili sorunlar, Öğrencilerden kaynaklanan sorunlar, BT öğretmenlerinin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar, BT ders kaynakları ve materyallerden kaynaklanan sorunlar, BTS/BL' nin ağ sisteminden kaynaklanan sorunlar, BTS/BL'nin Yazılım ve Donanımıyla ilgili sorunlar ve Velilerden kaynaklanan sorunlardır. Ayrıca sorunların madde bazında karşılaştırılmasına ilişkin analiz sonuçları sayfa sınırlaması nedeniyle bu metinde verilemediği için konferansta sunularak tartışılacaktır.

ABSTRACT

People who constitute society, have to use informatics technology in an active way in these days which science and technology have improved rapidly. Informatics technology teachers have an important part in giving informatics technology education. Studies are in the literature show us that teachers have lots of problems while they are working. There is need to datum tool in order to put forth these problems for consideration in a clear way and determine reasons according to level and teachers' features. Aim of this study is that improve a scale to designate problems of informatics technology teachers and investigate psycho-metric feature of this scale. Investigation universe is formed by 639 informatics technology teachers who work in public and private primary school (511 of teachers work in public and 128 of teachers work in private school) in Europe side of Istanbul in 2008-2009 education term. On the other hand, analyses were done about 259 public surveys which were answered correctly and sent back. Analysis's results show us that problem designate scale of informatics technology teachers is reliable and valid datum tool. Last form of scale consists of 43 substances which were added in 7 factors. These factors explain 59% of total variance. Factors are named by asking experts' opinion that; problems are relevant to software-hardware of informatics technology class and computer laboratories, inadequate of physical surroundings of ITC and CL, teachers' misunderstanding of their duty, problems which come from students, problems which cause of IT lessons' written sources and materials, problems which come from parents, problems which cause of network of informatics technology class and computer laboratories'. Inner-consistency coefficients of these factors change between .76 and .88. It is expected that this scale is going to be used for examining the problems which are relevant to informatics technology teachers. According to results the teachers problems in order of importance are inadequate of physical

surroundings of ITC and CL, problems which come from students, teachers' misunderstanding of their duty, problems which cause of IT lessons' written sources and materials, problems which cause of network of informatics technology class and computer laboratories, problems are relevant to software-hardware of informatics technology class and computer laboratories, problems which come from parents. Additionally item based comparisons, which were not able to be attached to this paper because of the page limitation, will be discussed at the presentation.

GİRİŞ

Günümüzde, bireylerin teknolojiyi en iyi kullanabilecek, bilgiye rahatlıkla erişebilecek ve bu bilgiyi en iyi şekilde yorumlayabilecek seviyeye getirilebilmesi toplumların rekabet gücünü devam ettirebilmeleri, gelişebilmeleri için gerekli ve önemli bir konudur. Dünya bir yarış içerisindedir. Türkiye'nin bu yarışın dışında kalması düşünülemez. Bu nedenle toplumu oluşturan bireylerin bilişim teknolojilerini, bu teknolojileri işleve geçirecek programları en verimli bir şekilde kullanabilmeleri için gerekli temel bilgi ve becerilere sahip olmaları gerekmektedir. Bu bilgi ve becerileri sağlamanın yolu ise eğitimdir.

Bilişim teknolojilerinin eğitimdeki rolü, hem bilişim teknolojilerinin ne olduğunun ve nasıl kullanılacağının doğrudan öğretilmesi hem de öğrenme-öğretme süreçlerinde bir araç olarak bu teknolojilerin kullanılmasını gerektirmektedir. Birçok araştırmacıya göre etkin kullanılan öğretim teknolojileri eğitim sistemini iyileştirecek potansiyele sahiptir. Bu nedenle son yıllarda birçok ülkenin eğitim alanındaki gelişme hedefleri, bilişim teknolojilerinin öğretim programlarıyla bütünleşmesini de kapsamaktadır. (Collins, 1990; akt: Çağıltay, Çakıroğlu, Çağıltay, Çakıroğlu, 2001; MEB, 2006).

Bilişim teknolojilerini etkin olarak kullanan, bilgisayar okuryazarı bir topluma sahip olmak bütün ülkelerin olduğu gibi Türkiye'nin de amacıdır (bkz. TÜBİTAK Vizyon 2023). Türkiye'de de bilgisayarların okullarda kullanılması amacıyla. İlköğretim okullarında bilgisayar dersi konulmuş (Çağıltay, Aşkar, ve Özgit, 1995), 2006 yılında bilgisayar dersinin öğretim programı yenilenmiş ve "Bilgisayar" dersinin adı "Bilişim Teknolojisi" olarak değiştirilmiştir. Öğretim programının yenilenmesiyle birlikte gerçekleşen önemli bir yenilik 4-8. sınıflarda okutulmakta olan bilişim teknolojileri dersinin 2006-2007 yılından itibaren 1-3. sınıflara da uygulanmaya başlanmasıdır. Bu durumda Bilişim Teknolojileri dersine 1. sınıftan itibaren önem verildiğini göstermektedir (İnce, Şenyüzlü, Uğur, 2008).

Ancak, teknolojinin sadece "ürün" olarak okula girmesi etkili kullanımı için yetersizdir. Önemli olan öğretmen, öğrenci, aile ve yönetimin teknolojiyi kendi amaçlarına uygun olarak kullanabilmesi, öğrenme-öğretme sürecinde bir yarar sağlayabilmesi, kendine yeterli olabilmesi, okul kültürüne dahil edilmesi ve bir sonraki yenilikler için öncül olabilmesidir (Aşkar, 2003)

Okullarda bilgisayar ve bilişim teknolojileri derslerinin başarısı öğretim programlarının hayata geçirilmesinde önemli rol oynayan öğretmenlere bağlıdır. Öğretmenler, öğretimde bilgisayar kullanımı konusunda herhangi bir başarının veya başarısızlığın temel sebeplerini şekillendirdikleri gibi (Collins, 1990; akt: Çağıltay ve diğ., 2001) bilgisayarların öğretimde kullanımına doğal olarak dahil olurlar ve her türlü yenilik onların süzgecinden geçerek öğrenme ortamına ulaşır. Bu nedenle öğretmenlerin kararları, deneyimleri, yaklaşımları, inançları ve tutumları öğretimde bilgisayar kullanımını doğrudan etkilemektedir. Dolayısıyla bilişim teknolojilerinin öğrenilmesini ve okullarda etkin kullanımını sağlayabilecek kişi bilişim teknolojileri öğretmenleridir. Bilişim Teknolojileri öğretmenlerine; hem öğrenciye hem de diğer öğretmenlere okullarda teknoloji kullanımını öğretme konusunda birçok sorumluluk düşmektedir.

Yapılan araştırmalar incelendiğinde bilgisayar öğretmenleri, öğretim süreçlerinde sorumluluklarını yerine getirirken birçok sorunla karşılaşmaktadırlar. Deryakulu'na (2005) göre bilgisayar öğretmenleri öğretim süreçlerinde; teknik sorunlar, öğrencilerden kaynaklanan sorunlar, sınıftaki öğrenci sayısının fazlalığı, öğretim programının ve materyallerin yetersizliği, bilgisayar öğretmeninin rol belirsizliği, okul yönetiminin destek vermemesi, ders yükü fazlalığı, ders saatinin yetersizliği gibi sorunlar yaşadıklarını belirtmişlerdir. Bunlara ek olarak, okul yöneticilerinin bilgisayar öğretmenlerinin sorunlarına karşı duyarsızlığı; pek çok okulda tek bir bilgisayar öğretmeni bulunması nedeniyle öğretmenin ders yükünün fazla olması ve özellikle de ilköğretim okullarındaki seçmeli bilgisayar derslerinin haftada 1 ya da 2 saatle sınırlı olması da öğretmenlerce bilgisayar derslerinin öğretiminde karşılaşılan önemli sorunlar arasında belirtilmiştir (Deryakulu, 2005).

Deryakulu ve Olkun (2006, 2007) tarafından yapılan nitel araştırmalarda bilgisayar öğretmenlerinin çevrimiçi tartışma forumlarına gönderdikleri mesajlar incelenerek bu öğretmenlerin yaşadıkları mesleki sorunlar belirlenmeye çalışılmıştır. Bu çalışmalarda belirlenen mesleki sorunlar: a) öğretmen atama ve görevlendirmelerindeki yanlış politikalar ve haksız uygulamalar, b) rol çatışması, c) okullardaki teknolojik altyapının ve teknik desteğin yetersizliği, d) bilgisayar ders saatinin yetersizliği ve seçmeli ders olması, e) meslektaşlardan takdir görmeme / eleştirilme, f) bilgisayar dersi öğretim programlarının

yetersizliği, g) okul yöneticilerinden destek görmeme, h) bilgisayar alanındaki bilgilerin hızla değişmesi nedeniyle bilgilerini sürekli güncelleme zorunluluğu, ı) sınıf mevcutlarının kalabalıklığı, i) üniversitedeki öğretmen yetiştirme programlarının yetersizliği, j) teftiş uygulamalarındaki yetersizlikler, k) öğrencilerin ilgisizliği, l) ders kitaplarının ve öğretim materyallerinin yetersizliğidir.

Deryakulu ve Olkun (2009) 74 bilgisayar öğretmeniyle yaptıkları nitel araştırmada bilgisayar öğretmenlerinin okul yöneticileri ve müfettişlerle yaşadıkları deneyimleri incelemişlerdir. Araştırma sonuçları yaşanan sorunlar açısından incelendiğinde okul yöneticileriyle ilgili deneyimler en sık belirtilene göre sırasıyla: okul yöneticilerinin destekleyici olmayan tutumları, bilgisayar öğretmenlerini okulun bilgisayarla ilgili dersle ilgili olmayan işlerini yapmaya zorlamaları, öğretmenleri kişisel işlerini yapmaya zorlamaları, bilgisayar bilgi ve becerisinden yoksun olmaları ve yeterli yöneticilik becerisine sahip olmamalarıdır. Müfettişlerle ilgili deneyimler ise belirtilme sıklığına göre sırasıyla: tutucu teftiş ve değerlendirme yaklaşımı, bilgisayar bilgi ve becerisinden yoksun olmaları, öğretmenleri kişisel işlerini yapmaya zorlamaları, öğretmenleri geliştirme konusunda yeterli deneyime sahip olmamaları ve bilgisayar alanıyla ilgili yeterli pedagojik bilgiye sahip olmamalarıdır.

Okay'ın (2007) İzmir ve Balıkesir illerinde görev yapan toplam 70 bilgisayar öğretmeniyle gerçekleştirdiği araştırmada, okul yöneticilerinin teknolojinin eğitimde kullanılması konusunda yeteri kadar bilgi sahibi olmadıkları, bilgisayar öğretmenlerinin görevlerinin okul yönetimi ve diğer brans öğretmenleri tarafından yanlış anlasıldıgı, okul yöneticileri ve diger brans ögretmenlerinin gerek hizmet öncesi, gerekse hizmet içi egitimlerde hem bilgisayar kullanımı hem de bilgisayar destekli egitim konusunda yeterli derecede yetistirilmedigi, egitim ve ögretim materyallerinin günün sartlarına uygun olarak saglanamadıgı, ögrencilerin büyük bir çogunlugunun bilgisayar dersine gereken önemi vermedigi bulunmuştur.

Bektaş (2006) ilköğretim okullarında okutulan bilgisayar dersleriyle ilgili görüşleri toplamak amacıyla 46 maddeden oluşan bir anket hazırlamıştır. Bu anket Elazığ ilindeki ilköğretim okullarında çalışmakta olan 74 bilgisayar öğretmenine uygulanmıştır. Araştırma sonuçlarına göre, bilgisayar öğretmenlerinin branşlarından genel anlamda memnun oldukları fakat eğitim öğretim dışındaki teknik islerle meşgul olmak zorunda kalmalarından, okul imkanlarının yetersizliğinden, ders saatinin az olmasından ve bilgisayar dersi notlarının öğrenci karnelerinde yer almayacak olmasından rahatsız oldukları belirlenmiştir.

Seferoğlu'nun (2009) yaptığı araştırmada okul yöneticilerinin ve deneticilerin bilgisayar öğretmenlerinden yüksek beklentilerinin olduğu anlaşılmaktadır. Bilgisayarların bir öğretim aracı olarak kullanılabilmesinde, öğretmenlerin bu konuda sahip oldukları nitelikler çok önemlidir. Bilgisayar öğretmenlerinden, çalıştıkları ortamlarda İnternet ortamları tasarımı, görsel uzaktan eğitim teknikleri, eğitim yazılımı tasarımı ve her türlü öğretim materyali üretimi vb. konularda katkıda bulunmaları beklenmektedir (Seferoğlu, 2009).

Yaprak (2008) bilişim teknolojisi öğretmenlerinin sorunlarını belirlemek amacıyla 5'li Likert tipi 42 maddeden oluşan bir anket hazırlamıştır. Araştırmanın sonuçlarına göre öğretmenlerinin öğretim, öğrenci, araç gereç ve teknik donanım ile yönetim konusunda karşılaştıkları sorunların cinsiyetlerine ve hizmet yıllarına göre farklılık göstermediği saptanmıştır. Bilişim teknolojileri öğretmenlerinin en çok öğrenci konusunda, en az ise öğretim konusunda sorunlarla karşılaştıkları belirlenmiştir. Bunun yanı sıra bu öğretmenlerin öğretim konusunda karşılaştıkları sorunların mezun oldukları fakülteye ve çalıştıkları kadro türüne göre farklılık gösterdiği tespit edilmiştir.

Bilgisayarların eğitimde kullanılmasında ve öğrenilmesinde öncüler bilişim teknolojileri öğretmenleridir. BT öğretmenlerinin sorunları dersin işlenmesini ve eğitimi olumsuz etkilemektedir. Bilişim teknolojileri öğretmenlerinin sorumluluklarını yerine getirmelerini beklemekle birlikte yaşadıkları sorunların tür ve düzeylerinin belirlenmesi ve bu sorunlara çözüm üretmek için öneriler geliştirilmesi gerekmektedir. Bu nedenle bilişim teknolojisi öğretmenlerinin sorunlarını belirlemek üzere kullanılacak bir veri toplama aracına gereksinim duyulmaktadır.

Bu araştırmanın amacı bilişim teknolojileri öğretmenlerinin sorunlarını belirlemek üzere bir ölçek geliştirmek ve öğretmenlerin sorunlarla ilgili durumlarını incelemektir.

YÖNTEM

Bu çalışma bir ölçek geliştirme ve durum belirleme çalışmasıdır. Öncelikle Bilişim Teknolojileri Öğretmenlerinin Sorunlarıyla ilgili araştırmalardan ve BT öğretmenlerinin görüşlerinden yararlanılarak kuramsal çerçeve hazırlanmış ve bir madde havuzu oluşturulmuştur. Bu madde havuzu 70 maddeden oluşmuştur.

BTÖSBÖ'nin kapsam geçerliğinin incelenmesi amacıyla uzman ve alanında deneyimli öğretmenlerden oluşan bir grubun (4 BT öğretmeninin) ve Bilgisayar ve Öğretim Teknolojileri Eğitimi alanında çalışan

üniversite 3 öğretim üyesinin görüşleri alınmıştır. Bu görüşlere dayalı olarak ölçeğin ön uygulama formu hazırlanmıştır. Bunun ardından geçerlik ve güvenirlik çalışmalarını yapmak üzere bu form öğretmenlere uygulanmıştır.

Evren ve Örneklem

Araştırma evrenini 2008-2009 öğretim yılı güz döneminde İstanbul İli/Avrupa yakasındaki resmi ve özel ilköğretim okullarında görev yapmakta olan 639 (511'i resmi, 128'i özel ilköğretim okulunda çalışan) bilişim teknolojileri öğretmeni oluşturmaktadır. Ulaşım ve uygulama kolaylığı açısından bu evren alınmıştır.

Araştırma kapsamında evrende yer alan öğretmenler arasından seçkisiz yöntemle 410 bilişim teknolojileri öğretmeni seçilmiştir. Ancak bu öğretmenlerin 291'i anketi yanıtlamışlardır. Geri dönen anket formları incelendiğinde 32 formun kabul edilemeyecek düzeyde eksik ve/veya hatalı olduğu görülerek bu formlar araştırma kapsamının dışında tutulmuştur. Araştırmaya katılan ve anket formları geçerli sayılan 259 (221'i resmi, 38'si özel ilköğretim okulunda çalışan) bilişim teknolojileri öğretmeni araştırmanın örneklemini oluşturmaktadır.

Verilerin Toplanması

Ölçekler, İstanbul İli Avrupa yakasındaki İlçe Milli Eğitim Müdürlüklerinden alınan resmi yazı ile okullara gönderilerek bu okullardaki okul idaresinin izniyle Bilişim Teknolojileri öğretmenlerine uygulanmış; doldurulan formlar resmi yazı ile İlçe Milli Eğitim Müdürlüklerine dönmüştür. Geri dönen formlar araştırmacı tarafından İlçe Milli Eğitim Müdürlüklerinden alınarak verileri girilmiş ve veri seti oluşturulmuştur.

BULGULAR

Ölçeğin yapı geçerliğini incelemek amacıyla temel bileşenler yöntemi kullanılarak açımlayıcı faktör analizi (AFA) yapılmıştır. Güvenirlik için ise iç tutarlık katsayısı hesaplanmıştır. Ayrıca düzeltilmiş madde-toplam korelasyonları incelenmiştir. BTÖSBÖ'nin faktör analizi, geçerlik ve güvenirlik bulguları aşağıda ayrı başlıklar altında verilmiştir.

BTÖSBÖ'nin Geçerlik Bulguları

AFA'ya 70 madde ile başlanmıştır. İlk analiz sonuçları incelendiğinde Barlett testi sonucunun anlamlı olduğu ve KMO (Kaiser-Meyer-Olkin) değerinin .85 olduğunu görülmektedir. Bu bulgulara dayanarak toplanan verilerin açımlayıcı faktör analizi yapmak için yeterli olduğu söylenebilir. Faktör analizi sonuçları özdeğeri 1'den büyük toplam varyansın %70'ini açıklayan 18 faktörlü bir yapı ortaya koymaktadır. Ancak bu yapıda birçok maddenin faktör yük değerinin düşük ve binişik olduğu görülmektedir. Faktör - özdeğer grafiği incelendiğinde ölçeğin 7 faktörlü bir yapıda toplanabileceği 7'den sonraki faktörlerin öz değerlerinin birbirine yakın ve açıklanan varyansa katkılarının düşük olduğu görülmektedir. Bu nedenle analiz 7 faktörlü yapıyı kapsayacak şekilde özdeğeri 2'nin üzerinde faktörlerin modele alınabileceği şekilde yeniden yapılmıştır (Büyüköztürk, 2006).

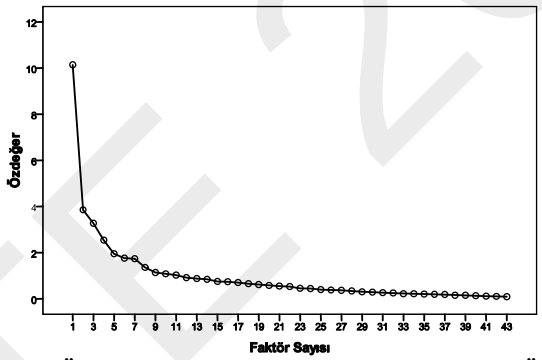
İkinci AFA sonuçları incelendiğinde maddelerin toplam varyansın %48'ini açıklayan 7 faktörlü bir yapıda toplandıkları görülmektedir. Ortak faktör yükleri incelendiğinde 9., 17., 65., 67. ve 69. maddelerin yük değerlerinin .30'un altında oldukları görülmüştür. Uzman görüşü alınarak bu maddelerin çıkarılmasının ardından analiz tekrar yapılmıştır. Analiz sonuçları incelendiğinde KMO değerinin .86'ya yükseldiği ve açıklanan varyansın %50 olduğu görülmektedir. Maddeler yine 7 faktörlü bir yapıda toplanmışlardır. Çok sayıda binişik madde olması nedeniyle dönüşüm yapılarak faktör yükleri incelendiğinde 30., 52. ve 61. maddelerin binişik yük değerlerine sahip oldukları görülmüştür. Bu maddeler modelden çıkarılarak yeniden analiz yapılmıştır.

Üçüncü AFA sonuçlarına göre maddeler toplam varyansın %51'inin açıklandığı 7 faktörlü bir yapıda toplanmaktadırlar. KMO değeri .85'tir. Bu yapı döndürme işlemi sonrası incelendiğinde 22., 46. ve 66. Maddelerin binişik yük değerlerine sahip oldukları görülmüştür. Bu maddeler modelden çıkarılarak analiz tekrar edilmiştir.

Dördüncü AFA sonuçları incelendiğinde KMO değerinin .85 olduğu görülmektedir. Toplam varyansın .52'sini açıklayan 7 faktörlü bir yapıya ulaşılmıştır. Ortak faktör yükleri incelendiğinde 3. Sorunun değerinin .25 olduğu görülmektedir. Bu yapıda birçok binişik madde olması nedeniyle dik döndürme yapılmıştır. Döndürme sonrası değerler incelendiğinde 8., 10. ve 27. maddelerin binişik yük değerine sahip olduğu görülmüştür. 3., 8., 10 ve 27. maddelerin ölçekten çıkarılmasının ardından analiz tekrar edilmiştir.

Beşinci AFA sonuçları incelendiğinde KMO değerinin .85 olduğu, 7 faktörlü bir yapının oluştuğu ve bu yapının toplam varyansın .53'ünü açıkladığı görülmektedir. Faktör yük değerleri Varimaks döndürme sonrası incelendiğinde binişik maddelerin olduğu görülmektedir. 2., 48., 55. ve 58. maddeler binişik yük değerlerine sahip oldukları için modelden çıkarılarak analiz tekrar edilmiştir.

Altıncı analiz sonuçları KMO değerinin .85 olduğunu göstermektedir. 7 faktörde toplanan maddeler toplam varyansın .55'ini açıklamaktadır. Varimaks döndürme sonrası faktör yükleri incelendiğinde 51. maddenin binişik yük değerine sahip olduğu görülmektedir. Bu madde modelden çıkarılarak analiz tekrarlanmıştır.
Yedinci analiz sonuçları incelendiğinde KMO değeri .85'tir. Maddeler 7 faktörde toplanmaktadır. Toplam açıklanan varyans .55'tir. Dik döndürme sonrası ulaşılan yük değerleri incelendiğinde binişik maddenin olmadığı ortak faktör değerleri incelendiğinde bütün maddelerin .32'nin üstünde değerlere sahip oldukları görülmektedir. Uzman görüşü alınarak faktörlerin adlandırılması aşamasında bazı maddelerin bulundukları faktörde yer alan maddelerle uyumsuz oldukları görülmüştür. Uzman görüşü alınarak faktörleştirme sürecinde adlandırmaya olanak tanımayan 28., 31., 35., 50. 63. ve 64 maddeler çıkarılarak analiz tekrarlanmıştır.
Sekizinci analiz sonuçları incelendiğinde KMO değerinin .84 olduğu, maddelerin 7 faktörde toplandıkları ve toplam varyansın .58'inin açıklandığı görülmektedir. Varimaks dik döndürme sonrası faktör yükleri incelendiğinde sadece 15. maddenin binişik olduğu görülmüş ve bu madde modelden çıkarılarak analiz tekrar edilmiştir.
Dokuzuncu analiz sonucunda KMO değerinin .84 olduğu görülmektedir. 7 faktörde yer alan 43 maddeden oluşan ve toplam varyansın .59'unu açıklayan bir yapıya ulaşılmıştır. Faktör analizi sürecinde bulgulara dayanarak 70 maddelik madde havuzunda yer alan 27 madde ölçekten çıkarılmıştır. Bu çözüme ilişkin faktör sayısı-özdeğer grafiği Şekil 1'de verilmiştir. Ortak faktör yükleri ve faktör yükleri .30'un üzerindedir. Uzman görüşü alınarak ölçek faktörleri: "BTS/BL'nin yazılım ve donanımıyla ilgili sorunlar, BTS/BL'nin fiziki ortam açısından yetersizliğiyle ilgili sorunlar, BT öğretmenlerinin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar, öğrencilerden kaynaklanan sorunlar, BT ders kaynakları ve materyallerden kaynaklanan sorunlar, velilerden kaynaklanan sorunlar ve son olarak BTS/BL' nin ağ sisteminden kaynaklanan sorunlar" olarak adlandırılmıştır.



Şekil 1. Bilişim Teknolojileri Öğretmenlerinin Sorunlarını Belirleme Ölçeğine (BTÖSBÖ) İlişkin Özdeğer - Faktör Grafiği

Tablo 1. BTÖSBÖ Faktörlerinin Betimsel İstatistikleri

Faktör Adı	Soru Sayısı	$\overline{X}$ *	S	Mod	Medyan	En Düşük Değer	En Yüksek Değer
BTS/BL'nin Yazılım ve Donanımıyla ilgili sorunlar	8	2.21	6.79	8.00	17.00	8.00	40.00
BTS/BL'nin Fiziki ortam açısından yetersizliğiyle ilgili sorunlar	8	3.67	8.17	36.00	31.00	8.00	40.00
BT öğretmenlerinin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar	9	2.86	7.89	32.00	26.00	9.00	45.00
Öğrencilerden kaynaklanan sorunlar	8	3.06	6.39	24.00	24.00	10.00	40.00
BT ders kaynakları ve materyallerden kaynaklanan sorunlar	5	2.77	4.33	13.00	13.00	5.00	25.00
Velilerden kaynaklanan sorunlar	2	1.89	1.86	2.00	4.00	2.00	10.00
BTS/BL' nin ağ sisteminden kaynaklanan sorunlar	3	2.70	3.76	6.00	7.00	3.00	15.00

*Madde sayısına göre düzeltilmiş ortalamalardır.

Araştırmanın çalışma grubunda yer alan Bilişim Teknolojileri öğretmenlerinin "BTS/BL'nin yazılım ve donanımıyla ilgili sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 2.21; "BTS/BL'nin fiziki ortam açısından yetersizliğiyle ilgili sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 3.67; "BT öğretmenlerinin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 2.86; "öğrencilerden kaynaklanan sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 2.45; "BT ders kaynakları ve materyallerden kaynaklanan sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 2.77; "velilerden kaynaklanan sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 1.89 ve "BTS/BL'nin ağ sisteminden kaynaklanan sorunlar" alt ölçek puanlarının düzeltilmiş ortalaması 2.70' tir.

Bilişim teknolojileri öğretmenlerinin karşılaştıkları sorunların sırasıyla BTS/BL'nin Fiziki ortam açısından yetersizliğiyle ilgili sorunlar, Öğrencilerden kaynaklanan sorunlar, BT öğretmenlerinin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar, BT ders kaynakları ve materyallerden kaynaklanan sorunlar, BTS/BL'nin ağ sisteminden kaynaklanan sorunlar, BTS/BL'nin Yazılım ve Donanımıyla ilgili sorunlar, Velilerden kaynaklanan sorunlar olduğu görülmektedir.
BTÖSBÖ'nin Varimaks dik döndürme sonrası ulaşılan faktör yükleri aşağıda sunulmuştur.

Tablo 2. BTÖSBÖ'nin Faktör Yükleri

BTÖSBÖ' nin Alt Boyutları								
Soru numarası	BTS/BL'nin Yazılım ve Donanımıyla ilgili sorunlar	BTS/BL'nin Fiziki ortam açısından yetersizliğiyle ilgili sorunlar	BTÖ'nin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar	Öğrencilerden kaynaklanan sorunlar	BT ders kaynakları ve materyallerden kaynaklanan sorunlar	Velilerden kaynak-lanan sorunlar	BTS/BL' nin ağ sisteminden kaynakla-nan sorunlar	Ortak Faktör Varyansı
19	**0.82**	.085	.029	-.013	.004	.190	.074	.724
20	**0.79**	.117	.075	-.016	.128	.271	.077	.743
18	**0.77**	.109	.025	.091	.117	.117	.069	.646
7	**0.73**	.166	.076	.089	.066	-.149	.019	.597
5	**0.70**	.234	-.002	.073	-.098	-.096	.028	.570
21	**0.70**	.125	.073	-.052	.114	.365	.160	.679
6	**0.69**	.182	.179	.182	.047	-.187	.079	.612
14	**0.49**	.035	.199	.184	-.016	.157	.174	.374
44	.041	**0.85**	.064	.090	-.089	.008	.075	.753
32	.243	**0.84**	.033	.166	.082	.026	.096	.817
4	.195	**0.80**	.151	.039	-.030	.060	.031	.701
36	.115	**0.79**	.051	.224	.044	.137	.115	.728
33	.127	**0.61**	.095	.186	.078	.170	.100	.480
1	.264	**0.53**	.021	.161	.094	-.077	-.143	.412
49	-.035	**0.51**	.330	.343	.031	.021	.118	.500
34	.228	**0.45**	.177	.161	.199	-.068	.110	.368
12	-.030	.075	**0.85**	-.015	.152	-.145	.012	.768
23	.112	.058	**0.81**	.071	.009	.230	.034	.729
13	.035	.098	**0.79**	-.071	.111	.004	.007	.647
11	.026	.153	**0.76**	-.059	.185	-.204	-.023	.675
59	.090	-.010	**0.72**	.131	-.036	.007	.070	.556
60	.134	.194	**0.59**	.159	.006	.150	.029	.458
57	.101	.053	**0.54**	.311	.050	.215	.025	.449
26	.048	-.033	**0.47**	.097	.283	.263	-.156	.404
62	.120	.118	**0.43**	.205	.170	.003	.036	.289
54	.025	.281	.053	**0.71**	.001	.147	.048	.610
53	.031	-.109	.134	**0.67**	.033	.250	.022	.546
29	.183	.145	.042	**0.63**	.200	-.084	.006	.500
47	.075	.323	.156	**0.63**	.239	.097	-.091	.605
56	.151	.137	.164	**0.62**	.120	.050	.029	.467
45	.074	.416	.086	**0.61**	.265	-.013	-.052	.627
70	.093	.130	.031	**0.55**	-.168	.134	.189	.411
68	-.067	.141	-.017	**0.48**	.043	-.219	.130	.320
40	-.005	.031	.107	.056	**0.80**	.102	.130	.675
39	.021	.025	.065	.120	**0.77**	.069	-.015	.619
38	.034	-.030	.105	-.039	**0.70**	.195	.125	.556
37	.119	.223	.208	.227	**0.57**	-.059	.062	.490
16	.315	.104	.239	.239	**0.45**	-.052	.016	.427
24	.124	.131	.136	.083	.121	**0.83**	.043	.757
25	.172	.118	.024	.182	.184	**0.79**	.049	.745
42	.142	.112	.006	.087	.072	.008	**0.91**	.865
43	.223	.053	-.010	.065	.131	.016	**0.87**	.835
41	.188	.365	.152	.184	.165	.125	**0.52**	.543

BTÖSBÖ'nin Güvenirliği

BTÖSBÖ'nin güvenirliğinin belirlenmesi amacıyla Cronbach Alfa iç tutarlık katsayısı hesaplanmıştır. Bu katsayılar ölçek faktör adlarına göre Tablo 3A'da sunulmuştur. Tablo 3A'daki Sonuçlara bakıldığında faktörlerin güvenirlikleri için hesaplanan iç-tutarlık katsayıları .76 ile .88 arasında değişmektedir. Ölçeğin her bir alt boyutundaki iç tutarlık katsayısının .76'dan büyük olduğu görülmektedir. Bu durumda

BTÖSBÖ'nin güvenilir bir veri toplama aracı olduğu söylenebilir. BTÖSBÖ'nin düzeltilmiş madde-toplam korelasyonları ölçek faktör adlarına göre aşağıda sunulmuştur. Tablo 3B'deki değerler incelendiğinde BTÖSBÖ'nün madde-toplam korelasyonu değerlerinin .85 ile .36 arasında değiştiği görülmektedir. Bu değerler ölçekteki her bir maddenin yer aldığı faktörle ilişkisinin anlamlı ve orta düzey ve üstünde olduğu şeklinde yorumlanabilir.

Tablo 3A - İç Tutarlık Katsayıları

Ölçek Faktör Adları	İç Tutarlık Katsayısı	Madde Sayısı
BTS/BL'nin Yazılım ve Donanımıyla ilgili sorunlar	.884	8
BTS/BL'nin Fiziki ortam açısından yetersizliğiyle ilgili sorunlar	.876	8
BT öğretmenlerinin görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar	.866	9
Öğrencilerden kaynaklanan sorunlar	.820	8
BT ders kaynakları ve materyallerden kaynaklanan sorunlar	.763	5
Velilerden kaynaklanan sorunlar	.810	3
BTS/BL'de Ağ Sisteminden Kaynaklanan Sorunlar	.882	2

Tablo 3B - Madde Toplam Korelasyonları

Faktör Adı	No	Düzeltilmiş Madde-toplam Korelasyonları	Faktör Adı	No	Düzeltilmiş Madde-toplam Korelasyonları
BTS/BL'nin Yazılım ve Donanımıyla İlgili Sorunlar	19	.745	BTS/BL'nin Fiziki Ortam Açısından Yetersizliğiyle İlgili Sorunlar	44	.721
	20	.749		32	.845
	18	.713		4	.735
	7	.654		36	.762
	5	.623		33	.585
	21	.654		1	.470
	6	.640		49	.514
	14	.471		34	.478
BT ders kaynakları ve materyallerden kaynaklanan Sorunlar	54	.652	Velilerden Kaynaklanan Sorunlar	40	.664
	53	.500		39	.593
	29	.554		38	.513
	47	.638		37	.492
	56	.540		16	.408
	45	.647	BTS/BL'de Ağ Sisteminden Kaynaklanan Sorunlar	41	.466
	70	.430		42	.794
	68	.362		43	.746
Öğrencilerden Kaynaklanan Sorunlar	24	.790			
	25	.790			

SONUÇ ve ÖNERİLER

Bilişim Teknolojisi Öğretmenlerinin Sorunlarını Belirleme ölçeği geliştirme ve durum belirleme çalışması keşfedici bir yaklaşımla madde havuzunun oluşturulması, kapsam ve görünüm geçerliği için uzman görüşü alınması, uygulamanın yapılması ve uygulamadan elde edilen verilerin analiz edilmesi süreçleriyle gerçekleştirilmiştir. Verilerin analiz edilmesinde keşfedici yaklaşıma uygun olarak geçerlilik açımlayıcı faktör analizi ile incelenmiştir. Açımlayıcı faktör analizi bulguları ölçeğin geçerli bir yapıya sahip olduğunu göstermektedir. Ölçeğin güvenirliğini belirlemek için Alpha iç tutarlılık katsayısı kullanılmıştır. Madde analizi için düzeltilmiş madde-toplam korelasyonları hesaplanmıştır. İç tutarlık katsayıları ve madde analizleri incelendiğinde bulgular ölçeğin yeterli düzeyde güvenilir ve maddelerin yeterli düzeyde iyi olduğunu göstermektedir. Ölçeğin zamana bağlı olarak madde havuzu ve faktöryel yapı açısından alanyazındaki özellikle nitel araştırmaların sonuçlarına dayalı olarak kapsamının geliştirilmesi düşünülmektedir.

Deryakulu ve Olkun'un (2007) çalışmasında bilişim teknolojisi öğretmenlerinin sorunlarının belirlenmesi ve benzeri çalışmalar için daha ayrıntılı ve çeşitli sonuçlar sağlayacak, öğretmenlerin görüşlerini özgürce paylaştıkları elektronik platformlardan ya da benzeri ortamlardaki görüşlerden toplanacak verilere içerik analizi yapılarak daha zengin sonuçlara ulaşılabileceği belirtilmektedir. Bu çalışmada geliştirilen aracın sorunların çeşitliliğinin belirlenmesinden çok öğretmenlerle ilgili diğer değişkenlerle sorunlar arasında istatistiki modellerin kurulabilmesinde ve nicel çalışmalarda yararlı olabileceği düşünülmektedir.

Araştırma sonuçlarına göre bilişim teknolojisi öğretmenlerinin öğretim sürecinde karşılaştıkları sorunlar ana boyutlarda toplanabilmiş ve betimsel olarak bu sorunların sıralaması verilmiştir. Buna göre bilişim teknolojileri öğretmenlerinin karşılaştıkları sorunlar önem sırasına göre azalan sırayla BTS/BL'nin Fiziki ortam açısından yetersizliğiyle ilgili sorunlar, Öğrencilerden kaynaklanan sorunlar, BT öğretmenlerinin

görev tanımlarının yanlış algılanmasından kaynaklanan sorunlar, BT ders kaynakları ve materyallerden kaynaklanan sorunlar, BTS/BL' nin ağ sisteminden kaynaklanan sorunlar, BTS/BL'nin yazılım ve donanımıyla ilgili sorunlar ve velilerden kaynaklanan sorunlardır. İleride yapılacak çalışmaların planlanmasında ve önceliklerin belirlenmesinde edilen bulguların dikkate alınması umulmaktadır. Ölçeğin BT dersi ve BT öğretmenlerinin sorunlarını belirlemeyle ilgili çalışmalarda katkı sağlaması beklenmektedir.

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BİR DERS ARAŞTIRMASI DENEMESİ: MATEMATİK ÖĞRETMEN ADAYLARI HANGİ ÖĞRETMENLİK BİLGİLERİNİ SERGİLİYOR?

A LESSON STUDY TRIAL: WHAT TEACHER KNOWLEDGE DO PRESERVICE MATHEMATICS TEACHERS DISPLAY?

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ÖZET

Son yirmi yıl içerisinde Japon ilköğretim ikinci kademe öğrencilerinin uluslararası sınavlardaki, özellikle 3. Uluslararası Matematik ve Fen Araştırmasında, başarıları çoğu ülke araştırmacılarını Japon eğitim sistemini çalışmaya yönlendirdi. Ders araştırmaları, öğretmenlerin, kendi öğretim metotlarını ve öğrenci öğrenmelerini geliştirmede kullandıkları, tüm dünyanın dikkatini çeken bir profesyonel gelişim metodudur. Bu araştırmaya özel öğretim yöntemleri dersi kapsamında 27 ilköğretim matematik öğretmen adayı katıldı. Bu araştırmayla matematik öğretmen adaylarına istenen niteliklerin kazandırılması amacıyla ders araştırması denemesi yapıldı. Bu çalışma ile araştırmacıların ve öğrencilerin ders anlatan grupla ilgili değerlendirmeleri ve gözlem notları incelenerek öğretmen adaylarının hangi pedagoji ve pedagojik alan bilgilerine sahip oldukları araştırıldı. Öğretmenlik bilgisini görmede nitel yöntem kullanıldı. Araştırmayla elde edilen veriler bilgi türlerine göre önce kodlandı ve sonra analiz edildi. Sonuçlar öğretmen adaylarının matematik öğretiminde, matematiksel oyunlar ve drama, grup çalışması ve somut öğrenme materyali kullanma eğiliminde olduklarını göstermektedir.

ABSTRACT

In the past two decades, the success of Japanese middle grades students on international assessments such as the Third International Mathematics and Science Study has led the researchers in many countries to study the Japanese education system. Lesson Study refers to a method of professional development taking worldwide attention in which teachers progressively try to improve their teaching methods and students' learning. Twenty –seven elementary mathematics pre-service teachers in their Special Teaching Methods (math methods) course participated in the study. With this study, it was investigated what pedagogical knowledge and pedagogical content knowledge have pre-service mathematics teachers by examining researchers and students' observation notes and evaluations about the teaching group. Qualitative methods were utilized to display teacher knowledge. Pre-service teachers' reflection data were first coded and analyzed for the types of knowledge. The results indicate that pre-services teachers tended to use manipulative, mathematical games and drama, and group work in teaching mathematics.

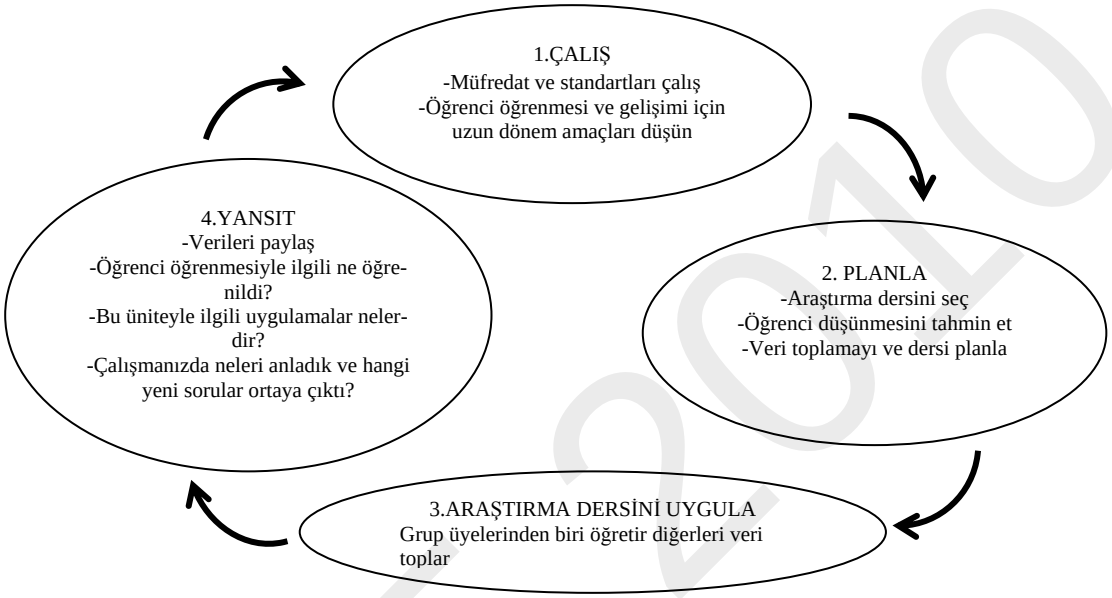
Giriş

Matematik eğitimi araştırmacıları öğretmenlerin öğretim için kullandıkları nitelik ve becerilerini geliştirmek için çeşitli çalışmalarda bulunmaktadır. Bu çalışmalar kültürler arası etkileşimden kendi payına düşeni alarak, her ülke kendi eğitim kalitesini artırmak için özellikle uluslararası sınavlarda başarı gösteren ülkeleri yakından incelemeye almıştır. Bunun örneklerinden biri Japon eğitim sisteminde uygulanan ve öğretmenlerin gelişiminde önemli bir yeri olan "ders araştırması" olmuştur. Ders araştırması, öğretmenlerin, kendi öğretim metotlarını ve öğrenci öğrenmelerini geliştirmede kullandıkları, tüm dünyanın dikkatini çeken bir profesyonel gelişim metodudur (Choski ve Fernandez, 2004; Fernandez, 2005).

Tokyo'nun Komae 7 Nolu İlköğretim Okulu öğretmenleri eğitim bilimci yeni müdürlerinin yönlendirmesiyle ders araştırma çalışmasına odaklanmaya karar verdiler (Lewis, 2009). Böylelikle ders araştırma çalışmaları ilk iki soru etrafında başlayan tartışmalarla gündeme geldi: (a)Öğrencilerimizden altıncı sınıfı bitirenlerin bitirdiklerinde ne gibi özelliklere sahip olarak ayrılacaklarını umuyoruz? (b) Öğrencilerimizin şu anki nitelikleri nelerdir? Soruları üzerinde Komae ilköğretim okulu öğretmenlerinin her biri bireysel olarak düşündüler. Daha sonra okullarını bitirecek öğrencilerin şu anki niteliklerinin neler olduğu ve gelecekte nasıl bir nitelik inşa edebilecekleri hususlarında birbirleriyle kendi cevaplarını paylaştılar. Öğrencilerin şimdiki özellikleri listelendi: Arkadaş canlısı ve iyi yürekli, video oyunları ve bilgisayarlardan hoşlanan, yakın arkadaşlık kurmada başarısız ve sadece kendini düşünüp başkalarını önemsemeyen

öğrenci. İdeal öğrenci görünüş özellikleri de listelendi: Öğrenmeyi seven, güçlü bir arkadaşlıklar kurabilen, girişimci ve kendi düşüncelerine sahip çıkabilen öğrenci. Komae öğretmenleri çalışmalarında uzun dönemli amaçlarına odaklanarak, ders araştırma çalışmasından "arkadaşlığa değer veren ve kendi düşünme yollarını geliştirebilen" öğrenci görünüşü oluşturmayı hedeflediler (Lewis, 2009).

Komae ilköğretim okulunda başlayan bu uygulamayla ders araştırmaları çalışmaları hız kazandı ve geliştirildi. Ders araştırma çalışması 1999'da uygulanan 3. Uluslararası Matematik ve Fen Bilimleri Çalışması [Third International Mathematics and Science Study (TIMSS)] ile araştırmacıların dikkatini çekti. Japon ilköğretim öğrencilerinin TIMSS'deki başarıları, araştırmacıları bu başarının nedenlerini irdelemeye itti. Dolayısıyla ders araştırma çalışmasının uygulanış ve işleyiş şekli ortaya çıktı. Şekil 1 bu işleyişi ortaya koymaktadır.



Şekil 1. Ders araştırması işleyiş döngüsü (Lewis, 2009, s. 97 den adapte edildi)

Ders araştırması işleyiş döngüsü incelendiğinde hem öğretmenlerin hemde öğrencilerin bu süreçten kendi gelişimleri için faydalı sonuçlar üretilebileceği görülmektedir. Şekil 1'e göre ders araştırma çalışması şu aşamalardan oluşmaktadır: Öncelikle uzun soluklu amaçlar belirlenir. Bu amaçları uygulamak için ikinci aşamada bir araştırma dersi seçilir ve ders planlanır. Üçüncü aşamada, seçilen ve planlanan bu ders araştırma grup üyesi bir öğretmen tarafından uygulanır. Uygulamayı diğer öğretmenler ders boyunca gözler ve gözlem notlarını kaydederler. Son aşamada ise bu gözlemlerden elde edilen veriler bütün öğretmenler arasında paylaşılır ve tartışılır. Tartışmalar sonucu dersin hedefleriyle veya ders anlatımıyla ilgili eksiklikler gözden geçirilir; ders planı gözden geçirilir ve plana son hali verilir. Ders araştırması çalışma döngüsünü biraz daha ayrıntılı ele alırsak: İlk önce 3-5 kişilik öğretmen grubuyla bir konu seçilir. Bu konunun amaçları hazırlanır. Genellikle aynı sınıflara giren öğretmenler işbirlikli olarak düzenli bir şekilde dersi planlarlar. Özellikle bir araştırma dersi seçerler. Ayrıntılı bir ders planını bu süreçte üretirler. Ders planlamada öğretmenler özel sorular, problemler ve egzersizler kullanarak öğrencilerin nasıl bir yanıt verebileceğini tahmin etmeye çalışırlar. Öğretmenler kendilerini öğrencilerin yerine koyarak, bir acemi gibi düşünerek, ders aktivitelerinin ve materyal deneyimlerinin nasıl algılanacağını ölçer ve pedagojik alan bilgisi gelişimlerini beslerler. Daha sonra gruptaki öğretmenlerden biri grubun araştırma dersini uygularken diğerleri onu derste gözler ve notlar alırlar (Cerbin ve Kopp, 2006; Puchner ve Taylor, 2006). Bu süreçte dersi işleyen öğretmenler bilişsel empati kurarak ve öğrencilerin düşünmelerini öngörmeye çalışırlar. Öğretmenler öğrencilerinin nasıl öğrendiği ve nasıl düşündüğü hakkında sağlam bir fikre sahip olurlar (Yoshida,1999). Gözlem veriler toplandıktan sonra verilerin kritiği kısmında öğretmenler gözlemlerini, öğrencilerin ders ve karalama notlarını, öğretme pratiğinde ve öğrenci öğrenmesindeki önemli noktaları açığa çıkartan deneyimlerini birbirleriyle paylaşırlar. Cerbin ve Kopp (2006) öğretmenlerin bu süreçte kendi fikirlerini ve ispata dayalı gelişim gösteren başka yaklaşımları incelemelerinin mümkün olacağından bahsetmektedirler. Ders araştırması, öğretmene, öğrenci öğrenmesi için eğitim araştırmalarının bulgularını inceleme, bu bulgular ışığında öğrencileri önceden değerlendirerek etkili bir ders hazırlama ve etkili öğretim strateji bilgisini genişletmede motive edici bir güç sağlar (Pothen ve Murata, 2007).

Shulman (1987)'e göre öğretmenlik bilgisi üç kategoride toplanmaktadır: i) alan bilgisi, ii) pedagojik bilgi ve iii) pedagojik alan bilgisi. Ders araştırma çalışması öğretmenlerin alan bilgilerini inşa etmelerinde ve öğretme becerilerini geliştirmelerinde kullandıkları bir yol olarak görülmektedir (Stigler ve Hiebert 1999; Yoshida 1999). Bu döngü öğretmenlere öğretme, öğrenme ve bu ikisi arasında bağlantı oluşturmalarında işbirlikli düşünme fırsatı sağlamaktadır (Murata, Lewis ve Perry, 2004). Ders araştırma çalışmaları öğretmenlerin yüzeysel alan bilgisi algılarından (örneğin sadece işlemsel bilgiye sahip olma) öğretecekleri materyali daha derinlemesine kavramaya geçişlerinde güçlü bir destek sağlar (Pothen ve Murata, 2007). Böylece öğretmenler diğer öğretmenlerle işbirliği içerisinde çalışarak kendi deneyimlerini artırmakta sınıflarına daha hâkim konuma gelmekte ve yeni öğretme stratejileri kazanıp öğretme-öğrenme durumlarını geliştirmektedirler. Kendi aralarında öğrenci öğrenmelerini tartışarak öğrencilerin öğrenme zorluklarına çözüm araştırmaktadırlar. Bunların beraberinde öğretmenlerin alan, pedagojik ve pedagojik alan bilgileri de gelişmektedir (Pothen ve Murata, 2007) . Günümüz öğretim modellerinde öğretmenin pedagojik alan bilgisine sahip olması önemli bir öğretmen donanımı olarak kabul edilmektedir (Shulman, 1987). Bu donanımla öğretmen, öğrencilerin konu içeriği ile ilgili nasıl düşündüklerine vakıf olmayı, öğrenme güçlüklerinin üstesinden gelmede öğrenciye yardım etmeyi, öğrencilerin düşünme becerilerini artırmayı ve öğrencilerin sınıfta kullandıkları çözüm stratejilerine aşina olmayı gerçekleştirebilmektedir (Ball, 1993; Lampert, 2002). Shulman'a (1987) göre ders araştırması pedagojik içerik bilgisini şu yönlerden geliştirir: Öğretmene konuların en kullanışlı formlarının sunumunu sağlar, en güçlü analojiler, örnekler, anlatımlar ve gösterimlerle öğretimini zenginleştirir (Cerbin ve Kopp, 2006).

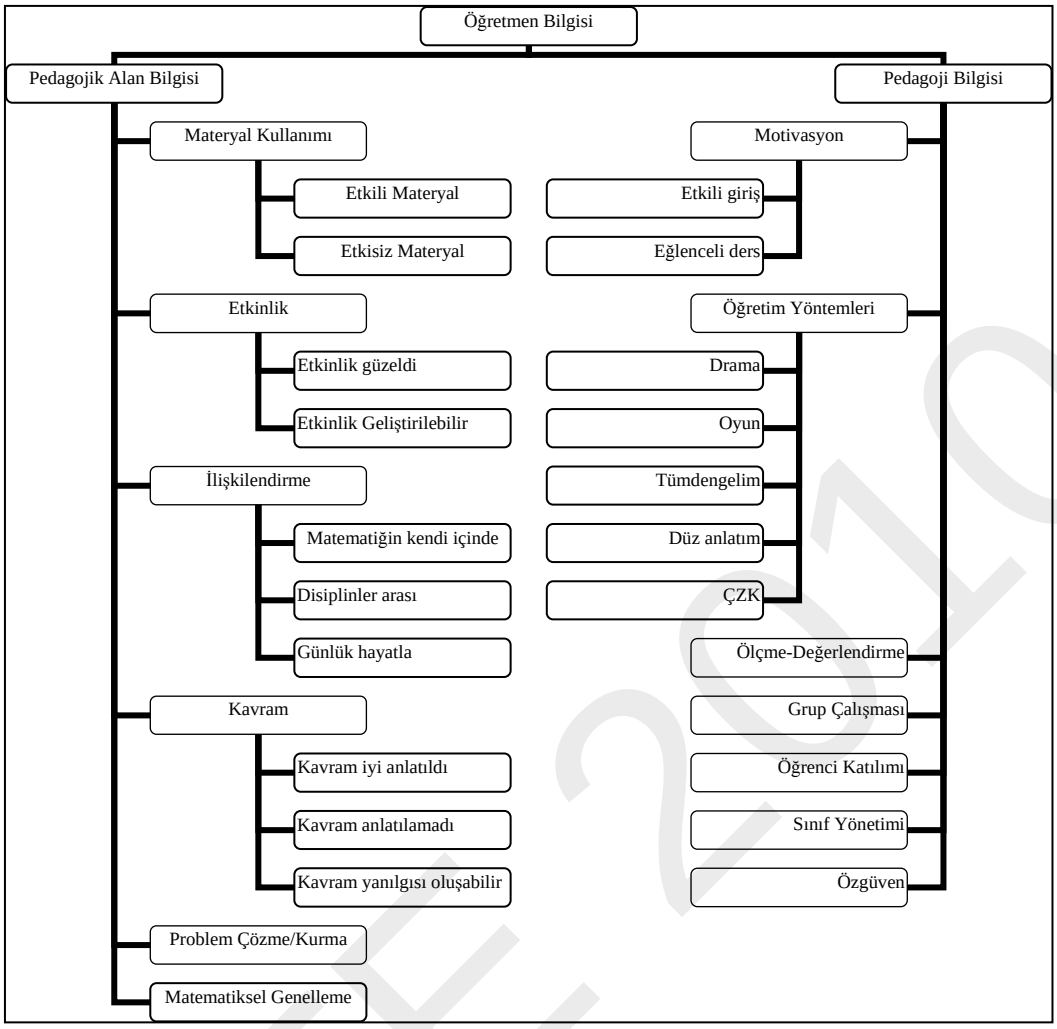
Öğretmen eğitimi de öğretmenlik bilgisine ait nitelikleri öğretmen adayına kazandıracak fırsatlar sunmalıdır. Bu niteliklere sahip bir matematik öğretmen adayı matematik alanında yeterli, etkili öğretme stratejisi kazanmış ve öğrencilerin matematiksel düşüncelerini en iyi nasıl kullanabilecekleri hususunda bilinçli duruma gelmiş olur. Bu araştırmayla matematik öğretmen adaylarına istenen niteliklerin kazandırılması amacıyla ders araştırması denemesi yapıldı. Bu çalışma ile ders araştırması grup üyelerinin (araştırmacılar ve öğretmen adaylarının) ders anlatan gruba ait görüş ve gözlem notları incelenerek öğretmen adaylarının hangi ve ne derece pedagoji ve pedagojik alan bilgilerine sahip oldukları incelenmiştir.

Yöntem

Araştırma matematik öğretmen adaylarının matematiğe özel öğretim yöntemlerini edinmelerine yönelik bir ders olan Özel Öğretim Yöntemleri dersi kapsamında 2009-2010 Öğretim Yılı bahar döneminde gerçekleştirildi. Araştırmaya 27 ilköğretim matematik öğretmen adayı katıldı.

Matematik öğretmen adaylarının öğretmenlik bilgileri üzerinde ders araştırmalarının etkisini ortaya çıkarmak için nitel metot kullanıldı. Anlatılacak konular öğretmen adayları ve araştırmacıların tarafından anlatımı veya öğrenciler tarafından anlaşılması zor olan matematik konuları (Kümeler; kesirlerde sıralama, karşılaştırma, toplama ve çıkarma ve tamsayılarda toplama ve çıkarma) olarak tespit edildi. 27 öğrenciden üçer ve dörder kişilik 4 ilk anlatan grup ve 4 tekrar anlatan grup olmak üzere toplam 8 ders anlatım grubu oluşturuldu. İlk anlatan bir grup tekrar anlatacak başka bir grup ile eşleştirildi. Bu eşleşen her bir gruba adı geçen konulardan biri verildi. Grup üyeleri belirlenen konunun planını hazırlamak için bir araya geldiler. Kullanacakları etkinliklere, materyallere, öğretim yöntemine ve ölçme-değerlendirme şekline karar verdiler. Ders esnasında sınıf arkadaşları grup çalışmasına uygun oturma düzeni oluşturarak öğrenci rolünü oynamaya çalıştılar. Her ders anlatan grubu 27 kişilik sınıfın yarısı, tekrar anlatacak grup üyeleri ve araştırmacılar gözlemledi. Araştırmacı ve öğrencilerin anlatılan dersle ilgili eleştiri ve dönütlerini tekrar anlatacak grup üyeleri not aldı. Tekrar anlatan grup aynı konuyu ilk plan üzerinde gerek duyduğu değişiklikleri yaparak, sınıfın diğer öğrencilerine ayrı bir günde yeniden anlattı. Tekrar anlatan grubun anlatımında gözlemci olarak yine araştırmacılar ve konuyu ilk anlatan grup üyeleri gözlemci olarak bulundu ve dersin değerlendirmesini yaptı.

Araştırma da çeşitli veri toplama araçları: Araştırmacıların gözlem notları, öğrencilerin yansıtma sürecindeki değerlendirmeleri, her bir gruba ait ders araştırması günlüğü ve son olarak öğrencilerin alan bilgilerini ölçer nitelikteki final sınavı belgeleri kullanılmıştır. Bu makale ders araştırmasının yansıtma sürecinde elde edilen araştırmacıların gözlem notları ve öğrencilerin yaptığı eleştiri ve değerlendirmelerin analizlerini yani araştırmanın ilk bulgularını içermektedir. Bu veriler matematik öğretmen adaylarının pedagoji ve pedagojik alan bilgisini yansıtacak cümleleri belirlemek suretiyle kodlandı. İlk aşamada ortaya çıkan kodlardan yola çıkarak verileri genel düzeyde açıklayabilen ve kodları belirli kategoriler altında toplayabilen temalar (Bakınız Şekil 2) literatürden faydalanarak tespit edildi. Temaların bulunması için kodlar bir araya getirilip incelendi. Kodlar arasındaki ortak yönlerden yola çıkılarak tematik kodlama yapıldı. Kodlama sonuçları kullanılarak araştırmaya dâhil olan bireylere ait görüşlerin veya analiz birimlerinin (cümleler) her tema veya kategori altında hangi sıklıkla tekrar ettiği hesaplanıp yüzdelerle ifade edildi (Yıldırım ve Şimşek, 2006).



Şekil 2. Verilerden elde edilen öğretmenlik bilgisi tema katmanları.

Bulgular ve Sonuç

Araştırma verileri incelendiğinde öğretmen adaylarının araştırma dersi çalışması kapsamında anlattıkları derslerde Tablo 1 ve Tablo 2'de pedagoji ve pedagojik alan bilgilerinin göstergeleri olan temaların rastlanma sıklığı ve yüzdelik gösterimlerine yer verilmektedir. Araştırma verilerinin analizinde toplam 317 cümle kodlanmış olup bunların %60'ı öğretmen adaylarının pedagojik alan bilgileriyle ve %40'ı pedagoji bilgileriyle ilgilidir.

Tablo 1. *Pedagojik Alan Bilgisi Temalarının Görülme Sıklığı ve Yüzdelik Gösterimi*

	Pedagojik Alan Bilgisi (N=317 cümle)											
	Materyal Kullanımı		Etkinlik		İlişkilendirme		Kavram		Problem Çözme/Kurma		Genelleme	
	+	-	+	-	+	-	+	-	+	-	+	-
Sıklık	25	38	27	31	12	0	7	38	3	0	6	0
Sıklık (%)	8	12	9	10	4	0	2	12	1	0	2	0
Toplam (%)	20		19		4		14		1		2	

Tablo 1 incelendiğinde öğretmen adaylarının somut materyalleri matematiksel kavramı vermede etkili bir şekilde kullandıkları (%8 oranda cümlede) fakat kullanım esnasında materyal seçimi, materyal-

leri dağıtma yada toplama gibi sorunlar (%12 oranda cümlede) yaşadıkları saptandı. Yine öğretmen adaylarının ders anlatımlarını etkinlik temelli öğrenmeyi etkili bir şekilde işledikleri (%9'u oranda) ve bunu yaparken bazı etkinliklerin daha fazla geliştirilmeye ihtiyaç olduğu (%10 oranda) tespit edildi. Öğretmen adaylarının matematiği kendi içinde, diğer disiplinlerle ve günlük hayatla ilişkilendirme (%4); problem çözme/kurma (%1); ve genelleme/ çıkarım yapma (%2) davranışlarını sergilemede çok cesaretli olmadıkları, ancak sergilediklerinde başarılı oldukları tespit edildi. Kavram öğretiminde ise öğrencileri kavram yanılgısına düşürebilecek ifadeler kullandıklarını ya da kavramı tam anlatamadıklarını gösteren cümleler (%12) not edildi. Örneğin ders anlatanın "Borç dendiğinde çıkarma yapılacağını anlayın." cümlesi öğrencileri kavram yanılgısına sürükleyebilecek bir cümledir. Çünkü gerçek hayatta birinin size borcunun olması sizin hesabınıza artı para geçeceği anlamına gelir

Tablo 2. *Pedagoji Bilgisi Temalarının Görülme Sıklığı ve Yüzdelik Gösterimi*

	Pedagoji Bilgisi (N=317 cümle)													
	Motivasyon		Öğretim Yöntemleri		Ölçme Değerlendirme		Grup Çalışması		Öğrenci Katılımı		Sınıf Yönetimi		Özgüven	
	+	-	+	-	+	-	+	-	+	-	+	-	-	+
Sıklık	4	14	34	28	8	1	13	11	10	3	1	1	2	0
Sıklık (%)	1	4	11	9	3	0	4	3	3	1	0	0	1	0
Toplam (%)	5		20		3		7		4		0		1	

Tablo 2 öğretmen adaylarının yansıtma sürecinde hangi pedagoji bilgisi temalarına ne sıklıkla değindiklerini göstermektedir. Cümlelerin %11'i öğretmen adaylarının ders anlatımlarında oyundan dramaya, tümdengelimden çoklu zeka kuramına kadar çeşitli öğretim yöntem ve teknikleri kullanmasının yanı sıra %9 oranda cümlede öğretmen adaylarının düz anlatımı sıklıkla kullandığını göstermektedir. Ölçme ve değerlendirme ve öğrenciyi derse katmayla ilgili cümlelerin çoğunlukla olumlu olduğu tespit edilmiştir. Grup çalışması yoluyla matematik öğretimi konusundaki cümlelerin yaklaşık yarısı (%4) adayların bu konuda başarılı olduğunu belirtirken diğer yarısı (%3) da grup çalışması yapmadıkları yada bu konuda başarılı olamadıkları yönündedir. Adayların derse etkili bir giriş yapmada ve ders boyunca öğrencilerinin motivasyonlarını yüksek tutmasıyla ilgili cümlelerin çoğunlukla (%4 oranda) olumsuz olduğu tespit edilmiş olup, bu da adayların bu konuda yeterince başarılı olamadıklarını göstermektedir. Cümlelerin analizinde öğretmenlerin özgüven ve sınıf yönetimleriyle ilgili dinleyici görüşüne çok düşük oranda rastlanıldığı görülmüştür. Bu bulgu bize öğretmen adaylarının özgüvenlerinin yada sınıf yönetimi becerilerinin eksik yada iyi olduğu yönünde bir ipucu vermemektedir. Adayların kendi sınıf arkadaşlarına ders anlatıyor olmaları, sınıf mevcudunun çok düşük olması, ve sınıfta gözlemci olarak dört araştırmacının daha bulunuyor olması gibi nedenlerden dolayı sınıf yönetimiyle ilgili çok fazla şey söylenmemiş olabilir.

Sonuç olarak, araştırma bulguları ilköğretim matematik öğretmeni adaylarının etkinlik temelli, somut matematik öğretimi materyallerini ve matematiği ilişkilendirme gibi pedagojik alan bilgisinin kullanıldığı temalarda genel olarak başarılı oldukları, fakat kavramı anlatmada güçlük çektikleri ve kavram yanılgısına neden olabilecek ifadeler kullandıkları tespit edildi. Yeni ilköğretim matematik programı sınıflarda pedagojik alan bilgisi güçlü öğretmenlerin gerekliliğini vurgulamaktadır. Bu bilgiye sahip olan öğretmenler uygun etkinlik ve materyal seçebilen, kullanabilen ve tüm öğrencileri derse katabilen niteliklere sahiptirler (Fernandez, 2005). Adayların çeşitli öğretim yöntemleri kullandıkları aynı zamanda düz anlatıma da büyük ağırlık verdikleri; öğrencileri derse katmada ve ölçme değerlendirmede etkin oldukları; grup çalışması yoluyla matematik anlatmaya çalıştıkları bu konuda her zaman çok başarılı olmadıkları bulunmuştur. Türkiye'de uygulamaya geçilen yeni ilköğretim matematik programı dikkate alındığında öğretmen adaylarının ders anlatımları esnasında yeni programın felsefesinin temelini oluşturan yapılandırmacı yaklaşıma uygun yöntem ve teknikleri kullanmış olmaları onları özellikle öğretmenliğe hazırlıkta iyi bir adım attıklarını göstermektedir.

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INTE2010

BİTKİLERDE ÜREME KONUSUNUN ÖĞRETİMİNDE BİLGİSAYAR DESTEKLİ ÖĞRETİM MATERYALİNİN ÖĞRENCİ BAŞARISI ÜZERİNE ETKİSİ

THE EFFECTS OF COMPUTER AIDED INSTRUCTION MATERIAL ON STUDENT SUCCESS IN REPRODUCTION OF PLANTS SUBJECT

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ÖZET

Bu çalışmada, bitkilerde üreme konusu hakkında hazırlanmış bilgisayar destekli öğretim (BDÖ) materyalinin, öğrencilerin başarı düzeylerine etkisi araştırılmıştır. Çalışma, 2009-2010 eğitim-öğretim yılında Trabzon merkeze bağlı bir Anadolu lisesinde aynı öğretmenin girdiği iki ayrı sınıfta toplam 40 onuncu sınıf öğrencisinin katılımıyla yürütülmüştür. Deney grubunda BDÖ materyali, kontrol grubunda ise geleneksel öğretim metodu ve materyalleri kullanılmıştır. Araştırmada veri toplama aracı olarak "Bitkilerde Üreme Başarı Testi" her iki gruba ön-test ve son-test olarak kullanılmıştır. Uygulama sonrasında başarı testindeki genel başarı ($p<0.05$) anlamlılık düzeyinde deney grubu lehine anlamlı bir farklılık göstermektedir. Çalışma sonunda bilgisayar destekli öğretimden yararlanan grubun diğer gruba göre bitkilerde üreme konusunda başarılarını daha fazla artırdığı bulunmuştur. Ayrıca, bilgisayar destekli öğretim yapılan gruptaki öğrencilerin BDÖ materyali hakkındaki düşünceleri yazılı olarak sorulan 5 soru ile alınmıştır. Elde edilen bulgulara göre, öğrencilerin animasyon ve simülasyon ortamlarında dersi işlemekten daha çok zevk aldıkları ve BDÖ materyalinin konuyu anlamalarına kolaylık sağladığı bulunmuştur.

Anahtar Kelimeler: Bitkilerde Üreme, Bilgisayar Destekli Materyal, Bilgisayar Destekli Öğretim.

ABSTRACT

In this study, the effects of a computer-based instruction (CBI) material on the students' success level in the reproduction of plants were examined. This study was implemented with the same teacher two different 10th classes with 40 students in an Anatolian High School in the central of Trabzon in Turkey. While in one class (the control group) traditional instruction was followed, in the other class (the experimental group) the computer-assisted instruction material was followed. The Reproduction of Plants Test was given to the two groups as a pre-test and post-test. After the application, general achievement in achievement test increased in favor of experiment group at ($p<0.05$) significant level. The result showed that the computer-assisted instruction group increased their success about reproduction of plants when compared with the traditionally designed science instruction group. Furthermore, it is asked to students group, studying based on computer-aided instruction, about their thoughts for materials of computer-aided instruction via written five questions. In accordance with the obtained evidences, it is found out that students take pleasure in teaching within an animation and simulation atmosphere and CBI material make students learn in a more easy way.

Keywords: Reproduction of plants, Computer aided material, Computer-based instruction

GİRİŞ

Günümüz bilgi çağında eğitimin amaçlarından biri de, bireyi gerekli bilgilerle donatma ve bu süreçte gerekli olan isabetli bir öğretim yöntemi belirleme çalışmaları içerisinde olmaktır. Bilgi çağında bilgi toplumunun oluşması ancak tek yönlü düşünen değil çok yönlü düşünen bireylerin yetişmesiyle gerçekleşir (Aytunga, 2004). Bilgi çağının yaşandığı günümüzde eğitim sistemimizde diğer bir amaç, öğrencilerimize mevcut bilgileri aktarmaktan çok bilgiye ulaşma becerilerini kazandırmak olmalıdır. Bu ise, ezberden çok kavrayarak öğrenme, karşılaşılan yeni durumlarla ilgili problemleri çözebilme becerilerini gerektirir (Korkmaz & Kaptan, 2001). Bu becerilerin kazanılmasında eğitimde kullanılan teknolojiler arasında en popüler olanı da bilgisayar kullanımıdır.

Bilgisayarların eğitim kurumlarında özellikle öğretme ve öğrenme süreçlerinde kullanımı her geçen gün çok daha fazla yaygınlaşmaktadır. Birçok soyut kavramın yer aldığı fen dersleri de bilgisayarın sıklıkla kullanılmaya başlandığı derslerin başında gelmektedir (Yenice, 2003). Fen eğitiminin en önemli amaçlarından biri de öğrencilerin kavramları anlamlı öğrenmelerini sağlamaktır. Günümüzde yapılan pek çok araştırma öğrencilerin bilimsel kavramları anlamaları üzerinedir (Eisen and Stavy, 1988; Coştu, 2002; Taş, Köse & Çepni; 2006). Bunun en önemli nedeni ise öğrencilerin bilimsel ve soyut kavramları anlamada zorluk çekmelerinden ileri gelmektedir. Öğrencilerin derslerde verilen bilgileri kalıcı olarak öğrenmelerini sağlamak ve derse karşı ilgilerini sürekli canlı tutmak da çok önemlidir. Bilgisayar destekli öğretim (BDÖ) de bu amaca ulaşmada yaygınlaşan önemli bir eğitim aracı olarak görülmektedir (Demircioğlu & Geban, 1996).

BDÖ; bilgisayarın, öğrenmenin meydana geldiği bir ortam olarak kullanıldığı, öğretim sürecini ve öğrenci motivasyonunu güçlendiren, öğrencinin kendi öğrenme hızına göre yararlanabileceği, kendi kendine öğrenme ilkelerinin bilgisayar teknolojisi ile birleşmesinden oluşmuş bir öğretim yöntemidir (Tuti, 2005, Kara & Yeşilyurt, 2007). BDÖ, öğretim sürecinde bilgisayarın seçenek olarak değil, sistemi tamamlayıcı, sistemi güçlendirici bir öğe olarak kullanılmasıdır (Karalar & Sarı, 2007).

Fen bilgisi öğretiminde bilgisayarın kullanılmasının amacı; eğitim programlarında yer alan konuların, derslerin öğrencinin sahip olduğu araştırma, öğrenme isteğine cevap verebilecek biçimde işlenmesinde yardımcı olmaktır (Soylu & İbiş, 1998). Eğitim teknolojisinin fen derslerinde çok yönlü kullanılması ile birlikte öğrencilerin fen bilimlerine karşı var olan ilgi ve merakları daha da artacak ve birçoğu birer buluşçu olmaya yönelik olumlu tutum sergilemeye başlayacaklardır (Akpınar, Aktamış & Ergin, 2005). Yapılan araştırmalarda da BDÖ' in öğrencilerin fen derslerine karşı tutumlarını olumlu yönde etkilediği tespit edilmiştir (Saka & Yılmaz, 2005; Çepni, Taş & Köse, 2006; Yenice, Sümer, Oktaylar & Erbil, 2003).

Biyoloji konularının öğretimine yönelik kullanılan, yöntem teknik ve materyaller incelendiğinde de BDÖ' in oldukça popüler olduğu görülmektedir. BDÖ' in, öğrencilerin konuyu kendi hızlarına göre öğrenmelerini sağladığı, öğrenmelerini kolaylaştırdığı, ders saatleri dışında da tekrar yapma ve performanslarını izleme olanağı verdiği, derse aktif katılımlarını ve derse karşı olan ilgilerini artırdığı belirtilmektedir (Yanpar ve Yıldırım, 1999). Ayrıca, bilgisayar animasyonlarının, öğrencilerin gözle göremeyecekleri biyolojik olayların nasıl gerçekleştiğini görmelerine ve ders konularını somut olarak izleyerek kavramalarına yardımcı olduğu ifade edilmektedir. Böylece, geleneksel sınıf ortamının sıkıcılığı da büyük ölçüde azalarak, öğrenme etkinlikleri zevkli bir uğraş haline gelebilmektedir (Arıcı ve Dalkılıç; 2006). Lin vd. (2007), öğrenmenin başarılı ve kolay biçimde gerçekleşmesi için, bilgisayar destekli öğrenme ortamlarında çeşitli animasyon türlerinin kullanılmasının arttığını ifade etmişlerdir. Ayrıca, eğitimde işitsel araçların ve animasyonun kullanılmasının eğitimle ilgili videolara ve yönergelere daha uygun olduğu ve bu stratejilerin kullanım zorunluluğunun ortaya çıktığı ifade edilmiştir (Ausman, Lin, Kidwai, Mine, Willia & Francis, 2004).

BDÖ materyallerinin farklı öğretim kademelerindeki öğrencilerin biyoloji konularındaki öğrenme problemlerinin giderilmesi ve kavrama düzeylerinin arttırılması üzerinde etkili olduğunu destekleyen sonuçlar bulunmaktadır (Akçay ve diğ., 2005; Pektaş, Türkmen & Solak, 2006; Güney, Özmen, Kenan, 2007). Bu çalışmada, lise müfredatındaki "Bitkilerde Üreme" konusuna yönelik geliştirilen ve öğretmenin konu sunumu sırasında yararlanabileceği, Bilgisayar destekli öğretim materyalinin uygulanması ve öğrenci başarısı üzerine etkisinin değerlendirilmesi amaçlanmıştır.

METOD

Örneklem

Bu araştırma, 2009–2010 eğitim-öğretim yılı II. döneminde Trabzon merkeze bağlı bir Anadolu lisesinde yürütülmüştür. Çalışmaya, iki farklı onuncu sınıftan toplam 40 fen bölümü öğrencisi katılmıştır.

Aynı öğretmenin iki farklı sınıfı deney (20 öğrenci) ve kontrol (20 öğrenci) grubu olarak rastgele seçilerek belirlenmiştir.

Materyal

Bilgisayar destekli öğretim materyalinin geliştirilmesi süresince lise 10. sınıf Biyoloji Öğretim Programı (M.E.B., 2008) incelenerek bitkilerde üreme konusu için öğrenci kazanımları belirlenmiştir. Konu ile ilgili içerik analizi yapıldıktan sonra biyoloji uzmanlarından alınan görüşler ile tasarım yapılmıştır. Tasarım için flash 8 programı kullanılmıştır. Geliştirilen materyal, biyoloji öğretmenleri ve biyoloji öğretmen adayları tarafından değerlendirilip, materyalde gerekli düzenlemeler yapılmıştır. Bu değerlendirme sonucunda materyal "iyi" düzeyde kullanılabilir bir materyal olarak belirlenmiştir (Karal, Fiş Erümit & Çimer, 2009).



Şekil 1. Materyaldeki konu başlıklarına ait ekran görüntüsü

Araştırma Modeli

Araştırma, ön test-son test kontrol gruplu deneme modeline göre gerçekleştirilmiştir. 10. sınıf fen bölümü öğrencilerinden oluşan 2 farklı sınıfta "Bitkilerde Üreme" konusunun öğretimine yönelik 2 farklı yöntem uygulanmıştır. Rastgele olarak bu sınıflardan biri deney ve diğeri kontrol grubu olarak belirlenmiştir. Deney grubu (n=20) öğrencilerine bilgisayar destekli öğretim yoluyla, kontrol grubu (n=20) öğrencilerine ise geleneksel öğretim yoluyla konu 2 saatlik ders süresinde işlenmiştir. Konu işlenmeden önce öğrencilerin bilgi düzeylerini görmek ve gruplar arasında bir farklılık olup olmadığını anlamak amacıyla, uygulamadan 4 hafta önce bir öntest uygulanmıştır. Bu test konu işlendikten sonra, öğrencilerde meydana gelen gelişimi görmek ve gruplar arasında öğrenme düzeylerinde anlamlı bir farklılık oluşup oluşmadığını anlamak içinde son test olarak uygulanmıştır. Bitkilerde Üreme konusu, deney grubunda bulunan öğrencilere biyoloji laboratuarında projeksiyon cihazı yardımıyla perdeye yansıtılarak sunulmuştur. Kontrol grubunda ise dersler aynı araştırmacı tarafından geleneksel öğretim yöntemi kullanılarak işlenmiştir.

Veri Toplama Araçları

Çalışmada öğrencilerin başarılarında meydana gelebilecek değişimleri ölçmek üzere bitkilerde üreme başarı testi kullanılmıştır. Testte yer alan sorular öğrenci seçme sınavı için hazırlanmış soru bankası ve hazırlık kitapları taranarak dersin öğretmeni tarafından oluşturulmuş 27 adet çoktan seçmeli sorudan oluşmaktadır. Ayrıca uygulama sonrasında, 5 açık uçlu soru ile öğrencilerin materyal hakkındaki görüşleri alınmıştır.

Verilerin Analizi

Deney ve kontrol grubu arasında uygulama öncesinde ve sonrasındaki farklılıkları karşılaştırmak amacıyla bitkilerde üreme başarı testi sonucunda elde edilen veriler SPSS 16.0 programıyla değerlendirilmiştir.

BULGULAR

Öğrencilerin Akademik Başarıları

Bu bölümde; deney ve kontrol gruplarının "Bitkilerde Üreme Başarı Testi" ön test ve son test sonuçlarından elde edilen bulgular değerlendirilmiştir.

Deney ve Kontrol grubundaki öğrencilerin ön-test puanları arasında başlangıçta anlamlı bir fark bulunup bulunmadığı "bağımsız örneklemli t" testi ile sınanmıştır. Analiz sonuçları Tablo 1'de verilmiştir.

Tablo 1. Deney ve kontrol gruplarındaki öğrencilerin ön test t-testi sonuçları

GRUP	N	X	S	t	SD	P
DENEY	20	12.65	2.35	0.371	38	0.713
KONTROL	20	12.9	1.89			

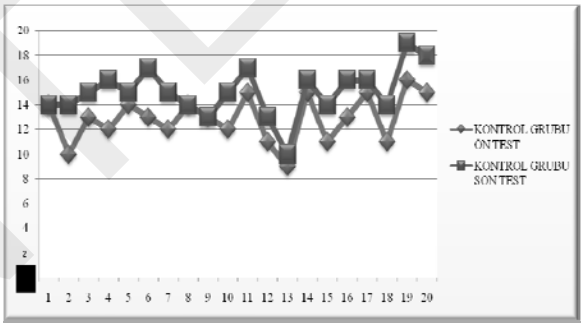
Tablo 1'deki deney ve kontrol gruplarının ön-test sonuçlarına bağlı olarak yapılan t testi analizlerine bakıldığında; bilgisayar destekli materyal uygulanan ve geleneksel yöntem uygulanan gruplar arasında öğretime başlamadan önce istatistiksel olarak anlamlı bir fark bulunmamıştır ($t(20) = 0.371$, $p > 0.05$). Deney ve kontrol gruplarının başlangıçta eşit olup olmadığını tespit etmek için ön test olarak verilen başarı testi ortalamalarına bakılacak olursa; kontrol grubu ortalaması 12.9 iken deney grubu ortalaması 12.65'tir. Bu sonuç, gruplardaki öğrencilerin derse başlangıçta konu ile ilgili ön bilgilerinin birbirine yakın olduğunu göstermektedir.

BDÖ yoluyla öğrenim gören öğrenci grubu ile (deney grubu) geleneksel yöntemle öğrenim gören öğrenci grubunun (kontrol grubu) son testten aldıkları puanlar ise "bağımsız örneklemli t" testi ile karşılaştırılmış. Elde edilen değerler Tablo 2'de verilmiştir.

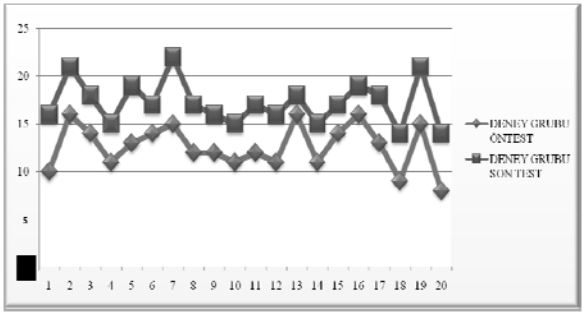
Tablo 2. Deney ve kontrol gruplarındaki öğrencilerin son test t-testi sonuçları

GRUP	N	X	S	t	SD	P
DENEY	20	17.25	2.29	3.245	38	0.002
KONTROL	20	15.05	1.99			

Tablo 2'ye göre, son test sonuçlarına bağlı olarak yapılan t testi analizleri sonucunda, BDÖ yoluyla ile öğrenim gören grup ile geleneksel yöntemle öğrenim gören grup arasında istatistiksel olarak anlamlı bir fark bulunmuştur ($t(20) = 3.245$, $p < 0.05$). Bu sonuca göre, BDÖ yoluyla öğrenim gören deney grubunun başarı düzeyi ile geleneksel öğretim yöntemi ile öğrenim gören kontrol grubunun başarı düzeyi arasında deney grubu lehine anlamlı bir fark olduğu ortaya çıkmıştır. Her iki grubun başarılarını karşılaştırmak için son test olarak verilen başarı testinde; geleneksel yöntem kullanılan kontrol grubu ortalaması 15.05 iken BDÖ' den yararlanan deney grubu ortalaması 17.25'dir. Bu sonuçlar, bilgisayar destekli biyoloji materyalinin kullanılmasıyla işlenen dersin öğrenci başarısı üzerinde geleneksel yönteme oranla daha etkili ve başarılı olduğunu göstermektedir.



Grafik 1. Kontrol grubuna ait ön test ve son test sonuçları



Grafik 2. Deney grubuna ait ön-test ve son-test sonuçları

Grafik 1 ve Grafik 2'ye göre, deney grubundaki öğrencilerin ön test-son test puanları arasındaki farkın, kontrol grubundaki ön test- son test puanları arasındaki farktan daha fazla olduğu görülmektedir. Buradan BDÖ ile yapılan eğitimin geleneksel yönteme göre öğrencilerin doğru cevap sayısını daha fazla artırdığı sonucuna ulaşılmaktadır.

Öğrencilerin Materyalle İlgili Yorumları

Öğrencilerin materyalle ilgili görüşlerini almak için, uygulama sonrasında öğrencilere 5 açık uçlu soru yazılı olarak sorulmuştur. İlk olarak öğrencilere "Bilgisayar destekli materyalle işlediğiniz dersin, daha önce işlediğiniz derslerden farkı var mıydı? Varsa bu farkları yazar mısınız?" sorusu sorulmuştur. Öğrenciler verdikleri cevaplarda, bu şekilde görsel bir materyalle dersin daha eğlenceli geçtiğini ve daha akılda kalıcı olduğunu, soyut olayların hayal edilmesi yerine gözlenebilmesinin konuyu anlama açısından da daha iyi olduğunu belirtmişlerdir. Ayrıca, şekillerin, renklerin ve animasyonların gerçekçi olduğunu ve dikkat çektiğini de eklemişlerdir. İkinci olarak öğrencilere, "Bilgisayar destekli materyal, öğretmeninize konuyla ilgili soru sorma isteğini nasıl etkilemiştir?" sorusu sorulmuştur. Öğrencilerin geneli, materyalle konuların daha iyi anlaşılması nedeniyle, öğretmene soru sorma isteğinin azaldığını, sorulan sorularda da daha bilinçli sorular sorduklarını belirtmişlerdir. Üçüncü olarak öğrencilere, "Materyalde beğendiğiniz ve beğenmediğiniz yönler nelerdir?" sorusu sorulmuştur. Öğrencilerin çoğu bu şekilde ders işlemenin eğlenceli olduğunu, konular daha iyi kavrandığı için materyali genel olarak beğendiklerini söylemişlerdir. Ayrıca materyalin renkleri, çizimleri ve deney ortamının laboratuar gibi deney yaptırmasını beğendiklerini de eklemişlerdir. Beğenmedikleri yönler için genel olarak yorum yapılmamış birkaç yazım hatası olduğunu söylemişlerdir. Son olarak da "Materyaldeki uygulamalar konuyu anlamanızı nasıl etkiledi?" ve "Materyalde faydalı gördüğünüz uygulamalar nelerdi?" soruları sorulmuştur. Öğrencilerin tamamı materyalle konunun daha iyi ve rahat kavrandığını söylemiştir. Öğrencilerin geneli uygulamalardan en çok laboratuar uygulamasını, çimlenme ve tozlaşma deneylerinde ortam şartlarına müdahale edebildikleri ve daha kalıcı öğrenme sağladığı için faydalı bulduklarını söylemiştir. Ayrıca animasyonların da olayların gözlemlenebilmesi açısından faydalı olduğunu belirtmişlerdir.

SONUÇ VE TARTIŞMA

Bu çalışmada, bitkilerde üreme konusunda yapılan BDÖ materyalinin, öğrencilerin başarılarını artırmadaki etkisi araştırılmıştır. Birçok araştırmacı yapmış olduğu araştırmalarda BDÖ materyallerinin geleneksel öğrenme yaklaşımlarına göre öğrencilerin akademik başarıları üzerinde daha etkili olduğunu ortaya koymuştur (Bayraktar, 2000; Tsai ve Chou, 2002; Chang, 2001; Powell, Aeby, Carpenter-Aebyc, 2003). Uygulama sonrasında da materyalin kullanıldığı deney grubundaki öğrencilerin akademik başarısının kontrol grubunda yer alan öğrencilere kıyasla daha fazla olduğu, uygulama öncesi ile kıyaslandığında ise daha fazla değişime uğradığı bulunmuştur.

Uygulama sonrasında her iki grubun ortalaması artmıştır. Ancak deney grubundaki başarı kontrol grubuna göre daha yüksektir. Bu da BDÖ' den yararlanan grubun Bitkilerde Üreme Başarı Testinde daha başarılı olduğunu ortaya koymaktadır.

Fen bilgisi alanında Akçay ve arkadaşları (2005) tarafından yapılan bir araştırmada, İlköğretim Fen Bilgisi dersinde 6. sınıflardaki "Çiçekli Bitkiler" konusunun öğretiminde BDÖ yapılmış ve sonuç olarak deney grubu ile kontrol grubu arasında, deney grubu lehine bir fark bulunmuştur. BDÖ ile fen eğitimi alan öğrencilerin, klasik öğretim yöntemi ile fen eğitimi alan öğrencilere göre fen bilgisi dersindeki akademik başarılarının daha fazla olduğu bulunmuştur. Bu sonuç bizim bulduğumuz sonucu da destekler niteliktedir.

Biyoloji alanında, Köse ve arkadaşları (2007) yapmış oldukları araştırma sonunda sınıf içi öğretimine ek olarak verilen bilgisayar destekli öğretimin geleneksel öğretim yöntemine göre "Canlıların Sınıflandırılması" konusundaki öğrenci başarısı üzerinde daha etkili olduğu sonucuna varmışlardır.

Bunlarla birlikte Çağıltay ve arkadaşları (2001) yapmış oldukları araştırmaya göre, öğretmenlerin sınıflarda bilgisayarların kullanımı konusunda olumlu inanışlara sahip olduğunu ve birçok öğretmenin bilgisayar kullanımının eğitimde çok önemli olduğu görüşünü benimsediklerini belirtmişlerdir. Uygulama sonrasında öğretmeninde BDÖ materyallerinin derste kullanımı ile ilgili olumlu görüşlere sahip olduğu görülmüştür. Öğretmenin en çok üzerinde durduğu konu ise, animasyon ve simülasyon kullanımının öğrenme ve öğretme zamanını azalttığı olmuştur. Ayrıca öğrencilerin daha doğru öğrenmelerinin de sağlandığını belirtmiştir. Son olarak, materyalle dersi işleyen öğretmen, biyoloji derslerinde olayların tahtaya çizilmesinin hem zor hem de beceri gerektirdiğini ve öğretmenlerin bu tarz materyallere daha çok ihtiyaç duyduklarını da eklemiştir.

Sonuç olarak, bitkilerde üreme konusunda kullanılan bilgisayar destekli materyalle öğretim yapılmasının öğrencilerin akademik başarısına olumlu katkı sağladığı söylenebilir. Ayrıca, bilgisayar

destekli materyalin, öğrencilerin derse ilgisini arttırdığı, konuların daha rahat kavrandığı, öğrenme ve öğretmenin amacına ulaşma zamanını azalttığı ve öğrencileri sınıfta daha etkin kıldığı sonucuna varılmaktadır.

ÖNERİLER

Animasyon ve simülasyonlar öğrencileri ezberden uzaklaştırmaya ve neden sonuç ilişkisi kurmaya yönlendirdiği için fen derslerinde daha çok kullanılmalıdır. Öğretmenler fen derslerini işlerken geleneksel yöntemler yerine görsel materyallerin kullanıldığı yöntemlere başvururlarsa öğrencilerin daha etkili öğrenmelerini sağlayabilir ayrıca öğrenme öğretme zamanını da azaltabilirler. Özellikle çevrede modelleri olmayan olayların animasyonlarının gerçeğe yakın olmasına dikkat edilmelidir. Özellikle soyut olup anlaşılması zor olan kavramların öğrenciler tarafından anlamlı bir şekilde öğrenilmesinde bilgisayar destekli öğretimden yararlanılmalıdır. Geliştirilecek materyalde birçok öğretim ve öğrenim aktiviteleri bulunması da daha kolay öğrenmeler gerçekleşmesini sağlamaktadır. Metinler kısa tutularak, resim, grafik, şekil, sesler ve canlandırmalara daha çok yer verilen çoklu ortamlar tasarlanmalıdır. Bunun da başarıyı olumlu yönde etkileyeceği birçok araştırmacı tarafından vurgulanmaktadır.

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CAN ACADEMIA AND HIGH-TECH INDUSTRY HAVE CONVERGENT VIEWS ON OPEN ACCESS?

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ABSTRACT

Cultural differences of academia and high-tech industry are undoubtedly significant. Academia by its mission, modus operandi and tradition is very much a pro bono facility replete with the spirit of public service. Industry is based on business principles ruled by a pursuit of profit, efficiency and competition. However, the high-tech industry realizes that in order to achieve and maintain cutting-edge and to innovate close collaboration with academia is necessary. Examples of such endeavors are many; however, most of them are based on non-disclosure agreements. Owing to the rise of prosumerism and a progressing process of involving consumers into design and even production of goods the paper argues that the evolution of collaboration patterns between high-tech industry and academia that already now exploits principles of the Open Innovation model will also need to include some tenets of Open Access whose main assumption is sharing knowledge within a community. An example of this new approach will be provided in the paper by showing how a mobile technology laboratory established at a university by a mobile telephony operator boosts Open Innovation and Open Access, and new schemes of students' education.

Keywords: open innovation, open access, academia, high-tech industry, innovation.

INTRODUCTION

During a discussion within the international conference "Transparency in Science, Open Access, and Scholarly Publishing" organized by Polish Academy of Sciences, Muraszkiewicz (2010) was asked the following question: can Open Access, which now spreads out across academia worldwide, be also a platform for fruitful collaboration between academia and industry? The paper attempts to ponder this issue while realizing that it is too early to come up with a definitive answer, mainly owing to the high dynamics of knowledge creation and management models, in particular when it comes to innovation, and also because of a diversity of corporate business models, dynamics of markets, alterations in lifestyle, etc. It seems however, that high-tech is this segment of the industry which can already now be interested in experimenting with Open Access for the high-tech heavily hinges on new ideas, access to creative and knowledgeable people, disruptive concepts, and innovation.

Needless to argue that academic and research communities significantly differ from a corporate world in terms of their cultures and bottom line. Academia by its mission, modus operandi and tradition is still very much a pro bono facility replete with the spirit of public service. Despite being sometimes a subject to commercial arrangements, especially in the U.S., teaching and learning on a high level are continuously considered a noble activity defined by the ethos of sharing and transferring knowledge and skills from professors to students, from students to students, and not rarely from students to professors. Academia to a large extent still indulges in the freedom of thoughts, "license" for trials and errors, let alone more time for reflections and discussions.

As far as industry is concerned the philosophy and practice with respect to knowledge sharing seems to be orthogonal to the one of academia. It is in the main based on precisely defined business principles ruled by a hungry pursuit of profit, efficiency and competition. Sharing knowledge, know-how and expertise being part of the institutional competence of a company with other companies operating on the market that are actual or prospective competitors, is by far a forbidden policy. Access to what others are doing and knowing is only possible through such makings as business intelligence, acquisition of companies, purchase of know-how and/or licenses, or hiring consultants on the basis of non-disclosure agreements. Obviously, all these require financial means and investments for getting the desired entities.

Noteworthy, the general description just sketched above is now being changed in the milieu of high-tech industry, which realizes that in order to achieve and maintain cutting-edge and to innovate close collaboration with academia is not only necessary but becomes part of the survival strategy. The reason why high-tech industry changes its attitude seems to be strikingly simple, namely (i) the emergence of

prosumerism whose chief principle is that customers in one way or another do participate in designing and sometimes even manufacturing goods and commodities; and (ii) given an incredible pace of markets and shortening lifetime of products and services being offered, even larger and wealthy companies do not have enough research resources to meet the galloping change of demand. The corporate world has seemingly understood that it needs to tap more and deeper into academic intellectual capital and resources, which *nolens volens* entails the adjustment of corporate culture and attitudes for them to be more compatible with academic customs and habits. One of the lessons learned by the high-tech industry while experimenting with the philosophy of Open Innovation introduced and ushered by professor Henry Chesbrough (2003) of Berkeley University is as follows: Open Access, which as mentioned above has been gaining popularity and acknowledgement in academia and research groupings, might be also part of new policies for high-tech agents. It is worth noting that this novel approach is in line with the fact that the high-tech is to a significant extent based on the principle of learning organization introduced by Senge (1990). In what follows, the paper will briefly characterize the features of high-tech organizations, and then a note on Open Innovation, prosumerism, and Open Access will be given. Eventually an example of how this new approach of converging industry and academia in terms of knowledge producing and sharing can be implemented will be presented. Towards this end, we shall refer to the case of a mobile technology laboratory established at a university by a mobile telephony operator to boost Open Innovation and new schemes of students' education.

A NOTE ON HIGH-TECH ORGANIZATIONS

Already at a first glance the world of high-tech is visibly different from the world of traditional industry. The high-tech is typically considered as the one that exhibits the following features: (i) use of advanced technologies; (ii) high innovativeness and creativity of staff; (iii) short lifetime of the applied solutions and technologies; (iv) high competitiveness; (v) heterogeneous and floating customer segments; (vi) taking care of customers. In the high-tech organizations the staff is expected to feature:

- the ability to learn new things rather than to memorize and repeat static knowledge;
- the ability to communicate and to co-operate rather than individual brilliance;
- the ability to understand totality rather than having a narrow deep knowledge;
- the ability to act and ask questions rather than ability to follow detailed instructions.

In the book "High Tech America" by Markusen (1986) a definition of high technology industries that was used extensively during the 1980s was given. This definition focused on manufacturing industries because service activities had not yet developed their current prominence. According to this definition high-tech industries were those which had concentrations of engineers, engineering technicians, computer scientists, life scientists, and mathematicians greater than the average for all manufacturing industries. As a result, these industries have enough technical capacity to develop new products.

Today, owing to an unprecedented success of technology in the last decades of the 20th century the term *high-tech* enjoys a good reputation and is used very broadly to describe not only industries, but also occupations and products. Even the downturn of dotcom industry at the beginning of the present century did not spoil this opinion. There is fairly wide agreement on the general characteristics of high-tech industries and the criteria for developing lists of such industries. A good example is a document from the Congressional Office of Technology Assessment (1982). It describes high-tech firms as those "*that are engaged in the design, development, and introduction of new products and innovative manufacturing processes, or both, through the systematic application of scientific and technical knowledge.*" This document also points out that high-tech firms typically use state-of-the-art techniques, and, in terms of quantifiable resources, such firms devote a "high" proportion of expenditures to research and development and employ a "high" proportion of scientific, technical, and engineering personnel. A National Science Foundation report (1988) on science and technology resources also refers to the employment of scientists, engineers, and technicians and measures of research and development activities as "*two of the most important parameters of innovation*" and uses them "*as surrogates for measuring the broader concept of innovation.*" Interestingly enough, these rather aged definitions of the high-tech have not lost their meaning and usability over time and can be still applied.

HIGHLIGHTS OF OPEN INNOVATION AND OPEN ACCESS

In his influential book H. Chesbrough (2003) introduced the notion of Open Innovation. He did note that traditional companies tried to organize innovation processes within their own boundaries, which for a few reasons is not the most efficient manner. Innovation is usually a costly endeavor and only rich firms can afford it, especially that there is a significant market risk behind developing innovative solutions. Another reason is that–on the one hand–owing to the very nature of innovativeness a large part of

knowledge related to establishing new products and/or services is what is called *tacit knowledge* that is placed in the heads of employees, and –on the other hand–keeping educated and experienced staff in a company is getting a tougher tasks due to a considerable increase in the mobility of knowledgeable specialists over the last two decades. Moreover, as noted by C. Christensen (2006), innovativeness has a lot to do with what he termed *disruptive technologies* that in turn are typically developed by small firms or spin-offs of large companies, often supported by venture capital. Finally, it should be emphasized that it seems to be impossible to insulate the efforts on developing innovative products or services from the agents outside the company because of links constituting the supply chain.

Given the above many companies realized that they need to change the approach to organize innovation processes and to envisage the modus operandi offered by Open Innovation which can be described as follows: combining internal and external ideas as well as internal and external research resources and paths to market to advance the development of new technologies. H. Chesbrough (2003) compares a closed approach to innovation with the open one in the way summarized in the table below.

Closed innovation principles	Open innovation principles
The smart people in the field work for us.	Not all the smart people in the field work for us. We need to work with smart people inside and outside the company.
To profit from R&D, we must discover it, develop it, and ship it ourselves.	External R&D can create significant value: internal R&D is needed to claim some portion of that value.
If we discover it ourselves, we will get it to the market first.	We don't have to originate the research to profit from it.
The company that gets an innovation to the market first will win.	Building a better business model is better than getting to the market first.
If we create the most and the best ideas in the industry, we will win.	If we make the best use of internal and external ideas, we will win.
We should control our IP, so that our competitors don't profit from our ideas.	We should profit from others' use of our IP (Intellectual Property), and we should buy others' IP whenever it advances our business model.

As we can see Open Innovation is centered on the philosophy different from the closed one in terms of how value can be created. Particularly striking is the last entry of the table reading that a company profit can be generated from other's use of the company's intellectual property, which may ring revolutionary in many ears. Now, innovativeness becomes a joint effort of various actors of different affiliations, including customers. Today one can see a quick formation of what Toffler (1984) called prosumerism (producer-consumer), which is a close interaction carried out on the network between customer and producer. The customer actively participates in specifying a desired product as opposed to the past situation when the producer or a service provider designed, manufactured the product or service and submitted it to the customer. Now, in a paradoxical sense the producer becomes a client of the customer. An example of prosumerism is how the TomTom company, *http://www.tomtom.com*, whose main business is digital mapping and routing, got involved car drivers to develop and keep updated its Portable Navigation Device. The company actually got involved their 7 million users to establish and update in real-time what they named Map Share Technology and IQ Routes Technology. Another striking example of prosumerism is the campaign launched by Adidas "where they put up blank white billboards with a small logo, inviting graphiti artists to come and spray and write on them. Then after a while they placed another poster with a hole in the shape of a shoe on top of the graphiti – hence showing a one-of-a-kind shoe ad co-created with Adidas and their target market", *http://www. daveduarte.co.za/index.php?s= prosumerism*. Noteworthy, prosumerism flourishes especially among younger generations of customers for whom the internet and mobile technologies are a natural living environment allowing them to be always online, to create and share content, exchange views, interacting with each other and, last but not least, to watch and scrutinize what the market looks like. Companies tend to appreciate more and more prosumerism not only because it allows them to develop new products and better adjust themselves to market alterations, but also (i) for it is an efficient instrument to customize (personalize) existing products to the tastes and preferences of prospective customers in a way that large companies can hardly do it, and thereby to develop customers' loyalty and increase sales; and (ii) since by having a direct link with and contact to customers the companies can reduce or sometimes even bypass intermediaries ("middlemen"), and in so doing to reduce distribution and marketing costs.

No doubt the internet has dramatically changed the way scientists, designers, managers, decision makers, students, and just middlebrow users of the global network look for and acquire information and author, publish and exchange text files, artwork, music, etc. It has fueled an array of new applications and movements, and has given rise to new professions and social and phenomena. Nowadays, a large amount of scientific publications, governmental agencies reports, documents produced by non-governmental organizations are available in electronic form to everyone who has access to the internet and a browser. Here, the rule that content produced through projects and endeavors financed by taxpayers' money has to be freely available is almost universally accepted. That was actually the academic world which has promoted and started implementing the idea of disseminating educational and research content via online channels, and thereby giving the birth of the idea of Open Access. It is likely that the inspiration to launching the Open Access movement was the FLOSS movement (free/libre/open source software), whose the most eminent and known instance is the Linux operating system. The Open Access model exhibits some affinities with FLOSS as both are heavily centered on countless of voluntary hours of contributors whose unpaid work results are freely and with their assent shared throughout the network.

The origins of Open Access go back at least to the 1960s, but it got vigor and vitality only with the advent and popularization of the internet WWW service in the second part of the 90s of the previous century. In the year of 1997, an alliance of academic and research libraries and other organizations established the Scholarly Publishing and Academic Resources Coalition (SPARC), which drafted the principles and started to promote Open Access. Incidentally, this initiative was in the main motivated by the crisis of scientific journals that have been affected by costs quickly rising above inflation, which was caused among others by increasing distribution expenses through conventional channels. In this situation the web offered a vehicle of instant access, wide dissemination, and wide coverage at a marginal cost. The document today known as "Budapest Open Access Initiative" published on 14 January, 2002 summarized the Open Access highlights, *http://www.soros.org/openaccess/read.shtml*. Since then the Open Access movement has been taking shape. Now, one can distinguish two main currents in this movement:

- self-archiving, also called the "green" Open Access, where authors publish in a subscription journal, but in addition make their articles freely accessible online, usually by depositing them in either an institutional repository. The deposit can be in the form of a peer-reviewed postprint or a non-peer-reviewed preprint;
- publishing, known as the "gold" Open Access, where authors publish in open access journals that make their articles freely accessible online immediately upon publication. Publishing an article in a journal might be free-of-charge (in this case the journal relies on its own funds) or subject to charge.

More information on Open Access and references to relevant resources the interested reader can found at *http://en.wikipedia.org/wiki/Open_Access_movement.* In parallel with opening access to articles, reports and books is the Open Educational Resources current that was defined in the year of 2002 during a UNESCO conference "Impact of Open Courseware for Higher Education in Developing Countries". Here at stake is the goal to make available educational material, so-called courseware, produced by universities' scholars to a wide public. In this area the flagship projects are MIT OpenCourseWare that offers some 1,900 courses, *http://ocw.mit.edu*, and the OpenCourseWare Consortium, which is a productive collaboration of more than 200 higher education institutions and associated organizations from around the world creating a broad and deep body of open educational content using a shared model, *http://www.ocwconsortium.org*.

In spite of its successes Open Access is not free from being criticized and claimed to be unnecessary. Opponents argue that Open Access with its inherent excessive liberalism cannot ensure high quality of papers and books, and is not able to reduce "research fraud", then, they claim that a lack of peer review or accepting a "softer version" of peer review that do happen in the Open Access universe cause an inflation of poor quality papers. The result: landmarks of value and quality are covered up by a flood of mediocrity weeding the realm of research and science. But the worst of the worst, it is claimed, is that Open Access paves the way to unlimited and barely controlled a plague of plagiarism that leads to what Jaron Lanier (2010) termed "Digital Maoism". In this context it needs to be mentioned that the problem of intellectual property rights for the Open Access solutions is often addressed on the basis of the Creative Commons model that offers a set of tools for everyone from individual creators to large companies and institutions for granting copyright permissions to their creative work in a simple and standardized way. The Creative Commons licenses enable people to easily change their copyright terms from the default of "all rights reserved" to "some rights reserved." *http://creativecommons.org*. In the section to follow we shall share the experience that will illustrate the Open Innovation and Open Access model at work at the Faculty of Electronics and Information Technology of Warsaw University of Technology.

OPEN INNOVATION AND OPEN ACCESS AT WORK

Let us come back to the question raised at the outset of the paper, namely: can Open Access be a platform for fruitful collaboration between academia and industry? It seems that still there is not enough data at hand to fully answer this question. However, some positive symptoms that cooperation of this kind is feasible and can bring encouraging results for both sides can be identified. To this end, we look at the BRAMA laboratory, *http://brama.elka.pw.edu.pl*, that has been set up as a joint venture of the Faculty of Electronics and Information Technology of Warsaw University of Technology and the PTC company which is one of the largest mobile telephony operators in Poland with some 13.5 million subscribers. The laboratory deals with 3rd and 4th generation mobile technology research and applications. Projects are either devised by Faculty staff and students or are commissioned by PTC, or other agents, mainly small and medium ICT Polish companies. Examples of projects are: PrivateContent2Mobile, Testing the Quality and the Accessibility of Internet Portals, Mobile Applications Generation Tool, PalmBaby - Comprehensive Baby-Care Mobile System, Mobile Workers Platform. Altogether the lab has been home for some 110 projects since its establishment in July, 2006. Of special importance are projects related to the IMS (IP Multimedia System) that is a platform of next generation mobile applications based on the IP protocol, which briefly can be characterized as the main facility of the mobile internet.

The BRAMA Lab and PTC have decided to enhance their cooperation by setting up a mobile technology ecosystem. In addition to both BRAMA and PTC, the system is composed of a Foundation of Mobile Open Society through wireless Technology, known as MOST, *http://www.most-program.org*, and Polish eMobility Platform, *http://www.emobility.pl*. The MOST Foundation is a non-governmental organization that operates in Central Europe with the mandate to boost democracy and economic growth by means of mobile technologies. MOST provides awareness through conferences, seminars, training, and publications on the potential and pros and cons of mobile technology regarding various facets of society, be it health, education, or governance. The Foundation is especially focused on youth and under the name MYLNORK provides leadership training and promoting best practices among 25- to 35-year-old mobile high-tech managers, policy analysts, financial officers, lawyers, lobbyists, and other professionals working in the telecom and e/m-content industry. The eMobility technology platform associates some 45 members which are Polish ICT and mobile ICT companies. The platform performs such tasks as: matching partners for projects applications and execution (building consortia), helping to apply for funds available in the framework of Structural Funds (which is a large source of money managed by the Polish government and amounting for a few billion euro), advising the government on research directions in the field of mobile technology and its applications, and to provide professional training, mainly to its members. Noteworthy, the eMobility platform is a Polish counterpart of the European technology platform dealing with mobility matters. These four stakeholders of the ecosystem are practicing and promoting the model of Open Innovation and with respect to Open Access they share documents (especially related to training, general policies, trend analysis, calendar of events) and knowledge and experience with respect to open software platforms, in particular, the IMS platform mentioned above. However, due to various limits imposed by the stakeholders so far established repositories of documents and knowledge leave still a room to enhancements. The lessons we have drawn from the operation of this four-fold ecosystem give us the ground for answering the question formulated in the title of the paper only partly in the affirmative.

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CLIENT / SERVER PROGRAMLAMA

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ÖZET

Yaşantımızın teknolojik gelişmelere bağlı olarak, geometrik bir hızla geliştiği bir yüzyılda, bilgi teknolojileri, eğitim öğretim alanında aktif bir şekilde kullanılmaktadır. Bu artışa paralel olarak, bilginin Paylaşılması "internet" ortamından yararlanılarak gerçekleştirilmektedir. Internet tamamen Client / Server (istemci/sunucu) uygulamalarından oluşmaktadır. Özellikle de kullandığımız web sitesinin bir veritabanı varsa bu sistem kendini daha fazla hissettirmektedir. Programlamada performansı artırmak için, programı etkileyen bütün elementlerin analizini iyi yapmak gerekmektedir. Fakat biz bu makalede programlama kısmının payına düşen ile ilgileneceğiz. Client/server (istemci/sunucu) uygulaması üzerinden oluşturacağımız bir kod örneği ile sadece küçük bir değişiklik ile performansımızı defalarca nasıl arttırabileceğimizi göreceğiz.

ABSTRACT

In fact that at the current century especially for education the information technology uses actively. We know that sharing all information realized via internet and most of the applications on internet run with client-server systems. If we use a database management system this fact hint itself much. For this reason to increase the performance we need to make well the analyzing all parts of programme that effect it directly. In this essay we will mention the part of programmer. We will see it with a code sample that contain the memory objects instead of the server objects.

Giriş

Yüzyılımıza ismini veren bilgi ve bilgi işlem teknolojisi her geçen gün daha hızlı bir şekilde gelişmektedir. Yeni buluşlar bilimin büyük ölçüde hizmetine sunulmaktadır. Bu süreç içinde hızlı, güvenli, kapsamlı bilgi alış verişinin önemi de artmaktadır. Böyle bir gelişim içinde bütün kurumların birbirleriyle hızlı bir şekilde iletişim kurmasının önemi de artmaktadır. İletişimin önemli araçlarından olan internet ortamı bu hizmeti web siteleri aracılığı ile gerçekleştirmektedir. Hızlı erişilebilen ve fonksiyonel web siteleri, görsel olarak iyi tasarlanmış web sitelerine göre kullanıcılar tarafından tercih edilmektedir[1]. Şüphesiz bir web sitesinde en istemediğimiz şey, onun yavaş olmasıdır. Eğer küçük bir işlem için uzun zaman bekliyorsak bu durumda o sitenin görsel olarak ne kadar şık ve güzel olduğunun hiçbir önemi yoktur. Kullanıcılar zaman kaybetmek istemezler. Daha iyi alternatifi buldukları anda sizin sitenizi, hız bakımdan daha iyi bir web sitesine tercih ederler.

Bilgi teknolojilerindeki gelişme ile birlikte bilgisayar kullanımı artmıştır. Kişisel bilgisayarların birlikte kullanılmasıyla gelişen ağ ortamına paralel olarak "ağların ağı" olarak da isimlendirilen internet üzerinde de aynen masaüstünde çalıştığımız gibi hızlı çalışmak isteriz.

Bir Client / Server (istemci/sunucu) uygulaması olduğu sürece elbetteki bir masaüstü uygulamasının hızına erişmemiz şu an için bir hayal olsa da o hıza yaklaşmak gerçektir. Çünkü günümüzün donanım teknolojisi ve programlamada yazılan kütüphaneler bunu yapabilecek düzeydedir. (Ya da pekala bizler bu işi yapacak olan objeleri yazabiliriz.) Web programlamadaki gelişmeler, ağ yapılarındaki gelişmelerle birlikte, client ile server arasındaki veri akış trafiğini her geçen gün hızlandırmaktadır.

Web programlama tasarımı aşamasında hızlı bir erişim performansına yaklaşmak için programımızın analiz aşamasında sormamız gereken en temel iki soru vardır.

1-) Client (İstemci) neleri yapmalı?
2-) Server (Sunucu) neleri yapmalı?

Bu sorulara yanıt aramadan önce Client ve Server'ın ne olduğunu anımsamakta yarar vardır.. Zira bu iki sözcükte web sitesi programlama algoritmasının çıkarılması konusunda varsaydığımızdan daha fazla ipucu bulunmaktadır.

Client (İstemci): Adından da anlaşıldığı üzere istemcidir yani talep eden, sunucudan isteyen taraftır. Bu durumda kendisine gerekli olan bilgiyi web sitesi aracılığıyla sunucudan isteyecektir. Fakat asıl üzerinde durmamız gereken soru, "Talebi nasıl isterse kullanıcının zaman kaybını en aza indirebiliriz?" sorusudur.

Server (Sunucu): Ağ ortamında paylaşılan kaynaklara sahip olan ana bilgisayara verilen isimdir. İsminden de anlaşılacağı gibi hizmet eden taraftır. Yani istemci tarafından gelen isteklere yanıt verir. Bu taraftan baktığımızda da önemli olan, "Ne şekilde yanıt verirse kullanıcıya en az zaman kaybettirir?" Sorusudur.

Bu iki taraftan asıl kritik olan client tarafıdır. Ve biz client tarafına dikkatleri çekeceğiz. Çünkü server hemen hemen her isteği yerine getirir. Yani istekleri değerlendirirken onları yorumlama gibi bir şansı yoktur. İstenilen her neyse onu yanıtlar. Yanıtın uzunluğu, gereksiz olup olmadığı, sunucu için önemli değildir. Ya da istemlerin sayısını azaltmaz. Bu durumda client(istemci) isteklerini titizlikle hazırlamalıdır. Yani kısacası, ne şekilde ve nasıl istekte bulunmalıyız? sorusu bize konumuzu özetler.

Web programcısı, web sitesini tasarlarken mümkün olduğunca iki tarafı da (client/server) az yormak ister.[2] Doğru; buna katılmamak mümkün değil, ancak bu nokta da bizim üzerinde durduğumuz ve bu makalede örnek program kodlarıyla anlatacağımız; her iki tarafa da (client/server) eşit davranılması yerine server'in veri trafiğinin azaltılmasıdır.! Çünkü **asıl önemli olan "server" ın yorulmamasıdır.**

Hedef; "server" ı mümkün olduğunca az rahatsız etmek olmalıdır. Ama bunu sağlamanın yolu ise malesef "client" tan geçer. Bizler programı yazarken bu hedefi nasıl sağlarız sorusunu rehber edinmeliyiz. Çünkü "client" localinde çalışır ve en kapsamlı işleri, hesaplamaları dahi kısa bir sürede yapabilir. Oysa "server" uzakta olandır. Ona ulaşan talep ve talepler uzaktaki localde çalışır ve bizlere gönderilir. Uzaktaki "server" a tek talep eden biz olmadığımızdan "server" ın yükü oldukça fazladır. Bundan daha da önemli olan internet trafiğidir. Zira en çok zaman kaybı yollarda geçer. **Bundan dolayı mümkün olduğunca server a gitmemek esas olmalıdır.**

Peki somut olarak bunları nasıl sağlayabiliriz?

Öncelikle bunu sağlamanın bir standardı olmadığını söylemek zorundayız. Ama en optimum çözüm, sunucudan istenilen bilgileri mümkün olan enaz git-gel ile almak ve sunucuya gitmeden "client" tarafında çözebileceğimiz herşeyi çözüp ondan sonra "server" a göndermektir.

Örnek verecek olursak .NET C# programlama dilinde bir tabloya bazı hesaplamalardan sonra kayıt eklediğimizi düşünelim; Her defasında server a gidip ekleyip sonucu istemek yerine; .NET in DataRow, DataSet, DataTable objelerini kullanarak bu işi client tarafında yapabiliriz. Daha anlaşılır olsun diye kodun sadece bir kısmını yazacağız. Bu kod bloğunun üzerinde kolon değerlerinin tek tek server a gitmeden aynı objeler kullanılarak hesaplandığını varsayıyoruz. Bu durumda tek tek kayıt eklemek için server a gitmek yerine aşağıdaki gibi kolonları birleştirip satır yapıp bunları DataSetin tablosuna ekleyip daha sonra da bir DataAdaptor objesi sayesinde bu dataseti bir defada veritabanına gönderebiliriz. Bu sayede server a gidip geleceğimize client ın memorisine gidip gelmiş oluruz ki bu bize kat kat daha fazla hız sağlar ve diğer clientları da bekletmemiş oluruz.

Örnek:

```
// Bu kod bloğu ile her defasında server a gidip sorgu çalıştırılır.

for (int i = 0; i < dersSuresi; i++)
{
                        //sorgu değişkeninin oluşturduğumuz insert sorgusu //olduğunu varsayalım


        cmd.CommandString = sorgu;
        cmd.Connection.Open();
        cmd.Transaction = cmd.Connection.BeginTransaction();

        cmd.ExecuteNonQuery();
        cmd.Transaction.Commit();
}



// Aynı işlemi yapan bu kod bloğu ile ise satırlar oluşturulup onlar tabloya eklenir ve en son kayıtlar değil
tablo server a gonderilip güncellenir. [3]

for (int i = 0; i < dersSuresi; i++)
{
        DataRow drDers = DersProgrami.Tables["DersDagilimi"].NewRow();
        drDers["Gun"] = gün.ToString();
        drDers["saat"] = (saat + i).ToString();
        drDers["DersID"] = drSecilenDers["DersID"].ToString();
        drDers["SinifID"] = drSecilenDers["SinifID"].ToString();
        drDers["OgretmenID"] = drSecilenDers["OgretmenID"].ToString();
        drDers["DerslikID"] = DerslikID.ToString();

        DersProgrami.Tables["DersDagilimi"].Rows.Add(drDers);
}

        daDersDagilimi.Update(DersProgrami, "DersDagilimi");  [4]
```

Genellikle ilk yazılan yöntem tercih edilir. Çünkü o şekilde yazmak daha kolaydır ve o objeler daha sık kullanıldığı için akla ilk gelen yöntem o olur. Bu metotta “server” a ve network trafiğine yüklenilir. Döngü sayısı kadar server a gidip gelinir. İkinci metotta ise client in “memory” sine gidip gelinir. “Server” a ise döngü sayısı ne olursa olsun sadece bir defa gidip gelinir. Aradaki zaman kaybı yaklaşık olarak [döngü sayısı]*[server a gidip gelme zamanı] dır.

Sonuç

İnternet aracılığı ile bilgi paylaşımı, gelişen bilgi teknolojilerine paralel olarak yaşantımızın önemli bir bölümünde kullanılmaktadır. Web sitelerinin hızlı olması kullanıcıların zaman kaybı bakımından önemlidir. Client/server (istemci/sunucu) arasındaki veri trafiğini, client tarafından azaltmak yazacağımız programlarla mümkündür. Sunucuya (server) gidip gelmeyi yazacağımız kodlarla en aza indirdiğimizde, hem client/server arasındaki veri trafiğini azaltırız hem de web sitesine erişim hızımızı artırarak o web sitesinin kullanılabilirliğini arttırırız. Bunu sağlarken biz memory objelerini kullanmayı öğrenmenin önemine değindik ve basit bir kod örneği ile bunu somutlaştırdık.

Performansı etkileyen çok fazla parametre vardır (verileri paketleme, memory optimizasyonu, paket sıkıştırma, sorguların optimizasyonu, ara yüz oluşturma sanatı vs) Ama bu şekilde kod yazmayı alışkanlık haline getirir isek diğer optimizasyonlara çok önem verilmese dahi performansı tatmin edici bir

şekilde artırmış oluruz. Çünkü işin **en can alıcı noktası kesinlikle "server" a gidip gelmeyi en aza indirgemektir.**

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INTE 2010

COMPARE OF FINE ARTS TEACHER CANDIDATES' AND CLASSROOM TEACHER CANDIDATES' ACADEMIC DISHONESTY TENDENCIES

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The education contains a long process. During this long process negative behaviors can be seen in students along with positive ones. One of these undesirable behaviors is "academic dishonesty" that comprises behaviors as cheating and plagiarism. It is accepted that fine arts teacher candidates are different from other teaching programs' candidates because of their artistic moods and don't give importance to the lessons that are based on written evaluation as much as art lessons that are based on artistic performance. In this study has been quest an answer for question of "Is there any difference between academic dishonesty tendencies of fine arts teacher candidates and classroom teacher candidates?". The 2nd grade students (n=44+33+60=137) that study in the Music and Art Education programs and Classroom Education program of Karadeniz Technical University, constitute the universe of the study. This research is a survey. As a data collection tool, for determine of students' academic dishonesty tendencies, "Academic Dishonesty Tendencies Scale" that has been improved by Eminoğlu (2009) has been used. Obtained data has been statistically analyzed by SPSS software program. At the end of study, the difference of academic dishonesty tendencies between fine arts teacher candidates and classroom teacher candidates have been determined, compared and some suggestions have been made according to the research results.

Key Words: *Music Education, Art Education, Fine Arts Education, Classroom Teaching, Academic Dishonesty*

1. Introduction

Education, with its simplest definition is the 'change of behavior' process (Kılıçoğlu, 2007:15). In that case, the outcomes of an education system are students' behaviors. When these behaviors are examined, it is observed that some of these behaviors are desired but insufficient while some are no desired (Baykul, 2000). One of the no desired behaviors is academic dishonesty which includes cheating and plagiarism. According to Kibler, Nuss, Paterson and Pavela (1988), academic dishonesty consists of behaviors such as cheating and plagiarism which include assistance received or given in an academic study without permission by students or borrowing another one's study by students (cited: Aluede, Omoregie and Osa-Edoh, 2006). Cheating is defined in the Turkish Dictionary of Turkish Linguistic Society (1997) as "copy of an artistic work or a script" and "a prepared paper to be peeked during an examination in contravention of the rules" while the act of cheating is defined as "peeking a resource to answer the questions in contravention of the rules" generally in written tests. When we examine the studies have been done related cheating, it has been seen that cheating handled by two ways: cheating in home works and cheating in exams. Cheating in home works mostly is related with plagiarism. It includes; quote form references without taking permission form their writer or owner, taking a part of text from references or cheating from other students' works without their allowance. As to cheating in the exam; it contains plenty of activities as cheating with prepare of cheating papers, cheating by use of hand and foot movements (Marsden and others, 2005 cited from Croucher, 1994).

By examining various studies, has been seen that cheating especially in written exams increases day by day. In 1941, Drake found that 23% of college students reported cheating. Goldsen (1960) reported rates of 38% in 1952 and 49% in 1960. By the 1980s, Jendrek (1989) estimated the typical rate between 40 and 60%. By 1992, she found that 74% of college students engaged in cheating (Jendrek, 1992). Even more recently, researchers have reported rates as high as 90% (Graham, Monday, O'Brien, & Steffen, 1994). Exponential academic dishonesty behaviors displayed by students is a very important problem. Because academic dishonesty affects the individual's forthcoming behaviors and the level of reaching to the aims that educational institutes determined (Harding and others., 2003).

Of course, students are not the only cheaters. Others may be adults whom that learnt and embraced cheating in the years that they were students. What Straw (2002) calls 'the P-word' is common in many fields, including journalism (Lieberman, 1995), politics (Perin, 1992) and science (Vandervoort, 1995).

What can be the reasons of academic dishonesty that is such a prevalent? According to Kibler (1993), it is very hard to determine the causes of appealing students to the academic dishonesty. Although there are a lot of decisive factors that exist form past generations, there are also plenty of reasons related our own existing social and political situation. These factors are three: a) characteristic specialties of cheaters b) situational factors that students decide whether to cheat and c) situational factors that compel students to give copy (Aktaran: Aluede, Omoregie ve Osa-Edoh, 2006).

In other researches the reasons of academic dishonesty have been sorted as below:

Perception of students every thing on internet as a community property and a lot of new generation students' unawareness of plagiarism and moral rights' meaning (Bricault, 1998, cited: Moeck, 2002), perception of students the cheating as an acceptable thing in the community and finding hard to reject of copy demands from their friends (Schulman, 1998, cited: Moeck, 2002), ambition of mark and by its pressure, hope of making satisfied the parents (Wein, 1994, cited: Moeck, 2002), think of academically acceptance by way of getting high marks (Aubrecht, 1990, cited: Moeck, 2002), think of losing energy and time by work on lessons that aren't directly related with students' future profession, think of slightness of the lessons that they aren't related with the field (Harris 2001, cited: Moeck, 2002).

It is more important the academic tendencies of teacher candidates that will become teachers and bring up students in the close future from other profession groups. Because the teacher, is the basic element of education and it is impossible expect from the teacher who is already is a cheater, bringing up honest individuals. In the light of these information, the question of " is there any differences between academic dishonesty tendencies of classroom teacher candidates that will become the first teachers of some students and fine arts teacher candidates that will become art or music teachers in the future?" constitutes the problem of this study.

2. AIM

The main purpose of this study is; to determine of differences between fine arts department students' (that study in art education and music education programs) and Classroom teacher students' academic dishonesty tendencies, compare and to make some evaluations with respect to obtained results.

3. METHOD

3.1.Study Groups

This research is a survey. The 2nd grade students that study in the Art Education (33 students) and Music Education programs (44 students) of Fine Arts Education Department and classroom Education program (60 students) of Elementary Education Department at Fatih Education Faculty, Karadeniz Technical University (totally 137 students), constitute this research's study group.

3.2.Data Collection

In the study, for collecting data firstly literature search was conducted. By taking help from the obtained data in consequence of the literature search, a scale has been determined for apply to the study group. For measurement of fine arts students' and classroom education students' academic dishonesty tendencies, a scale consists of 22 topics and 4 sub dimensions improved by Eminoğlu, E. has been used. Quinary likert type scale has been used as answer options in the scale. The answer options have been determined as "Completely Agree", "Agree", "Indecisive", "Disagree" and "Absolutely Disagree".

3.3. Analysis of Data

The data have been obtained from application of academic dishonesty scale, have been put into the process of analysis. For examining of the study group answers towards topics formed the scale,

descriptive frequency measurements have been done and tables have been formed. Firstly test of normality has been done and it is understood that the data was nonparametric. Kruskal-Wallis test have been done for comparing the answers of art education, music education and classroom education students that consist the research study group. For compare of fine arts department students' and classroom education program students' answers, Mann Whitney U test has been done. In application of the tests, the significance level has been determined as $p<0,05$.

4. FINDINGS

4.1. Examining of Academic Dishonesty Tendencies According to Sub Factors

In this section, the tables took place giving the measurement results towards factors of the answers that study group had given. In tables, related average scores regarding topics entered to the factors have been given and evaluations have been implemented towards these scores.

Scale	Score Ranges
Completely Agree	4,21 – 5,00
Agree	3,41 – 4,20
Indecisive	2,61 – 3,40
Disagree	1,81 – 2,60
Absolutely Disagree	1,00 – 1,80

Table 1: Average Score Ranges Related to Scale

In table 1, the likert type quinary answer options range scores take place. The below tables have been explained by taking help from the table indicating which score corresponds to which range.

Topics	Average ($\overline{X}$)	Sd
1. There is no objection to go to exams with preparing materials for cheating.	2,76	1,50
2. It is an innocently behavior to ask help from other students in the course of exams.	3,02	1,32
3. Students must give the answers of the questions that are surely true, to the other students.	2,88	1,31
4. It's not true to be interested in answers that other students had given in the course of exam.	2,79	1,25
5. It can be cheated in the exams that the overseers behaving flexible.	3,20	1,39

Table 2: Academic Dishonesty Tendency Scores Towards The First Factor

By examining the table 2, it is understood that the study group expose an indecisive mode as regards general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** option. Consequently, it is emerged that students expose **"moderate academic dishonesty tendency"** towards "*cheating tendency*" sub factor.

Topics	Average ($\overline{X}$)	Sd
6. Even though the lecturer is known to give high marks without detailed analysis, homeworks and projects should be completed as needed.	2,35	1,33
7. The opportunity to have others do their tasks such as homeworks and projects must be used.	2,62	1,23
8. It is not fair to serve others' work as their own even though their work is not sufficient to get high marks.	2,37	1,19
9. Submitting others' work as theirs should be avoided, even though the lecturer is known to don't do detailed analysis.	2,42	1,22
10. Tasks mustn't be prepared instead of close friends for any reason.	2,89	1,30
11. There is no need for students being careful about the tasks of lecturers that they usually give high marks.	2,45	1,26
12. It is an innocent act to present others' homeworks as their own.	2,58	1,32

Table 3: Academic Dishonesty Tendency Scores Towards The Second Factor

By examining the table 3, it is understood that the study group doesn't participate in the related topics as general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **Don't Agree** option. The students just in 7. and 10. topics stated that they are indecisive.

Consequently, it is emerged from the answers that students have "*partly academic dishonesty tendency*" towards the "*tendency of being dishonest in projects and homeworks*" sub factor.

Topics	Average ($\overline{X}$)	Sd
13. In a qualitative or quantitative based research, it is more logical to make up data rather than collect data	2,51	1,32
14. It is more logical to submit a ready made report rather than prepare it.	2,70	1,34
15. Reports from internet can easily be submitted in situations when the lecturer is known to be careless about reading.	2,70	1,34
16. A student mustn't give his reports to another student even if the lesson's instructors are different.	2,70	1,22

Table 4: Academic Dishonesty Tendency Scores Towards The Third Factor

By examining the table 4, it is understood that the study group expose an indecisive mode as regards general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** option. Students just in 13. topic stated their unparticipation. Consequently It is emerged that students have "*moderate academic dishonesty tendency*" towards the "*tendency of dishonesty in researching and reporting process*" sub factor.

Topics	Average ($\overline{X}$)	Sd
17. Projects or tasks could be prepared without citing the resources.	3,27	3,68
18. Sources could be used in homeworks or projects by changing the original owner of the text.	2,77	1,21
19. It is a thought stealing, use of peculiar ideas of others without showing the sources.	2,37	1,36
20. For gaining more scores the reports of homeworks and projects can be shown as if it is benefited from a lot of sources	2,91	1,32
21. The peculiar ideas and thoughts absolutely must be submitted by showing sources.	2,84	1,43
22. It is not ethical to make use of works of others without showing the original sources.	2,43	1,29

Table 5: Academic Dishonesty Tendency Scores Towards The Fourth Factor

By examining the table 5, it is understood that the study group expose an indecisive mode as regards general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** option. Students just in 19. and 22. topics stated that they are Disagree. Consequently, it is emerged that students expose an indecisive attitude in ideas towards "*content of the computer lesson*". Consequently It is emerged that students have "*moderate academic dishonesty tendency*" towards the "*dishonesty tendency towards quotes*" sub factor.

4.2. Compare of Departments According to Academic Dishonesty Tendencies Towards Factors:

In this section Kruskal-Wallis test has been done for comparing of art education, music education and classroom education program students' academic dishonesty tendencies, and the 6 questions that have been found significant differences among them, have been considered and presented in tables. The significance level between groups has been accepted as $p<0,05$.

Topics	Department	N	Average ($\overline{X}$)	Sd	p
1. There is no objection to go to exams with preparing materials for cheating.	Art Music Classroom	44 33 60	77,83 88,03 52,06	1,50	,000
2. It is an innocently behavior to ask help from other students in the course of exams.	Art Music Classroom	44 33 60	75,58 81,35 57,38	1,32	,007
3. Students must give the answers of the questions that are surely true, to the other students.	Art Music Classroom	44 33 60	73,75 82,14 58,29	1,31	,011
7. The opportunity to have others do their tasks such as homeworks and projects must be used.	Art Music Classroom	44 33 60	76,75 75,29 59,86	1,23	,048
8. It is not fair to serve others' work as their own even though their work is not sufficient to get high marks.	Art Music Classroom	44 33 60	83,39 72,74 56,39	1,19	,001
12. It is an innocent act to present others' homeworks as their own.	Art Music Classroom	44 33 60	80,40 67,41 61,52	1,32	,045

Table 6: Kruskal-Wallis Test Results For Compare of Academic Dishonesty Tendencies According to Music-Art-Classroom Programs

By examining of table 6, it can be understood that in expose of **moderate academic dishonesty tendency** and occurring significant differences between ideas of art, music and classroom students in 1. , 2. and 3. topics, the weight has been on music program students. However it is understood that in expose of the same tendency in 7. topic, the weight has been on art program students. Also it is understood that the weight has been on art program students in differences occurred in 7. and 26. topics and exposed **partly academic dishonesty tendency**.

U test has been done to the study group's answers with mentioning compare of Fine Arts Education and Classroom Education program students' academic dishonesty tendencies and 6 questions that have been found significant difference among them, have been considered and presented in tables. The significance level between groups has been accepted as p<0,05.

Topics	Department	N	Average ($\overline{X}$)	Sd	p
1. There is no objection to go to exams with preparing materials for cheating.	Fine Arts Classroom	77 60	82,20 52,06	1,50	,000
2. It is an innocently behavior to ask help from other students in the course of exams.	Fine Arts Classroom	77 60	78,05 57,38	1,32	,002
3. Students must give the answers of the questions that are surely true, to the other students.	Fine Arts Classroom	77 60	77,34 58,29	1,31	,004
7. The opportunity to have others do their tasks such as homeworks and projects must be used.	Fine Arts Classroom	77 60	76,12 59,86	1,23	,014
8. It is not fair to serve others' work as their own even though their work is not sufficient to get high marks.	Fine Arts Classroom	77 60	78,82 56,39	1,19	,001
12. It is an innocent act to present others' homeworks as their own.	Fine Arts Classroom	77 60	74,83 61,52	1,32	,044

Table 7: U Test Results For Compare of Academic Dishonesty Tendencies According to Fine Arts and Classroom Programs

By examining of table 7, it can be understood that in expose of **moderate academic dishonesty tendency** and occurring significant differences between ideas of Fine Arts and Classroom programs students in 1. , 2. , 3. and 7. topics, the weight has been on Fine Arts Education program students. Also it is understood that in expose of **partly academic dishonesty tendency** in 8. and 12. topics, the weight has been on Fine Arts Education program students.

4.3. Compare of Genders According to Academic Dishonesty Tendencies Towards Factors:

In this section U test has been done to the study group's answers with mentioning compare of Female and Male students' academic dishonesty tendencies and 3 questions that have been found significant difference among them, have been considered and presented in tables. The significance level between groups has been accepted as p<0,05.

Topics	Sex	N	Average ($\overline{X}$)	Sd	p
9. Submitting others' work as theirs should be avoided, even though the lecturer is known to don't do detailed analysis.	Female Male	74 63	62,41 76,74	1,22	,029
13. In a qualitative or quantitative based research, it is more logical to make up data rather than collect data	Female Male	74 63	62,57 76,55	1,32	,034
16. A student mustn't give his reports to another student even if the lesson's instructors are different.	Female Male	74 63	62,53 76,60	1,22	, 034

Table 8: U Test Results For Compare of Academic Dishonesty Tendencies According to Genders

By examining of table 8, it can be understood that in expose of **partly academic dishonesty tendency** and occurring significant differences between ideas of Female and Male students in 9. and 13. topics, the weight has been on **Male** students. Also it is understood that in expose of **moderate academic dishonesty tendency** in 16. topic, the weight has been on **Male** students.

5. CONCLUSION AND DISCUSSION

The findings obtained from the study reveal that the students answering the scale questions have a tendency of being "*moderate academically dishonest* ". In parallel with the observation of sub factors formed by tendency points, in the evaluation of students' "**cheating tendency**" in written exams, it has been estimated that the students "*tend to be moderately dishonest*" and in their evaluation of projects

"*moderate academically dishonest*". In addition, in the evaluation of "**tendency to be dishonest in the process of research**", the students have been estimated to be "*moderate academically dishonest*" while in the assessment of "*tendency to be dishonest about quotes*", they have been marked as "*moderate academically dishonest* ". It has also been seen that the meaningful difference between the sections of "drawing"-"music" and "the department of classroom teaching" seen the first, second and third articles have developed in the form of "*moderate academically dishonest*" and the dominance is noticed in the Department of **Music** while in the 7th article, the dominance is noticed in the students of Department of **Drawing**. However, in the difference formed in article number 8 and 12, students of Department of Drawing have been noticed dominant in their "*partial tendency to be academically dishonest*". The meaningful difference between "departments of fine arts and classroom teaching" toward the scale in the articles of 1, 2, 3 and 7 have been determined to develop as "*moderate academically dishonest*" and the dominance is seen in the students of **Fine Arts**. Whereas in the difference formed articles 8 and 12 students of fine arts, it is seen that the students have been assessed to display "*partial academic dishonesty*". The male students have been seen to be dominant in the "*partial academic dishonesty*" out of the male and female students when the 9th and 13th article are taken into account. In addition, **male** students have been dominant in the "*tendency of academic dishonesty*" in the difference formed in article 16.

When the answers of the study group were observed, it has been seen that out of 22 articles in the scale, the students have had a tendency to mark "**don't agree**" option in 4 articles which refers to "*partial academic dishonesty*" and in the rest of the articles, they have had a tendency to mark "**undecided**" option.

The students, in the scale of "**cheating tendency**", have expressed that it is of no harm to attend the exams with prepared cheating materials, it is quite innocent an act to ask for help during the exams, it could be necessary to pass on the answers they believe to be true to other friends, other students may deal with their answers during the exam and it could be cheated when the lecturers or observers are seen flexible during the exams.

In the evaluation of the scale of the students' "**tendency to be dishonest in projects and homeworks**", the students have stated that; even though the lecturer is known to give high marks without detailed analysis homeworks and projects should be completed as needed, the opportunity to have others do their tasks such as homeworks and projects may be used, it is not fair to serve others' work as their own even though their work is not sufficient to get high marks, submitting others' work as theirs should be avoided, tasks could be prepared instead of close friends for any reason, students should be careful about the tasks of lecturers even though they usually give high marks and it is not an innocent act to present others' homeworks as their own.

In the evaluation of the "**tendency of dishonesty in researching and reporting process**", the students have marked that; they are aware of the fact that in a qualitative or quantitative based research, it is more logical to make up data rather than collect data, it is more logical to submit a ready made report rather than prepare it, reports from internet can easily be submitted in situations when the lecturer is known to be careless about reading, a students can give another student the report whose lesson instructors are different.

In the evaluation of "**dishonesty towards quotes**", the students have expressed that; projects or tasks could be prepared without citing the resources, sources could be used in homeworks or projects by changing the original owner of the text, it could be stealing and copying of ideas to express opinions of others as theirs, and it is not ethical to make use of works of others without showing the original sources.

When the results of the study are considered generally and that the dominance of academic dishonesty is on the future fine arts teachers, it is a known fact that even though they are students in the Department of Fine Arts which gives basic music and art education, they are future teachers who are about to step in the holy profession. For this reason, detailed research should be made regarding why the students choose to act in the way they do and both individual and institutional efforts should be made to overcome the issue. Furthermore, teacher candidates should be enlightened about how these actions could degenerate the next generations in the years to come.

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CONCEPTUAL LEARNING OF SCIENCE AND DEVELOPMENT OF SCIENCE COMPETENCES

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ABSTRACT

Teaching and learning with computers (ICT) encompasses her help in educational process everywhere there where is this perhaps and reasonable. Learning process of science, mathematic and technical subjects in elementary and secondary schools in many situations demands practically and problem solved work. Conceptual learning of physics is computer based and its strategies lead pupils to a better understanding and use of more difficult processes (thinking, differencing, using the knowledge). The main goal of our study was to research the effects of conceptual way of learning in comparison with traditional classroom education when teaching the topics "Electromagnetism" in the secondary school. We tested four thinking processes of pupils (knowledge, analyses, inference and comparison) and most important science competences (digital competence, mathematical competence and basic competences in science and technology). The main expected ascertainment of research was that the students, who were taught through the conceptual way achieved better results than those who were taught traditionally in the classroom.

Key words: science competences, digital competences, information and communication technology (ICT), conceptual learning, simulations, applets, physlets.

INTRODUCTION

Computer assisted or ICT assisted teaching provides educational support were ever it is feasible of reasonable. The objective of ICT and computer in the educational process is constant search for improvement. This also encompasses searching for the optimal solutions for pedagogical effectiveness of educational goals (Gerlič, 2000). One of the advantages of appliance of computer and/or ICT in the education is software. Software is capable to vividly present and simulate different phenomenon without the need of expensive equipment which is beyond the reach of educational institutions. Software can also enable virtual execution of dangerous experiments and above all it can introduce research and problem solving approach to the education. Natural science, mathematics and technical science teaching is based on team work or individual practical work. Method of practical work has dominant role in problem solving education. It demands student's active involvement in new knowledge acquisition. Individual's practical work and problem solving education (Strmčnik, 1992) in the teaching of natural sciences, mathematics and technical sciences are the fundamentals for all other teaching and learning activities. But this approach is not the only intuitive instruction. It has its specific operational demands and it is not always feasible. For example teacher is unable to prove the physics or chemistry phenomena experimentally. This cannot be done because of material, safety, didactics and time schedule aspect. In those cases he/she uses elements of instructional technology where computer and ICT plays a major role.

Problem solving education and conceptual learning

Motivation is one of the key problems in the natural, mathematics and technical sciences education. In the education in general the motivation and active knowledge of the students is of a paramount importance. Unmotivated, template of pattern solving principles and minimal creativity learning has no future in contemporary education. Computer and ICT have ability to incorporate motivation and research problem solving approach into the education. Incorporated teaching strategies in the software demands student's constant active involvement, knowledge processing, and new knowledge acquisition at all time during the education process. Those in favor of the computer and ICT in the education are right when they state that technology opens the new way in the education. But even those who oppose using of computer and ICT are right when they state that technology breaks proven traditional educational practices and every day's work. Both sides have ability to find pluses and minuses in the application of computers and ICT in the education. But this does not changes the fact that we need further research and scientifically proven answers about the benefits of using the computers and

ICT in education. Our experiences show, computers and ICT open new types of pedagogical activities and agitate curiosity and creativity of students (Gerlič, 2006). Computers and ICT are proven to be very motivating factors and therefore highly valuable in the education. Even students express they like lectures more if they use ICT and computers. It would be a waste if we do not use them in the education. Using computers students have ability to solve much more complex problems than using the traditional approaches. But we still need to be cautious. It is wise to use the technology only where it assures the optimum pedagogical, technical and professional demands of the education (Gerlič, 2000) .

Lately in the world and in Slovenia we promote the conceptual learning approach in natural and technical sciences (Wolfgang and Belloni, 2004), so-called COLOS - Conceptual Learning of Science. Basic and primary goal of conceptual teaching is experience adventure. Student should become familiar with the effects of natural of technical law before they receive it's theoretical and mathematical background. This is the way to narrow the distance between physics and "real" physics or any other natural or technical scientific discipline. Students can see the effects of the science in the every day's life and can explain every day's experiences with the scientific background. This bond is usually not so evident (or even cleared) in the traditional frontal approaches. Conceptual learning enables the integrated and global view to the learning material and better understands the abstract mathematical models and real world events. Interconnection between abstract mathematical models and real world phenomena is very important in the learning of natural and technical sciences. Traditional approaches use too much time to establish this bond between two views to the same problem. Nice example is the physics presentation of forces on the slope (Gerlič, 1991). In the traditional approach the teacher draws the right-angled triangle on the blackboard and a rectangle on its diagonal. Then he/she adds vectors of forces on rectangular and writes mathematical equations. This topic ends with the one or two examples to present and consolidate the new knowledge. The problem in this approach is that student does not know that the right-angled triangle is actually hill outside the classroom and the rectangle may be the car driving up or down the hill or him walking to school. This is a drastic example but such topics are not rare in the education process. We have not mentioned that physics in such approach looses all its meaning. It becomes bored and self-sufficient. Conceptual learning with its simulations is one of the ways to prevent these unwanted results.

Project COLOS (Wolfgang and Belloni, 2004) uses models, animations and simulations for problem solving approach and logical active approach in the education from its start. At the beginning simulations required expensive graphics workstation (e.g. SUN, HP, Silicon Graphics ...) but the advances in the computer technology and World Wide Web enables personal computers to become powerful enough to run simulation. Simulations are now available on the all levels of education. In the last decade we start using java programs - applets in the combination with the hypertext to present modern form of interactive textbook. Another technology that enables web interactivity is also the JavaScript. JavaScript introduces the client processing and change the static web pages into a dynamic. Cooperation of hypertext and dynamic elements led to the development of applets. Applets (Figure 1) are controlled by the scripts and can coexist with the hypertext.

Let end the introduction and focus on the content which teacher need the most. We decide to use the physics for our explanation but this could be extended to any other profession. Prof. Wolfgang Christian (Davidson College, North Carolina) introduces the concept of physlet. Physlets (figure 2) are Java applets developed for physics education and can be controlled with the JavaScript.

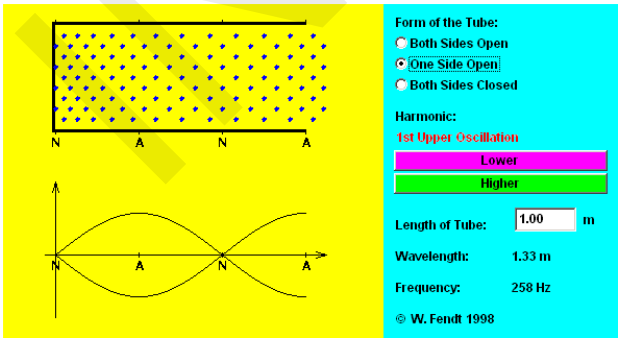


Figure 1.

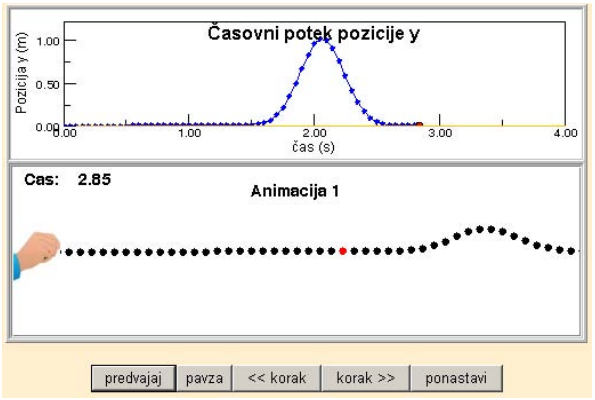


Figure 2.

Interactive materials for teaching and learning

Physlets - "physical applets" are small, adoptable Java applets we can use as simulation models in the web applications. In the world physlets are successfully used in the physics education for years. Physlets have many attributes that gives them special educational values. They are simple and they use uncomplicated graphics. Each physlet addresses one physics phenomenon and it does not deal with the analyses of the data. Since they are small in size they can be easily downloaded from the web. They do not have details which can be more misleading then helpful.

Physlets can be used as construction elements in almost every teaching plan and in almost any teaching approach. Despite we believe that teaching methods requires interactivity we can use them in the classical demonstrations, defining home works, knowledge diagnostics etc. The technology of physlets is didactically adjustable. Their behavior can be set and controlled with the JavaScript. With the minor changes in the script we can set arbitrary content from mechanics, electrostatics, etc. We do not need to change the Java code of the applet. Inter-applet communication can transfer data and even provide data analysis.

Creative teacher is not satisfied using the existing didactical examples even if they can pick from large number of examples (Wolfgang, 2005). He/she wishes to adjust them according to his/her own idea or create their own examples. Examples can be used in interesting problem oriented solving principles including interactivity and accessible on the internet. This approach enables students all day work in school or at home. Simulations can also be used in test systems.

Effects of conceptual learning of Physics in secondary school

The main goal of our study was to research the effects of conceptual way of learning in comparison with traditional classroom education when teaching the topics “Electromagnetism” in the third class of Slovenian secondary schools. We tested four thinking processes of pupils (knowledge, analyses, inference and comparison). 80 third grade pupils from school took part in the research. 40 pupils were taught physics traditionally and 40 through a conceptual way. Two teachers were teaching them from December 2009 till February 2010, altogether for six weeks, three weeks topics about Electricity and three weeks topics about Magnetism.



Figure 3. Percentage of achievements of students
(ES – experimental group, KS – control group) in individual assemblies
of task of test of knowledge round experiment (Electricity)

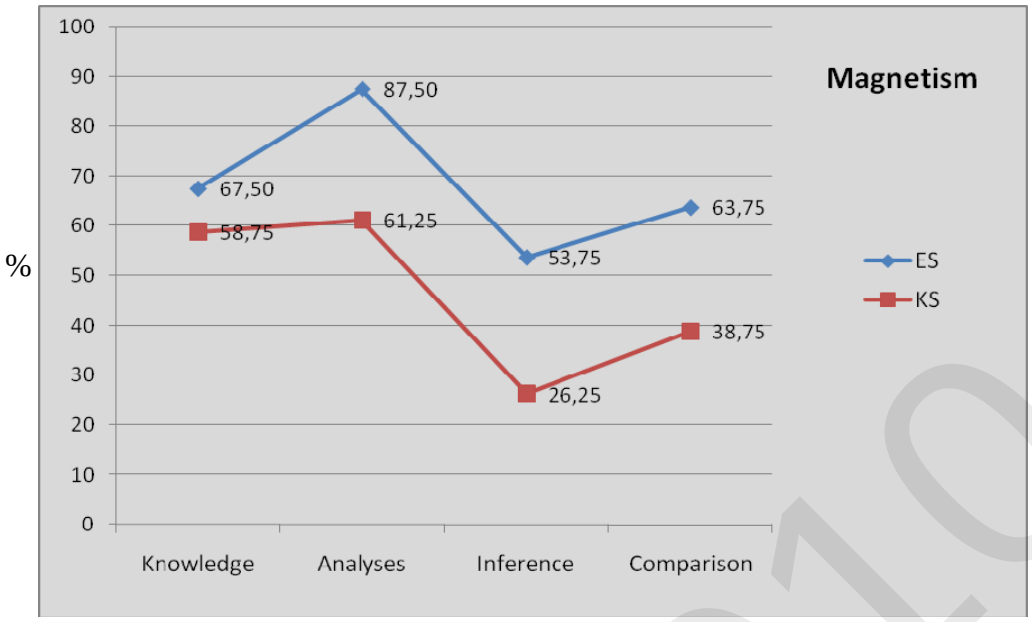


Figure 4. Percentage of achievements of students
(ES – experimental group, KS – control group) in individual assemblies
of task of test of knowledge round experiment (Magnetism)

The main expected ascertainment of our research was that the pupils, who were taught through the conceptual way achieved better results than those who were taught traditionally in the classroom. We anticipated that there would be statistically important difference between the pupils who were taught through a conceptual way and those who were taught traditionally. These theses were confirmed (Figure 3 and Figure 4). There's no doubt in Slovenia, whether we should use conceptual way of teaching or not, but **where, when and how we should use it**, so that its use would provide a better quality and better effects of learning and teaching (Jakob, 2007).

We have to emphasize that we used a model of conceptual way of teaching a topic in physics and that we planned, carried out and evaluated the educational work with modern concepts and strategies of learning and teaching physics – which is also carried out in the curricular renovation in Slovene secondary schools.

CONCLUSION

Conceptual learning of physics brings modern ways of learning and contributes to better understanding and popularity of physics. When teaching physics, we are interested in physical side of natural phenomena. That is the reason, why a teacher should provide a subjective and entire experience of these phenomena. The principal role of this approach is the empirical experience of a naturalistic law, rather than its theoretical understanding. In traditional, classroom education this is often put in the background.

In schools the lessons should be planned problem-based, experimentally and IT elements should be incorporated. New media and modern methods lead teachers and pupils to a deeper insight and better understanding of the phenomena that pupils learn about. This kind of understanding influences the quality of teaching, improves pupils' ability to abstract, understand and help solving problems.

Modern methods with IT elements are important for improvement of development of natural science competence and digital competence. Natural science competences and digital competence are on the list of eight key competences, that European Commission recommends to Member States to develop (European Commission, 2003). Because of constant changes in an increasingly interconnected world the key competences have highest importance in a knowledge society. The key competences are combination of essential knowledge, skills and attitudes and defining such competences can improve assessment of how well prepared are young people and adults for life`s challenges.

Basic natural science competences refer to the mastery, use and application of knowledge and methodologies which explain the natural world. These involve an understanding of the changes caused by human activity and the responsibility of each individual as a citizen. Digital competence involves the confident and critical use of information society technology (IST) at work, in everyday life and communication. It is supported by basic skills in communication technology (ICT).

Physics has important role in the improvement of the development of natural science competences and digital competence. This task can be achieved with the choice of appropriate physics topics in accordance with curriculum, and also by using suitable didactic strategies. One of successful strategies is conceptual learning of physics.

Conceptual learning of physics is computer based and its strategies lead pupils to a better understanding and use of more difficult processes (thinking, inferencing, using the knowledge). By conceptual way of learning we used „fizlets“ as simulatory models. They are interactive materials, where processes happen in certain intervals and there is interaction between the model and the pupil. Two way interaction and the constant possibility of changing the conditions, observing the impact, problem-based approach and didactic evidence, dictate the most common use of this strategy in physics education.

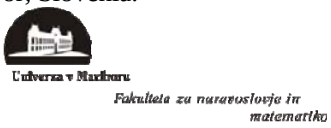
There are no reasons not to use conceptual learning approach in other studying programs. We can track use of physlets in chemistry and we could easily use them in the mathematics and the rest of natural and technical sciences. The charm of the physlets in physics can be seen in the number of didactical examples which authors prepare when they systematically cover the education of physics. Empirical data of our research are confirming accuracy and successfulness of this way!

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CULTURAL IDENTITY – SOME QUESTIONS AND NOTES. TOWARDS MULTICULTURAL EDUCATION

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Human live is kind of translocation in the social space, where an important co-ordinate is time. This kind of space has the mechanisms, regulations and rules similar as in the space described by Albert Einstein in his theory – with a bend, abridgement and extension etc.

Human live we can also divide for smaller parts – micro spaces, which sometime we can call them - phases of human development. They are very well described in science – Piaget, Ericson, Debesse, etc. My notes are not against any of these descriptions, but contains a few new points in the view of human live and development.

When we will have a look deeply in these micro spaces we can divided them also for again smaller parts – lets call them micro phases. In case of individual live the micro phases composes functional integrated system – phases, which constitute an functional integrated system – human live. Each of us passed the micro spaces and spaces (micro phases and phases) on several interrelated levels (ways) – biological, intellectual, social, transcendental, emotional etc. These different ways are well looked specially in micro phases.

Between each micro phases and phase we can detect more or less expressed borders – gates, or meta gates. Most of these meta gates which concerned micro phases are not visible but they have the designates denoted a moment of passing the border. First steps, first "me", first menstruation, first gray hair etc.

The meta gates between phases are better visible: living a pubes with first cry, baptism, entrance to kindergarten, then to the primary school, Communion, high school, diplomas ceremony, first engage, first job, marriage etc.Both kind of meta gates are very important in the process of identity formation, the most important for adolescence.

Young man does not have a well constructed and integrated "ego", but at the same moment he has consciousness of problems which are before him. In adolescent formation of identity meet a special crisis concerned sense that "I am not, whom I should be, I will be, I was". This crisis is a problem in search answer for question "who I am now".

One of the characteristic signs of this phase is a "negative identity" . Other – well important for this notes is eradication. "Old" kinds of inveteracy are not enough useful and young man has to find a new inveteracy in social world, social space. He is not a child, but still not an adult. He search an identity, and one of the way in the process of inveteracy is style of life.

For these reasons the society is "organizing" a special space – moratorium, where and when adolescent people can find a possibility to formulate their own, individual identity and connections with cultural identity. One of the kind of moratorium is education, especially school, in contemporary societies – high schools. Others can be travels, ramble etc.

The adult members of society are expecting that young man, when he passed the period of moratorium, he will be ready to be an adult, responsible for his own life, family, society etc., will be ready to open the meta gates to new micro phases and phases. Because we – adults –are.

But in our adults, our generation, experiences, we passed the borders, meta gates well designated. First job with procedure of engage and ceremony of coming in; the ceremony of marriage, opening account in the bank etc.

Changing the modern society we have mixed all of the micro phases' ways with the meta gates, and destroyed most of the designates of the phases' meta gates. Young people can open account in the bank just after the Confirmation ("learn to save money"), are working at summer or weekends, or full/part time as pupils of secondary or high school ("for holidays" etc). A lot of examples like these can give the strong arguments for thesis, that most of the young people are loosing a consciousness of passing the meta gates, borders between the phases – adolescence and adult. My own research gave me the arguments that youth has the same world of values, but they do not have well précised designates.

On the other hand they live in the well complicated world, made by adults. We – adults loose control of some cultural extensions (computers, technology etc). So we have problems to understand this

world, and we can not understand the world of adolescent people. For this reason we can't not only to give the answers for many questions, but also we can not to be a guide or partner. So the most important question is: what are the designates of the borders, what are the meta gates, in contemporary life for young people.

Another side of this problem is national and cultural identity in the Europe without well précised borders and designates ("euro"). Not only economical, but also simple borders designates are deconstructed. When we are passing the border between France, Germany, Netherlands, Denmark we do not have a clear, simple designates of different countries, different culture. Probably the only one differential value is language. But for how long ?

If we will look at this problem also from global perspective – we can notice, that at the same time we deconstructed a lot of individual borders, individualized; we broken the borders of our social, safe "territorial" spaces and started build a behavioral sink (from Calhoun).

For these reasons I am sure that a very important problem of research studies should concern the cultural conditioning for determining the sources for formation of cultural identity – "personal homelands".

The fundamental research problem I intend to solve is to determine the two types of factors that are significant in the formation of cultural identity in its local/regional dimension and that enable the contemporary youth to (1) perceive and recognize the borders of their own versus alien cultures, and (2) perceive and recognize critical "*loci*", also known in the literature of the subject as "intimate loci" and "personal homelands".

The research will focus more precisely on determining the sensory points of entry through which young people enter the cultural space of other groups' or communities' and how they go about defining the borders of the space or the cultural territory.

Theoretical and methodological foundations for the project currently submitted for funding is comprehensively laid out in my work *Edukacja regionalna. Problemy podstawowe i otwarte* (*RegionalEducation. Basic and Open problems)* published by Nicolas Copernicus University in Toruń (Poland) in 2003.

What is nowadays called a regional education, is – as it is easy to realise in every day education experience – an area on one hand new, and on the other - quite old. There are authors, who derive the concepts of regional education from the works of Jan Amos Komenski; one can also reach far earlier, even to ancient Greece. However the analysis, carried out basing on the humanities, being a foundation of the present discussion, shows, that regional education is a new idea, quite a young one. Thus one experiences a lack of theoretical reflection, the fact being underlined by numerous authors. In the same time, a number of occurring ambiguities and over-interpretation of numerous notions and terms lead to fixing ideological schemes and interpretations. This can lead to creating the cramped and superficial description of the section of reality, and thus often loosing the sense and meaning of numerous valuable activities.

Regional education is being endangered with that in a particular way. The system changes in European countries, processes of European integration, new face of nations, ethnic groups, local communities, development of the means of communication, globalisation etc. especially stimulated discussion and controversies around such notions as the cultural identity, national identity, the homeland – large and little, region, regionalism, cultural heritage. They became present in the lips of politicians, ideologists, activists, animators, organisers. Quite obviously they entered also the workshop of researchers and scholars, sociologists, anthropologists, philosophers, psychologists, geographers, historians, economists, lawyers and finally – pedagogues.

The regionalism, the Renaissance of which is readily today spoken of, constitutes *de facto* an important source for regional education. And the regionalism is a peculiar ideology, expressing the attitude to a particular, important or even sometimes beloved by each of us and every group, members of which we are, territory. The territory of childhood, the territory of life – our territory. And as such an ideology – regionalism is an attribute of a human being, has a *stricte* human dimension. Such understood regionalism is not only a process of transmission of knowledge of a given territory, this is a process of experiencing this territory, regardless of the name we give to it: home, region, little homeland or our world.

In my book I have given myself a task first of all to recognise the meaning of numerous notions and terms, which are inseparably bound with the regional education. I reveal their meaning, and in the same time – how they happen to be ambiguously defined and often quite distant from the initial propositions in the literature, documents, consciousness.

I also draw the attention to the fact, that the regional education should not be restricted to school alone, but that it oversteps the limits of possibilities and competence of that institution. But first of all my aim is to point out, that the intrinsic attributes of regional education contain numerous suggestions and important propositions for the education in general. I have reached here to the look from the perspective of the essence of some behaviour and ways of functioning of the human being. The essence – which I underline – already described by the classics of: sociology, anthropology, theory of education. Basically, I do not make any discoveries, I reach for what has already been known and described. I aim at describing the regional education by renewal of the theories and concepts already known; I decided that it is justified to undertake the analysis through the prism of the key-terms of regional education such as the region, the regionalism, private homeland and little homeland , culture, cultural heritage, regional identity.
That analysis constitutes the major part of my study. Perhaps at times it is too presentational and review, but I have decided that it is justified for the argumentation of the thesis that, first – the notion of regional education is not only unjustified, but secondly, that it comprises a broad and both socially and pedagogically important part of the reality.

My years-long research in the essence of regionalism and regional education, studies, collected data, placed against the background of more or less extensive critical analyses, lead to the reflection: in the search for answers to numerous questions, many concepts, already existent in social sciences and suggesting possible solutions, slip away. And those which are being quoted, are usually used only in selected contexts. Among such fragmentary quoted works one can number the studies of Stanisław Ossowski, Florian Znaniecki, Stefan Czarnowski; among those left out the works of Antonina Kłosowska, Erich Erickson, Ralph Linton, Edward T. Hall or Yi Fu Tuan. In consequence we receive a very hazy, simplified description, containing numerous ambiguities, sometimes even contradictions. The causes of such a state of affairs are diverse, however mostly it is the political and ideological utilitarianism.

As a priority I have taken not to look at the sphere called the regional education through the prism of the newest pedagogical or sociological concepts, but to take it as an essence of human behaviour, from the perspective of anthropology of culture, sociology, psychology or pedagogics, being today already a classic. I have to admit humbly, that I did not discover anything new, I only revealed, what has been obscured by the ideologisms and so called universalisms.

One of the major concluding suggestions is a suggestion of the necessity to discuss the motivation of using the term *regional education*. That thesis, together with the argumentation I present in the last chapter of the present book. This suggestion is not only a cosmetics, this is, on one hand, showing many new research areas, and on the other, a possibility for educational activities to reach for much more diverse means, often overlooked and left out. All the more so, that the problems of such education, as well as of cross-cultural and multi-cultural education, interweaved with it both structurally and functionally, are not only the problems of contemporary Poland and its contemporary young generations. This are also the issues of the present and future generations of other societies, making the united Europe, which is being confirmed by my analyses and observations made during travelling experiences.

The suggestion to discuss the motivation of the term *regional education* results also form the fact, that the present work has a character of a specific study of one notion. I felt obliged to that attitude since form one hand I have found that the known things and phenomena are named differently or inadequately; that many things and phenomena is not named or not defined precisely enough. And this ambiguity of notions, however quite comfortable in terms of ideology, in terms of education and research is harmful. What justifies undertaking such a specific study of a notion is also the fact, that education, called regional is still deprived of essential theoretical foundations, which I prove in my work. One of the important foundations of each concept is after all its notion machinery. That is why I have assumed a particular structure of my point of view. In some my works I present and analyse the descriptions, pretending to the status of such concepts. It includes almost all important attitudes.

I make the analysis of the most common ways of handling and describing used in discussion on the regional education and regionalism, notions and key-words: region, regionalism, culture, cultural heritage, private homelands, regional identity. I decided the review and presentation how many doubts and ambiguities there are in the sphere of notions, and what consequences result from that.

I have formulated the proposal of different attitude to regional education, as to the cultural education. In my researches concerned *Space, place, time* in consequence of the assumptions made, I undertake the analysis of regional education in context of those three, neglected in pedagogics, categories. Because those three categories are practically not being taken into account at all in theoretical discussion and studies on the so called regional education, in spite of the fact, that they are being the reference for all

the processes and mechanisms of: developing cultural identity, rootedness, experiencing culture etc. My studies *Regional education – a moderate context of announcement*, contains the summary of my considerations and reveals the possible directions of further research as well as motivation for the change of attitude to and thinking of (a kind of *metanoia*) education called regional as on the cultural education, answer to the questions rankling the present and future young generations. This is a fascinating challenge to understand the meaning of place and time for a human being and to support it in search for its intimate place, its own substitute of Eden, which once was its mother's womb; a safe territory, where it can find time and possibility for reflection on the questions: who am I?, where am I from?, were am I?

The consequence of the processes taking place in Poland within the broader European contexts is the attrition or at least partial superceding of many elements constituting cultural identity, such as language, religion, and material objects of cultural heritage. In addition, the designators of cultural borders facilitating perception of difference are also subject to universalisation. The adult generation does not seem to notice the emergence of qualitatively new spaces around the same places or the new cultural designators and other factors that could become very helpful in understanding how the bases for cultural identity of contemporary youth could be created. Analyzing the mechanism of territoriality we see that a part human behavior is concerned with acknowledging and respecting of various types of distances, including the social distance, that has been extended with television, telephony, and its most recent extensions – cellular telephony and the Internet. In my view, there exist three types of social distance: intimate, intra-cultural and inter-cultural.

The intimate social distance has an individual being able to maintain contact with other members of the group within which the individual functions. That includes also such extensions that contributed to that distance.

The intra-cultural social distance is one within which an individual can maintain contacts with other members of the same cultural community – local, ethnic, or national – while using culturally determined understandable and non-ambiguous forms of communication. The system of signs and the language has been absorbed by the individual through the processes of education and socialization.

The inter-cultural social distance comprises contacts with members of other cultural communities with which an individual is able to communicate by having acquired the prerequisite skills for such communications. Such skills may include the ability to speak or understand a foreign language, exposure to other cultures, etc.

Such classification of the social distances is based on my research which shows that a majority of adults experiences only two types of social distances, namely the intimate and the intra-cultural. Younger people in the research experience generally more than the adults the third type of social distance, the inter-cultural one. This is due to their foreign language skills, greater territorial mobility across cultures, not only as tourists but also as students, workers and explorers. A new space becomes the locus for an individual when he or she perceives it as familiar. For an increasing number of young people the space between the intra and inter cultural distance becomes to be perceived as cognate and becomes a locum. This space then becomes a symbol of freedom and openness suggestive of future and encouraging to take action. For most adult people that same space and the freedom associated with it constitute a threat.

Among the many aspects of perceiving and entering space, we should consider an important but often ignored fact that not everyone approaches to the surrounding world in the same way. Cultural conditioning of the differences between the perceptual worlds is a well known phenomenon. Though the differentiation is lesser among people belonging to one culture than among people from different cultures, these differences do exist and can be very significant. We can propose that the perceptual worlds of the two generations – adults and youth – are fundamentally different. As other authors also find, location of both the adults and the young in different spaces is manifested also in different ways of orienting within the space or translocation from one place to another. The variance of orientation lends further support to the thesis of location in two different perceptual worlds.

The above also applies to perception of objects and places by representatives of various generations. One more aspect is worthy of noting. The stimulating force of symbols depends on the existence of a coherent world. Lack thereof reduces symbols to the status of mere signs. The nature of living and present symbols is that they do not require an explanation. On the other hand, increasing number of symbols have become signs because they have lost their status of a place or locum. This may not be, however, a result of a lack of general meaning, but rather an effect of the belief that the coherence of the world that has generated the places and symbols continues nevertheless. Meanwhile, the world has

changed, escaping in many instances the control of its creators. The problem of symbols, signs and perception of signs is also the problem of borders.

The significance of the issue of determining the factors that would enable today's youth to define important places, intimate places, private homelands reaches beyond purely educational issues and conditions. Along with the globalization processes, in the Polish dimension it is also an issue related to: transformation of the political system; new administrative division of Poland; the processes of European integration; as well as the new types of migration.

This is a really fascinating challenge to understand the meaning of place and time for a human being and to support it in search for its intimate place, its own substitute of Eden, which once was its mother's womb; a safe territory, where it can find time and possibility for reflection on the questions: who am I?, where am I from?, were am I? Isn't it?

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CURRENT NAVAL ARCHITECTURE EDUCATION, DEMAND AND EXPECTATIONS OF SECTOR

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Today's shipping means both the transportation of the cargos, passengers by sea and also represents the significant activities regarding the defence of the country, nutrient, sports and tourism. The maritime business is very important for human being during the history. The humans have started to profit from the sea, lakes and rivers with the development of civilization. Nowadays, 90% of the cargos are transported by seaway subject to the developed trading capacity. The increase on the trading capacity and maritime traffic enabled the consideration of environmental protection in addition to security of life and property. The staff working in maritime area should be educated according to the national and international conventions and technologies as individuals who are more sophisticated, modern and believe in continuing education. In this context, especially, the higher education institutions have a significant role. The maritime education in Turkiye continues with the Naval Architecture and Marine Engineering that comprehends generally the design and construction of marine vessels and Maritime Transportation Management Engineering and Marine Engineering Operations Departments that comprehend the operation and management of marine vessels. Apart from that, there are educations regarding the port management for the transportation of the cargo and passengers from ports to ships and from ships to ports.

In the scope of the education given in the two above mentioned departments, Naval Architecture and Marine Engineering and Marine Engineering Operations Departments; the education, lecture contents, studies made for gaining adequate and updated informations for students , the expectations and possible demands of maritime sector from graduates is investigated, evaluated and some suggestions are put forward.

Keywords: Education, Naval Architecture, Naval Architecture and Marine Engineering, Marine Engineering Operations

1. INTRODUCTION

Maritime history goes back to the humankind. Human used to maritime to get more nutrition, transportation and defence of their lands. In addition to these benefits, it has also been used for sports, entertainment, oil exploration/subtraction. Maritime is very important not only for countries with seashore, but also for countries without coast to the sea. Due to its importance, maritime is being multinational today and receive more attention than usual. It is a fact that, 90% of transportation of goods is done by sea. Besides that, countries defend their coasts by using the sea. It also employs people and increase income by tourism and fishery activities. All these could be done by constructing ships.

Due to its nature, shipbuilding is a labor-intensive and technology-intensive sector so people such as technicians, engineers, etc. should have appropriate knowledge and skills with contemporary needs. As it is well known that physics, chemistry, mathematics, English and basic engineering courses are open to the first-year stundents. Before that students who have unsufficient English allow to attend the foreign language preparatory classes to cultivate themselves. The second year, students should take basic engineering courses. Some of these are fluid mechanics, thermodyanmics, heat transfer, strength, mechanics. In further semesters they should complete the vocational courses. Among the most important studies of four or five-year basic educational years are the sufficient English knowledge and advanced computer skills. In addition, all undergraduate students should take enough number of projects.

It is seen that the above summarized undergraduate education is generally in international norms and in equilibrium with the education in the developed countries. However, different situations can also be seen. When related engineering branches are compared, as other engineering branches in Türkiye, lack of some lectures and/or topics can be seen in Naval Architecture and Marine Engineering. Some of these are the

programme is not at the demanded level and quality by the sector, the foreign language problem of the graduates, lack of information technologies. Another obvious defect is engineering ethics and moral. The graduates who are lack of these subject can face with some problems both their individual career and their companies in the future. In this study, the significant topics that should be considered in the Naval Architecture and Marine Engineering education which is a part of maritime education, are investigated.

2. NAVAL ARCHITECTURE EDUCATION

In this study, a part of maritime education, Naval Architecture and Marine Engineering education's significant topics are investigated. The main topics are;

- The Naval Architecture and Marine Engineering education in Türkiye today.
- The Naval Architecture and Marine Engineering education in developed countries.

In this context, current education situation is summarized and requirements and compulsory subjects that should be taught to the students are mentioned. Futhermore ideas are stated about the two of the most significant topics called ethics and engineering ethics. This topic is generally not focused in nearly all departments, not only in Naval Architecture and Marine Engineering.

2.1 The Naval Architecture and Marine Engineering Education in Türkiye

The aim of the programme is to educate Naval Architects and Marine Engineers who will work at design, production and management stages in several business areas of naval and ocean technology.
The undergraduate study lasts 8 half years. The education program of this department offers multiple-choice lectures and training opportunities in order to make the students specialize in different fields. Regarding Naval Architecture, there are design and computer programming lectures such as Ship Design, Ship Hydrostatics and Stability, Ship Resistance and Propulsion, Computer Aided Design. Regarding Marine Engineering, there are lectures such as Thermodynamics, Fluid Mechanics, Ship Engines, Statics, Dynamics, etc. Some lectures are also being taught to the students in order to improve their vision to the administrative side. These are Shipyard Management and Organization, Engineering Economics, Engineering Statistics. After getting these lectures, the graduates become enable to work both Shipbuilding Industry and other close industries regarding design, construction and repair, consultancy, marketing and sales, operations, regulation, surveying and overseeing, research and development, education and training.
The students have also opportunity to have a bachelor or master of science education at the contracted universities in ten different countries through the Erasmus program.
The students should complete internships during the education programme. The internships are generally divided into three groups. These are Workshop Internship, Compulsory Vocational Internship and Optional Vocational Internship.
With Workshop Internship, students gain experience regarding chipless machining, machining and welding processes and improve their knowledge about manufacturing processes with this practical application.
Compulsory Vocational Internship comprehends pre-manufacturing and manufacturing of marine vessels, docking, repairs and conversions of existing vessels, construction control, cost calculations, production planning, shipyard management and organization, bidding a tender and delivery of the vessel to the Owner. This can be done in the shipyards or the companies that construct marine vessels in order to learn their operation, management and organizations.
Optional Vocational Internship can be done in the design offices, classification societies, ship and marine management companies. The aim of this internship is to make students select their internship programme according to their interest and improve themselves on this way.

2.2 The Naval Architecture and Marine Engineering Education in Developed Countries

The twenty first century engineering education must provide for students necessary tools to undertake the massive challenges in the world. Key issues pertaining to engineering education in the twenty first century are described as:

- Sustainability in engineering education

- IT applications
- Pedagogical approaches and assessment for learning outcomes
- Bologna
- Industry perspectives (Ref.1)

The developments of the engineering education in Europe in the last decade are made under the requirements of the Bologna Criterias. By the Bologna process it is aimed to provide an equal learning level among European Universities. The EUR-ACE Accreditation System is a programme which provides a common framework for accreditation of engineering programmes (Ref.2). Another accreditation program is the ABET program which gives the assurance that a university program meets the quality standards established by the profession for which it prepares its students. Accreditation is not a ranking system. It is simply assurance that a program or institution meets established quality standards (Ref.3).
Accreditation criterias required from the Naval Architecture education are described as: the ability to apply probability and statistical methods to naval architecture and marine engineering problems; basic knowledge of fluid mechanics, dynamics, structural mechanics, materials properties, hydrostatics, and energy/propulsion systems in the context of marine vehicles; familiarity with instrumentation appropriate to naval architecture and/or marine engineering (Ref.4). In order to provide a common education level among universities it is important to provide an accreditation level.

3. THE SIGNIFICANT PROPOSED TOPICS FOR STUDENT'S EDUCATION IN NAVAL ARCHITECTURE AND MARINE ENGINEERING EDUCATION

The topics that should be considered by the students are as follows;

- Ethics and Engineering Ethics
- Management Sciences
- Communication Sciences
- Information Technologies (IT)
- The increase of optional lectures and specialized topics

3.1 Ethics and Engineering Ethics

According to Gert, 1988, ethics is a public system and the general rules guide for the human behaviours**.** These rules require various prohibitions, permissions, partial or different behaviours in same cases. In spite of being main differences in a wide range of ethics teories, most of them make up general principles. According to Miller, 1994, ethics is a moral philosophy dealing with when to do something, what necessity, what you did right or wrong. In general explanation, science deals with what is what. Engineering ethics require the understanding of real activities regarding occupation potently and a process requires efficient technical information consisting of the largest possible aim effects.
According to O`Connell and Herkert, 2004, engineering is the practical approach that organizes the design and manufacturing of planned processes with the definiton of physical world in order to meet the requirements. In the meeting of World Federation of Engineering Organizations in 1997, regarding engineering ethics, it is defined that engineers improve and develop the engineering occupation's fairness, honour and value by using their knowledge and skills in order for people to work comfortable, serving faithfully to the public and their works as fair and objective and increasing the prestige and quality of engineering occupation.
The researchers investigating ethics topic is explained the subject in details by grouping as micro and macro ethics (Ladd, 1980, McLean, 1993):

Micro-Ethics: A vocational ethics between the customers, workers and colleagues.
Macro-Ethics: The social responsibilities of the occupation members as a group.
Vocational-Ethics: The ethics between the engineers and other groups (managers, engineers, workers)

In the light of above, engineering ethics identifies the role and vocational responsibilities of engineers in industry, other organizations and vocational engineering communities (Roddis, 1993).
The main principles of a scientific research are as follows:

Scientific honesty: Not to make scientific dishonesty,
Care: Try to avoid of the problems arising from the carelessness,
Intellectual Freedom: Scientists should not avoid of creation of new ideas and discussion of the previous ideas.
Openness: To let the other people see the studies and share the results, datas, teories, equipments, etc.
The principle of credit: Not to copy the other scientists' studies,
The principle of public responsibility: To publish the results of researches causing the human satisfaction and benefit in the places open to the public (Ref. 5).

In the light of the above mentioned informations, the Naval Architecture and Marine Engineering department's students should be informed about these subjects during their undergraduate, post graduate and doctorate periods. With this aim, optional lectures can be programmed and also seminar should be planned in some periods. In the early days of the students' education in the university, the informations should be given regarding this topic and mentioned the importance of the careness of this issue during their student life. It should be told to the students that they should show the references of the submitted informations and usage of them with a permission if possible. The sensible approach of the academic members is crucial in order to be adopted this behaviour by the students.
It should be taught to the students not to cheat in the exams during their education period, to avoid from project or thesis plagiarism, make false statements after graduation, the necessity of respecting other people's studies and protecting their studies, the necessity of respecting social, vocational rules and sanctions, the necessity of learning missions and rights as a citizen and technical employee (Ozgen, 2006).

3.2 Management Sciences

Most of the shipyards in Türkiye are family business and their managers are selected according to the person's close relations with the Owners or the time period of working in the company without considering managerial attributes. However, being a manager is a significant position that should be decided properly. There are some attributes that the person should have. Some of these attributes are being pioneer, having vision, effective decision making, taking responsibility, leader character, being good communicator with national and international partners, sharing the knowledge, being objective, reliable, self-confident, enough experience, understanding people, etc. And also a good manager respects his/her assistants and assist their improvement. The target of the Naval Architects and Marine Engineers after getting enough experience in their field, should be a manager according to their professions. Therefore management topics' importance should be highly mentioned to the students during education period and try to make them adopt these topics.

3.3 Communication Sciences

Communication is a crucial topic in all fields. Therefore the provision of this skill to the students during postgraduate education should be considered.
Shipbuilding is a long period and in this period more departments work in cooperation with each other. There must be good communication system between these departments in order to recognize any problem when available and solve it. This will cause the execution of the project without any delay and customer satisfaction.
On the other hand, in global World, the companies not only work with national companies but also work with international ones. The knowledge of foreign language is a significant factor while communicating the people today. The employers seek for at least one foreign language knowledge from the engineers. Therefore students should follow the foreign language lectures timely and the importance of these lectures should be understood.
In the education period, presentations in the lectures, presentations of the projects and thesis should also be done orally. In this respect, students gain to express themselves effective.

3.4 Information Technologies (IT)

The information technologies in the education are important. In order not to become behind the dates, the information technologies should be followed and adapted into the education system. The existence of the lecture notes in the Web sites of the lecturers, will contribute to the education. Thus, the students have the

chance to read the notes before attending to the lectures and make a research about the topics. They can also understand the lecturer's told in the course easily. Therefore internal distance learning should be improved in the Naval Architecture and Marine Engineering education.
A practice regarding programming knowledge should also be given to the students in order to improve their mathematical solution abilities and analytical side.

3.5 The increase of optional lectures and specialized topics

Beside the compulsory lectures, there are also optional lectures in the Naval Architecture and Marine Engineering education. These lectures contribute for students to select them according to their interests and specialization on these topics. The optional lectures are mainly divided into two groups in a semester. These are the lectures regarding the Naval Architecture that cover the design, calculations and construction of a marine vessel and the lectures regarding the Marine Engineering that cover the engines, automation of a ship and ship systems. An increase on these lectures causes the students' more efficient selection of them and they can shape their future working fields in respect to these lectures.

4. THE DEMANDS AND EXPECTATIONS OF THE SECTOR

Türkiye is capable of constructing all kinds and tonnage ships in theory however, the country is specialized especially on small and medium tonnage chemical tankers. Benefiting by this speciality, Türkiye should construct the new buildings of more tonnage and more value added vessels. According to the datas of Clarkson Research Service , from 2004 to 2010 (2010 is included), LNG/LPG, container, tanker and bulk carriers have high demand based on gross tonnage. It is seen that there is also a high demand on tanker construction. However, due to this kind of vessels are needed higher level security, propulsion and construction ability, in Naval Architecture and Marine Engineering Department the technical informations and skills regarding these topics should be taught to the students.
According to the Graduate Careers Australia's Graduate Outlook Survey, most important criterias that the employers looking for are the interpersonal and communication skills (orally and written), critical reasoning and analytical skills, problem solving, lateral thinking, technical skills and passion, knowledge of industry, drive, commitment, attitude.
The naval architecture graduates should also have creative and perfect technical knowledge, vocational efficiency by taking responsibility.
According to The Employability Skills Framework, the personal attributes that employers demand are loyalty, commitment, honesty and integrity, enthusiasm, reliability, personal presentation, common sense, positive self-esteem, sense of humour, balance attitude towards work and homelife, ability to deal with pressure, motivation and adaptability. Students should try to improve the above mentioned personal attributes.
The pioneer shipbuilder countries of the World are the Far East countries such as Japan, South Korea, China and Taiwan. In South Korea, there are 4 years undergraduate level education in 14 different universities and also 2 years college in 2 different universities regarding Naval Architecture by 2008. This issue shows how importance is given to the Naval Architecture education by the country that adopts the shipbuilding as a national target. Furthermore, there are two Research and Development Centres and 2 engineers and technicians education centres supported by the South Korean State.
It is seen that the pioneer shipyards of South Korea such as Hyundai Heavy Industries, Samsung Heavy Industries, Daewoo Shipbuilding & Marine Engineering, STX Shipyard, etc., most of them have Research and Development Centres in the technocities. In this centres there are studies regarding Offshore structures, LNG, LPG, passenger vessels, all kinds of naval vessels, etc. that especially require advanced technology.
Even there aren't this kind of studies in the shipyards and design offices in our country, the companies should incorporate and work with the education divisions for Naval Architecture and Marine Engineering Research and Development topics (Shin, 2008).

5. CONCLUSION

By 2009, the shipping industry came across with the global crisis and started to loose power. With the cancellations of the projects, lots of workers became unemployed. Finding work is normally very hard especially if a person don't have enough experience. With the crisis, for new graduates become a real challenge. However, the internships during education period can be an opportunity. If a company is

satisfied with the trainer's performance, they can decide to employ this person in stead of other candidates.
On the other hand, the students can see the working areas, conditions of their department and shape their future life before graduation with the assistance of internships.
Another benefit of internships is networking with people from the same field and communication them easily in case of required for their lectures, projects, thesis, etc.
Some lectures cannot be easily understood in the classroom. With the internships, students can improve their knowledge about their field. And also they can apply the internship practical knowledge in their classroom lectures. This provides continuing learning and chance to improve their learning perspectives.
Due to the expectations of the sector from the graduates are social attributes in addition to the theoretical knowledge, the lectures regarding management and communication should be increased.
The students should be educated meeting the needs of today. Therefore the lecturers should guide to the students in order to form their future life. With the optional and specialized topics, shaping education period according to the concerns should be provided.
Due to the importance of providing an accreditation level is accepted in Worldwide, it will also be beneficial in the Naval Architecture and Marine Engineering education. In this respect, accreditation provides the easy compareness of national and international educations and prevents adaptation problems.

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ÇOCUKLAR İÇİN YENİ ÖĞRENME ÇEVRELERİ YARATMAK ÇOCUK-MİMARLIK ATÖLYELERİ, İZMİR

CREATING NEW LEARNING ENVIRONMENTS FOR CHILDREN CHILDREN AND ARCHITECTURE WORKSHOPS IN İZMİR

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ÖZ

"Çocuk kültürü, çocuğun bir toplum içinde yaşayarak öğrendiklerinin tümüdür" [1].

Çocukların öğrenme çevreleri sadece okul ve aile ortamı ile kısıtlı değildir. Çocuk günlük hayatta hergün dahil olduğu çevreden çok fazla bilgi elde etmektedir. Bu bağlamda çocukların, içinde bulundukları fiziksel, sosyal, tarihi, kültürel ve yapılı çevreleri öğrenmeleri önemlidir.

Mekan düzenleme sanatı olan mimarlık mesleği, kent ölçeğinden, obje tasarımına kadar pek çok konuyu içinde barındıran bir sanat dalıdır. Çocuğun kentsel çevreyi tanımasından, kendi sınıfı için bir mobilya tasarımı yapmasına kadar pek çok alanda aslında mimarlık disiplinine başvurulmalıdır. Ancak bu durum mesleki bir eğitim seviyesinde değil, çocuğun yaşına ve algısına uygun şekilde basit düzeyde olmalıdır.

Yapılı çevre ve mimarlık sanatı bu gözle bakıldığında çocuklar için yeni bir öğrenme çevresi olarak değerlendirilebilmektedir. Bugün Avrupa'da Almanya, Hollanda, İngiltere gibi pek çok ülkede, mimarlık merkezlerinin, mimarlık disiplini ile çocuğu birleştirmeye çalıştığı çalışmalar yapılmaktadır. Bu çalışmalar kapsamında pek çok ülkede ilköğretim çağı çocuklarları ile çeşitli kent tanıma gezileri ve çocuk mimarlık atölyeleri gerçekleştirilmektedir. Bu çalışmalarda amaçlanan çocuklara günlük hayatta her gün içinde oldukları yapılı çevrelerini tanıtmak ve onlara yeni bir öğrenme çevresi oluşturmaktır. Çocuk-mimarlık çalışmalarının çocukların algısına uygun düzeyde olmak kaydıyla, ilköğretim çağından itibaren eğitim müfredatına alınması önerisi de, bu çalışmanın amaçları arasında yer almaktadır.

Bu bildiri kapsamında, İzmir'de ilköğretim öğrencileri ile yürütülen çocuk mimarlık atölye çalışmalarına yer verilmiştir. Bu çalışmalar ile toplumun önemli bir bölümü olan, yarınının yetişkinleri çocuklarımıza çevrelerine daha bilinçli bir gözle bakmaları öğretilmeye çalışılmış, onlara yeni bir öğrenme çevresi yaratılmıştır. Bu çalışmalar, biz mimarlara da özellikle çocuklar için mekân tasarlarken çocukların fikirlerini almanın ve çocuk katılımlı çalışmaların önemini göstermektedir.

Anahtar Sözcükler: Toplum, Eğitim, Çocuk, Mimarlık

Referans [1]: Tülin Şener, Çocukların Kültürel Etkinlikleri.

ABSTRACT

"Children culture is the whole learnings of a child while he lives in a society" [1].

Children's learning surroundings is not limited by only school and family environment. A child gets a big amount of knowledge from environment where he/she lives. In this context, it is very important that children should learn their physical, social, historical, cultural and built environment.

As a spatial arrangement of art, architecture is an art branch which includes so many subjects like city planning , designing an object etc. From learning the urban texture to designing a furniture for a classroom, everything is related with architecture. However this learning process should be appropriate for the children's age, and capacity.

In this context, the built environment and the art of architecture can utilize as a new education surrounding. Today in Germany, Netherland and U.K. and many countries, there are studies which try to combine the architecture and childhood. In these studies, city trips that inform about city and workshops are made with primary school children. In these studies, the objective is to overview children their everday living environment and create a new education environment for them. Another object of this studies is to renewal primary schools' programmes and to add these studies to the existend programmes.

This paper includes the studies made with the same concept, with primary schools' students in İzmir. By these studies, a new learning environment is created for children. Children gained observation capability and group study addiction by these workshops. The importance of children's ideas and the success of the children participated studies, were the other results for the architects.

Key words: Community, Education, Children, Architecture

References [1]: Tülin Şener, Çocukların Kültürel Etkinlikleri

1.GİRİŞ

Mimarlık ve çocuk çalışmaları, çocuklara yapılı çevre hakkında bilgi vermek, yapılı çevreyi anlamalarını sağlamak ve yaşadıkları çevreye nasıl baktıklarını anlamak için yapılan çalışmalardır. Yurtdışındaki UIA, CABE, Engaging Places gibi organizasyonlar çocukların kent bilinci üzerine çeşitli çalışmalar yürütmektedirler. Yürürlükteki milli eğitim programları ile yakından alakalı ve paralel giden bu çalışmaların amacı çocuklarda kent ve yapılı çevre hakkında bilinç oluşturmak, yapılı çevre ile iletişimlerini kurmak ve mekânsal algılarında gelişim sağlamaktır.

Yapılı çevrenin çocuklara öğretilmesi sırasında öğretmenler, "yapılı çevre" kavramının bünyesinde bulunan şehir planlama; peyzaj düzenleme, mimari tasarım ve tarihi mirasın korunması gibi konuların da içerisine girerek; çocukları eleştirel düşünme, yaratıcılık, sorumluluk bilinci, sosyalleşme gibi konular hakkında da eğitebilirler. Yapılı çevrenin birer elemanı halindeki tüm kavramlar okullardaki eğitim konuları ile bağlanabilir. Yapılı çevre hakkında yapılan eğitimlerde yoğunlaşılacak noktalar mimarlık eğitimi ile kesişmektedir ve bu eğitimler neticesinde çocukların dünya tarihi ve uygarlıkları hakkında bilgisi ile çevrelerine karşı duyarlılıkları artacaktır. Bu eğitimler çocukların yaratıcılıkları ile farklı bölgeler hakkındaki bilgilerini arttırır. Bunun yanı sıra çocukları, toplumlarında saygın bir noktaya gelmeleri konusunda cesaretlendirir. Bu çalışmalar neticesinde çocuk-okul bağının kuvvetlenmesi sağlanır.

Yapılı çevre eğitimin ilköğretim programındaki gerekliliği

Yapılı çevrenin geliştirilmesinde, çevrenin yaygın eğitime dâhil edilmesi büyük önem taşımaktadır. Yapılı çevre hakkında bilgisi ve görüşü kısıtlı ya da eksik olan bireylerin toplumsal konularda ihtiyaç ya da isteklerini dile getirmeleri de problem haline gelmektedir. Bu konuda yapılabilecek en önemli müdahalelerden biri yapılı çevre hakkındaki bilgileri mümkün olan en kısa sürede çocuklara aktarmaya başlamaktır. Bu tarz bir uygulama ile hayat standartları gelişmiş, sorumluluk duygusuna sahip ve yapılı çevrenin değerini arttırabilecek görüş seviyesine sahip bireyler yetiştirilmesi hedeflenmektedir. Bu nedenle, yapılı çevreyle ilgili mimari etkinlikler anaokulu seviyesinden ilk ve orta eğitim seviyesine kadar rahatlıkla bütünleştirilebilir. Örneğin sosyal bilgiler dersinde geçen tarihi ve kültürel miras konusunda tarihi binalar referans olarak kullanılabilir. Konular mimarlık gibi bir disiplin ile birleştirildiğinde çocukların etraflarına ve yapılı çevrelerine eleştirel gözle bakma, işlev ya da estetik algı gibi konularda gelişmeleri de sağlanabilir. Yapılı çevre konusunda yeni bir eğitim programı yapmak yerine mevcut programa ekleme yapmanın daha uygun olacağı düşünülmektedir. Yapılı çevreye yapılacak katkı sadece meslek içerisindeki mimar, planlamacı vb. kişilerle değil toplumdaki bireylerinin tamamının bilinçlenmesi ve aydınlanması ile sağlanabilecektir.

Batı ülkelerinin büyük bir kısmında (Amerika ve Avrupa) bu konu ile ilgili olarak mimarlıkla bağlantılı kurumlar çeşitli kurs, atölye ve programlar düzenlenmektedir. Sayısı gün geçtikçe artan bu programlar ile birlikte mimarlık eğitiminin toplumun tüm tabakalarına ulaşmasını amaçlayan kurumlar, mimarlığın eğitim müfredatlarına girmesi için yoğun çaba sarf etmektedirler. Bu çalışmalar ülkemizde de mimarlar odasının pek çok şubesi tarafından yürütülmeye başlanmıştır. Bu çalışmalardaki temel amaç, çocukların çevre bilincini ve çevre ile iletişimini geliştirmek ve mimarlığın yaşam içerisindeki payı ve önemini anlatmaktır. Çalışmalarda çocukların çevreyi analiz etme, gözlemleme ve keşfetme becerilerinin yanı sıra çevreye olan ilgileri arttırıp katılımcı yönleri geliştirilmeye çalışılmaktadır. Bunu gerçekleştirmek için merkezler, çocukların yapılı ve doğal çevre hakkındaki görüşlerini ifade etmelerini sağlayacak olanak ve fırsatları verirler. Bir taraftan çocuklara mimar ve tasarımcı gibi profesyoneller ile çalışma fırsatları yaratılırken, diğer taraftan öğretmenlere gerekli olan teknik destek sunulmaktadır. Böylece çocukların, çevrelerinde yaşadığı deneyimlerin farkına varmaları sağlanmaktadır. Bu durum, çocukların yapılı çevrelerinden nasıl etkilendiklerini ya da yapılı çevreyi nasıl etkilediklerini düşünmelerine fırsat verir.

Mimarlık ve çocuk çalışmalarında yapılan etkinlikler okul öncesi, ilköğretim ve ortaöğretim gibi farklı yaş gruplarını kapsamaktadır. Etkin katılımın esas olduğu çalışmalar, okulların standart programlarında tanımlanan eğitim programları ile birebir bağlantı kurmakta ve örtüşmektedir. Bu çalışmalarda eleştirel düşünme, yaratıcılık, ulusal kimliğin ve dünya mirasının farkında olma, etkili bir öğrenme ortamı olan çevreyi, farklı açılardan deneyimleme olanakları sağlanmaktadır. Aynı zamanda bu merkezler çocukların tasarım becerilerini harekete geçirecek yaz okulları da açmaktadırlar. Ağırlıklı olarak oda, sınıf, ev, okul, sokak, bahçe, kent ve tarihi yapılar gibi konu başlıkları ile hazırlanan programlarda yaş grupları gözetilerek müfredatlara uygun seviyede programlar düzenlenmektedir. Bu programları desteklemek adına çeşitli gezi, bina incelemeleri, sanat çalışmaları, fotoğrafçılık, film, şiir, müzik ve deneme-roman gibi etkinliler düzenlenmektedir. Programların süreleri bir ders saati veya bir günden başlayarak bir yıla yayılmış şekilde de olabilmektedir. Mimarlık merkezleri, okulların müfredatlarını planlama, atölye, sergi düzenleme gibi konularda destekler sağlamaktadır. Yapılan çalışmalarda merkezlerin programlarındaki kurguları farklılık gösterebilmektedir ancak temel amaç çocukların yapılı çevre hakkında düşünmelerini ve çevrelerine eleştirel bakmalarını sağlamaktır. Çalışmaların verimliliğinin arttırılması açısından öğretmenler, öğrenciler, üniversite öğrencileri, politikacılar, aileler ve yerel otoritelerin katılımlarının sağlanması önemlidir.

Mimarlığı öğrenmek, bireylere çevreyi değerlendirme ve ilgili konularda tartışma-eleştirel bakma yeteneği kazandırır. Toplumun kaliteli bir çevrede yaşaması ve bireylerin mimarlık mesleğini anlamalarını sağlanmak için öncelikle çocuklar eğitilmelidir. UIA Başkanı Hannes Hubrich, Archild Kongresi'nde yaptığı konuşmada "**öğretme ve öğrenme için mimarlık bir alandır**" diyerek geleceğin yurttaşlarına sorumluluk kazandırılmasının gerekli olduğunu vurgulamıştır.

Bu çalışmalar çocuklar için neden önemlidir? Çocukların gelecekte rol alacakları toplumda, sahip olacakları hak ve sorumlulukların bilincine varmaları için küçük yaştan itibaren eğitilmeleri gerekmektedir. Bu bağlamda, çocuklar ve gençlerde iyi bir yapılı çevre duygusunun oluşturulması çok önemlidir. Tüm bunların başarılması için okul ve diğer eğitim kurumlarının programlarına bir miktar

mimarlık eğitimi konulmalı, öğretmenler bilinçlendirilmeli, çeşitli malzemeler (kitapçık, broşür, görsel malzeme vb.) hazırlanarak atölye çalışmaları oluşturulmalıdır.

Uluslararası Mimarlar Birliği'nin (UIA) önemli çalışma alanlarından biride **"mimarlık ve toplum"** adı altında **"mimarlık ve çocuk"** başlığıdır. Yapılı çevre eğitimi üzerine odaklanmış bu programın kökenleri 1999 Beijing toplantısında atılmıştır. Programın esas amacı yarının karar vericisi niteliğindeki yetişkinlerin, bugünün çocukları olduğuna dikkat çekmektir. Genel amaç, ilk ve ortaöğretim programlarındaki çocuklar ve öğretmenlerin mimari tasarım ve çevrenin biçimlenme süreçlerini anlamaları için gerekli kaynak ve programları sağlamaktır. Çocukların gelecekte alacakları çeşitli kararlarda bugün aldıkları eğitimin katkısı olacaktır. Bu amaca ulaşmak için ilk adım olarak 2002 yılında Yapılı Çevre Eğitim Rehberi yayımlanmıştır. İkinci olarak yapılı çevre eğitim web sitesi hazırlanmıştır. UIA Yapılı Çevre Eğitimi misyonunda yer alan amaçlar şöyledir:

- "İçinde hareket ettikleri ve yaşadıkların mekânlarla ilgili algısal farkındalık kazandırmak (kamusal/özel, iç/dış);
- Yapılı çevrenin oluşturulması sürecinde roller, haklar ve sorumluluklar hakkında farkındalık kazandırmak
- Mimari mirasın ve modern mimarlığın değerini aktarmak
- Yapılı ve doğal çevre arasındaki ilişki ile ilgili sürdürülebilirlik ve yaşam kalitesi bağlamında bir anlayış geliştirmek
- Yerlerin ve binaların kalitesini tartışabilecekleri ve bunu toplumsal yaşam ile ilişkilendirmek için ihtiyaç duyacakları kavramları öğretmek
- Tasarım sürecinin analitik ve sorun çözücü metotları ile ilgili deneyim kazandırmak
- Takım çalışması, gözlem, sorun tanımlama ve yaratıcı çözümler bulma yeteneğini geliştirmek
- Yapı tekniklerini, formları ve malzemeleri deneyimleme olanağı sağlamak
- Duyarlılık, hayal gücü, estetik zevk ve eleştirel düşünceyi geliştirmek
- Mimarlığın, insanlık, kültür, kültürel miras, doğa ve toplum üzerinde etkisi olan yaratıcı, entelektüel bir araştırma ve tasarlama eylemi olduğunun keşfini sağlamak" [4]

UIA'nın bahsedilen yapılı çevre eğitimi programı birçok ülkede, her kesime yayılmaktadır. Bu konuda programlar yapılmakta ve mimarlıkla ilişkili bazı konular ilköğretim eğitim müfredatına alınmaya çalışılmaktadır. Türkiye'de de son yıllarda mimarlar odalarının desteği ile birtakım çocuk mimarlık çalışmaları gerçekleştirilmektedir. Gerçekleştirilen çalışmalardan bazıları bu bildiri kapsamında ele alınmıştır.

2.Çalışmanın Aktarımı

Çocuklara yapılı çevre bilincini kazandırmayı amaçlayan ve çocukların fikirlerini önemseyen bu çalışmada; "köprü", "okul bahçemi tasarlıyorum", sokağın oyun alanı olarak değerlendirilmesi" konulu üç ayrı tema ile gerçekleştirilen çocuk mimarlık atölye çalışmaları yer almaktadır.

2.1.Atölye Çalışması 1: "Köprü"



Çocuk ve Mimarlık Çalışmaları kapsamında yürütülen bu atölye çalışması, DEÜ. Mimarlık Fakültesi 2009 Mimarlık Haftası etkinlikleri kapsamında gerçekleştirilmiştir. Konak, Mimar Sinan İlköğretim Okulu'ndan gelen 4. sınıf öğrencilerinden 20 kişi ile yürütülen çalışmada ilk olarak çocuklara köprü kavramı hakkında bilgilendirme sunumu yapılmıştır. Bu sunumda çocuklara mimari bir elaman olan "köprü"nün yapısal ve işlevsel özellikleri hakkında bilgiler verilmiştir. Dünyadan çeşitli köprü örnekleri gösterilerek geçmişten bugüne köprü yapısının geçirdiği değişimlerden ve teknolojinin mimariye etkilerinden söz edilmiştir. Köprünün çalışma prensipleri ve malzeme kullanımı üzerine tartışılmıştır.



Daha sonra çocuklardan akıllarındaki "köprü" fikrini maket ile somutlaştırmaları istenmiş, bunun için, onlara temin edilen malzemeyi doğasına uygun kullanmaları, örneğin ipleri kablo gibi, mukavvayı çelik ya da beton gibi ele almaları, malzeme ile sonuç ürün arasında ilişki kurmaları öğretilmiştir. Bu aşamada atölye yürütücüleri çocuklara malzemenin çalışma prensipleri ve maket tekniği hakkında bilgiler vermiştir. Atölye yürütücüleri ve sınıf öğretmenlerinin eşliğinde çocuklar hayallerindeki köprü temasını somutlaştırmışlardır.

Çalışmanın sonuçları değerlendirildiğinde, çocukların henüz ilköğretim çağında olmalarına rağmen mimari bir eleman olan köprü hakkında bilgilendikleri görülmüştür. Bu bilgileri uygulamaya yansıtma becerileri ve 1. sınıf mimarlık öğrencisi kadar ilgili ve istekli çalışmaları bizi daha sonraki çalışmalar konusunda harekete geçirmiştir.

2.2 Atölye Çalışması 2: "Okul Bahçemi Tasarlıyorum"

Okul bahçemi tasarlıyorum atölye çalışması, Mimar Sinan İlköğretim Okulu yönetiminden gelen okul bahçesinin düzenlenmesi ihtiyacının gündeme getirilmesi üzerine gerçekleştirilmiştir. Çocuklarla yürütülen atölye çalışmasında öncelikle amaçlanan çocukların mevcut okul bahçesini nasıl değerlendirdiklerini anlamak, geleceğe dönük istek ve ihtiyaçlarını öğrenmek olmuştur. Bu amaçla ilk olarak çocuklarla okul bahçesinde ne tip aktiviteler yapmak istedikleri üzerine konuşulmuş, sonrasında bahçede görmek istedikleri düzenlemeleri resmetmeleri istenmiştir. Çocukların çoğu mevcutta araç otoparkı olan okul bahçelerini resimlerinde, yeşilliklerle çevrili, içerisinde havuzu olan yaşayan bir mekân olarak tasvir etmişlerdir. Top oynamak için özel zemini olan yerler ve çeşitli grup aktiviteleri için amfi düzenlemeleri önermişlerdir. Zihinlerini düşünmeye zorlayan bu resim çalışmasından sonra, çocuklardan bu bahçede hayal ettikleri bir oyun elemanının maketini yapmaları istenmiştir.



Çocuklar, yaptıkları maketlerde, çocuk parklarında görülen standart ekipmanlardan çok daha farklı oyun elemanı fikirleri üretmişlerdir. Grup çalışması şeklinde yürütülen maket çalışması bölümünde çocuklar yaratıcılıklarını kullanabilme ve kendi fikirlerinin özgürce ifade edebilme olanağı bulmuştur. “Tırmanma kulesi”, “çok amaçlı oyun yüzeyleri” ve özellikle grup aktivitelerini destekleyen “oturma mekânları” çocuklar tarafından bahçeye önerilen fikirlerden bazılarıdır. Çocuklar okul bahçesine araçların kesinlikle alınmaması ve yabancıların girmemesi konusunda da tasarımlarında yer vermiş ve bahçeye bu sorunları engellemek için güvenlik birimi önermişlerdir. Bu çalışmada da tasarımcı olarak bizlerin çıkarımı, çocuk kullanıcının görüşlerinin önemli olduğu ve dikkate alınması gerektiğidir. Çocukların algıları yetişkinlerden çok farklıdır ve bu nedenle çocukların kullanacağı hiçbir mekân onların görüşlerine başvurmadan tasarlanmamalıdır.



2.3 Atölye Çalışması 3: “Sokağın Oyun Alanı Olarak Değerlendirilmesi”



Çocuk oyun alanı olarak sokağın çocukların gözünden incelenmesi amacı ile İzmir’de, Mimar Sinan İlköğretim Okulu, Selçuk Yaşar İlköğretim Okulu ve İzmir Türk Koleji İlköğretim Okulu öğrencileri ile yapılan atölye çalışmasında çocukların sokak mekânı hakkındaki görüşleri alınmıştır. “Oyun alanı olarak sokak” temalı atölye çalışmasında amaçlanan sokak mekânlarını çocuk gözünden yeniden değerlendirmektir. Bu değerlendirmede günlük yaşantının önemli bir parçası olan sokaklarımızın çocuklar için ne ifade ettiğini anlamak, sokak yaşantısını, sokakların eksikliklerini ya da olumlu taraflarını onlarla birlikte saptamak amaçlanmaktadır. Sosyal ve fiziksel bir mekân olmanın yanı sıra çocuklar için birçok potansiyeli ve çeşitliliği de içinde barındıran sokakların oyun alanı olarak günümüz şehir yaşantısına yeniden kazandırılabilmesine ilişkin çocuklardan gelen fikirleri değerlendirmek de çalışmanın ileriye dönük önemli bir amacıdır. Çocuklar bu çalışma ile aynı zamanda kent ve yapılı çevre hakkında bilgi edinebilmekte, takım çalışması yapmak konusunda deneyim kazanmaktadır. Geleceğin yetişkinleri olan bugünün çocuklarını tasarım sürecine dâhil etmek ve onlarla birlikte düşünmek çalışmanın diğer önemli amaçları arasında yer almaktadır."Çocukların Gözünden Sokak Mekânları Atölye Çalışması” sunum, anket ve resim çalışması olmak üzere üç aşamalı olarak gerçekleştirilmiştir.



İlk aşamada çocukları yapılı çevre ile tanıştırma ya da o bilinci yaratmak amacı ile sokak ve kent hakkında kısa bir sınıf tartışması yapılmıştır. Karşılıklı soru-cevap şeklinde geçen ilk aşamada çocuklara "Sokak nedir?, Mahalle nedir?, Sokakta ne tip yapılar görüyorsunuz?, Sokakta ne gibi işlevleri bulmayı umuyorsunuz?, Sokakta ne tip oyunlar oynayabiliyorsunuz?" gibi genel nitelikli sorular sorulmuş, çocukların sokak hakkında düşünmeleri istenmiştir.

Daha sonra sokak kavramı hakkında kısa bir bilgilendirme sunumu yapılmıştır. Bu sunumda sokak tanımlarını içeren ve sokağın çeşitli işlevlerine dikkat çeken bölümlere yer verilmiştir. Literatürden "yaşayan sokak" örnekleri gösterilmiş, çocuklara bazı sokak görselleri verilerek, bu görseller hakkında yorum yapmaları istenmiştir. Çocuklar sunumda gördükleri dünya kentlerindeki ideal sokaklar ile kendi sokaklarını karşılaştırma ve kendi sokaklarına eleştirel bir gözle bakma olanağı bulmuşlardır. Sokak sadece araçların yolu olarak değil, sosyal yaşantının da bir parçası olarak ele alınmış, çocukların da bu sosyal yaşantının önemli bir parçası olduğu üzerinde durulmuştur. Çocuklarla sokağa taşan sosyal faaliyetler hakkında konuşulmuş ve günümüzde hala sürdürülebilen sokak oyunları hakkında onların bilgisine başvurulmuştur.

Karşılıklı soru-cevap ve bilgilendirme sonrasında, anket aşamasına geçilmiştir. Anket aşamasında amaç, çocukların sokak mekânı hakkındaki olumlu ve olumsuz tüm görüşlerini yazılı olarak almaktır. Anket sonrasında yapılan resim çalışmasında, çocuklardan kendi evlerine yakın sokağı anlatan bir resim yapmaları istenmiştir. Sokakları oyunla ilişkili olarak yorumlatmak öncelikli amaçlanan olsa da, çocukların sokağı sosyal mekân olarak görüp görmediği, kent mobilyaları ve tüm kent çeperleri ile sokağı



ele alabilme yeterlilikleri, psikolojik etkileri ile sokağı değerlendirmeleri gibi birçok bilgiye ulaşmak da amaçlananlar arasındadır. Birinci aşama olan bu kısım çocuklara yapılı çevre bilinci vermek konusunda bizi istediğimiz sonuca ulaştırmıştır.

Çalışmanın diğer bir sonucu olarak çocukların büyük bir çoğunluğunun tüm tehlikelerine rağmen sokakta oyun oynamayı sevdiği öğrenilmiştir. Bu sonuç biz tasarımcıları "çocuk dostu" kent planları hazırlamak konusunda sorumlu hissettirmiştir. Sosyo-ekonomik durum faktörüne göre üç ayrı okulda yapılan bu çalışmada ayrıca, ekonomik durumun düşük olduğu bölgelerdeki çocukların sokakta daha fazla oyun oynadığı ve daha dışa dönük büyüdüğü, sosyo-ekonomik durumu daha iyi olan bölgelerde yaşayan çocukların daha çok eve kapalı bilgisayar başında oyun oynamayı tercih ettikleri saptanmıştır. Oyun mekânı olarak tasarlanan çocuk parklarının çocukları yeterince mutlu etmediği çocukların informal oyun alanlarında kendi oyunlarını tasarlayarak oyun oynamayı tercih ettikleri görülmüştür. Bu nedenle sokaktaki trafik probleminin öncelikli ele alınması, mimar ve planlamacılar tarafından çocukların görüşlerine başvurularak daha elverişli oyun sokakları yaratılması gerekliliği çalışmanın elde ettiğimiz diğer sonuçlarıdır.

3.SONSÖZ

Çocuk eğitiminde mimari ve yapılı çevre bilinci oluşturmaya yönelik bu çalışmalar, dünyadaki mimarlık platformlarının önemli gündem maddelerinden biridir. Ülkemizde, bu konu özellikle uygulama alanında oldukça yetersiz kalmaktadır. Yapılan çalışmalar, münferit çabalar şeklinde kalmakta, ülke genelinde bir yaygınlaşma gösterememektedir. Mimarlığı meslek olarak tanıtmak yerine, kent kültürü ve yapılı çevre hakkında duyarlılık kazandırmayı hedefleyen bu çalışmaların, sistematik bir çerçeve doğrultusunda yapılması amaca ulaşmak konusunda önemli adımlardan biridir. Çocuklara kent ve yapılı çevre bilinci

vermek dışında, biz tasarımcılara da çocukların zengin görüşlerini alma olanağı veren bu çalışmalar ülkemizde de desteklenmeli ve ilköğretim müfredatı ile ilişkilendirilmelidir. Bu amaçla yarının yetişkinleri olan bugünün çocukları ilköğretim çağlarından itibaren yeni ve zengin bir öğrenme çevresi olan mimarlık disiplini ile tanıştırılmalıdır.

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DEALING WITH THE COMPLEXITIES OF INTEGRATION IN CULTURAL DIVERSE RURAL SCHOOL COMMUNITIES IN SOUTH AFRICA

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In 1994 the new democratic government brought with it a desegregated national education system, that resulted in an influx of large numbers of black learners into formerly white schools, whether in urban or rural areas. These schools became thus the sites of cultural convergence-where diverse and previously divided cultures met for the first time, on supposedly common ground. According to Meier (2005), some of the black learners who were integrated into formerly white schools found it difficult to adjust to the new educational environment because they lacked the language skills and required background to deal with the curriculum content and medium of instruction (Afrikaans and/or English) whilst white educators, representing the majority of the staff complement (Kivedo, 2008), are often not motivated because they lack the multicultural teaching skills, the Africanisation of learning content and strategies in the management of overcrowding in classrooms. In concurrence with the latter, national and local media frequently report on aspects relating to cultural-diverse learning environments and how it coincides with numerous challenges (racial conflict amongst learners; cultural misunderstandings, negativity, confusion and low morale amongst educators) facing schools in rural communities.

Despite efforts by the National Department of Education to integrate schools, the majority of black children in rural poor communities are receiving less than their right in a democratic South Africa (Nelson Mandela Foundation in Fox, Vos & Geldenhuys, 2007) and lags behind educational development in other parts of the country.

With the above said in mind, the purpose of this mix method research study was to investigate the complexities associated with the integration of cultural diverse rural school communities in the Northern Cape province of South Africa and to propose recommendations for dealing with present and future challenges.

KEY WORDS: integration, cultural diverse learning environments, Northern Cape province, rural school communities

CONTEXTUAL BACKGROUND

The historical development of education for cultural diverse school communities in South Africa can only be effectively evaluated against the backdrop of the educational history of the country. Before 1948 a limited mixing of races occurred in certain areas. The official and formal segregation of schools along structured racial and ethnic lines commenced in 1948 when the Nationalist Party seized political control. The racial, ethnic and geographical separations within the education system led to the birth of 17 separate education departments up until 1994 (Naicker, 2000). These divisions in education were supported and upheld by apartheid legislation such as the 1953 Bantu Education Act, the 1950 Group Areas Act, the 1954 Native Resettlement Act, the Reservation of Separate Amenities Act, the Population Registration Act, the Homeland Act, and so forth (Mda, 2000). This separate system of education, characterised by race, class, gender and ethnic divisions (Alexander, 2004) resulted in the provision of unequal access to schools, unequal educational opportunities, irrelevant curricula, inadequate infrastructure, facilities and a qualified educator complement (Kivedo, 2007). More significant and still evident is that communities confided to the ‘ homelands” or Bantustans had to endure poverty, isolation and reduced services such as the availability and lack of basic services (piped water, tolerable roads, electricity); inadequate physical and infrastructure conditions (buildings, toilet facilities, telecommunications); distances travelled to school (children

walk long distances, inadequate transport provision); quality education (shortage of qualified educators and teaching aids, lack of Early Childhood Development education, irrelevance of curricula, large classes, higher learner-educator ratios, language of teaching and learning, rote learning approaches); curriculum relevance (need for Maths, Science and Technology, understanding of local and global environment, need to promote critical thinking and useful skills) competing priorities between education and domestic chores (child labour); educational disparities for girls and boys infringing the right to education and minimal support for the district education offices(Gardiner, 2007; Ministry of Education, 2005). The majority of South Africa's 350 000 educators and almost 12 million learners are concentrated in provinces (Eastern Cape, Kwazulu-Natal and Limpopo) that are predominantly rural and which include former 'homelands' (Chisholm, 2004). The sample province (Northern Cape) for this study, is characterized as a rural province with 96 primary schools and 45 high schools. It needs to be noted that between 1994 and 1999, the democratic government of South Africa introduced a range of initiatives to improve access, equity and quality. The integration of schools can be viewed within the context of the latter said.

Accordingly and justifiably, I contend that all educational change endeavours in post 1994 South Africa were and still are largely driven by imperatives such as overcoming the devastation of apartheid, and the provision of equal, quality education to all citizens within a system that enhances democratic participation, human dignity, equality and social justice, and the redress of imbalances, as well as the empowerment of all citizens(Abdi, 2001; Lemmer, Meier & Van Wyk, 2006). The integration of learners to former white schools, however, did not take place without some daunting challenges. To this effect, Goduka (1999) protests that in spite of the diverse groups of learners, these previously white schools continued to function as mono-cultural schools. Learners with different backgrounds had to adapt to the European culture of the school. The curriculum of the schools was based on European traditions while learner expectations were grounded on the experiences of educators who were never prepared to deal with diversity. Learners enter specific schools whose immediate contexts, histories, memories and commitments shape their organisation and practices (Banks & Banks, 1995). In no terms am I proposing, that issues relating the school ethos and culture in former white school settings be changed overnight, but that a constant awareness amongst the entire school population be created for the recognition of diversity.
It is therefore important for education in cultural diverse rural school communities of the Northern Cape province not to be internalised as a version of apartheid education; one that merely seeks to integrate and acculturate black learners into an existing Euro-centric structure, without challenging educational and psychosocial inequalities. It is only when the latter issues, amongst others, are fully comprehended by white educators in former white schools in the Northern Cape, that the school situation might be perceived as accepting and accommodating by black learners. The motivation for using white educators as the sample group for this study is that they represent, in terms of color, the majority of the staff complement (91 %) in former white high schools in the Northern Cape province. Thus, how they relate to black learners (69 %) during the teaching and learning situation, is a question that evoked interest and became a subject for this research.

In the wake of the above-mentioned purpose of this study, it becomes imperative to explore issues relating to integration in rural school settings.

PROBLEM STATEMENT

Former white high schools in rural areas of the Northern Cape have enrolled a number of black learners and are therefore profess to practice cultural diverse education . Many of these schools have not adapted their admission requirements, policies, curriculum or staff development programmes. The question thus is whether these schools are indeed practicing integrated schooling or whether they are merely assimilating black learners into the existing system. Claasen in Le Roux (1997) supports this view and explains that mere integration of cultural or ethnic learner groupings in a single learning situation does not necessarily imply a cultural diverse education milieu. Similarly, the staff complement in most former white schools may not necessarily reflect the cultural and linguistic diversity of the learners enrolled. In the Northern Cape, for example, approximately 69% of all learners registered at ex-Model C high schools are black, while only 9% of the teaching staff is black (Northern Cape Department of Education, EMIS 2008). Kivedo (2006) and Diamond Fields Advertiser (11 February 2002) argue that this state of affairs may result in cultural misunderstandings and the consequent breakdown of educator-learner relations.
An issue linked to integration not only in the Northern Cape but country wide, is the ever increasing demand exerted by the Department of Education on staff representation in former white schools. In a radical attempt aimed at

deracialising the education system, the Gauteng Department of Education (GDE) has cautioned former white schools to employ at least 50% black teachers by 2005 as part of its equity plan.
Two teacher unions, the National Professional Teachers Organisation of South Africa (Naptosa) and the South African Democratic Teachers Union (Sadtu) support this initiative from the National Department of Education but indicate that such a plan to address racial and gender representation needs to be coordinated with thorough consultation.
Against the background of the statement of problem, this study is aimed at assisting white educators in former white high schools to fully comprehend their role, to understand the underlying pedagogical challenges which they face, and to embrace concomitant problems relating to the integration of learners in cultural diverse settings.

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RESEARCH DESIGN

Purpose of the research

The main objective of this empirical investigation was to collect data to ascertain the perceptions of white educators in former white high schools with regard to cultural diverse education.

Selection of respondents

With regard to the sample size of the population of this research, the researchers identified a total sample of n = 260 white educators from 10 former high schools, representative of the 4 educational districts (Francis Baardt, Siyanda, Pixley Ké Seme and Namaqua) of the Northern Cape province. A total of 100 learners selected from these 10 former white schools were interviewed as to siege an understanding of their experience in integrated school settings.

The research instruments

A structured questionnaire was employed to investigate the perceptions of educators in former white schools with regard to integration**. A total of 241 educators (128 male and 113 females) completed and returned the questionnaires, thus ensuring a 92.3% response rate. In this case, a very high degree of validity was ensured.** In this questionnaire, Section A dealt with the biographical information of the educators, whilst a 4-point Likert scale dealt with Section B (perceptions of educators regarding integration). Educators were asked to indicate the preference for each item dealing with a specific issue/aspect related to integration as: 1- strongly agree (SA); 2- agree (A); 3- disagree and 4- strongly disagree (SD). A learner survey capturing qualitative responses of 100 participants were also analysed.

RESULTS AND DISCUSSION

The first section of the educator questionnaire consists of personal particulars such as, gender, race, age teaching experience, academic qualifications, professional qualifications, rank, educational district, historical type of school and language in which the educator feels most comfortable to teach.
The majority (53%) of the educators in former white schools in the Northern Cape are male whilst 46, 50 % of the educators are females. This development may be attributed to the fact that males are in the majority in the high school section, which represents Grades 8-12 (Northern Cape Department of Education, EMIS 2008). In terms of race, all educators targeted for this study were white, although between 1-5 % of educators at former white schools are of colour. In general, white educators are in the majority at former white schools (Northern Cape Department of Education, EMIS 2008). With regard to teaching experience, the majority (65,9%) of the respondents' teaching experience ranges between 10 and 39 years. Those having teaching experience between 1 and 9 years were in the minority; namely 43.2%. This tendency is a definite indication that most of the educators were trained in racially segregated training institutions, during the apartheid period and are therefore not fully trained for a cultural diverse education system. Additionally, these educators may find it extremely difficult to change their fixed and ingrained ways (McCray & Gracia, 2002; Johnson, 2003). With reference to academic and professional qualifications, most

educators (59,3%) and (96, 7%) indicated that they were in possession of a B-degree and a teaching diploma. In terms of rank, the majority (77%) of educators are on the rank of educator (post level 1) and only 21,6% formed part of the school management team. Therefore, it has become necessary to review the manner in which educators and school management teams are trained and how their perceptions about cultural diverse learning environments are moulded (Meier, 2005; Rios, 1996). In relation to language in which it is most comfortable to teach, the majority (78, 5 %) of respondents chose Afrikaans (one of South Africa's official languages) and only 15% teach in English. This situation is of concern, as black learners constitute the majority at former white high schools and receive their lessons in English.

Table 1: Perceptions of educators regarding issues/aspects relating to cultural diverse school settings(n=241)

		1-Strongly Agree		2- Agree		3- Disagree		4-Strongly Disagree			
1	**Items**	N	%	N	%	N	%	N	%	Arith-metic Mean	Mean
1.1	The establishment of a cultural diverse school climate is embedded in my school's mission statement	58	24.1	103	42.7	38	15.8	42	17.4	2.504	2.00
1.2	In my school all learner racial groups are served by a cultural diverse teaching staff	19	7.8	20	8.3	85	35.3	117	48.6	2.254	2.00
1.3	Values and norms as included in my school's code of conduct are directed at the creation of democratic citizenship	31	12.9	39	16.2	69	28.6	102	42.3	2.216	2.00
1.4	Multilingualism is promoted in my school	30	12.4	27	11.2	69	28.6	115	48.0	2.538	2.00
1.5	At my school educators make learners aware of fostering understanding for different cultures	32	13.3	39	16.2	44	18.2	126	52.3	2.373	2.00
1.6	Educators at my school support a learning environment where participative decision making is being applied	62	25.8	76	31.5	47	19.5	56	23.2	2.245	2.00
1.7	In the school curriculum certain important aspects regarding social justice issues are outlined	23	9.5	40	16.6	65	26.9	113	46.7	2.353	2.00
1.8	I have lower academic expectations for my black learners	79	32.8	29	12.0	51	21.2	82	34.0	2.349	2.00
1.9	I don't see why I should change my teaching style because I view it as being effective for me	65	26.9	95	39.5	38	15.8	43	17.8	2.243	2.00
1.10	I make an effort to learn about the cultures of my learners	24	10.0	37	15.4	50	20.7	130	53.9	2.348	2.00

Items 1.1 – 1.10 (Table 1) are discussed below.

Most of the educators (66.8%) are of the opinion that aspects relating to their school's cultural diverse climate is embedded in the mission statement. This is a good sign of the intent of former white schools to aspire to becoming inclusive. Of concern is that 33,2% of educators hold the opposite view to item 1.1. As portrayed from statistics (Northern Cape Department of Education, EMIS 2008) and evident in the analysis of the data, 83, 9% of educators are of the opinion that racial groups are not served by a cultural diverse teaching staff (item 1.2). The National Department of Education postulates that this trend needs to change at former white schools and that a concerted effort should be made by the school management to recruit educators across the colour line. According to the Gauteng Provincial Department of Education (GDE) learners, mainly black, are almost exclusively taught by white teachers. The culture and environment of former white schools do not implement the process of transformation in

line with the new democratic dispensation that promotes cultural diversity and a positive appreciation of indigenous African and disempowered cultures (Independent Online-The Star, 2001). Relating to item 1.3, most educators (70, 9 %), indicated that values and norms as included in the school's code of conduct are aimed at enhancing democratic citizenship. These schools should study relevant policies such as the Constitution, the South African Schools' Act (SASA) and the National Education Policy Act (NEPA), so as to orientate educators and learners in the core values enshrined in these documents. With regard to item 4 a total of 76, 6% of educators alluded to multilingualism not being promoted at former white schools, yet it can be argued that these schools have 69% of black learners (Northern Cape Department of Education, EMIS 2008). Educators need to be equipped to deal with the challenges of multilingualism in an ever-changing class situation, as most of them possess a low level of English (Alexander, 1994; Sieghrun, 2002). The National Department of Education's Language-in-Education policy document should be used as a guide to promote the use of more than one language in the teaching and learning environment in former white schools.

Regarding item 1.5, 70,5 % of educators indicated that a non-awareness exists at their schools concerning the promotion of an understanding of different cultures. An adequate teaching and learning culture needs to be created that encourages educators and learners to acquire the necessary knowledge, skills, values and attitudes to participate in meaningful ways in the classroom setting (Lemmer & Squelch, 1993; Massey, 1991). Furthermore a total of 29.5 % of educators are of the opinion that they create awareness for the promotion of understanding of different cultures at their school. Adams, Pardo, & Schniedewind (1991) and Alexander (2004) posit that educators in culturally diverse school settings, such as in former white schools, need to make a focused effort to know and show an interest in the cultures of their learners; in other words they need to 'step outside themselves' and look for the habitual values, norms, beliefs and practices required to construct their own cultural backgrounds.

In reference to item 1.6, the majority of educators (57, 3%) indicate that they support a learning environment where participative decision making is being applied. This is healthy for processes in which a degree of consensus seeking and decision making is necessary and in essence, promote democratic classroom practices. It is for the principal and members of the School Management Team (SMT) to initiate inexperienced educators into decision making processes. Only 42,7% educators are distancing then from this statement. Item 1.7 reveals that the overwhelming majority (73,6 %) of educators view important aspects such as social justice, not being included in school curricula. Harley and Wedekind (2002) concur with the above position and view the curriculum as a tool that should be constructed in such a way that it allows for the uniting all learners as equals in a democratic and prosperous school and classroom setting. The minority (26,5 %) of educators were in agreement regarding the inclusion of social justice issues in the curriculum. Educators and learners will respect one another's diversity if notions of social justice such as racism, poverty and other societal challenges are more clearly articulated during the curriculum development processes (Shulz, 2007). Moreover, most educators (55.2%) as observed from item 1.8 have indicated they have higher expectations for their black learners. In contrast, 44.8% of educators maintain they have lower expectations for black learners. Lemmer et al. (2006) concurs with the latter view and are convinced that many white educators have low expectations of their black learners and tend to be more supportive and stimulating to their white learners, with the result that black learners underachieve. Regarding item 1.9, the 66,4% of educators do not see the need to change their teaching style. Against the learner-centred Outcomes Based Education (OBE), as South Africa's official approach to learning, educators in former white schools need to mindful that not only is the demonstration of knowledge required via this approach, but also high-level skills, values and attitudes; thus, the educator should have a more holistic, formative and developmental approach to learning (Naicker, 2000). There should not only be a focus on the 'how much of learning' but invariably also on 'how do learners learn?' and 'what do they learn?' The minority (44.8%) of educators indicated that they would change their teaching style when conditions dictate. This is the type of educator who needs to be educated into culturally diverse schooling settings in South Africa; the kind of educator who needs to be willing to reflect on his/her own practice and constructing meaning-making opportunities, as a means of teaching learners from their own realities (Alexander, 2004). Regarding item 1.10, the majority of educators (74.6%) are of the opinion that they do not need to know the cultures of their learners which is a worrying response. Educators should support learners to develop their ethnic identities, their knowledge about other cultural groups and competence in one or more cultural systems. On the other hand, 25.4% of educators indicated that they would like to have a better understanding of their class's cultural diversity.

The qualitative responses of the learner survey are outlined in table 2. Learners were requested to briefly expound on their responses.

Table 2: Experiences of learners regarding issues/aspects relating to cultural diverse school settings (n=100)

QUESTIONS DIRECTED TO LEARNERS	YES %	NO %	MAIN ISSUES EMANATING FROM RESPONSES
1. Did you have expectations of the school you attending currently?	**82**	18	High academic standards
2. Do racial incidents often occur at your school ?	**56**	44	Perceptions
3. Are learners, irrespective of their cultural background treated the same in your school ?	40	**60**	Cultural misunderstandings, stereotyping
4. Do you think that the enrollment of non-white learners in former white schools led to a drop in standards?	48	**52**	Difficulty in communication and understanding
5. Are black learners more withdrawn than white learners during group work and other class activities ?	**57**	43	Limited interaction on social and academic level
6. Do educators use experiences of learners during lesson presentation?	37	**63**	Unawareness to life world and world view
7. A re your need for belonging met by your school ?	23	**77**	Eurocentric school culture / Referrals to 'us' and 'them'
8. Do you think that educators in former white schools are more committed than those teaching in townships and non-white areas ?	**66**	34	Educator strikes and absenteeism
9. Do you find living in a non-white area / township having a direct effect on your academic performance?	46	**54**	Lack of facilities and resources
10. If I could choose, would you prefer to attend a historically non-white school?	32	**68**	Good pass rates

With reference to table 2, questions in which the majority of learners were in agreement (yes responses) were: expectations of school where attending (82%); occurrence of racial incidents(56%); withdrawn from group work and class activities (57%) and more committed educators (66%). The occurrence of racial incidents in cultural diverse school settings raises concern as one would think that South Africa's first democratic elections were held in 1994-surely education authorities should make a concerted effort in delimiting racial incidents in rural integrated school settings. Another issue, reflecting a majority response (57%) is that of black learners being more withdrawn than white learners during group work and class activities. With regard to the latter it's crucial for white educators to have expertise on cooperative learning techniques. Cooperative learning according to van Wyk (2007) is a teaching method which could be used to enhance social skills and intergroup interaction in cultural diverse class environments.

Questions in which the majority of learners were in disagreement (no responses) were: learners from diverse cultural backgrounds treated the same (60%); enrollment of non-white learners led to a drop in standards (52%); educators use experiences of learners during lesson presentation (63%); need for belonging met by your school (77%); living in a non-white area / township having a direct effect on your academic performance (54%) and preference to attend a historically non-white school (68%). Educators need to be aware that all learners irrespective of colour must be treated in a fair, just and humane manner. The Constitution of South Africa (Act 108 of 1996) demands that the core values enshrined in it, be implemented through education policies. Moreover it becomes critical that educators in cultural diverse rural school settings acquire the knowledge and skills to teach learners from different cultures.

RECOMMENDATIONS

In the wake of the purpose of this study, we propose the following recommendations:

In relation to this, Erasmus and Ferreira (2002) argue that tolerance in itself is insufficient, as it indicates a mere endurance of and not necessarily respect for other cultures. It would seem that the solution involves a change of attitude towards, rather than only the acquisition of knowledge about other cultures. Furthermore, the integration of learners into cultural diverse school settings should not only be treated as a series of isolated experiences; rather, it should form part of the curriculum, whilst educator training should incorporate cultural awareness, knowledge and skills as part of the educator's course. Modules and courses on cultural diversity should be made compulsory in teacher-training programmes at institutions of higher learning The initial focus should be on persuading student teachers to actively assess their perceptions of learners from diverse socio-cultural backgrounds. It therefore becomes necessary that all educators be provided with adequate, appropriate and effective training and guidance in all the aspects relating to school integration..

Any knowledge production process, whether at school, university, home or community should be relevant to the social and economic needs of South Africa (Winburg, 2006). From the survey, it could further be deduced that learners from diverse cultural groups may continue to present challenges to integrated schools and those providing educational and support services. The development of educational curricula that enhance awareness, knowledge and skills for learners is vital if these schools are to provide culturally relevant, respectful and affirming teaching environments. To that end, the development of culturally sensitive teaching, learning and intervention strategies, as well as professional training, needs to take place. It is important that the latter actions should be structured along the lines of knowledge, skills development and an awareness of diversity. In relation to the hands-on practical activities as an instructional strategy, Moore, Madison-Colmore and Collins (2005) advise that learners should become acclimatised to content on diversity through the early exploration of issues of diversity and self-reflective activities. Equipping the school management teams integrated rural school settings with the necessary strategies to celebrate this diversity should be an indispensable necessity.

Educational opportunities which seek to include all learners create multiple opportunities for educators and learners to experience diverse views and people on a daily basis and to converse about difference, human rights and social justice. Neither recognition nor redistribution of resources as a means of addressing socio-economic inequalities alone, can make education more socially just; students also require both respect and adequate social goods to develop holistically and pursue and achieve their academic and lifelong goals (Lynch & Baker, 2005).

Lemmer et al. (2006) appropriately point out that culture, race, and social class are used to construct the major groups of people in society. Thus, educators, especially in former white schools, need to understand how the ascribed characteristics of culture, race and class may influence their understanding of learners. It may be important to consider these characteristics collectively and not separately, since all learners are members of all three status groups. It is this simultaneous membership of all these groups that influences learners' perceptions and actions. This challenge may be addressed if a concerted effort is made by SMTs to recruit the best qualified, experienced and 'fitting profile' educators of colour. I am not implying that competence and quality should be jeopardised in the process, but I contend that these schools should reflect the diversity of the learner population.

CONCLUSION

Dealing with the complexities of integration in cultural diverse rural school settings of the Northern Cape province of South Africa requires a holistic approach. The development of educational programmes and curricula that enhance awareness, knowledge, and skills for learners is vital if these schools are to provide culturally relevant, respectful, and affirming quality teaching-learning environments. To that end, the development of culturally sensitive teaching, learning and intervention strategies, as well as professional training needs to take place. It is important that the latter actions should be structured along the lines of awareness, knowledge, skills development and an awareness of cultural diversity.

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INTE2010

DETERMINE OF FINE ARTS TEACHER CANDIDATES' INTERNET ADDICTION LEVEL

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Internet and computer that provide fast and easy transportation of information, have a great importance in our life. However one of the problems that computer and internet usage brings, is addiction. This situation effects negatively the human-human interaction and draws individuals to a virtual life far away from sociability. Moreover various studies have shown significant relationships between depression- anxiety and internet addiction. Undoubtedly having social skills and a healthy mood is very important in the profession of teaching. In this study has been quest an answer for question of "How is the internet addiction level of fine arts teacher candidates that are the future's art educators?". The 2nd grade students (n=50+56=106) that study in the Music and Art Education programs of Karadeniz Technical University, constitute the universe of the study. This research is a survey. As a data collection tool, for determine of students' internet addiction level, "Internet Addiction Scale" that has been improved by Günüç (2009), has been used. Obtained data has been statistically analyzed by SPSS software program. At the end of study, the levels of music and art teacher candidates' internet addiction have been determined, compared and some suggestions have been made according to the research results.

Key Words: *Music Education, Art Education, Fine Arts Education, Internet Addiction*

1. INTRODUCTION

Education simply refers to the process of behavioral change (Kılıçoğlu, 2007). Computer usage certainly provides convenience in the access to and communication of information (Özden, Çağıltay and Çağıltay, 2004). The developments in the fields of technology over the 20th century, breakthroughs in communication and the folded increase of information day by day have given such names on the are we live in as "the age of information, the age of computer, age of communication" (Akkoyunlu: 1998). While the internet was used for work purposes, nowadays it is widely used by users not specifically interested in technology in order to avoid the daily tensions and make their lives more convenient. It has been assessed in the year 2005 that 650 million people around the world use the internet and some of them referred to as "internet addicts" (cited: Keser, Buzlu, 2005).

David (2001) has stated that "a healthy internet use" is making use of internet in an appropriate time to access certain information. While some individuals limit their time of internet usage, it has also been observed that overuse of internet has caused individuals serious problems in social and work life. This chain of behaviors that individuals experience has been called "pathological" or "problematic" as it displays a destructive and abnormal role (Kaplan, 2002). "Internet addiction" has first been put forward by Goldberg (1996) and parallel to DSM-IV alcohol addiction diagnosis criteria, devised signs for internet addiction (Souza, Barbara, 1998). Some clinicians have notified similar cases having these symptoms right after Goldberg. Young has established the Center for On-line Addiction for the purpose of treating individuals displaying similar case markers by the help of DSMIV "pathological gambling" diagnosis criteria (O'reilly, 1996, Griffiths, 1999).

Davis (2002) states that problematic internet use is a psychiatric case involving inappropriate thinking and pathological behavior (Davis, 2001). According to Morahan- Martin and Schumacher (2000) pathological internet use is the uncontrolable excessive use of internet and its serious damage to the life of the individual (Morahan, Schumacher, 2000). Grohol (1999) has explained internet addiction with a cognitive approach and focused on the "treatment of behavior" rather than "addictive behavior" itself and claimed that as in other addictions, internet addiction is also a way of avoiding stress and balancing emotional situation (Wang, 2001). Kandell (1998) has defined internet addiction as a psychological addiction and regarded youngsters as the risky group. Excessive use of internet has been determined effective on health, relationships and time management. (Chou, Hsiao, 2000). Beard and Wolf (2001) have defined pathological internet use as the "overuse" causing problems to the individual over domestic, work, school, social or psychological life(Beard, Wolf, 2001).

Technological addictions, as mentioned above, falls into nonchemical behavior and has a negative influence on human-human relationship as it relies upon human-machine interaction. These addictions may be passive activities such as watching television or an active addiction such as playing computer games; therefore, may stimulate addiction (Griffiths, 1995). Researches have also shown that 50% of internet addicts have other psychological disorders (cited: Arısoy, 2009), most common of which are drug addiction (%38), mood disorder(%33), anxiety disorder(%10), psychotic disorder (%14), depression or dysthimia (%25). Besides, %38 of these individuals have other addictions such as compulsive shopping (%19), gambling (%10), pyromania (%10) and compulsive sex addiction(%10). Moreover, some of these individuals display borderline, narcissistic and anti social personality disorder symptoms and especially those who have previously shown various impulse disorders seem to be more likely to display pathological and excessive use of internet (Odabaşıoğlu et al, 2007). According to a research conducted in Turkey, it has been observed that hyperactivity, social phobias, depression trigger risky internet use especially in teenagers (Gönül, 2002).

The human being, when contacting other individuals rather than a machine or a computer, social skills come to use (Abbott & Lewry, 1992) and individual feels the need to communicate through behavioral skills and bond positively with others (Kelly, 1982).

In the light of these, it is clearly seen how internet addiction destroys an individual. In the area of teaching which is based upon human-human relationship, the urge for teachers is crucial when social skills and spiritual health is concerned. In this study, the answer to the question of "What is the level of addiction of the fine art teacher candidates?" is examined.

2. AIM

The main purpose of this study is; to determine of Art Education and music education programs students' internet addiction levels, compare and to make some evaluations with respect to obtained results.

3. METHOD

3.1.Study Groups

This research is a survey. The 2nd grade students that study in the Art Education (56 students) and Music Education programs (50 students) of Fine Arts Education Department at Fatih Education Faculty, Karadeniz Technical University (totally 106 students), constitute this research's study group.

3.2.Data Collection

In the study, for collecting data firstly literature search was conducted. By taking help from the obtained data in consequence of the literature search, a scale has been determined for apply to the study group. For measurement of fine arts department students' internet addiction levels, a scale consists of 35 topics and 4 sub dimensions improved by Günüç (2009), has been used. Quinary likert type scale has been used as answer options in the scale. The answer options have been determined as "Completely Agree", "Agree", "Indecisive", "Disagree" and "Absolutely Disagree".

3.3. Analysis of Data

The data have been obtained from application of internet addiction scale, have been put into the process of analysis. For examining of the study group answers towards topics formed the scale, descriptive frequency measurements have been done and tables have been formed. Firstly test of normality has been done and it is understood that the data was nonparametric. Mann Whitney U test have been done for comparing the answers of art education and music education students that consist the research study group. In application of the tests, the significance level has been determined as $p<0,05$.

4. FINDINGS

4.1. Examining of Internet Addiction Levels According to Sub Factors

In this section, the tables took place giving the measurement results towards factors of the answers that study group had given. In tables, related average scores regarding topics entered to the factors have been given and evaluations have been implemented towards these scores.

Scale	Score Ranges	Comments
Completely Agree	4,21 – 5,00	Very high internet addiction level
Agree	3,41 – 4,20	High internet addiction level
Indecisive	2,61 – 3,40	Moderate internet addiction level
Disagree	1,81 – 2,60	Low internet addiction level
Absolutely Disagree	1,00 – 1,80	Very low internet addiction level

Table 1: Average Score Ranges Related to Scale

In table 1, the likert type quinary answer options range scores take place. The below tables have been explained by taking help from the table indicating which score corresponds to which range.

Topics	Average ($\overline{X}$)	Sd
1. I feel myself uptight when not using internet.	2,57	1,43
2. I feel angry or upset when not being able to use internet when I want.	2,60	1,29
3. If I couldn't access to the internet, I possibly feel angry.	3,27	1,26
4. I have the happiest moment when I get online.	2,76	1,26
5. Use of internet makes me feel better at times of anxiety.	3,03	1,27
6. I feel angry if someone tries to disconnect me from the internet world.	2,90	1,27
7. I tend to use internet when I need to escape troubles.	2,45	1,26
8. I will be nervous when I couldn't get online in the planned time.	2,93	1,28
9. I would like to connect internet when I am in a crowded environment.	2,50	1,24
10. I feel impatient to get online after a long time of disconnection from the internet.	2,61	1,26
11. I search for internet in the places I go.	2,71	1,30

Table 2: Internet Addiction Level Scores Towards the Factor of Being Devoid

By examining the table 2, it is understood that the study group mostly answered the topics as **indecisive** or **disagree**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** and **disagree** options. Consequently, it is emerged that students mostly expose a "*moderate internet addiction level*" and partly "*low internet addiction level*" towards the factor of **being devoid.**

Topics	Average ($\overline{X}$)	Sd
12. I feel a difficulty controlling or limiting my internet use.	2,37	1,28
13. I firstly think of connecting as I wake up.	2,27	1,21
14. I feel the need to stay in internet longer than the last time.	2,21	1,18
15. I surf in internet longer than I planed to.	2,54	1,19
16. I think about it even when I am not on the internet	2,03	1,09
17. I don't feel and meet my food or drink needs	2,17	1,211
18. I cancel my other plans for internet	2,06	1,14
19. I cant feel free to go offline whenever I wish	2,16	1,14
20. I cant finish using internet when my parents ask me to.	2,26	1,19
21. I sacrifice my sleep for internet.	2,20	1,17

Table 3: Internet Addiction Level Scores Towards the Factor of Difficulty in Control

By examining the table 3, it is understood that the study group doesn't participate in the related topics as general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **Don't Agree** option. Consequently, it is emerged from the answers that students expose "*low internet addiction level*" towards the **difficulty in control** sub factor.

Topics	Average ($\overline{X}$)	Sd
22. I have some issues with my family because of internet use.	2,32	1,23
23. I cant finish using internet even if my friends call me.	2,37	1,31
24. I restrain from other social activities such as sports, cinema, reading and so on because of internet use.	2,22	1,30
25. I ignore my school/house/work responsibilities because of internet use.	2,22	1,18
26. My friends complain about the time I spend on the internet.	2,31	1,16
27. I spend less time with family because of internet use.	2,27	1,19
28. I spend less time with friends because of internet use.	2,26	1,28

Table 4: Internet Addiction Level Scores Towards the Factor of Deformation in Functionality

By examining the table 4, it is understood that the study group doesn't participate in the related topics as general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **Don't Agree** option. Consequently, it is emerged from the answers that students expose "*low internet addiction level*" towards the **deformation in functionality** sub factor.

Topics	Average ($\overline{X}$)	Sd
29. I have issues with my friends because of internet use.	2,18	1,17
30. I prefer the cyber friends to real ones.	2,07	1,18
31. I choose to share feelings through internet but rather speak face to face	2,20	1,33
32. I make my friends from the internet.	1,98	1,17
33. The internet is my best friends	2,16	1,25
34. A life without internet will be empty or meaningless	2,24	1,30
35. I have difficulty in connecting with people face to face because of internet.	2,00	1,27

Table 5: Internet Addiction Level Scores Towards the Factor of Social Isolation

By examining the table 5, it is understood that the study group doesn't participate in the related topics as general tendency. When we consider the table 1, it is seen that most of the average scores indicate the **Don't Agree** option. Consequently, it is emerged from the answers that students expose "*low internet addiction level*" towards the **social isolation** sub factor.

4.2. Compare of Departments According to Internet Addiction Levels Towards Factors:

In this section U test has been done to the study group's answers with mentioning compare of Art Education and Music Education program students' internet addiction levels. The significance level between groups has been accepted as $p<0,05$. At the end of the test, no topics have been found significant differences among them. This result shows that there is no differences between internet addiction levels of music education and art education students.

4.3. Compare of Genders According to Internet Addiction Levels Towards Factors:

In this section U test has been done to the study group's answers with mentioning compare of Female and Male students' internet addiction levels and 8 topics that have been found significant difference among them, have been considered and presented in tables. The significance level between groups has been accepted as $p<0,05$.

Topics	Sex	N	Average ($\overline{X}$)	Sd	p
10. I feel impatient to get online after a long time of disconnection from the internet.	Female Male	61 45	47,95 61,02	1,26	,025
11. I search for internet in the places I go.	Female Male	61 45	48,38 60,44	1,30	,041
13. I firstly think of connecting as I wake up.	Female Male	61 45	47,06 62,23	1,21	,009
14. I feel the need to stay in internet longer than the last time.	Female Male	61 45	47,66 61,42	1,18	,017
30. I prefer the cyber friends to real ones.	Female Male	61 45	48,16 60,73	1,18	,028
31. I choose to share feelings through internet but rather speak face to face	Female Male	61 45	47,62 61,47	1,33	,016
32. I make my friends from the internet.	Female Male	61 45	47,81 61,21	1,17	,018
33. The internet is my best friends	Female Male	61 45	47,47 61,68	1,25	,013

Table 6: U Test Results For Compare of Internet Addiction Levels According to Genders

By examining of table 6, it can be understood that in expose of "*moderate internet addiction level"* and occurring significant differences between ideas of Female and Male students in 10. and 11. topics, the weight has been on **Male** students. Also the significant differences occurred in 13. , 14. , 30. , 31. , 32. and 33. topics in expose of "*low internet addiction level*" the weight has been on **Male** students.

5. CONCLUSION

Findings of the study show that students who have attended the study generally exposed "*low internet addiction level*". When the scores of internet addiction following the observation of sub factors were analyzed, the students are seen to mark answers mostly such as "**undecided**" and partly as "**don't agree**". In this situation, the scale of internet addiction has shown that the students mostly exposed "*moderate internet addiction level*" and partly "*low internet addiction level*" about being "**devoid of**" internet addiction.

In the evaluation of the scale towards "*the difficulty of control*" sub factor, it has been seen that the students did **not agree** to the factor and hence "*low internet addiction level*" in control of internet usage has been found.

In the assessment about the "*dysfunctionality*" factor, it has been found out that the students showed "*low internet addiction level*" in dysfunctionality resulting from internet addiction. Also "*Social isolation*" was another factor used to evaluate the students, showed that there was "*low internet addiction level*" resulting from internet addiction as the students did **not agree** to the related choices.

In comparing the results of the evaluations obtained from music and art education departments, have shown no significant differences in their levels of internet addiction.

The meaningful differences in articles 10 and 11 has been seen to develop between genders in "**undecided**" option and exposed "*moderate internet addiction level"*; while in 13, 14, 30, 31, 32 and 33 have developed in "**don't agree**" option and exposed "*low internet addiction level*". The dominance of differences in both situation has occurred in **male** students. When the answers of the study group were observed, 7 topics out of 35 "**undecided**" option has been marked and the rest of the articles were marked as "**don't agree**" option.

In the evaluation of internet addiction level from the *being devoid* point of view, the students have expressed that they: do not feel uptight when not using internet, do not feel angry or upset when not being able to use it when they want, have a risk of not getting access to the internet and may possibly feel angry about it, may have the happiest moment when they get online, may feel better at times of anxiety, may feel angry if someone tries to disconnect them from the internet world, do not tend to use internet when they need to escape troubles, may be nervous when not getting online in the planned time, do not feel to connect when they are in a crowded environment, may feel impatient to get online after a long time of disconnection from the internet, may search for internet in the places they go.

In the evaluation of the internet addiction level regarding the *control difficulty* aspect, the students: do not feel a difficulty controlling or limiting their internet use, do not firstly think of connecting as they wake up, do not feel the need to stay longer than the last time, do not surf longer than they plan to, do not think about it when they are not on the internet, feel and meet their food or drink needs, do not cancel their other plans for internet, feel free to go offline whenever they wish, finish using it when their parents ask them to and that they do not sacrifice their sleep for internet.

In the evaluation of internet addiction level from *dysfunctionality* point of view, the students have stated that they: do not have any issues with their families, finish using it when their friends call, do not restrain from other social activities such as sports, cinema, reading and so on, do not ignore their school/house/work responsibilities, that their friends do not complain about the time they spend on the internet, do not spend less time with family and friends because of internet use.

Lastly, in the evaluation of internet addiction level from *social isolation* viewpoint, the students have pointed out that they: do not have issues with their friends because of internet use, do not prefer the cyber friends to real ones, do not choose to share feelings through internet but rather speak face to face, do not make friends from the internet, claim that internet is not their best friends, say that a life without internet won't be empty or meaningless, do not have difficulty in connecting with people face to face because of internet.

As a result of the study it has been emerged that Music and Art Teacher candidates have exposed "*low internet addiction level*" as regards all sub factors.

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INTE 2010

DETERMINE OF FINE ARTS TEACHER CANDIDATES' SOCIAL SKILLS LEVEL

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Social Skills have important roles in an individual's life. Because they facilitate communication with other persons. It is inevitable for some occupation groups the need for having social skills. One of these occupation groups is profession of teaching. Because relations between student and teacher in the class, constitute the learning and education basis. In this study has been quest an answer for question of "How is the social skills level of fine arts teacher candidates that are the future's art educators?". The 3rd grade students (n=32+42=74) that study in the Music and Art Education programs of Karadeniz Technical University, constitute the universe of the study. This research is a survey. As a data collection tool, for determine of students' social skills level, Social Skills Inventory (SSI) that has been improved by Riggio, (1989) and adapted to Turkish by Yüksel, (1997), has been used. Obtained data has been statistically analyzed by SPSS software program. At the end of study, the level of music and art teacher candidates' social skills have been determined, compared and some suggestions have been made according to the research results.

Key Words: *Music Education, Art Education, Fine Arts Education, Social Skills*

1. INTRODUCTION

It is of vital importance for an individual to have skills and behaviors that are appreciated by the society and communicating his/her feelings successfully as a reason for the wish to comprehend each other, communicating emotions and impulses is a requirement (Başaran, 1994; Bacanlı, H., 1999; Aydın, G., 1985). This can only happen through some communicative skills. These attitudes are generally known as social skills which has a tremendous role on human life since it acts as a catalyst in communicating with others(Yüksel, 2001 Acar, N., 1980; Akkök, F., 1996; Bacanlı, H., 1990). The human being, when contacting other individuals rather than a machine or a computer, social skills come to use (Abbott & Lewry, 1992) and individual feels the need to to communicate through an organized series of behavioral skills and bond positively with others(Kelly, 1982). These skills are in a way a pre requisite for personal interaction and is gained throughout childhood and used lifelong. In addition to providing positive contact with others, social skills also helps meet the needs and achieve the aims of the individual (Cartledge & Milburn, 1992). In this way, the senses of respect for the differences of the other party, not expecting others to be like him/her, sharing of feelings with others, reacting logically towards others' way of thinking and similar functional skills is developed in the individual and the individual is expected to display them in daily experiences (Fontana, 1992). According to Giblin (1995), when the individual attains this level of success in communicating with people, %85 of the work will be fulfilled in all work fields, career and interests and %99 in personal happiness.

Social skills are defined as expressing oneself with people through verbal and non-verbal communication (Ogilvy, 1994), building relationships, maintaining them and resolving problems and leading them when needed (Elliott & Gresham, 1987; Goodwin, 1999), sharing emotions and thoughts and helping other individuals share their own feelings, achieving tasks given (Becker, Heimberg & Bellack, 1987; Gresham, 1986) and the ability to display the needed behavior in order to succeed in social life (Spence, 2003). Most researchers believe that social skills are pre requisites for social harmony regarding the given definitions (Cavell, 1990; Gresham, 1986). Begun (1996) claims listening to be one of the most vital social skills used in interpersonal relationships. Similarly, Hargie, Sounders and Dickson (1994) classifies basic social skills as verbal and non-verbal communication skills. Nodding, mimics, body posture, voice tone and eye contact are classified as non-verbal skills. In contrast, asking questions, giving feedback, expressing emotions clearly and listening are verbal skills (cited: Karahan, 2008).

It is also pleasing for individuals working in different career branches to have social skills but for some work groups it is inevitable for the individuals to have those skills one of which is teaching. The student-teacher relationship lays the foundation old education and learning. If the relations depending on words and action are good, a positive atmosphere is formed in class. On the other hand, if not, the

education process cannot reach the goals. Therefore, it can be said that the attitude of the teacher certainly effects the educational atmosphere (Ergün and Duman, 1998; Çetin, Ş., 2001; Demirhan, G., and others, 1996; Demirhan, G., 2001; Pehlivan, Z., 1999; Suomi ve diğerleri, 2003). For this reason, determining the social skills and developing solutions for the students plays an important role for the students of faculty of education. The aim of this study is to seek answers for the question of "What is the level of social skills for fine art teacher candidates?"

2. AIM

The main objective of this study is to determine the level of social skills of the students of fine arts-music and art education programs and to make some assessments according to obtained data.

3. METHOD

3.1. Study Group

This research is a survey. The study group of the research involves Karadeniz Technical University, Fatih Education Faculty 3rd grade students of Art and Music teacher candidates. 42 students of art education program and 32 students of music education program, totally 74 students constitute the research's study group.

3.2. Data Collection

A literature review has been made in order to collect the data. As a result of the data obtained from the scan, a scale has been determined to apply on the study group. In order to measure the levels of social skills, Social Skills Inventory (SSI) consists of 6 dimensions and 90 articles developed by Riggio (1989) that has been adapted to Turkish by Yuksel (1997), has been used. Quintet Likert-Scale answer options are as follows: "Completely Agree" , "Agree" , "Indecisive", "Disagree" and "Absolutely Disagree".

3.3. Analysis of Data

The data have been obtained from application of Social Skills Inventory; have been put into the process of analysis. For examining of the study group answers towards topics formed the scale, descriptive frequency measurements have been done and tables have been formed. Firstly test of normality has been done and it is understood that the data was nonparametric. Mann Whitney U test have been done for comparing the answers of art education and music education students that consist the research study group. In application of the tests, the significance level has been determined as $p<0,05$.

4. FINDINGS

4.1. Examining of Social Skills Levels According to Sub Factors

In this section, the tables took place giving the measurement results towards factors of the answers that study group had given. In tables, related average scores regarding topics entered to the factors have been given and evaluations have been implemented towards these scores.

Scale	Score Ranges	Comments
Completely Agree	4,21 – 5,00	Very high social skills level
Agree	3,41 – 4,20	High social skills level
Indecisive	2,61 – 3,40	Moderate social skills level
Disagree	1,81 – 2,60	Low social skills level
Absolutely Disagree	1,00 – 1,80	Very low social skills level

Table 1: Average Score Ranges Related to Scale

In table 1, the likert type quinary answer options range scores take place. The below tables have been explained by taking help from the table indicating which score corresponds to which range.

Topics	Average ($\overline{X}$)	Sd
1. It is hard for others to understand when I am unhappy and sad.	2,48	1,26
2. I allocate time to watching people's acts as the time I allocate for listening them while speaking.	3,70	,96
3. How much I try to hide my feelings againts people that I dont like them, they can understand that I dont like them.	3,29	1,14
4. I like to arranging parties that my friends can get together.	3,78	,98
5. Being critisized or told off by others, doesnt disturb me very much.	3,10	1,28
6. I feel my self relax with any kind of persons young-old, rich-poor.	3,64	1,24
7. I speak faster than most people.	3,21	1,18
8. Few people are sensitive and considerate as I am.	3,40	1,05
9. I can't detain my self from laughing when somebody tells a funny story or makes a joke.	3,27	1,10
10. It will get very much time for some body to know me properly.	2,66	1,15
11. The greatest source of my pleasure and sadness, is other people.	3,14	1,22
12. When I get together with a group of my friends, generally I become the group's mouthpiece.	3,10	1,06
13. I have a tendency of making unhappy the others, when I am unhappy.	2,85	1,02
14. I can notice immediately when somebody gets interested in me in the meetings.	3,64	,99
15. People always can notice from my expression when I get bored.	3,71	1,05

Table 2: Social Skills Level Scores Towards the Factor of Emotional Expressitivity

By examining the table 2, it is understood that the study group mostly answered the topics as **indecisive** or **agree**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** and **agree** options. Just in 1. topic the students chose **disagree** option. Consequently, it is emerged that students mostly expose a "*moderate social skills level*" and partly "*high social skills level*" towards the factor of **emotional expressitivity.**

Topics	Average ($\overline{X}$)	Sd
16. I like being social.	3,81	1,08
17. In a politic discussion, I prefer to take place myself in the discussions instead of observing the participants.	3,21	,99
18. Sometimes, I feel hardness to look at somebody's face when we are talking about something personal.	3,06	1,17
19. It is told that I have meaningful glances.	3,75	,91
20. I interested in learning the reasons of human behaviors.	3,72	,96
21. I am not very successful in control of my emotions.	3,12	1,10
22. I prefer to work in jobs that a I can work together with lot of people.	3,24	1,11
23. I get impressed highly of psychological conditions of the people around.	3,31	,93
24. I am not very successful in giving speech that has been prepared beforehand.	3,22	1,05
25. I generally feel disturbed of touching other people.	2,86	1,20
26. I can easily understand personality of a person by following his relationships with others.	3,63	,95
27. I can hide my real feelings almost from everybody.	3,40	1,01
28. I always participate in entertainment meetings that the friends come together.	3,52	1,06
29. I sometimes get worried about trueness the things that I did or said.	3,08	1,05
30. It is very hard form e to speak in front of a crowded group.	3,12	1,23

Table 3: Social Skills Level Scores Towards the Factor of Emotional Sensitivity

By examining the table 3, it is understood that the study group mostly answered the topics as **indecisive** or **agree**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** and **agree** options. Consequently, it is emerged that students mostly expose a "*moderate social skills level*" and partly "*high social skills level*" towards the factor of **emotional sensitivity.**

Topics	Average ($\overline{X}$)	Sd
31. I often laugh loudly.	2,97	1,08
32. It's not important how much they want to hide it. I generally can understand their real ideas.	3,43	1,07
33. I can keep my seriousness even if my friends try to make me laugh.	3,20	1,05
34. In introducing my self to foreign, I am always the first.	3,28	1,07
35. Sometimes it seems that I take very personal the things others says to me.	3,01	1,06
36. I have a problem with choosing true words when I am in a group.	2,98	1,04
37. I sometimes feel hard when I want to say my family and friends how they make me angry or sad.	2,97	1,15
38. I can exactly understand the personality of a person after first meeting.	3,29	1,08
39. It is very hard form me control of emotions.	3,00	1,02
40. Generally I am the first in mutual dialogs	3,22	,97
41. It doesn't have very much importance for me others ideas about my behaviors.	2,84	,95
42. I am very successful in leading group discussions.	3,43	,97
43. My expression is generally objective.	3,39	,99
44. One of my greatest pleasures, is being together with other people.	3,44	1,02
45. I am very successful in keeping my coolness even if I am very sad.	3,48	1,10

Table 4: Social Skills Level Scores Towards the Factor of Emotional Control

By examining the table 4, it is understood that the study group mostly answered the topics as **indecisive** or **agree**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** and **agree** options. Consequently, it is emerged that students mostly expose a "*moderate social skills level*" and partly "*high social skills level*" towards the factor of **emotional control.**

Topics	Average ($\overline{X}$)	Sd
46. I make a lot of hand - arm acts when I am telling a story	3,51	1,02
47. I generally worry that I may misunderstood in my sayings.	2,82	1,12
48. I generally get disturbed with being together by people with different social levels.	3,01	1,24
49. I rarely show my angriness.	3,27	1,03
50. I can immediately notice the people that show themselves different from the real.	3,75	1,00
51. When I am in a group, I generally adapt my ideas and acts to the group.	3,75	,97
52. I undertake the great part of the speech in discussions.	3,27	1,11
53. Family always has expressed the importance of good manners.	3,50	1,14
54. I am not very successful to merge with others in the entertainment parties.	2,89	1,21
55. I often touch my friends while I am speaking with them.	2,94	1,09
56. I hate of people telling me their problems.	3,29	1,08
57. I can hide my angriness from others.	3,09	1,13
58. I like to speak with different people in meetings.	3,45	,99
59. I get affected if someone laughs or makes face to me.	3,36	1,11
60. I feel my self isolated in parties that a lot of important people are invited.	3,28	1,22

Table 5: Social Skills Level Scores Towards the Factor of Social Expressitivity

By examining the table 5, it is understood that the study group mostly answered the topics as **indecisive** or **agree**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** and **agree** options. Consequently, it is emerged that students mostly expose a "*moderate social skills level*" and partly "*high social skills level*" towards the factor of **social expressitivity.**

Topics	Average ($\overline{X}$)	Sd
61. I can make enjoyable the party that is quiet.	3,39	,97

62. I may cry in dramatic films.	3,27	1,17
63. In social activities, I can show my self as if I am having fun even though I don't enjoy at all.	3,24	1,09
64. I see my self as an alone person.	3,04	1,28
65. I am very sensitive about criticism.	3,13	1,16
66. I some times notice people with different background disturbness in my media.	3,20	1,08
67. I hate of being the centre of interest.	2,98	1,11
68. I can easily touch and embrace a sad person for making her relaxed.	3,20	1,15
69. I cant hide my strong emotions.	2,68	1,20
70. I enjoy of join to crowded parties and meeting new persons.	3,41	1,17
71. I give importance to other people love me.	3,52	1,17
72. I some times say wrong things when I am starting to speak with some one foreign.	2,89	1,07
73. I rarely show my emotions.	2,82	1,10
74. I spend hours for watching other persons.	3,10	1,20
75. I can show myself as if I am sad when I am happy at reality.	3,00	1,17

Table 6: Social Skills Level Scores Towards the Factor of Social Sensitivity

By examining the table 6, it is understood that the study group generally answered the topics as **indecisive**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** options. Just in 70. and 71. topics the students chose **agree** option. Consequently, it is emerged that students mostly expose a "*moderate social skills level*" towards the factor of **social sensitivity.**

Topics	Average ($\overline{X}$)	Sd
76. It is impossible for me to speak with someone that I don't know, unless he speaks to me.	2,78	1,21
77. I feel uneasy if I noticed someone is looking at me.	2,89	1,01
78. I generally have been chosen as a leader in the group.	3,17	1,07
79. My friends sometimes say to me that I speak too much.	3,14	1,06
80. Mostly It is told that I am a sensitive and considerate person.	3,32	1,27
81. People always can understand my feelings even if I try to hide them.	3,17	1,15
82. In entertainment parties that friends come together, I am in tendency of being the star of the party.	3,14	1,17
83. I get busy with the impressions that I have left on others.	3,24	1,09
84. I generally find my self clumsy in social environments.	3,13	1,20
85. I never hue and cry when I am angry.	2,91	1,21
86. My friends call me for pacify them whenever they are angry.	3,31	1,07
87. I am successful in seem to be happy in a moment and unhappy in another.	3,29	1,21
88. I can talk about an issue for hours.	3,33	1,12
89. I often get busy with the things that people think about me.	3,09	1,22
90. I can easily be adapted to any kind of social media.	3,45	1,18

Table 7: Social Skills Level Scores Towards the Factor of Social Control

By examining the table 7, it is understood that the study group generally answered the topics as **indecisive**. When we consider the table 1, it is seen that most of the average scores indicate the **indecisive** options. Just in 90. topic the students chose **agree** option. Consequently, it is emerged that students mostly expose a "*moderate social skills level*" towards the factor of **social control.**

4.2. Compare of Departments According to Social Skills Levels Towards Factors:

In this section U test has been done to the study group's answers with mentioning compare of Art Education and Music Education program students' social skills levels and 6 topics that have been found significant difference among them, have been considered and presented in tables. The significance level between groups has been accepted as $p<0,05$.

Topics	Department	N	Average ($\overline{X}$)	Sd	p
31. I often laugh loudly.	Music Art	32 42	31,28 42,24	1,08	,024
36. I have a problem with choosing true words when I am in a group.	Music Art	32 42	45,31 31,55	1,04	,004
45. I am very successful in keeping my coolness even if I am very sad.	Music Art	32 42	31,19 42,31	1,10	,022
50. I can immediately notice the people that show themselves different from the real.	Music Art	32 42	30,02 43,20	1,00	,006
64. I see my self as an alone person.	Music Art	32 42	43,45 32,96	1,28	,033
66. I some times notice people with different background disturbness in my media.	Music Art	32 42	31,34 42,19	1,08	,025

Table 8: U Test Results For Compare of Social Skills Levels According to Departments

By examining of table 8, it can be understood that in expose of "*moderate social skills level"* and occurring significant differences between ideas of music and art programs students in 31. and 66. topics, the weight has been on **Art Education** program students. However in occurring similar situation in 36. and 64. topics, the weight has been found on **Music Education** program students. Also it is understood that in expose of "*high social skills level"* in 45. and 50. topics, the weight has been on **Art Education** program students.

4.3. Compare of Genders According to Social Skills Level Towards Factors:

In this section U test has been done to the study group's answers with mentioning compare of Female and Male students' social skills levels and 4 topics that have been found significant difference among them, have been considered and presented in tables. The significance level between groups has been accepted as p<0,05.

Topics	Sex	N	Average ($\overline{X}$)	Sd	p
28. I always participate in entertainment meetings that the friends come together.	Female Male	38 34	31,34 42,26	1,06	,022
42. I am very successful in leading group discussions.	Female Male	39 34	32,47 42,19	0,97	,040
47. I generally worry that I may misunderstood in my sayings.	Female Male	39 35	31,96 43,67	1,12	,016
64. I see my self as an alone person.	Female Male	39 35	32,67 42,89	1,28	,036

Table 9: U Test Results For Compare of Social Skills Levels According to Genders

By examining of table 9, it can be understood that in expose of "*high social skills level"* in 28. and 42. topics, and occurring significant differences between ideas of Female and Male students, the weight has been on **Male** students. Also it is understood that in expose of "*moderate social skills level"* in 47. and 64. topics, the weight has been on **Male** students.

5. CONCLUSION AND DISCUSSIONS

The findings of the study show that the students that have participated in the study have "moderate social skills". When the points of social skills that have formed after the observation of sub factors are considered, it is seen that students have generally chose options as "undecided" and "agree". In this respect, the "sensory expressionism" factor of scale of social skills-that is the ability of expressing non verbal sensual messages- have shown that most students are "moderate social skilled" and a part of them "highly social skilled". Most students have been estimated "moderate social skilled" and a part of them "highly social skilled" in terms of understanding and interpretation of non verbal messages which falls under the "sensory sensitivity" category of the scale. According to "sensory control" factor of the scale-the ability to arrange and control non verbal messages and emotions-most of the fine arts students have been estimated "moderate social skilled" and some of them "highly social skilled". As far as "Social Expressionism"-the skill of face to face interaction and verbal expression- is concerned most students are "moderate social skilled" while a part of them are "highly social skilled". It has been found out that most

students are “moderate social skilled” according to the “Social Sensitivity” factor of the scale regarding interpretation of verbal communication. Most of the students who tend to be self confident, play social roles and adjust oneself in new social atmospheres are “moderate social skilled”.

In the formation of a meaningful difference in 31st and 66th articles and dominance in showing “moderate social skills” is in students of drawing; and in a similar situation in 36th and 64th articles, the dominance is in music students. In the difference formed in 45th and 50th articles, the dominance of “high social skills” is in students of drawing.

In the formation of meaningful difference between views of male and female students regarding the 28th and 42nd articles of the scale, it is seen the **male** students are dominant in displaying “high social skills”; and also in 47th and 64th articles, it is seen that **male** students are dominant in displaying “moderate social skills”..

As the results suggest, although candidates of music and drawing teachers have shown a moderate social skill level, both teachers and department staff could make efforts in order to increase this level. Seminars, concerts, exhibitions and internships may be held fort his purpose helping students to actively participate in activities and hence result in experience in social skills.

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DETERMINING LANGUAGE LEARNING STRATEGIES USED BY THE STUDENTS AT FACULTY OF EDUCATIONAL SCIENCES BASED ON SOME VARIABLES

Deniz Tuğçe ÖZMEN[•] **Deniz GÜLLEROĞLU**[••]

ABSTRACT

The purpose of this research is to find out the students' language learning strategies based on their academic achievement in English course, gender and high school type at Faculty of Educational Sciences at Ankara University. The research has been carried out with 210 first grade students attending English classes. "Dil Öğrenme Stratejileri Envanteri" which is the adapted form of "Strategy Inventory for Language Learning" developed by Oxford (1990) was used to identify whether the students use direct or indirect strategies for learning a language. The direct strategies require mental processing of the target language including memory strategies, cognitive strategies and compensation strategies. The indirect strategies support and manage language learning consisting of meta-cognitive strategies, affective strategies and social strategies. The results of the study indicate that the students at Faculty of Educational Sciences use all language learning strategies (LLS) at medium level. Considering the use of LLS at different levels in this study, the frequency of social strategies at medium level is high. The female students use LLS more frequently than male students and there are statistically significant difference between the students graduated from teacher's training high schools and other high school types conducted in this study. The findings also indicate that more successful learners use LLS at high level.

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DEVELOPING SCIENCE COMPETENCES BY DRAWING CONCEPT MAPS FOR BETTER UNDERSTANDING OF INTERMOLECULAR FORCES

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ABSTRACT

Chemistry is usually considered as a demanding discipline. In order to enable students to better understand abstract Chemistry content and find the most appropriate learning approach, we have prepared didactic materials as a part of Slovenian project "Development of Science Competences". 30 second year students of grammar school in Idrija were given an English text on Chemistry topic "Intermolecular forces". They were involved in reading the task, underlining and writing important keywords as well as translating these into Slovene. Furthermore, hierarchical arrangements were made among the keywords. Drawing concept maps, which theoretical basics were explained by the teacher prior to students' work, based on selected keywords and by using specific computer software, followed. This approach enbabled the students to develop reading skills in a foreign language, to promote logical thinking and to learn how to structure the data. By connecting Chemistry with English language and Computer Science we also achieved cross-curricular integration.

Key words: science competences, scientific literacy, concept maps, intermolecular forces, cross-curricular integration

INTRODUCTION

The mission of each teacher is to present the learning content to his/her students in the most interesting, attractive and understandable way. The selection of appropriate teaching methods and social forms of work together with carefully prepared teaching materials, which provide activities for the development of appropriate generic or subject-specific competences, plays a very important role (Eurydice, 2002). This assumption represents an ideal basis for Slovenian project "Development of Science Competences", which is carried out at the Faculty of Natural Sciences and Mathematics University of Maribor and financed by the European Union under the European Social Fund and Ministry of Education and Sport of the Republic of Slovenia and includes a group of professionals in the field of Natural Sciences.

Within our Chemistry group many attempts have been made to motivate students for learning Chemistry with the final aim to raise their scientific literacy (Vrtačnik, 2009). But many students consider certain abstract chemical items very difficult and have problems understanding them. That is why the task of a successful teacher should be to consider which approach is the most appropriate for teaching a specific chemical content at different educational levels.

Some psychologists point out that the brain is principally concerned with integration and assembly of key terms and suggest students should also take notes and phrases composed in this kind of form and not in the traditional linear form (Tomič, 2000). From those facts concept learning and learning through concept maps has been indicated. Concepts are categories that bring similar events, ideas, objects or people together. They help us to organize large amounts of information into meaningful units. Without the ability to create concepts, life would be confused by a series of unrelated experiences. Long-term memory load would be intolerable, because there would not be a way of grouping things or the formation of symbols or abbreviations. In the case of more complex concepts and younger students, more cases are needed for teaching (Verbič, 2006).

Concept maps

Concept map is a diagram showing the connections between concepts and serves as a tool for organizing and representing knowledge. Concepts are contained in frames in a hierarchical form connections between concepts are indicated by arrows, the arrows connecting the written word, the concept of meaningful contact with each other. It enables logical thinking and helps to refine students' cognitive structures, requiring from active reading, when the students ask what do they already know about the content and how to incorporate new information into existing scheme. The concept maps are an indication of student's existing conceptual ideas and cognitive conflicts (incorrect / incomplete understanding of concepts and relations between them). Such a working method (a hierarchical structure of the material, a conceptual scheme) is called generative model of learning. It is a cognitive understanding of learning, where the student actively establishes the importance of learning content. Concept maps slow down the process of forgetting, as our memory is organized in a similar way (Novak & Canas, 2008).

With the help of concept maps we can make learning Chemistry easier for the students, because they facilitate the understanding of individual concepts and the linkages between them, thereby they can easily solve a problem task and reaction scheme. Conceptual maps are visual and spatial presentations of ideas and concepts, as well as their interrelationships. This tool is intended to organize students' background knowledge and integrate new ideas into their existing knowledge (Šket & Glažar, 2005).

Using concept maps makes sense, since it leads students to think about the content and what they already know about it, to include new information in the existing scheme as well as to find interconnections between concepts and words. All those reasons are reinforced by the fact that it is necessary for Chemistry teachers to introduce this method of work as much as possible in the classroom.

Learning content: Types of intermolecular forces – drawing concept maps

In the article we present a strategy for developing science competences by drawing concept maps for better understanding of a chemical content – intermolecular forces.

The concept of the proposed activity is based on the learning content "Types of intermolecular Forces" in English language, which is a foreign language for Slovenian students. It is highly recommended to be used with students who attend o classical or technical grammar school as well as secondary professional education.

The leading method of work is structuring data into systems and the text based method. The teaching unit is divided into 3 seperate parts. The first part of the lesson guides the students to read the foreign text on intermolecular forces, to underline and write down the key-words, to translate them into Slovene, to define parent and subsidiary concepts and to search for the inter-connections between the concepts. It is advisory for the students to have access to English-Slovene or English-English dictionariers, borrowed from the library or online.

The following unit is provided for drawing concept maps: either on worksheets prepared in advance or by means of computer programmes, if the teaching takes place in a computer classroom with computers having been installed with appropriate programes intended for drawing concept maps, which students are presumed to have learned in any of the previous lessons. The teacher is also supposed to have made students familiar with the meaning and different forms of concept maps (see Figure 1). The presentation of products to other classmates and to the teacher follows, whereby it is very important that the teacher learns from students as follows:

- What problems did they encounter while reading the text?
- What was their strategy for the selection of certain key words?
- Why did they decide for a particular hierarchical link?
- What influenced their selection of different forms of concept maps?

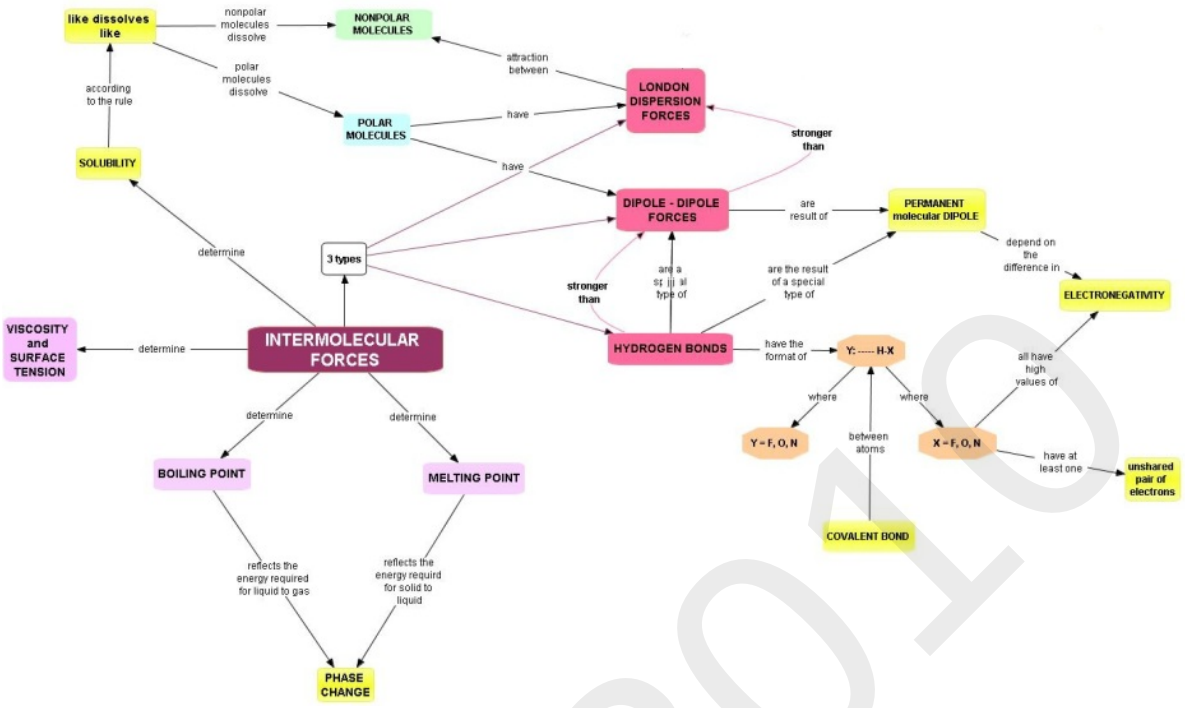


Figure 1: An example of a tree structured concept map on the content of Intermolecular forces

In the final, third lesson students are supposed to solve a short test and at the very end complete the questionnaire, as it is very important for us to get their feedback on the introduction of new didactic strategy into Chemistry teaching. The teacher is also requested to complete the questionnaire.

COMPETENCES

When carrying out the proposed activities students should develop their reading skills in English, but also the ability to obtain and analyze new information by reading a professional text in a foregin language, select key chemical concepts represented in the text, translate chemical terminology from English to Slovene, interconnect terms and make hierarchical arrangements among them.

What is more, the students should be also capable of drawing an appropriate form of concept map by using a computer programme or manually, be able to recognize their own mistakes in the process od drawing a concept map and evaluate other as well as one's own achievements.

RESULTS

The proposed didactic material was tested on 30 second year students from grammar school Jurij Vega from small Slovenian town called Idrija. They were already familiar with the learning content *Types of intermolecular forces* from their freshman year, so it was a kind of revision for them. Because the sample was very small, we performed a qualitative analyses of the students' responses provided on the survey questionnaire.

Most of the students agree that the learning activity in an efficient way made possible the usage of new gained knowledge. With a very high estimate (4 – I agree) students assessed the diversity and a clear visual interpretation of tasks, as well as examinations, which covered the content presented in the English text, while students assessed the integration of theoretical and practical knowledge with an average rating of 3 (neutral). The following category of the evaluation questionnaire is related to the didactic value of the teaching material. All students believe the teaching activity was different from the usual courses of instruction, the set concept allowed them greater autonomy at work, and the majority was also more motivated for work. Students agree that the activities carried out in all three educational components

helped to promote logical thinking, but also believe that the teaching material covers enough of concepts, data, definitions as well as basic theories that allow them to grasp basic principles and directions of the development of this area. Just for under the half of students (12), it was difficult to identify whether the teaching activities promote reading skills in English, while just as many students gave a rating of 4 (agree) or 5 (very much agree), which probably indicates that the latter response was provided by the students with a better knowledge of the English language. Students represent the majority view and believe that the content of the teaching material as well as instructions for work were presented in a very impressive, transparent, understandable and interesting way. Even if there was no time to test the computer sofware for drawing concept maps in the classroom, students were acquainted with them and they could try them out at home online for free.

The students also provided responses to four open questions:

- What did you like most in class? Would you like to have more such lessons ?

The analysis of the submitted responses shows that students were generally very fond of such type of instruction. The teaching course was described as interesting, lively and different. They liked to be inpendent and creative and thus learning new ways of working. They also liked to have read a professional text in English, in which they saw cross-curricular connections. Most of the students would like to have more such classes, because the lesson was diffrenet from the usual and the work encouraged their creativity.

- What was the strategy of the selection of key concepts and forms of concept maps ?

Most of the students chose the key concepts by having them underlined, as they were important for understanding the reading text and significantly associated with the content. Certain of these students did not use any specific strategy for the selection of key concepts, but were selected quite randomly, depending on what seemed most important at that moment. Three students have expressed difficulties in understanding the English text and selecting the key concepts. Concept maps were generally designed after the underlined key concepts had been devided to parent and subsidiary and then the students began to create logical and meaningful interconnections.

- What problems did you encounter when reading the English text or in the process od drawing a concept map ?

Problems the students encountered are mainly related to the fact that the professional text was written in English, although the native speaker was present in the classroom. Three students did not experience any difficulties in working with text, but one student answered that even if he did not understand a certain term, he looked it up in a dictionary. In the process of designing a concept map, the students did not have any significant problems, perhaps only that no appropriate computer software was available during the class. Only one student seemed to have difficulties arranging the concepts in a hierarchical way.

- Provide proposals, advice, comments on the teaching materials used and activities carried out in the class.

Most of the students did note have any bad comments about the teaching materials. Some suggested that it might have been better the text was in German or not in a foreign language, but in Slovenian, which would enable easier understanding. They strongly believe that the use of dictionary is of crucial importance while reading a text in a foregin language.

CONCLUSION

After the teaching material was tested on 16 year old students in grammar school and after the assesment of the chemistry teacher, we have come to the following conclusions: the carried out teaching lessons involved the use of active forms and methods of work and the teacher's role was only supportive. But because some students have a poor prior knowledge of English language, reading a foreign text might have been too demanding for them. Perhaps we could try to arrange a differentiated work and provide a Slovene text for the students with less good command of English, and English text for the rest of them

others in order to be able to see their choise of different hieararchical arrangments of concepts from the concept maps. However, we cannot make generalizations as the sample was very small.

It is very interesting that in the process of drawing a concept map the students did not use only the key words from the provided text, but also some that they assosiated with what they already knew about that specific content. Since most of the students ran out of time to draw and present a concept map, they needed to continue their work at home. This caused very similar products among the students. Therefore one more lesson would be needed for them to present their work and discuss it together with the teacher and their colleagues.

Definitely it would be advisable to use the proposed strategy with the first grade students as the acquisition of the new chemical content. This would enable us to get a view from another perspective and to understand what in the teaching material would be advisable to change, eliminate or simply add. However, the preliminary results are very promising (by drawing concept maps the students could actually better understand Intermolecular forces) and thus motivate us to test the didactic material on a larger population of students in Slovenian grammar schools. Introducing a text in a foreign language on a specific Chemistry topic and activating students to draw concept maps by using appropriate computer software is a great example of cross-curricular integration of three different disciplines – English, Chemistry and Computer Science. So we would like to encourage Chemistry teachers to present all the learning content in as much interdisciplinary way as possible.

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DEVELOPMENT OF BASIC COMPETENCES IN SCIENCE AND TECHNOLOGY IN MINORITIES WITH LANGUAGE-INDEPENDENT COMPUTER SIMULATIONS

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ABSTRACT

With the growth of multimedia computers became more important than ever. Internet became linking media that connects people. But circumstances are far from being perfect. On one hand, we have circumstances similar to those in Eden, where students can use various didactical tools, and on the other, students are still left with the white chalk and black board. The main purpose of this article is to present the problem of accessibility of multimedia to users that have limited knowledge of foreign language (in most cases English).

On the Faculty of Natural Sciences and Mathematics we developed interactive computer simulations of biological laboratory exercises. Simulations are equipped with translational support that enables users a translation into a chosen foreign language. The simulations Osmosis and Greenhouse effect are presented in this article and can be used by minorities in Slovenia as well as by anybody else who is not fluent in Slovenian language.

Key words: language-independent computer simulations; computer based laboratory exercises; osmosis; greenhouse effect; minorities' education

INTRODUCTION

In the last years Internet is in full growth and consequently became very important educational tool (Mayfield & Ali, 1996; Fancovicová et. al, 2010). Students find it important for searching the references, writing papers and communicating in student groups (Lagier, 2003). There have also been researches on positive development of the scientific competences with the computer supported laboratory work (Špernjak & Šorgo, 2009) and multimedia (Starbek et al., 2010). Students were active and generally like the new technology in the laboratory.

Along with the new technology, English language was introduced. Especially in the beginning the need of knowing English was of great importance. In the article we presented the foreign language as the main barrier when using technology for educational purposes. Insufficient knowledge of English language and lack of educational materials or outdated information in Slovene language are the main reasons why the technologies are not used as often as we wanted them to be (Puhek & Šorgo, 2009).

Manten (1974) detected the fall of scientific works in German and in French and the rise of articles written in English. Today this trend continues and it is clearly seen when a professor wants to publish a scientific article in a well known journal. Top 10 journals within biology and education topic are written in English. Another eloquent proof is when a student is applying for a student exchange (Socrates Erasmus, Leonardo da Vinci), then the student usually needs to know at least English or even better the language of the country he/she is applying for. Goodman (2008) found out that Spanish students more likely saw the language as a barrier than English colleagues. Šorgo (2003) declared that the problems of not understanding the foreign language decrease with the student's years of studying. In Slovenian secondary school ("gimnazija") students of the last grades had least problems with the understanding foreign literature than the freshmen. In primary school, when students are even younger and have less foreign language knowledge, the problems of understanding can get insurmountable (Puhek & Šorgo, 2009).

There are many possibilities to overcome those obstacles. One of the possible solutions is the usage of translating tools and dictionaries (Schloman, 2000), or the usage of materials without text (pictures, silent movies, animations without text), where language does not present a problem (Puhek & Šorgo, 2009).

At the Faculty of Natural Sciences and Mathematics we developed interactive computer simulations of biological laboratory exercises. The simulations Osmosis and Greenhouse effect were equipped with translational support that enables translations into a chosen foreign language. In this article presented simulations can be used for practising before or after the actual laboratory work or as a virtual laboratory work. The only equipment the user needs is a working computer and a person to translate them from the basic language (for example English) into the desired language of the target group. That makes them a possible teaching tool for

developing countries or for the minorities. Magos (2007) pointed out the positive effect of usage of minority's mother tongue in the classroom. Students find the atmosphere relaxed and beneficial for the learning process. It was also described that the multicultural approach towards learning has brought diversity and cultural into the classrooms (Bochaca, 2009).

What does uncle Google says?

Probably not only in Slovenia a popular phrase exists; if you do not know an answer to a question, colleagues directs you to consult "uncle Google". Internet became one of the crucial educational searching tools and it is not unusual anymore that the students found it more useful than printed ("old fashioned") resources (Mayfield & Ali, 1996). With the internet, users can search for all kinds of information in seconds, which is impossible when searching through books. But things are not as simple, as they seem on the first glance. When users pore over a particular educational information, it can be easily seen that the quantity of information vary from language to language. Here it must be said that things do not appear equal anymore, if students are not perfect in English.

The main goal of our research was to compare the search hits from Google in different languages (Table 1). We expanded the research from Šorgo (2003) and Puhek & Šorgo (2009). As we expected, in general we found an increase in the number of pages in all languages, but also some exceptions were defined. We realize that it is hard to make decisions based only on searching hits, because internet is almost a living being: searching algorithms are changing all the time, users can publish what they like (Puhek, Šorgo, 2009), some words are the same in different languages (Šorgo, 2003), blogs and forums do not give you the desired hits (Puhek, Šorgo, 2009).

With approximately 500 million users (Miniwatts Marketing Group, 2009), official internet language is still English (Šorgo, 2003). When examine the numbers from Table 1, it is clearly seen that even hits from Spanish as the third most spoken language in the world cannot be compared to English. When searching for information in a not widely known language as Slovenian is (2 million citizens), or even smaller countries (some dialects), the number of hits decreases rapidly.

Table 1: Hits from Google of the words in different languages for 2003, 2009 and 2010.

WORD	LANGUAGE	HITS (2003)	HITS (2009)	HITS (2010)
Biology	English	4.780.000	166.000.000	192.000.000
biología	Spanish	/	6.950.000	9.020.000
Biologie	German	/	5.670.000	4.440.000
biyoloji	Turkish	/	2.310.000	3.520.000
bioloģija	Latvian	/	216.000	182.000
biologija	**Slovenian**	**10.800**	**178.000**	**238.000**
Heart attack	English	667.000	47.200.000	58.900.000
ataque al corazón	Spanish	/	4.130.000	5.350.00
Herzinfarkt	German	/	1.080.000	1.110.000
kalp krizi	Turkish	/	1.320.000	1.740.000
sirdslēkme	Latvian	/	51.300	65.600
srčni infarkt	**Slovenian**	**137**	**52.600**	**127.000**
Eustachian tube	English	10.600	806.000	332.000
trompa de Eustaquio	Spanish	/	30.400	118.000
Eustachi Röhre	German	/	8.070	11.300
östaki borusu	Turkish	/	11.700	58.000
eistāhija kanāla	Latvian	/	5.220	6.230
evstahijeva cev	**Slovenian**	**5**	**5.430**	**7.670**

With more than 400 million internet users (Miniwatts Marketing Group, 2009) the Chinese would be very interesting language to be included in our research. In that case Google would not be the appropriate searching tool to use, because the problems with government and major language problems would be even harder to overcome.

Language-independent Computer Simulations

The bases for our simulations were the computer based laboratory exercises that were carried out with Vernier's sensors (Vernier's data loggers). The needed results were gained and were consequently presented through a graph. Every simulation is an independent program (.exe) with a similar basic structure. The programming language is Microsoft VisualBasic 6.0. The reason why to create the programs as individual programs was as followed; they are universal, they do not need extra installations on the computer and are therefore easier to be spread between users. They are also supposed to work on different operating systems. The user does not need internet to start the simulation. Therefore these simulations are appropriate for countries that

have less developed World Wide Web connections. With every simulation parameters have to be set before usage and then run them with the command “Realize”.

Osmosis

In the simulation with the title Osmosis we simulated a cell, which was in the computer supported work made out of plastic tube. We put that cell into different osmotic solutions, with different quantity of salt (NaCl): isotonic, hypotonic and hypertonic. The central part of the simulation was the passive movement of the water (solvent) through a semipermeable membrane and not the ions.

The process of osmosis was presented as the natural process in two variations: graphically and as an animation. One of the reasons why we created simulations is the attractiveness for the students that are learning biology. The simulation vividly presents to its user what impact does the process have on the cell (in our research only plant cells were used). The cell can be presented in three different environments (isotonic, hypotonic, hypertonic), which has to be chosen by the user from the menu on the right. Dependent on which solution is chosen, the impact on the cell varies. If the checkbox “show graph” is checked, the animation is also demonstrated with it. If the user chooses the first option among the solutions, the cell does not change a lot, because in the isotonic solution the water enters and leaves the cell in the almost same quantity – the graph stays linear. If the user chooses the second option – a hypotonic solution – the simulation shows how the vacuole increases; the graph is falling. The third option that can be selected is a hypertonic solution where the water leaves the cell; the curve on the graph rises (the graphs present the conductivity in the dependence of time). One of positive options of the animation is that the students can predict the result of the experiment without knowing the actual results. The hint is given through a key question, in the case of osmosis the students have to answer the question what passes into and out off the cell – solvent or solute. The addition to the original simulation is the option for translations in other languages. The menu can be reached with the button “Translate” and is built out of text inputs that enables the user to translate words into desired language (Figure 2). We also included the button to return to the basic language. This button serves as a safety tool, when user gets the program in a language that he/she does not understand or for example when a student inserts something unwanted into the text frames.

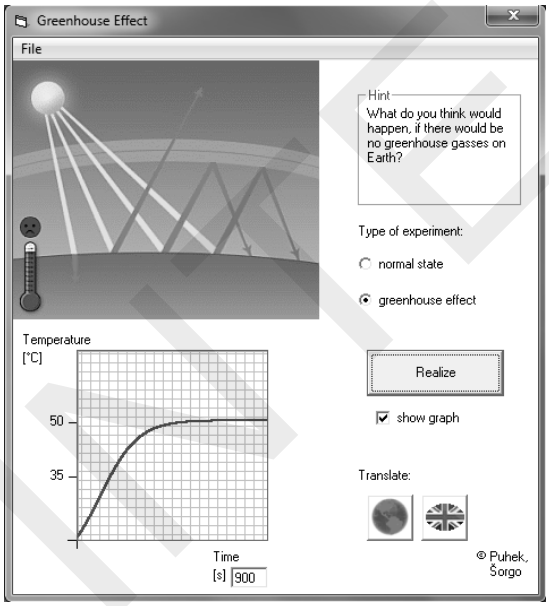


Figure 1: Basic view of the simulation Osmosis.

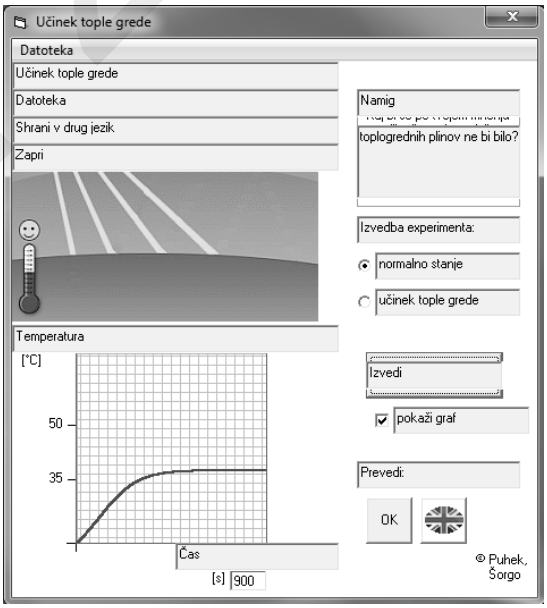


Figure 2: Translated version of simulation Osmosis (target language: Slovenian).

The Greenhouse Effect

In the second simulation we examined the impact of greenhouse gases on the heating of the atmosphere. In the picture the arrows are used to present the heat that is produced by the radiation. The arrows are pointed to the Earth and into the sky, which simulates the radiation of the sun. In the simulation the user can choose between »normal state« and »greenhouse effect«. In the first option, the procedure is described, where the greenhouse effect is not present, which means that the optimal warmth on the Earth surface is preserved by letting some of the warmth created by the sun transmit back to the atmosphere. Temperature on the graph reaches around 35 °C. When the atmosphere is thickened by greenhouse gases (CO_2, methane, water steam) –

this is simulated through an additional atmosphere layer – the sunrays cannot exit and therefore reflect back to the surface of the Earth. The curve on the graph shows 50 °C, the thermometer turns red. As it is the case in every simulation we created, the user can check the checkbox whether to show graph or not. The user can also use the hint to establish the point of the animation.

Again the part for translating into other languages can be reached with the button "Translate". The user can translate the words into desired language with changing words in the text inputs (Figure 2). We also included a button that enables the user to return the program to the basic language. Finally, simulation includes the menu for saving the program into the new, changed version.

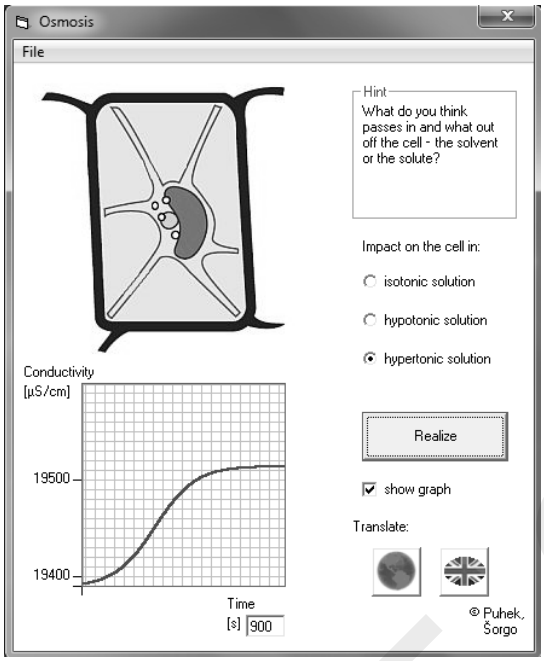


Figure 3: Basic view of the simulation Greenhouse effect.

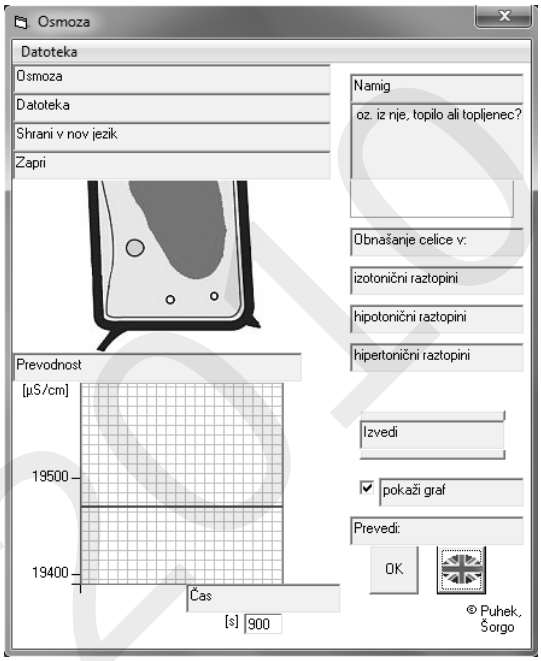


Figure 4: Translated version of simulation Greenhouse Effect (target language: Slovenian).

CONCLUSION

The main goal of our simulations was to create the included menu for translating into new languages. Despite previous versions (Puhek & Šorgo, 2009) we developed the menu for saving the changed version into the new one. The idea of our work is to develop a product that can be dispatched through the World Wide Web (or with other media like USB sticks) and can be used by everyone, especially by the users that can hardly find educational tools in their non-English languages. Despite some disadvantages of that procedure, as the fact that somebody still needs to know the basic language and translate it into desired one, we created an option for more users to use the simulations as if the simulations were only in English. Our simulations do not even need the internet connection, so they can run almost everywhere.

When the users translate the simulations and save them into the chosen language, pictures remain unchanged. That is why the simulations can be used even in multinational classes, because everybody can work with the didactical tools in the own language. For example in eastern part of Slovenia classes can be held in Slovenian and simultaneously in Hungarian. In that case the multilingual work depends from the abilities of the teacher and not from the didactical tools anymore.

In the future work we would like to develop further simulations and test them in the classes around the world, because by spreading them it would allow us to get the feedback and to improve them.

ACKNOWLEDGEMENTS

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DEVELOPMENT OF CRITICAL THINKING AND REASONING WITH A HELP OF CHEMICAL EXPERIMENTS

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ABSTRACT

The development od children's abilities is based upon acquiring knowledge by their own research, observation, experimentation and reflection at all stages of such work. If the teacher understands what materials to offer the pupils according to their abilities and capabilities, optimal progress in child's development is assured. It is important to encourage critical thinking and reasoning by asking questions and discussion at experimental work. Only this leads to a competent young person capable of critical thinking and reasoning based on facts and arguments, acquired by itself. All that is necessary to understand scientific processes and methods of the experimental work in chemistry. In order to better see the situation in Slovenian schools, we studied the situation in the field of application and the use of experimental work among 10-year old pupils through qualitative methodology. Based on the results of the survey we developed and tested a proposal of a simple performance of an experiment on gas and breathing that encourages the mental development of ten year olds in science.

INTRODUCTION

Living in modern society requires constant adaptation and changing, so it is difficult to determine what knowledge will be relevant for individuals in the future (Kuhn, 2007). Therefore, the idea of the importance of obtaining procedural knowledge, which is considered as one of the possible strategies with quantifiable laden with facts and knowledge (and Artač Bajde, 2002) is being enforced. Basic guidelines for modern designed teaching are represented by more or less loosely defined competences. Competences should be understood as a set of knowledge, skills and practices of individuals who are essential to each, for its full and creative life and active participation in society (Eurydice, 2002).

The acquisition of transferable knowledge and skills, as a way of building a foundation of competences, is enabled by the use of modern teaching strategies, which are not tied to a particular school subject or area. When using modern didactic strategies, the teacher is faced with the restrictions written within the curriculum and teaching organization (Šorgo et al., 2010).

The fact is that skills cannot be taught directly. They also cannot be obtained by a specific activity, as it is necessary to take into account the diversity of individuals and thus to different paths in their extraction, both formal and informal. But iit is possible to establish activities that can better enable the development of specific competence or more competences at the same time. In the field of science there is a Slovenian project, funded by the ESF, where a large group of researchers and practitioners is preparing didactic materials, which would allow greater development of science competences at all levels of schooling. (Razvoj naravoslovnih kompetenc, 2010).

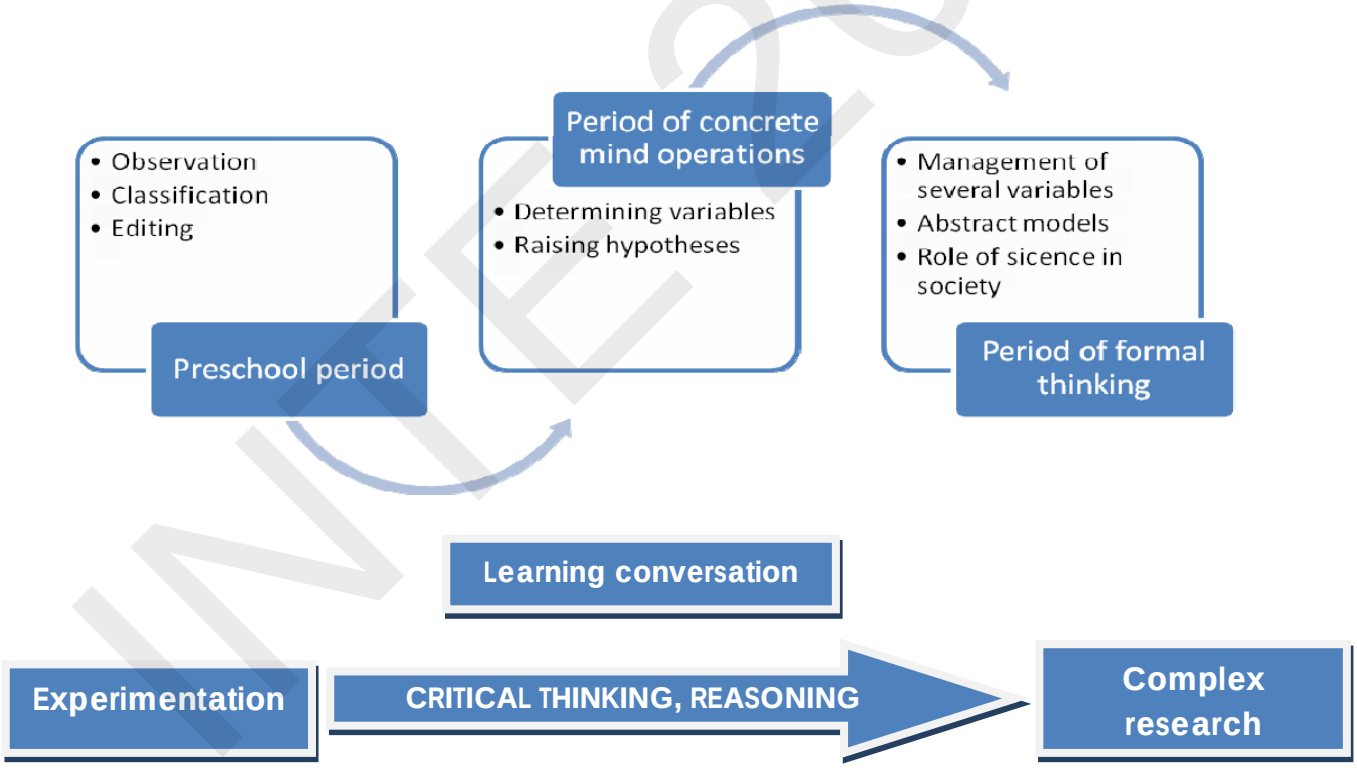
The development of children's competences, including critical thinking and reasoning, as one of the key competences is designed, is based on the acquisition of knowledge through their own research, observation, experimentation. Pisa (2000) defines scientific literacy as the ability to apply scientific knowledge in the case of asking questions and argumentative reasoning. All this is a necessary foundation for decision making regarding the changes caused by humans in the environment. Thus, a competence or the ability of critical thinking and reasoning is a necessary condition for quality of life and for ensuring a sustainable future. It is important to the everyday decisions of individuals and is subsequently reflected also in the more important society.

M. Vrtačnik (2009), based on the findings of the project Tuning (Educational Structure in Europe, Compétences), suggests for a key competence in science gradually introducing pupils to the scientific

method of studying the real world, which is broken down into: observations / research, creating hypotheses, predictions, forecasts verification through experimentation, completing and reporting. At the same time drawing attention to the fact that the development of competences is demanding and responsible process, which requires a gradual and systematic nature of the implementation of new educational paradigms. Therefore, the development of competences is not possible without new educational strategies, especially those that are adapted to the natural sciences. If we put on "just a new dress on an old body," she says, we will not achieve much. (Vrtačnik, 2009).

A special feature of science learning is based on the development of natural processes. Krnel (2009) compares the development of the natural processes of mental development in a spiral model. Thus, in the preschool period, naturalistic processes are the same as general cognitive procedures and states the example of sorting and editing during the actual mental operations, which include specific processes such as determining variables. For a period of formal thinking, he states the ability of dealing with more variables, the use of abstract designs and a deeper understanding of the functioning of science in today's society. The spiral model is interpreted as a development with the same procedure or operation, which develops into increasingly complex activities. In Figure 1 the model is also presented graphically. Grading in the preschool period is based on finding differences on one variable. This develops into classification with several variables. Such a development leads from simple experimenting to complex research.(Krnel, 2009)

Figure 1: The spiral model of the development of natural processes (adapted from Krnel, 2009; M. Požarnik and Plut Pregelj, 2009)



Given that the experimental work in the classroom offers ideal opportunities to develop critical thinking and reasoning, we conducted a survey on the inclusion of experimental work in the practical implementation of instruction in school science and technology courses for 10 year old pupils, considering the thought that a teacher plays a key role in the selection of materials and design of experimental work on the competences and abilities of pupils, thus enabling optimal progress in child development. During the period of concrete mental operations the teacher offers a child demanding tasks that develop a capacity for critical thinking and reasoning based on facts and arguments that will be acquired by designing, implementing, monitoring and concluding during the experimental work. With all this, it is not trivial how the teacher asks questions during the learning conversation (Plut thr Quays, 2009)

METHODS AND PROCEDURES

As a research method for obtaining data on the experimental work in school the method of half-coupling interview with open questions was used. The questionnaire with open questions was chosen because open questions enable to obtain information on the actual situation in contrast with closed question, where this is not possible, because the answers are offered (Flere, 2000, pp. 119).

The survey was conducted on an ad hoc sample of sixteen teachers of 10-year old pupils in primary schools in Slovenian Koroška region. Since we have the experience to assume that teachers in the same school have similar experience, only two teachers from each school were included in the study. The data were collected by anonymous open-ended questionnaire. Half-coupling interview was conducted in a direct meeting with the teachers.

Among the teachers there was the dominance of those who have more than twenty years of working experience (56.2%). There were at least newly qualified teachers (12.5%) and one third of the teachers whose seniority is between eleven and twenty years (31.3%). The collected data were analyzed descriptively and are presented in a tabular indication of absolute (f) and percentage frequency (f%). Calculated percentages are tabulated and interpreted.

RESULTS

Below we present some key findings from the analysis of the interview and questionnaires. Teachers were asked on their role in the experimental work in the classroom and answers are shown in Table 1.

Table 1: *Teachers' answersto the question about the definition of their role in experimental work*

ANSWERS	f	f %
The teacher monitors, directs, supervises and participates in the work of pupils.	14	34,2
The teacher prepares the relevant material teaching aids and learning environment.	6	14,7
The teacher opens the path to finding new knowledge.	5	12,2
The teacher together with the pupils examines and analyses the results.	4	9,7
The teacher gives clear and exact instruction.	3	7,3
The teacher selects appropriate experiments and composes the groups.	3	7,3
The teacher together with the pupils carries out the evaluation.	3	7,3
The teacher independently carries out a demonstrative experiment and raises hypotheses.	3	7,3
Together	41	100,0

The teachers felt that in the case of experimental work, the teacher is the one who monitors, directs, supervises and participates in the work of pupils. About the same percentage of teachers is of the opinion that the teacher is the one who prepares the relevant didactic materials, teaching aids and learning environment and opens the way to finding new knowledge.The minority of teachers identified the role of the teacher as the one that gives clear and precise instructions, selects appropriate experiments, composits the groups,carries out the evaluation together with the pupils, performs experiments and raises hypotheses.

From the analysis of the responses we find that teachers believe it is the most important for the pupils to carry out the experiment by themselves, observing, measuring, collecting the data and providing comments at the end. Based on the answers given, we can conclude that the majority of pupils carry out experiments by themselves and provide findings based on the collected data. Most of the teachers expressed that they verify pupils' prior knowledge and that they help them to plan the experiments. However, only a few teachers noted that they include clear and accurate guidance into the educational process and motivate the pupils to raise hypotheses. It must be assumed that pupils rarely think about

what will happen in the experiment and what the outcome will be because, as only few teachers are encouraged to do so.

The teachers indicate the titles of those demonstrative experiments that 10 year old pupils could already perform individually or in groups. The teachers' responses show inconsistency, because on one hand, they argue that the most important thing for the pupils is to independently carry out an experiment, while on the other hand, there is a large number of demonstrative experiments that could be carried out individually by the pupils. It is clear that the teachers carry out too many demonstrative experiments, so the pupils are less active and therefore not progressing as rapidly as if they had a more active role in their learning process. From the teachers' responses we find that the criterion of selection of a form of experimental work does not represent the optimum choice for achieving the goals and abilities of pupils, which could provide adequate mental development, and related critical thinking and reasoning.

As an advantage of experimental work, teachers indicate a greater degree of memory and understanding of the content, as shown in Table 2. Some of them state that the experiments independently acquire knowledge, the level of motivation is greater and the lesson is also more varied and interesting. These findings were confirmed by the findings of the theory, since the knowledge acquired by pupils when experimenting is longer lasting. In doing so, pupils become more independent, develop a creative and critical thinking (Tomic, 2002, pp. 82; Krnel, 1993, pp. 11-12.). According to survey findings, the key to modern designed teaching interview is also the time that teachers devote to considerdation necessary for developing of pupils' answers to open questions (Kobal, 1989; Plut thr Quays, 2009).

Table 2: *Teachers' answers about the benefits of experimental work.*

ANSWERS	**f**	**f %**
A higher degree of memory and understaning of the content.	8	21,7
Individual knowledge aquisiton.	5	13,5
Greater motivation to work.	4	10,8
More varied and interesting lessons.	4	10,8
Pupils are creating a more positive attitude towards science.	3	8,1
Aquired knowledge is more durable.	3	8,1
Accustomed to group work.	3	8,1
Fewer problems with the discipline in the classroom.	2	5,4
Active participation in class.	2	5,4
Pupils learn to consistently follow the instructions.	1	2,7
Pupils easily raise hypothesis.	1	2,7
The development of manual skills.	1	2,7
Together	37	100,0

The experiment offers the pupils the opportunity to examine the appropriateness of false assumptions, as these are crucial to the acquisition of knowledge (Labinowicz 1989, Krnel 1993). The child who will come to the same conclusion and findings with others, will remember this experiment the most - the proper findings and conclusions as well. Teachers can take the advantage of the opportunity and together with other pupils determine if during the experiment anything went wrong, where they should have put more attention and if possible attempt to carry out the experiment with the correct results and avoid theorizing in teacher practice according to unsuccessful experiment as often happens.

75% of teachers stated that in the textbook or workbook there are experiments that could not be carried out so that pupils would come to proper conclusions. During such experiments we find lime water, where teachers indicate that lime water is difficult to prepare and that when blowing air from the lungs and air from the pump, lime water becomes equally turbid, so there is no evident difference. Teachers most often mentioned this experiment, indicating as such, which is not carried out because of bad previous

experience. After a long discussion offered by the method of half-coupling interview, we found that the causes of failure do not lie in the lack of supplies and inadequate conditions, but the teachers are of the opinion that the preparation of the experiment is too difficult (to prepare the microscope, the correct magnification, ...) or they do not know how to prepare the material, as in the case of lime water.

CONCLUSION – PRACTICAL SOLUTION

Based on survey results, we decided to prepare detailed instructions for the experiment with lime water, based on the findings of developmental psychology and greater mental engagement of 10 year-olds in order to develop critical thinking and reasoning (adapted from Klemenc, 2009). Furthermore we show the design and the implementation of that experiment to demonstrate the carbon dioxide in exhaled air.

For greater diversity and more active work, we divide the pupils into groups and prepare trays of jars containing 2 decilitres of clear lime water. Each group has at its disposal an air pump, plastic straw, plastic tubes,stopwatch and balloons. They need to find the answer to the question: What is the difference between intake gas from the lungs and gas from the air into the lime water? It is necessary to carry out a fair experiment!
Before pupils independently carry out the experiment, we can check their understaning of the maintainance of volume while overflowing the lime water into containters of various forms, as it is necessary to perform comparative experiments with the same amount of lime water.

Pupils soon realize that more time is needed when the air is supplied from the pump in order to lead to similar changes as in blowing by mouth. When using a properly managed learning discussion, pupils quickly find that was not a fair trial. They can suggest simultaneous performance (the problem of gas flow quantification), timing the supply (quantitative problem of gas flow), different amounts of lime water to achieve the same result for the opacity (opacity measurement problem) and maybe something the teacher can do.

The use of balloons is very close to us implementing a fair trial, because, given same size of inflated balloons, it suggests a similar amount of both gases and the performance comparable to that of a fair trial. The gas through the tube from the balloon is introduced into lime water and pupils notice there is a very low amount of carbon dioxide in the air compared to the exhaled air from the lungs. The proof of this is the lime water, which became noticeably more turbid when blowing the gas from the lungs in comparison to the same amount of gas delivered from the air.

The analyses of pracitcally tested proposal on pupils shows the possiblity of successfully offering carefully planned activities in school contexts, that pupils are eager for such activities and motivated, as they are emotionally and mentally engaged in the conduct of experiments, where they develop critical thinking and reasoning necessary for the quality of life.

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DIGITAL COMPETENCE IN THE NATIONAL PROJECT DEVELOPMENT OF NATURAL SCIENCE COMPETENCES - PHYSICS

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ABSTRACT

The aim of the current National project Development of Natural Science Competences is to indicate the ways of improvement of various kinds of students' competences through the modified didactic strategies in teaching and learning natural science subjects. In general, competences may be treated as the combination of knowledge, skills, principles, etc., which qualify the person to perform specific activities in the society successfully. These competences can be very general, such as the ability of problem-solving, or more specific. Here we focus on the digital competence (the ability of using computers and other tools of Information Communication Technology) at different levels of complexity. In the frame of the project, we have prepared some materials in physics for using and testing in school practice, which train the students' digital competence more intensively than traditional methods.

INTRODUCTION

In October 2008 the Slovene national project Development of Natural Science Competences began and it will finish at the end of 2011. Its main purpose is to indicate better didactics strategies for systematic development of students' natural science competences. We considered key and generic competences described below, as well as various subject specific competences. Didactic materials with different didactic ideas are being prepared periodically, and then they are tested in schools and revised afterwards. Typical materials include instructions for teachers and for students, materials with the topic contents, exercises, pre-tests and post-tests, etc. All educational levels from the first year of 9-year primary school to the end of various secondary schools are considered. Besides the three basic natural science subjects in school – biology, chemistry and physics (or their topics in wider subjects at the lower educational level), also some supporting subjects are included in the project: mathematics, technics and computer science.

There are different definitions of competences and their classifications. For instance, Coolahan proposed the following definition on symposium of the European Council in 1996: Competences are general operational abilities which are based on knowledge, experience, ethic principles and dispositions developed by a person during his/her education (European Commission, 2003). On the other hand, on the same symposium Weinert interpreted competences as rather specialized system of abilities, experience and skills which are necessary to achieve specific goals. In the EU Legislation – Education, Training, Youth (Key competences for Lifelong Learning) eight key competences are defined (Summaries of EU Legislation, 2009): *Communication in the mother tongue*, *Communication in foreign languages*, *Mathematical competence and basic competences in science and technology*, *Digital competence*, *Learning to learn*, *Social and civic competences*, *Sense of initiative and entrepreneurship*, and *Cultural awareness and expression*. All of the eight key competences are in some way interconnected with natural sciences, not only the third one. Here we focus on the significance of digital competence for natural sciences and on its implementation in the education of science, or more specifically, in physics. Its definition in EU Legislation is: "**Digital competence** involves the confident and critical use of information society technology (IST) and thus basic skills in information and communication technology (ICT)."

Although we appreciated the key competences listed above, we treated in the project mostly generic competences (GC) defined by the Mayer committee (Australian Education Council, 1991). We chose for our purpose 14 GC out of a larger set, which are tightly related to natural sciences:

1. Ability to collect information

2. Ability to analyze the literature and organize information
3. Ability of interpretation
4. Ability of drawing conclusions
5. Ability to learn and solve problems
6. Transaction of theory into practice
7. Use of mathematical ideas and techniques
8. Adaptation to new situations
9. Care for quality
10. Ability of individual and team work
11. Organization and planning the job
12. Verbal and writing communication
13. Inter-personal interaction
14. Safe operation

In this paper we focus on materials in physics which include digital competence in different ways: e-learning materials, use of the computer in experiments and measurements, numerical modelling, graphic tools, etc. Digital competence is interconnected with many generic competences mentioned above, e.g., with the ability of collecting information (from the web), etc. Our purpose is not the developing digital competence by itself since this is not the goal of the project. It serves instead as an additional aid to develop specific natural science competences.

EXAMPLES OF PHYSICS MATERIALS WITH DIGITAL COMPETENCE

Success of traditional learning techniques in incorporation of modern scientific achievements in primary school physics

Two authors prepared a series of materials intended for the 8th and 9th grade of 9-year primary school where they tested three different didactic methods for introducing some actual physics topics in school: 1) frontal work, 2) individual work with hardcopy learning materials, and 3) frontal work with the help of ICT. Using ICT in the latter method was usually meant as searching for specific information on web pages by individual students. The topics prepared so far are nuclear Power Plant Krško in Slovenia and nuclear waste, photovoltaic cells, optical fibres, human colour perception, weather forecast, liquid crystals, hydrogen fuel cells, cosmology and planets in other star systems. These topics are not a part of regular educational curriculum, but can be incorporated in the frame of prescribed reserve fond of physics hours. The three methods have in some cases already been tested in parallel classes of the same level (and usually by the same teacher who teaches at least in three parallel classes) with the help of pre-tests and post-tests. Preliminary results indicated that the combination of the frontal work and ICT might be preferable with regard to higher cognitive degrees of knowledge in the Bloom's taxonomy (Bloom, 1970) when the unfamiliar topics are learned. GC connected with the digital competence in this stuff are indubitably the 1st, 2nd and 10th from the upper list. In addition, other GC, such as the 6th, are being developed independently of the use of ICT.

Web textbook about galileo

One of the materials was dedicated to Galileo's life and work. The year 2009 was declared as the International year of astronomy (briefly IYA 2009) by UNESCO and the International Astronomical Union since this year was the 400th anniversary of the first Galileo's important and revolutionary contributions to the further development of astronomy. IYA 2009 stimulated us to write a short web textbook (e-book) with the title *Galileo and International Year of Astronomy 2009* in Slovene (Ambrožič, Repnik and Opaka, 2009, Repnik, Ambrožič and Grubelnik, 2009). In addition, the learning material appropriate for testing in the 9th year of primary school (topic Astronomy within physics for this level) or in secondary schools (for instance, for optics topics in physics) was written. Depending on teacher's planning the physics lesson about Galileo and astronomy (or other topics in the e-book) and his corresponding instructions, either one student in the class or a few of them or all the students get the task of reading the part of the e-book. This material helps the student to develop a generic competence *ability of collecting information* and their *organization*. In addition, a part of the e-book, for instance, the section Development of astronomy, should be presented as a seminar lecture by one or more students to their schoolmates. This means training of the use of the program power point.

An introduction to percolation theory at elementary level

Percolation is involved in a broad range of physical phenomena including forest fires, propagation of epidemics, oil fields, transport through porous media, ferromagnetism, communication in an unreliable network, etc. (Stauffer and Aharony, 1994). One of the easiest and most interesting percolation-related phenomena to study is the electrical behaviour of a system of conducting particles dispersed in an insulating matrix. When the fraction of the conducting material, p, exceeds the critical fraction (the percolation threshold p_c), the system becomes electrically conducting. The students randomly arrange conducting and insulating cubes into the square lattice between two conducting plates according to the given fraction p of conducting cubes and they test the presence/absence of conductivity, either by visual inspection or by conductivity measurement. Along with that we also developed two computer programs, which can nicely supplement or even substitute the experiment. The first program is graphically user-friendly and is meant to acquaint the students with the basic idea of the functioning of the conductor-insulator composites. The second program written for DOS enables a more quantitative statistical insight into the percolation phenomenon. In this material the digital competence is connected with many generic competences, particularly the *use of mathematical ideas and techniques*.

Measurement and presentation of the results with tables and diagrams

This material is intended for the 9th year of primary school, the physics topic *Accelerated movement*, more exactly, the rolling of balls down the slope. In the first lesson students perform classical experiments in small groups where the inclined desk represents the slope. They measure the time dependence of the small steel ball's distance from the starting point, $s(t)$, and write the results in the form of tables. Finally, they draw manually the $s(t)$ diagram on paper with millimetre grid and notice that the functional dependence $s(t)$ is not linear. In the next physics lesson the teacher performs the computer-aided demonstration experiment of rolling the playing ball down the slope. The ultrasonic distance detector is used and it is connected with the USB computer input. The software package Logger Pro (Vernier) is used to manipulate the information from the detector and to draw the corresponding $s(t)$ and $v(t)$ diagrams. Students compare the corresponding $s(t)$ diagram on computer with their former diagrams. Among generic competences, the *care for quality* should be emphasised. Digital competence in this material supports specific competence of reading tables and interpretation of diagrams, belonging to generic competence *use of mathematical ideas and techniques*. In addition, the material trains the 3rd, 9th and 10th GC, independently of digital competence.

Heat conduction

This material has been written for secondary school physics. The experimental work in groups is suggested where the non-stationary heat-conduction problem is tackled. Hot water is poured into the pot from the material of known heat conductivity. The water is cooling down and the time dependence of its temperature, $T(t)$, is measured. Resistivity thermometers connected to the computer can be used. The graphs $T(t)$ can be drawn manually or with some computer programme, such as excel. The main challenge of the task is an effort to make a suitable interpretation and quantitative analysis of experimental results, so that the mathematical competence is crucial here. The students are asked to decide between the three mathematical models (functions) for the $T(t)$ dependence (two algebraic and an exponential temperature decrease): 1) $T = T_{env} + C/t$, 2) $T = T_{env} + C/t^2$, and 3) $T = T_{env} + C_1\exp(-C_2 t)$, where T_{env} is the temperature of the environment (air) and C (or C_i) is an appropriate constant. They should guess that only the third choice – the exponential decrease of the temperature is physically sensible (Halliday, Resnick and Walker, 1997). But nevertheless, they can make a semi-quantitative checking that exponential function is the right one by linearizing the functional dependence between the variables in all three cases and drawing the corresponding diagrams in excel. There is a focus on the relation between the experimental skills, mathematical and digital competences in this didactic material.

Dynamical models

Understanding natural phenomena generally requires the description with appropriate mathematical models (Hannon and Ruth, 2001, Stöckler, 1995). Mathematical models are significant in dynamical systems where they can be used to predict the time evolution of the system. There arises a question of the

transfer of mathematical modelling into educational area. Study of the relations between quantities (variables) determining the system state usually demands solving the system of differential equations and this represents one of the key difficulties of the system modelling in education. Therefore, simplified systems are generally considered which often fail to agree with real experiments what results in poor understanding of physical systems.

In this paper, we present the possibility of treating dynamical systems in primary school with the help of graphic oriented programmes, such as Berkeley Madonna, Dynasys and Stella. These programmes enable an easy and evident connection of graphical symbols for parameters, variables and their fluxes into composed mathematical model the simulation of which is handled by computer. In prepared learning materials we considered some study cases of fluid flow where pupils discover the relations between variables and their fluxes (Fig. 1). Next, we illustrated the movement of objects under the influence of forces: we took an example of free-falling objects in the air where air resistance had to be taken into account. After the input of mathematical relations and the initial values of corresponding variables the computer programme simulates and illustrates the time evolution of relevant variables.

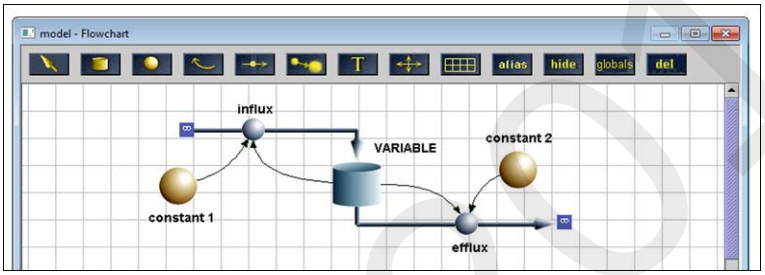


Figure 1: Graphic base of computer programme Berkely Madonna. Illustration of the variable is done by the reservoir. The fluid flux is regulated by valves which can be influenced by constants or variables

But the author made a further step and developed the material for higher educational level where the students should prepare the simplest possible numerical procedure in excel for solving differential equation for the problem of the free fall with air resistance. At last they can use the calculated table of velocities to draw the excel diagram of time dependence of velocity. Again, the mathematical competence in physics is strongly supported.

Illustration of basic logic operations with simple electric circuits

The author of this material for middle school tried to mimic logic operations AND, OR, XOR and NOT with electric circuits, using different combinations of switches. The closed switch (and the lit lamp near it) represents YES (logical 1 or TRUE), while the open switch (and the lamp near it that doesn't shine) means NO (logical 0 or FALSE). The corresponding combination tables are added. Construction of Exclusive OR (XOR), presented by Fig. 2 with two batteries offers a challenge. Understanding that 1 XOR 1 = 0 requires some effort while other combinations are trivial: 0 XOR 0 = 0 (both switches open), 0 XOR 1 = 1 XOR 0 = 1 (exactly one of both switches closed). The students try the real experiments on the basis of given electric schemes to confirm that the ideas work. In one of the next physics hours they should report their findings with the help of power point. This material offers an interesting connection between physics, logic and computer science.

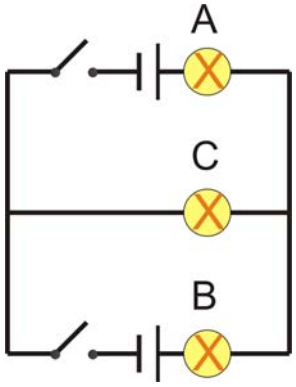


Figure 2: Illustration of the logical operation XOR with electric circuit. Branches with lamps A and B must be symmetrical (equal batteries and equal resistances of lamps), so that the contributions of voltages on lamp C from both batteries cancel when both switches are closed.

CONCLUSIONS

In the materials described above the following computer programmes and tools were trained by teachers and students: excel, power point, word processors (such as MS Word), web pages, programmes for reading documents (such as Adobe Reader), image editing software (such as Paint Shop Pro), some executable numerical programs (commercial programmes and our own programmes), etc. We think that the application of prepared materials in schools within the National project »Development of Natural Science Competences« enhances skills of using ICT and at the same time the digital competence reinforces many generic and specific competences in natural sciences.

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DIGITAL COMPETENCES AND MULTIMEDIA

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ABSTRACT

Digital competence is one of generic competences that need to be acquired by educated individual who lives in the contemporary society. We have many attempts to standardize the competences with different courses and one of most known is ECDL (European Computer Driver License). But we know that ECDL assures only basic computer knowledge. Today's teachers need to be more digital competent employees with intermediate multimedia production skills. Therefore we need to update the current society requirement for digital competences. Our research is based on competence driven approach to production of e-learning materials. Multimedia is suitable for teaching skills that are also one component of competences. One of the aims of our project is that digitally competent teachers would master this approach. In the article we are going to present the structure of digital competences of an on-going research in the project called Development of science competences.

INTRODUCTION

The term competences are frequently used in contemporary education (Europa parliament, 2005). In pedagogical area the term competences have more than one meaning. There are school competences, principal or teacher competences or student/pupil competences. But there are competences, regardless of terminology differences, that are the result of a complete personality development comprising cognitive, emotional and psycho-motoric levels.

From the point of view of the teacher we could define the theoretical construct named competences as hypothetical psychological processes that include cognitive, emotional, motivational, social and behavioral components that teachers obtain to a certain extent through learning process. Generally speaking, a competence "includes a complex system that is a combination of knowledge and abilities, but also strategy and routine, necessary for the use of knowledge and abilities in addition to certain emotions and points of view and efficient self-regulation of such competences." (Pušnik, 2005)

Regardless of the different interpretations of required competences, we can summarize some features of generic and subject-specific competences which are independent of teacher's years of practice or the level of education. Some of subject-specific competences are: being familiar with the curriculum, good expert knowledge of the subject, teaching, being familiar with the contents of teaching, knowledge of a particular subject, being acquainted with subject contents and methodology. According to TESE-II (Gonzales & Wagenaar, 2005) we can define competences as a combination of knowledge, understanding, skills, capabilities and values. Competences are also expressed as the use of one's knowledge, capability of judgment, communication skills and skills which persons require for further learning. In different subjects of the study curriculum students gradually gain their competences. They are expected to develop a wide array of generic and subject-specific competences which will guarantee success in their future work as teachers. Pedagogically competent teachers are expected to integrate their professional (pedagogical) knowledge, skills and capabilities into their work. Possessing personal features such as empathy, creativity, cooperativeness, ethics etc., they become a positive role model for their pupils to identify with (Ljubetić, Arbunović, & Kovačević, 2007). They should not just use the expert knowledge produced by others they should produce such knowledge themselves. Teachers are facing new tasks that require additional training and develop a reflective approach to their teaching (Oonk, 2004). EU documents also strongly underline lifelong learning as one of the development priorities (European Commission, 2002). "Thus we expect that teachers possess an interdisciplinary academic education as well as the necessary qualifications to creatively engage in complex problems in education and schooling processes." (Duh, Herzog, & Batič, 2009).

Contemporary TLS (teaching-learning-study) paradigm is based on constructivist approach. Students should construct their own knowledge based on active mental situations (Adnerson, 2007). For a student to construct its knowledge it first must have previously required knowledge and understanding. TLS

processes should not be designed only for one task. It should boost the innovative thinking for all involved parties. We find out that our current TLS processes could be improved. With the ever growing number of required knowledge for individuals to function in the society we need to prepare them to understand underlying principles. Principles often remain the same even if ICT changes.

Even though we know that the final goal of the education is the well competent student we first have to produce competent teachers. Since teachers need to know the content of the topic; pedagogical and methodical approaches in teaching the best model for their training would be Pedagogical content knowledge (Shulman, 1986) and its modern evolution Technological pedagogical content knowledge (Mishra & Koehler, 2006).

Competences are described as combination of knowledge, skills and relations between compatible situations. The key competences are the described in the eight topics framework in the European legislation (European Union, 2006):

- Communication in the mother;
- Communication in foreign languages;
- Mathematical competence and basic competences in science and technology;
- Digital competence;
- Learning to learn;
- Social and civic competences;
- Sense of initiative and entrepreneurship;
- Cultural awareness and expression.

DIGITAL COMPETENCES IN PRACTICE

From all those competences only two are highly important for natural sciences: mathematical competence and basic competences in science and technology; and digital competence.

Digital competences are needed everywhere and are not limited on either natural science or social science competences. Broad definition of digital competences would be: confident and critical use of ICT for employment; learning; self-development; and participation in society (Ala-Mutka, Punie, & Redecker, 2008). Analyzing the new Bologna study programs we discovered that digital competences are not equally included in study programs. The tests of basic digital competences are included into the ECDL (European Computer Driver License) exams. The ECDL foundation recognized the lack of previous Syllabus and included basic skills of multimedia in the SV4 (Syllabus version 4). But these skills are for the manipulation of home equipment mainly (digital camera, PDA, GSM ...). Today's teachers need much more from the multimedia competences. At least intermediate skill level of video, sound and image editing is required for the natural science teachers.

In the recent past we design and develop learning materials with one paramount goal. This goal emphasizes the efficient transfer of required knowledge to the student. The other desired effects are: high retention of the knowledge and transferable skills (Mayer & Chandler, 2001). In the last years when we have to implement the Bologna declaration and prepared new study programs for higher education we discover another topic – competences. Though we admit that current study programs could be much better if enough time and resources would be available during their preparation we all learn something. All topics are interconnected. The content of the study courses, the objectives of the courses, competences of students attending the courses and transferable skills need to be compatible. Above all we need to start from the competences when we develop courses and the rest should support desired competences.

Transferring the findings gathered during the preparation of the learning materials we discovered that learning materials should be prepared using this new paradigm - start from the competences (Krašna & Bratina, 2010).

In all attempts when we try to make the mental model of digital competences we were not fully successful. Too many times we forget something vital in our model. Therefore we try different approach and prepare the learning material with the different educational paradigm in mind and research all aspect of digital competences in practice.

Preparing digital learning material for simple refraction we were surprised what underlying considerations are needed (Krašna & Bratina, 2010). Our approach use digital image and computer for taking measurements. We take images (see Figure 1) at different input angle and copy them to the computer. Such measurements from the picture are much simpler and in school environment sufficiently accurate.

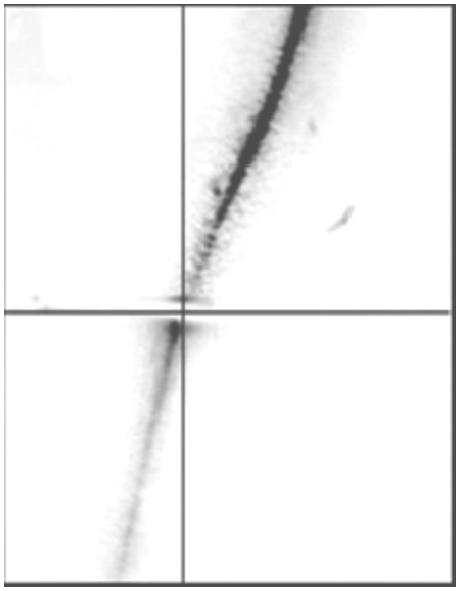


Figure 1: The image of the experiment (converted to BW and reversed)

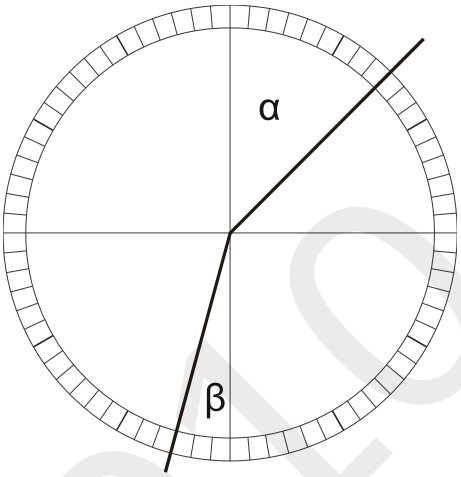


Figure 2: Processed image

Image is inserted into presentation software (PowerPoint or Impress) and students just draw the lines on top of the image. After they discard the original image the lines are aligned to the background digital protractor (provided to them as vector image) and read the angles (see Figure 2).

The results of this experiment introduce the following competences:

- Mathematics. It does not involve only the mathematics skills but also the skills of spreadsheet programs (data manipulation and use of equations). Additionally they gain the insight that different measures are needed to provide the mean measure of all measures reducing the effect of error in the measures.
- Transfer theory to practice. They know that the similar procedures can be used for all translucent matter.
- Oral and written communication. Since such experiment is almost impossible for one person to conduct they need to practice the communication. Written communication is present in the report of the experiment.
- Individual and team work. As we have previously said students work in groups and they have to organize themselves and share the workload.
- Organization and design. They need to share the results and explain the finding to the entire group so they are capable to advocate their work.
- Multimedia competences. Multiple multimedia skills are involved in this competence: taking a picture; transfer it to the computer; and image processing.

DIGITAL COMPETENCES AND MULTIMEDIA

As we have said before computer skills are highly important in natural sciences. Multiple computer disciplines are interconnected in the problem based approach and project work. We divide them to the topics where we describe knowledge, skills and relationships. In the relationship we only include mutual relationship inside digital competences. Our findings are therefore concentrated into topics (see Table 1).

Table 1: The structure of digital and multimedia competences

	Knowledge:	**Skills**:	**Relationship**:
Word-processing	Every project's documentation is a text document with images, tables and graphs. Students must learn how to prepare the documentation from the beginning of the education. As they progress in the education levels documentations must become more elaborate and formatted as required in the specifications. We must not forget in this topic that importance of references must start as soon as possible in the education. Today generations are called "copy/paste" generations. This is not desired effect of education.	• Editing text (typing, insert, delete, find, replace, ...), • Tables (format, functions), • Graphics (position, inline, above/behind), • Equation, • View & layout, • Styles, • Table of (content, images, tables), • Conversion (DOC, RTF, PDF,...).	• Spreadsheet manipulation • Image processing • Presentation techniques • Internet and communication
Spreadsheet manipulation	All experiments are measurable. From the initial data the results are computed. Analysis of the data and results introduce the new knowledge. Therefore manipulation of data is mandatory in all levels of education but the analysis can differ in complexity. It would really be nonsense for a primary school student to perform high level statistical analysis. But the basic descriptive statistic is enough for their comprehension level.	• Editing (typing, insert, delete, find, replace, ...) • Functions (math, text, statistics, ...) • Pivot tables	• Word processing • Image processing • Presentation techniques
Image processing	Advances in the technology today enable almost anyone to have an image capturing device. From GSM build in digital camera to the different types of purposely build digital cameras. The skills of taking image; transferring image; and processing image are not the same. Taking image is often neglected since anyone can push the button. But the difference between poor and good image is huge. Student must know that right illumination is mandatory for image capturing. The composition of the processed image should be foreseen even before the image is captured.	• Painting, drawing, cut/paste (objects) • Image types and files • Color coding and color transformaton • Photography • Scanning • OCR	• Word processing • Spreadsheet manipulation • Presentation techniques • Interent and communications
Video & sound processing	In some cases even the video should be captured. From the archiving purposes of documented procedures to the promotional video for the projects all require video recording. Students must know that is good and what is bad recording. They need to know what is good and bad video composition. They should practice techniques: hand shaking; panning; and zooming. There are also the issues with the digital processing of video and sound.	• Sound and video recording • Sound and video editing • Formats and codecs	• Word processing • Image processing • Presentation techniques • Internet and communications
Presentation techniques	Today it is widely known that promotion is a must. Presenting the results of the project is not just another nuisance. It is very important topic and should be regarded as fundamental step to another project. If a team prepare bad presentation their chances to acquire another project becomes lower. In the presentation a right mixture of text, image, graphs and tables; and video are mixed. Therefore this topic actually requires knowledge from all other digital skills. Students should learn from the beginning - bad commercial is often the last commercial.	• Layout • Color transformations • Presentation techniques • Types and files • Active elements	• Word processing • Spreadsheet manipulation • Image processing • Video & sound processing • Internet communication
Internet & Communication	Communicational skills are mandatory. Students today often know the techniques. What they do not know is the importance of formal methods in communication. Sending work over internet require knowledge of compression and decompression. How digital certificates work. Protection on the internet.	• Knowing different types of communication • Setting e-mail, forums, chats • Types and layout of e-mail, forums, chats • Electronic certificates, phishing, spoofing, security • Sending data files over communication means • Web searchers, public/payable databases	• Word processing • Presentation techniques • Image processing • Video & sound processing

CONCLUSIONS

It is time to change the teaching paradigm. Since computers are used in education we have problems how to adapt the changing reality. Students are often more computer literate than teachers. Never the less we see that their knowledge is superficial and they too often fail to perform adequately when conditions are changed. The project "Development of Natural Science Competences" wants to change the teaching paradigm. Step by step approach with gradual changes we develop new learning materials with different paradigm in mind - teach the competences. With enough information we could prepare the foundation of digital competences and multimedia. We hope that this new paradigm with the new set of required competences will change the educational processes and perform better in contemporary world.

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DIGITAL PORTFOLIO AS TOOL IN DISTRIBUTED EDUCATION

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ABSTRACT

Portfolio assessment is a form of evaluation, which is in increasing use in Europe. The use of digital portfolio supports flexible forms of education and learning. The use of portfolio is various and divided in different countries. This study focuses on the process of developing and use of portfolio in the subject of ICT and learning in the distributed teacher education at Nesna University College. The process is founded on theoretical influence of socio-cultural theories, teachers' experiences and students' preferences and achievement. The development and use of portfolio is based on an ongoing evaluation process, which is formulated as "Guidelines of portfolio assessment".

SOCIO-CULTURAL VIEW ON LEARNING

A way to approach the use of portfolio is to analyze the learning of students (Dysthe & Engelsen, 2003). Socio-cultural theories of learning emphasize people as member of communities where social interaction and the use of tools is a foundation of learning. Man use tools to develop and change an object (Vygotsky, 1978). Leontév (1978) developed this viewpoint as a collective activity. The theory of activity is seen as development of Vygotskys theories of learning and a part of socio-cultural theories. This foundation was expanded by Engeström (1987) into a model where the use of tools where based on the interaction in community. Tools are to be understood as a mediating artefact. The rules and the division of labour make the use of tools to an activity, which develop both social and individual knowledge. Third generation Activity theory deals with at least two integrated activity systems as its minimal unit of analyses. These activity systems are sharing a common part of an object (Engeström, 2001).

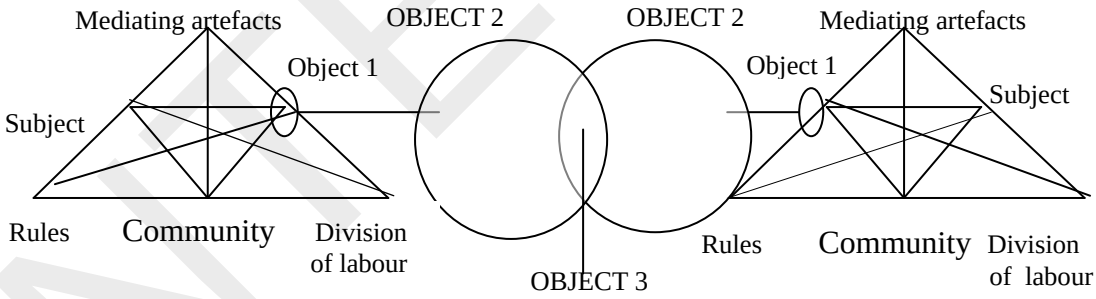


Figure 1: Two interacting activity systems with a partially shared object (Engeström, 2001, p. 136)

This figure illustrates how the subjects in two activity systems use tools as mediating artifacts in communities based on rules and division of labor to affect the objects. Lines in the figure show how all parts in the activity interact. The figure illustrates how objects (1) develop and change in the process (2) and how parts of the objects are partly shared (3).

Knowledge and information

To understand the use of portfolio it is important to see how knowledge and information contradict and interact. According to Wells (1999) information is second hand and can be distributed and shared. Information is an important part of the learning process, but information it is not knowledge. Wenger (1998, p. 220) points out the difference between information and knowledge: "Of course, availability of information is important in supporting learning. But information by itself, removed from forms of participation, is not knowledge". Knowledge is personal built in a social setting. A socio-cultural view on learning focus on action, tools and community. Language is the basic tool. According to Seljø (2000)

"the core of knowledge is speech and action in social context". Wells (1999, p. 91) formulate the process of knowledge building:

> Knowing starts with personal experience which amplified by information, is transformed through knowledge building into understanding, where understanding is construed as knowing that is oriented to action of personal and social significance and to the continual enriching of the framework within future experience will be interpreted" (ibid.).

The interaction between knowledge and information is described in this way (ibid.): " ... the level of information that has little or no impact on students' understanding until they actively engage in collaborative knowledge building...". Nardi puts it like this: "Cognitive science has concentrated on *information*, its representation and propagation; activity theory is concerned with *practice*, that is, *doing* and *activity*, …" (1996, p. 14). This view on knowledge building is central in the work of customization the use of portfolio in ICT and learning.

A STUDY OF THE DEVELOPING PROCESS OF PORTFOLIO IN ICT AND LEARNING

ICT and learning

ICT and learning is a subject in the teacher training of Nesna University College and the continuing teaching of people working with education. The subject is one year of study divided into 2X 30 e-credits. Each half-year study consists of tree modules of 6, 12 and 12 e-credits. The content of the subject emphasizes basic problems in ICT, ICT as tools in learning processes, ICT used in work and society and the developing of digital literacy. It was established 1984 and from 1995 also given as a part of distributed education on Internet. The education was offered both in classroom and on Internet until 2001. At that time the students of classroom had access to each other in the classroom community, the teachers of the class, the IT-support system and the teaching given on Internet. From 2001 the only option given was on Internet. In 2002 the portfolio evaluation was established. Later the use of LMS Moodle was implemented. The changes of the subject ICT and learning in the first years of 2000 was based on teachers experience and internal discussions, influence of socio-cultural theory, interviews and a survey completed in 2000.

Method and research question

The question of this research is: How did an evaluation process establish and develop the use of portfolio?

The design of the research is founded on a case study concept (Yin, 2009). This kind of case study recognizes both quantitative and qualitative data as evidence in analyzes (Ibid. p. 132). It also emphasize a theoretical foundation: "… the better case studies are the ones in which the explanations have reflected some theoretical significant propositions." (Ibid.).

A questionnaire of the year 2000 is central to answer the research question. The survey had 25 questions with five grades between agree and disagree. In the survey there also was three open questions, which focus on learning achievement and improvement of the given education. Internal discussions, meetings and seminars among the teachers are part of this process (Holteng & Hegerholm, 2004). The students written reflections of the study are also main sources for this analyze. In the period before the implementation of the portfolio the student's reflection on the given education were a separated expression based on teacher's questions. Later, this kind of reflection is integrated in the students' work as a continuing process. To understand the view of the students, a group of five students were interviewed in 2001 about the quality of learning achievement and the education. The description of parts of the survey of 2000 and the evaluation process is published as "En begrunnelse for endring av evaluering" (Hegerholm, 2004).

ANALYZING THE PROCESS OF DEVELOPING DIGITAL PORTFOLIO

The data is analyzed as a case study research (Yin, 2009). Such an analyze will here be explanation building on a repeating case with multiple sources (Ibid p. 142). The case is the developing process of portfolio in ICT and learning which is expressed theoretically as two activities. The sources are written and spoken opinions and experiences of alternating students and teachers over the years in ICT and learning. Developing the Guidelines of portfolio assessment is an ongoing process, which has the roots

back to the year of 2000. These sources together with the theoretical foundation enlighten the case of the developing process of the guidelines.

Evaluation of classroom- and Internet students

Looking into the answerers of the survey of 2000 and the reflections of the students, some tendencies can be summarized. On the question of the importance of your own work on your private computer and software, it was a difference of the answers of Internet students and classroom students. The Internet students valued their own work as more important than the classroom students (Hegerholm, 2004). This is reasonable since classroom students can rely on help from teachers and the IT-service on the campus. The Internet student is more alone with her computer. Internet students had to use their own computer asking for support of other distant students. Internet student had to lean on distributed cooperation. Another question in the survey asked the students if they are satisfied with the scope and angel of the working tasks. Internet students prefer comprehensive working task as foundation of teachers guiding and evaluation. Internet students also valued the opportunity of giving written explanations of the working process. Questions in the survey – one of them open, ask the students if they are satisfied with the information in the study. Internet student valued formal and detailed written instructions and guidelines in their work and in depth guidance of teachers (Ibid).

Before the year of 2000 the evaluation of students was based on a four hour written examination – the student had to handwrite answers on written questions. This was done in a large room where both classrooms and Internet students s where placed together with many other students, without help or cooperation. No aids were allowed.

A comparison of the student marks, summarized by the university college, shows that the Internet students had a better result and marks than the classroom students (Hegerholm, 2000). To the teachers this was strange. The classroom students had access to both the teaching and support system of the classroom and the one on the Internet. There could be different explanations on this tendency. Motivation and age could be such explanations. Focus in the study, however, is on evaluation. The response from the students described an evaluation situation where reproduction of information was valued instead of giving credit to knowledge. Reflections on this matter were expressed in interviews in 2001. Such expressions are formulated in this way (translated from Norwegian). Per: “To write with a pencil about what we have installed and fixed on the computer seems like a vaster. It do not give credit to what we have learned.“ Grete: “To try to rewrite software without ordinary aids seem useless”. Karen: “All the important work I have done with my own teaching with ICT tools is without importance on such an examination”.

An analyze of he content of examinations shows fairly 70% of the questions (Hegerholm, 2004) asked for reproduction of written or oral information. In this situation the location of the education – Internet or classroom, seems without importance. The reproduction of books and other information has not been the goal of student’s work and actions in the study. The learning process of developing achievement - for example in their own teaching, was in this context without importance. It was obvious for the teachers that the evaluation had to be changed.

Evaluation and digital portfolio

Traditionally these forms of evaluation are in use in Norway:

- Oral examination
- Written examination
- Practical examination (vocational education)
- Multi Choice (questionnaires)
- Home examination
- Dissertation / thesis
- Portfolio

For teachers the main purpose was to leave the form of evaluation, which favoured reproduction of information. The goal was to develop a form of evaluation that gives priority of knowledge building. At this time the use of portfolio was recognized in EU (Hamp-Lyons & Condon, 2000) and developing in higher education in Norway (Ellmin, 2000).

According to Dysthe and Engelsen (2003) portfolio have purposes and goals for society, school courses, teachers and students working and learning process. The most important condition, in the context of ICT and learning, is the possibility to evaluate and interact on the achievement and product of students work during the course. Portfolio evaluation establishes the student's marks as an end–evaluation. This gives the teacher the opportunity to guide the students during the course. It also gives the students opportunity to cooperate and build different kinds of communities. Portfolio integrates processes, which value the student's reflections. Reflection can be feedback to the teacher and the school on the quality of the course and the teaching. Portfolio rates the student individually. This can be used to sort students according to the rules of the society. The developing of portfolio artefacts tells the school and the teachers about the quality of student work.

Based on the students and teachers experience the teachers of the course of ICT and learning formulated the first Guidelines of portfolio assessment in 2002 (Holteng & Hegerholm, 2004). These guidelines are formally discussed and revised every year. Informal there is a continuous process of work and discussions – both among students and teachers, to integrate and adapt these guidelines to new situations and challenges in ICT and learning (Ibid).

Digital portfolio in the activities of ICT and learning

It is possible to see portfolio as a tool for both teachers and students. The students and the teachers are subjects in different activities. The students direct their work towards an object of work tasks, the teachers towards evaluation. In both communities the portfolios are tools to meet the requirements of the education. Portfolios are tools in both a work and an evaluation process. Both the evaluation process in the activity of teaching and the working task of the activity of learning has a shared object: "Guidelines of portfolio assessment".

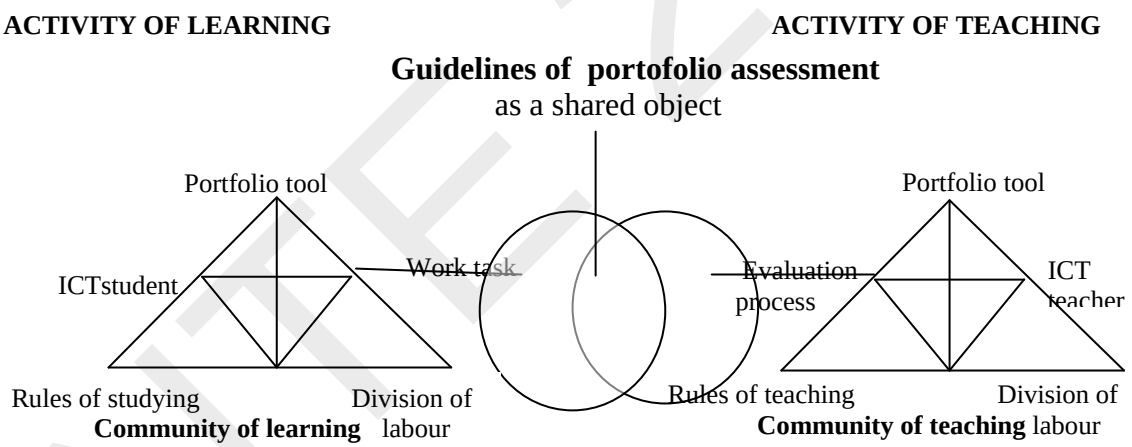


Figure 2: Two interacting activity systems with a partially shared object (After Engeström, 2001)

This figure illustrates how the shared object interact with the two main activities of ICT and learning. The "Guidelines of portfolio assessment" is the shared object of the working task and the evaluation process. It shows the digital portfolio as a tool in the teaching and the learning process. The guidelines influence on the use of the digital portfolio tools. It also guides the rules of teaching and the division of labour in the communities of the teachers and learners.

CONCLUSION

According to socio cultural theories the activities of teacher and students in ICT and learning are founded on actions with tools in communities. The communities have the rules and division of labour as central elements. Learning is a process of knowledge building where information is an important part. The use of digital portfolio is directed by the "Guidelines of Portfolio assessment". The developing of the guidelines have been an evaluation process where teachers experience and the opinions of the students, focus on these central conditions:

In the working and evaluation process *the teachers organize and distribute the information*, which the *students are going to use in their knowledge building*. The guidelines of the portfolio evaluation presuppose a division of labour where *working process integrate both individual responsibility and cooperation in groups*. Both processes are *certified in a reflection report*. The *portfolio evaluation rates the student as an end-evaluation* where *the teacher is the guide in the working process*. This foundation is implemented in "Guidelines for portfolio assessment" The "Guidelines of portfolio assessment" is now used in the international course of ICT and learning and is attached to this paper.

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Attachment

Guidelines For Portfolio Assessment For Ict And Learning

Portfolio assessment is a form of working and assessment that are in increasing use and can replace the traditional written examination. It involves an educational viewpoint that emphasizes self-development, reflection and cooperation. However, the concept of portfolio assessment has not yet found its final form. Therefore, portfolio assessment used differently in various subjects and contexts. We will therefore attempt to describe how the Section of Informatics in the University College of Nesna wants to carry out our form of portfolio assessment.

Work Requirements

Each student will in the course of the program carry out a specific number of work requirements to cover the objectives for the course. Work requirements represent goal in curriculum, and shall be delivered to guidance and censorship in digital folders designed for portfolio assessment. Work requirements are the foundation of the students' work during the course, and will be evaluated at the end of the course.

All work requirements are individual, but still there will be required to cooperate with others. This means that work requirements can be developed in collaboration with other students, but final products shall be individual. Cooperation can take place “face to face” or “online” as a form of group collaboration. Cooperation can also be developed by the fact that students can consider and comment on each other's work, thus contributes to make them better. Students can cooperate with and can receive response from user groups and colleagues. On the basis of self-assessment, feedback from teachers, fellow students, colleagues and user groups, work requirements can be improved and changed, until submitted for final assessment. Collaboration shall be described and documented in a reflective document.

Document of reflection

Each work requirements shall be accompanied by a document of reflection, which describe the student work- and learning process. Document of reflection shall describe changes and development of the product. Such documents should always be developed as a part of work requirements. Reflection documents are individual.

Reflection document should contain the following:
• Explanation of the key point in the product.
• Description of the learning process and learning outcome
• Description of what kind of cooperation there has been
• Possible documentation of the division of labor between you and fellow students
• Description of feedback from user groups, group work, discussions with colleagues and fellow students
• Changes as a result of advice and guidance of teachers.

Otherwise, details can always be clarified with the teacher in each subject.

Guidance

Students will receive fast responses to inquiries about academic matters. For each work requirement, students have the right to one guidance from the teacher, assuming that the product is delivered before the deadline has expired. This guidance aims to strengthen the learning process in the subject as well as to improve the quality of answers. The guidance to each work requirements will be given for a limited time.

Assessment

The date for final submission of the Portfolio is set in advance. When the products are delivered, there will be a process of final assessment and determination of grade for the course. Formal aspects of assessment are described in the Examination Regulations of The University College of Nesna.

Section of Informatics,
University College of Nesna

DİNAMİK WEB PROGRAMLAMA DERSİNDE ÖZ DÜZENLEYİCİ ÖĞRENME STRATEJİLERİ VE ÖĞRENCİ BEKLENTİLERİ ARASINDAKİ İLİŞKİNİN İNCELENMESİ

INVESTIGATING RELATIONS BETWEEN SELF REGULATED LEARNING STRATEGIES AND STUDENT EXPECTATIONS IN DYNAMIC WEB PROGRAMMING COURSE

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** Atatürk Öğretmen Akademisi, Lefkoşa

ÖZET

Bu araştırmada, Bahçeşehir Üniversitesi Bilgisayar ve Yazılım Mühendisliği Bölümü öğrencilerinin, öz düzenleyici öğrenme stratejileri ile dinamik web programlama dersindeki başarıları ve öğrenci beklentileri arasındaki ilişkiler üzerine odaklanılmıştır. Öğrencilerin mesleğe yönelik programlama beceri düzeylerinin değerlendirilmesine göre programlamaya yönelik yazılım mühendisi olarak çalışabilme eğilimlerinin belirlenmesi hedeflenmektedir. Bu anlamda her iki bölümden temel programlama dersini başarı ile tamamlamış olan öğrencilere verilen dinamik web programlamaya yönelik yazılım laboratuvarı destekli SE3006 Yazılım Mimarisi dersinde; Pintrich ve meslekdaşları tarafından 1991'de geliştirilen Güdülenme ve Öğrenme Stratejileri Ölçeği-Motivated Strategies for Learning Questionnaire (MSLQ)'nden yararlanılarak, elde edilen sonuçlar istatistiksel yöntemler ile değerlendirilmiştir. Öğrencilere Asp.Net Laboratuar ortamında aktarılan dinamik web programlamaya yönelik değer verme, dışsal hedefe yönelme, hedef belirleme, yineleme, öz yansıma, öz yeterlik algısı, çaba gösterme, başkaları ile çalışma, zaman yönetiminden oluşan öz düzenleyici öğrenme stratejileri ve ders başarıları arasındaki ilişkiler irdelenmiştir. Ayrıca, Asp.Net ortamına ait kazanım kontrol listesi oluşturularak, bu ders için beklenen sonuçlara göre ilk programlamaya ait iş parçasında öğrenilenler, edinilen öğrenme kazanımlarına göre performans, performansa bağlı son iş parçasındaki öğrenme kazanımları ele alınmıştır. Elde edilen sonuçlara bağlı olarak yazılım geliştirici statüsü ile mesleki çalışma alanındaki seçim yaklaşımları da bir öğrenci tatmin anketi uygulanarak; elde edilen veriler arasındaki ilişkiler, yazılım geliştirici statüsünde mesleğe yönelim boyutunda da ele alınmıştır.

ABSTRACT

In this study, self regulated learning strategies and expectations of Computer and Software Engineering students considered to observe the relationship on course achievements in dynamic web programming course in Computer and Software Engineering departments at Bahçeşehir University. Students' level of programming abilities investigated to obtain their vocational trends towards to working as software engineer. The software architecture course has dynamic web programming laboratory courses and Motivated Strategies for Learning Questionnaire (MSLQ) was implemented, and analyzed with statistical methods in this lab session.

Anahtar Sözcükler: Öz düzenleyici öğrenme, öz düzenleyici öğrenme stratejileri, güdüleme, öz yeterlik.

GİRİŞ

21. yüzyılda öğrenmenin doğasının, öğrenmeyi öğrenme görüngüsüne dönüşmesi ile öğrenmenin süresi de yaşam boyu öğrenmeye dönüşmüştür. Öğrenenler, etkili bir öğrenme için gerekli öğrenme becerilerini ve stratejilerini etkin bir şekilde kullanarak öğrenme faaliyetini organize edebilmektedirler. Bu bağlamda düşünme süreçleri ve bilişsel farkındalık ön plana çıkmaktadır. Bilişsel farkındalık, bir öğrencinin öğrenme stratejileri ve biliş hakkındaki bilgisi, bu süreçleri gözleme ve kontrol etme yeteneğidir (Metcalfe ve Shimamura, 1994). Sosyal bilişsel kuramcılardan Zimmerman (1992), öğrencilerin kendi öğrenme süreçlerinde öz düzenleyici öğrenme süreçlerini kullanarak, performanslarında meydana gelecek değişimleri öz-kontrol ile içselleştirebileceğini vurgulamıştır. Öz-kontrol sürecinin mesleki bilgi ve becerilerin kullanımında aktif hale geçmesi ise öz düzenlemede kişisel ve çevresel koşulların değişimine uyum fonksiyonu niteliğini kazanmışdır. Bu anlamda, her tür iş ortamında, bireylerin işleri ile farklılaşan durumlarda becerilerini kullanarak işin başarı ile sonuçlandırılmasına yönelik eylemleri ön plana çıkmaktadır. Öz yeterlik inancının geçmiş deneyimler (başarılı–başarısız), gözleme dayalı deneyimler (başkalarının başarı ve başarısızlıklarına tanık olma), ikna süreci (aile, arkadaş grubu, meslektaşlar), duyuşsal deneyim (heyecan, korku, vb. yoğun duygular yaşama) gibi faktörler tarafından belirlendiği belirtilmektedir (Akkoyunlu ve Orhan, 2003). Öz-yeterlik, benlik sisteminin pasif bir özelliği ya da belirleyicisi değildir. Bireyin sahip olduğu kapasitesinin, yaptığı işlerdeki başarılarının, güdülerinin

ve öz düzenleme mekanizmaları gibi benlik sistemini oluşturan diğer öğelerin bileşkesinden oluşan dinamik bir yönüdür (Vardarlı, 2005). Öz yeterlik kavramı, Bandura(1986)'nın *Sosyal Öğrenme Kuramına* dayanır, küreselleşen dünyada bireyin her ortamda kendisi ile ilgili algısı, inancı ve yargısı ile işe uygun performansını yansıtabilme davranışıdır. Bireyin yeterlik gösterebilmesi kavramının altında yatan, yapacağı işle ilgili bilgi, beceri ve tutum kazanması ve istendiğinde üstlendiği örgütsel rolü gereği gibi icra edebilmesidir. Bir başka deyişle, bireyin, neleri başarabileceğini bilmesi ve sorunlarla baş etmede gösterdiği yaklaşımlarından elde ettiği deneyimleri kullanabilmesi, yaşadığı bilişsel farkındalığı olarak da ele alınabilir. *Bilişsel farkındalık* ve *öz yeterlik* kavramları iç içe örüntülerden oluşan kendini anlama ile ifade bulan *öz düzenleme* kavramının yapısal elemanlarıdır. Bireylere yüklenen rollerdeki performans ölçütlerine bağlı elde edilen başarılar, bir bireyin iç dünyasında iş tatminine erişmesini sağlar. Bireyin iş tatmininden elde ettiği kendine yönelik algıları, öğrenme davranışında beklenen sonuçlar için istek artışını pekiştirecektir. Pintrich ve De Groot (1990) öz düzenlemeyi, öğrenme ve güdüleme ile akademik performans arasındaki ilişkiyi araştırmışlardır. Yüksek seviyede *öz yeterlik* ve *görev değerinin, bilişsel strateji kullanımı* ile ilgisi vardır. Ayrıca, yüksek seviyedeki *öz yeterlik* ve *görev değerinin* daha yüksek seviyede *öz düzenlemeyle* ilgili olduğunu bulmuşlardır. Öz düzenleme teknikleri öğrenenin iş performansında daha etkin ve bağımsız olmasını desteklemektedir. Öğrenenin karmaşık akademik işleri tamamlayabilmesi için kontrol sürecini yönetebilmesi gereklidir. Kontrol sürecinin yönetim bileşenleri;

1. Meta-bilişsel bilginin koordinasyonu-bilişsel ve meta bilişsel bilginin düzenlenmesi, öğrencinin ne bildiğini ve düşünme sürecini anlamak,
2. Planlama-bir işi planlayarak ve organize ederek yapmak,
3. İzleme-bir işi yaparken ne kadar kavradığını ölçmek, etkinliğini kontrol etmek, test etmek, değerlendirmek ve stratejileri gözden geçirmek,
4. Hataların belirlenmesi- bir işi yaparken, yanlış anlama veya bir hata yapıldığının belirlenmesi,
5. Hataların düzeltilmesi- bir hata belirlendiğinde, geriye dönüp hataların düzeltilmesinin sağlanması.

Eğitim süreci boyunca izlenen farklı öz düzenleme teknikleri öğrencilerin öğrenme zorluklarını aşmalarında "zihinsel becerilerin işleri yapabilmek için gereken becerilere dönüştürülmesinde kendi başlarına süreci uygulayabilmeleri için" önemli rol oynamaktadır.

Öz düzenleme ile ilgili farklı teoriler bulunmaktadır. Fakat hedefe ulaşırken teorilerin sağladığından daha fazlasını kılavuzlar sağlamaktadır. Teorik bakış açısından türetilen iki ana kılavuz şunlardır:

1. Hedeflenen davranış için bireyin öz düzenlemeye niyeti olmalıdır.
2. Hedef davranış tanımlanabilir ve gözlemlenebilir olmalıdır.

Bu bağlamda, yukarıda belirtilen sınırlar doğrultusunda, öğrencilerin öz düzenleme becerilerinin geliştirilmesine ilişkin çalışmada ilk fazda, müfredata dayalı tespit edilen kazanımların seviyeleri belirlenmiştir. Öğrencilerin 14 haftalık ders dönemi boyunca, kazanımları gözlemlenmiştir. Laboratuar föyleri, ders kazanımlarında gözlem ve test amaçlı kullanılmıştır. İkinci fazda doğrusal olarak öz düzenleme becerileri, dersin deneme ve ara sınavları aracılığı ile değerlendirilmiştir. Üçüncü fazda, dönem başından sonuna kadar hazırladıkları ders projeleri ders kazanımları ve programlama becerileri kıyaslanmıştır. Son fazda ise öğrencilerin bir dönem boyunca müfredata bağlı olarak dinamik web programlama dersindeki kazanımları ve becerileri düzeyinde gelişimleri ve ders başarıları ilişkilendirilmeye çalışılmıştır. Güdülenme ve Öğrenme Stratejileri Ölçeği-Motivated Strategies for Learning Questionnaire (MSLQ) ölçeğinden yararlanarak ders başarısı ile ilgili ilişki düzeyi yorumlanarak; öğrenenlerin yazılım geliştirici pozisyonunda mesleki gelişimlerine yön verecek yorumlar da bulgular kısmında verilmiştir.

MALZEME VE YÖNTEM

Katılımcılar

İstanbul Bahçeşehir Üniversitesi, Yazılım ve Bilgisayar Mühendisliği Bölümlerinde 2009-2010 Bahar yarıyılında, SE 3006 Yazılım Mimarisi dersinin laboratuar uygulamalarında Asp.Net programlama dersine kayıtlı öğrenciler çalışma evrenini oluşturmaktadır. Çalışmaya Bilgisayar Mühendisliğinden (43) ve Yazılım Mühendisliğinden (7) toplam 50 öğrenci katılmaktadır. Bu dersi alabilmek için temel programlama dillerine ilişkin C++ veya Java programlama dersinden başarılı olmak ön şarttır.

Veri Toplama Aracı

Araştırmada Pintrich tarafından geliştirilen MSLQ ölçeğinden yararlanılmıştır. Bu ölçek Asp.Net programlama dersi için uyarlanmıştır ve ölçekte onlu Likert derecelendirilmesi uygulanmıştır. Büyük Öztürk, Akgün , Özkahveci ve Demirel (2004) ölçeği Türkçe'ye kazandırmışlar, geçerlik ve güvenilirlik çalışmalarını yapılmışlardır. Yine bir başka grup araştırmacı Altun ve Erden (2006) de bu ölçeğin güvenilirlik ve geçerlik testlerini yaparak Türkçe ölçeğin, orijinal ölçek gibi 3 temel boyut altında 15 faktör olduğunu ortaya

çıkarmışlardır. Bu ölçeğin programlama dersine ilişkin düzenlemesi ise Haşlaman ve Aşkar (2007) tarafından yapılmıştır. Hacettepe Üniversitesi'nde yürütülen bu çalışmanın sonuçlarına dayanarak, öz düzenleyici öğrenme stratejilerine ilişkin ölçeğin gizli değişkenlerine açımlayıcı faktör analizi uygulanarak 41 gösterge sorusu ve 9 faktör belirlenmiştir.

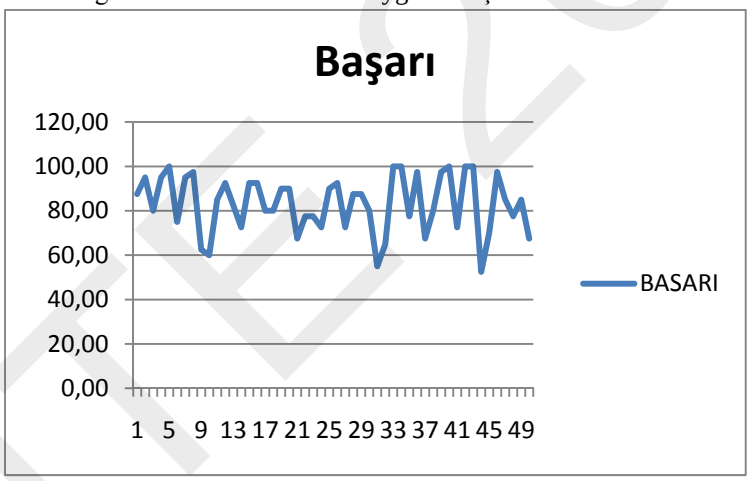
Bu bağlamda, bu çalışmada 41 gösterge soru ve 9 faktörden hareketle ölçek soruları uygulanmıştır. Veriler; kişisel bilgiler, öz düzenleyici öğrenme stratejileri ölçeği ve öğrenci beklentileri ölçeği olmak üzere üç bölümden oluşan bir form halinde toplanmıştır. Kişisel bilgiler kısmında kişisel bilgisayar sahibi olması ya da olmaması, haftada ne kadar saat programlama çalıştığı, ara sınav ve ders uygulamalarında aldığı notlar, ders projesi konusu ve ders projesi notu olarak sorgulanmıştır. İlk bölümde soruların ölçmeye yöneldiği nokta; derse karşı ilgi ve gayretine karşılık elde ettiği ve beklediği ders başarı performansını ilişkilendirmektedir. Bu bağlamda öğrencilerin; öz düzenleyici öğrenme stratejilerinin öğrenme ve performans için öz yeterlik, meta bilişsel öz düzenleme, zaman ve ortam yönetimi konusundaki kazanımları ilişkilendirilmektedir. Elde edilen verilere dayanarak öz düzenleyici öğrenme stratejilerinin, yazılım geliştirme alanına girmek için verilecek seçim kararı yönünde ne derece etkin olabileceği de ele alınmaktadır.

Çalışmanın Sınırlılıkları

1.Bahçeşehir Üniversitesi Yazılım, ve Bilgisayar mühendisliği öğrencileri ile yapılan bir araştırmadır.
2.Çalışma süresi 14 haftalık ders süresi ile kısıtlıdır.
3.Öğrencilerin ders başarılarına yönelik programlama becerileri hakkındaki öz yeterlikleri ders uygulamaları ile kısıtlıdır.

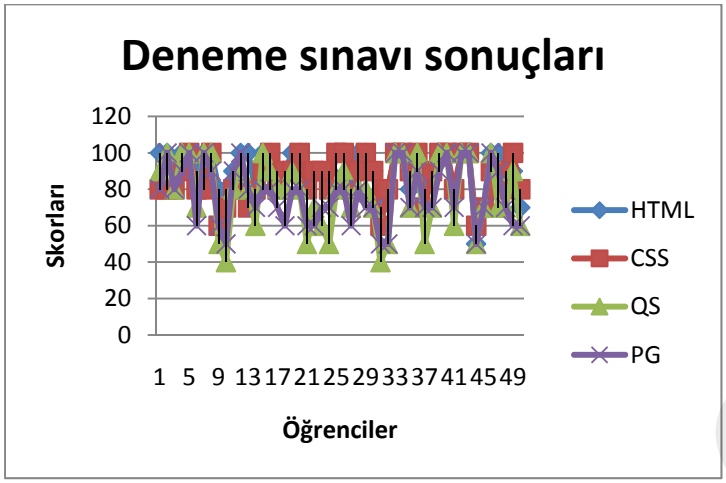
BULGULAR

Elli öğrenciye (17 kız, 33 erkek; 7 yazılım ve 43 bilgisayar mühendisi) Haşlaman ve Aşkar(2007)'ın tercüme edip geçerlilik analizi uyguladıkları öz düzenleyici öğrenme stratejileri anketinin dinamik web programlama dersine uyarlanmış formu ve öğrenci beklentileri anketi uygulanmıştır.



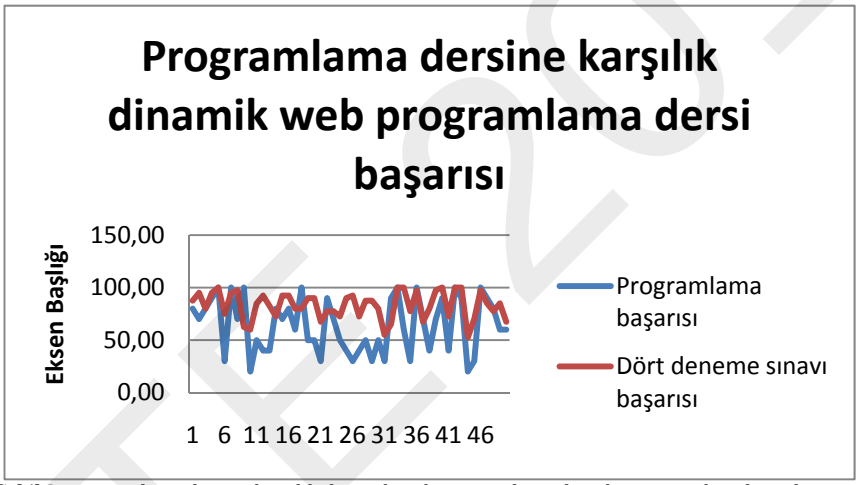
Şekil 1. Yazılım Mimarisi dersinde "HTML, CSS, Form olayları"nın ne kadar öğrenildiğini ölçmek için düzenlenen dört deneme sınavının ortalaması

Dört deneme sınavında HTML, CSS, Form olaylarından "query string" ve post-get yöntemlerinin ne kadar öğrenildiği ölçülmeye çalışılmıştır.



Şekil 2. Yazılım Mimarisi dersinde "HTML, CSS, Form olayları" için düzenlenen 4 deneme sınavının sonuçları

Ara sınavlarda konular ilerledikçe ve zorlaştıkça başarıların ortalama olarak düştüğünü görmekteyiz. Dört deneme sınavının ortalaması sırası ile 91, 86, 78 ve 77 olarak gerçekleşmiştir.



Şekil 3. Programlama dersine karşılık dinamik web programlama dersi başarısının karşılaştırılması

Programlama dersini alan öğrencilerin başarısı ortalama 64 olmasına rağmen, standart sapması 26 olduğundan dolayı birçok öğrencinin ortalamanın altında olduklarını söyleyebiliriz. Ayrıca, dinamik web programlamada daha başarılı olmalarına rağmen (ortalama=83, std.sap.=13), konuların zorlaşmasına bağlı olarak ortalama başarının düşüş gösterdiğini söyleyebiliriz. Fakat programlama dersi ile karşılaştırıldığında öğrencilerin, daha kolay öğrendiklerini ve başardıklarını söylemek zor olmayacaktır. Java ve C++ programlama derslerindeki başarı ortalamaları (ort.=64, std.sap.=26) düşük olması; programlama dillerindeki sınavların zorluk derecelerinin farklılığından da kaynaklıdır. Fakat HTML, CSS ve benzeri dilleri öğretmek ve öğrenme zorluk dereceleri diğer temel programlama dillerinden daha düşük olduğundan başarıları da daha yüksektir.

Öz düzenleyici öğrenme stratejileri ölçeği sonucunda faktörler arasında elde edilen ikili ilişkiler aşağıdaki gibidir:

1. Öğrencilerin *öz yeterlik algısı* ile bireyin *performansını değerlendirmesi ve sonuçlarına nedensel anlamlar yüklemesi (öz yansıma)* arasında yüksek düzeyde bir ilgileşim vardır (r=0.56, p<0.01).
2. *Öz yeterlik algısı ile* öğrencilerin görevleri hakkındaki inançları ve ilgileri (değer vermesi) ilişkilidir (r=0.43, p<0.01).
3. *Öz yeterlik algısı* ile *akranları ile öğrenmeleri* arasında (r=0.43, p<0.01) ilişki vardır. Öğrencilerin akranları ile birlikte öğrenme sürecini planlamalarından dolayı zaman yönetimini bağımsız gerçekleştirememe gibi sorunları da mevcuttur.
4. Öğrencinin ders performansında görevini başarı ile yapma kapasitesine ilişkin kendi yargısı (*öz yeterlik algısı*) ve çaba göstermesi yönünde anlamlı ilişki göstermektedir (r=0.51, p<0.01).

5. Öğrencilerin seçtikleri hedeflerini ve görevlerini; aldıkları not ve ödüle ilişkin performanslarını arkadaşları ile kıyaslamaları kendi başarma kapasitelerine ilişkin yargıları arasında anlamlı bir ilişki vardır (r=0.66, p<0.01).
6. Programlama dersinde öz yeterlik algısı ile yazılım geliştirici statüsünde çalışma arasında anlamlı bir ilişki vardır (r=0.57, p<0.01).
7. Öz yeterlik algısındaki başarma kapasitesine ilişkin yargı ile yazılım geliştirici statüsünde akranlarından daha avantajlı olduğunu öngörmektedirler (r=0.63, p<0.01).
8. Öz yeterlik algılarındaki yargı ile mezuniyet projesini yazılım geliştirme üzerine alma ilişkisi güçlüdür. (r=0.66, p<0.01).
9. Başarma kapasitelerine ilişkin yargıları ile yeni programlama sürümlerini takip edebileceklerine inanmaktadırlar (r=0.84, p<0.01).
10. Kendi performanslarını değerlendirme ve sonuçlarına anlamlar yükleme (öz yansıma) ile görevlerine duydukları ilgi ve inanç(değer) arasında güçlü bir ilişki vardır (r=0.66, p<0.01).
11. Kendi *performanslarını değerlendirme* ve *sonuçlarına anlamlar yükleme* ile arkadaşlarının performanslarını kıyaslamaları ve değerlendirmeleri yönünde anlamlı bir ilişki vardır (r=0.52, p<0.01).
12. Kendi performanslarını değerlendirme ve sonuçlarına anlamlar yükleme ile ulaşmayı amaçladıkları hedef arasında anlamlı bir ilişki mevcuttur (r=0.48, p<0.01).
13. Kendi performanslarını değerlendirme ve sonuçlarına anlamlar yükleme ile yazılım mühendisliğinde programcı olma beklentisinde anlamlı bir ilişki vardır (r=0.42, p<0.01).
14. Kendi performanslarını değerlendirme ve sonuçlarına anlamlar yükleme ile mezuniyet projesini program geliştirme üzerine alma ve başarma yönünde anlamlı bir ilişki vardır (r=0.39, p<0.01).
15. Kendi performanslarını değerlendirme ve sonuçlarına anlamlar yükleme ile meslekte programlama dillerinin yeni sürümlerini takip ederek, becerilerini geliştirebileceğine ilişkin güçlü bir ilişki vardır (r=0.54, p<0.01).
16. Kendi performanslarını değerlendirme ve sonuçlarına anlamlar yükleme ile bilgi teknolojilerinde çalışma hedefleri ile anlamlı bir ilişki vardır(r=0.40, p<0.01).
17. Öğrendikleri bilgileri tekrar ederken, akranla öğrenme gerçekleştirmektedirler (r=0.56, p<0.01).
18. Öğrendikleri bilgileri tekrar ederek, gösterdikleri çaba arasında oldukça güçlü bir ilişki vardır (r=0.80, p<0.01).
19. Öğrendikleri bilgileri tekrar ederek, bir hedefe ulaşabilmektedirler (r=0.42, p<0.01).
20. Görevleri hakkındaki inançlar ve ilgileri ile çaba gösterme arasında çok kuvvetli bir ilişki vardır (r=0.73, p<0.01).
21. Görevleri hakkındaki inançlar ve ilgileri ile hedef belirleme ve performansının karşılığını oluşturan ödül ve notları, akranları ile kıyaslama arsında anlamlı bir ilişki vardır (r=0.44, p<0.01).
22. Görevleri hakkındaki inançlar ve ilgileri hedefi saptama, gözden geçirme arasında bir ilişki vardır (r=0.48, p<0.01).
23. Görevleri hakkındaki inançlar ve ilgileri ile programcı statüsünde çalışma beklentisi arasında anlamlı bir ilişki vardır (r=0.48, p<0.01).
24. Görevleri hakkındaki inançlar ve ilgileri ile Programcı statüsünde iyi maaş kazanma beklentisi arasında anlamlı bir ilişki vardır (r=0.48, p<0.01).
25. Görevleri hakkındaki inançlar ve ilgileri ile; programlama dillerinin yeni versiyonlarını takip ederek becerilerini geliştirme arasında anlamlı bir ilişki vardır (r=0.42, p<0.01).
26. Görevleri hakkındaki inançlar ve ilgileri ile bilgi teknolojileri sektöründe çalışma beklentisi arasında anlamlı bir ilişki vardır (r=0.43, p<0.01).
27. İşbirliği ile öğrenme süreci çaba gösterme arasında güçlü bir ilişki vardır (r=0.79, p<0.01).
28. İşbirliği ile öğrenme süreci öğrenme ile belirlenen hedefe saptama ve gözden geçirme arasında güçlü bir ilişki vardır (r=0.56 p<0.01).
29. Zor görev ve konularda çalışmaya devam etmek ile aldığı not ve ödülleri kıyaslama arasında ilişki vardır (r=0.39, p<0.01).
30. Zor görev ve konularda çalışmaya devam etmek ile belirlediği gözden geçirme arasında güçlü bir ilişki vardır (r=0.63, p<0.01).
31. Zor görev ve konularda çalışmaya devam etmek ile programcı statüsünde çalışma beklentisi arasında anlamlı ve güçlü bir ilişki vardır (r=0.39, p<0.01).

32. Zor görev ve konularda çalışmaya devam etmek ile sektörde benzer pozisyondaki akranlarına karşı avantajlı olduğu beklentisi vardır (r=0.48, p<0.01).
33. Zor görev ve konularda çalışmaya devam etmek ile sektördeki programlama dillerindeki yeni sürümleri takip edip becerilerini ilerletme arasında güçlü bir ilişki bulunmaktadır (r=0.43, p<0.01).
34. Kendi performansını başkası ile kıyaslama ve not ve ödüllerin değerlendirilmesi ile belirlenen hedefe yönelme arasında güçlü bir ilşki vardır (r=0.55, p<0.01).
35. Öz yeterlik stratejisi ile ders başarısı arasında orta düzeyde bir ilişki bulunmaktadır(r=0.39, p<0.01).

TARTIŞMA VE SONUÇ

Devlet ve Vakıf Üniversitelerindeki özellikle Bilgisayar ve Yazılım eğitimi veren bölümlerinde, eğitim müfredatları her ne kadar aynı olsa da ÖSYM sınavı aracılığı ile kayıt yaptıran öğrencilerin öz düzenleyici öğrenme stratejileri ile programlama dilleri derslerinde gösterdikleri performans arasında farklılıklar olabilmektedir. Haşlaman ve Aşkar(2007)'ın araştırmasında da belirtildiği üzere programlama dersi alan öğrencilerin öz yeterlik inancının başarıları üzerinde pozitif ve güçlü etkisi olduğu gösterilmiştir. Öğrencilerin, öz düzenleme stratejilerini etkili olarak uygulayabilmeleri öğrenme ve performans durumlarına ilişkin öz yeterlik algılarını geliştirmelerine bağlıdır. Öz yeterlik inancı yüksek düzeyde olan öğrenciler çok çalışır, zorluklarla karşılaştıklarında ısrarla çalışmalarını sürdürürler, öğrenme stratejilerini verimli kullanırlar ve başarıya erişirler; zaman yönetimini de gerçekleştirmeyi başarırlar (Haşlaman ve Aşkar, 2007). Araştırmacıların bulgularının tam tersine, BŞÜ Bilgisayar ve Yazılım Mühendisliği öğrencileri, zaman yönetimini başarı ile uygulayamadıklarından, derslere ve laboratuar uygulamalarına düzgün ve sürekli katılamadıklarında dolayı, akranla öğrenmeyi tercih edebilmektedirler. Araştırmamıza katılan öğrencilerin dinamik web programlama dersini çalışmak için ortalama 4.23 saat/hafta (std.sap.=2.77) zaman harcadıkları; fakat, yineleme stratejilerinin öğrenci başarılarına yansımadığı tespit edilmiştir. Çünkü programlama dilleri dersinde doğrudan yineleme değil, özgün kod parçacıkları geliştirme ile öğrenme pekiştirilebilmektedir. Bu bağlamda yineleme stratejisi kullanımı ile çaba arasında güçlü ve pozitif bir ilişki bulunmasına rağmen, ders başarısına etkisi oluşmamaktadır. Ayrıca, öğrencilerin öz yeterlik algıları ile öz yansıma arasında güçlü bir ilişki bulunmasına rağmen, ders başarılarını etkilemediği belirlenmiştir. Öğrendikleri bilgileri tekrar ederken (yineleme), akranla öğrenme stratejisini gerçekleştirmektedirler ve buna karşın akranla öğrenme stratejisinin başarı üzerinde bir etkisi bulunamamıştır. Programlama dersinin doğası gereği her iki araştırmada da öz düzenleyici öğrenme stratejilerinin başarı üzerinde olumlu etkisi tespit edilememiştir. Yalnız, öz yeterlik algısı ile ders başarısı arasında orta düzeyli bir ilişki BŞÜ'deki araştırmamızda elde edilmiştir. Buna karşın, Pintrich ve arkadaşlarının geliştirdiği MSLQ ölçeğinin öğrenme stratejileri göstergeleri kendi aralarında tutarlı ve ilişkilidir. Deneme sınavlarından elde edilen kazanımlar aracılığı ile kazanılan başarı, öğrencinin ders başarısına ilişkin dışsal hedefe yönelmede aktif bir rol oynamamaktadır. Bu da öğrencilerin zaman yönetiminde başarılı olamamasına neden olmaktadır. Araştırmamızda öz yansımanın, öz düzenleme stratejilerinin önemli bir faktörü olduğu fakat başarı üzerinde bir etkisi bulunmadığı tespit edilmiştir. Değer verme, zaman yönetimi, çaba gösterme, akranla öğrenme, hedefe yönelme ve belirleme öğrenme stratejilerinin başarı ile doğrudan ilişkisi yokken, öz yeterlik algısı hem başarı hem de öğrenci beklentileri (r=0.72, p<0.01) ile yüksek ve anlamlı bir ilişki göstermektedir. Programlama dillerinin öğrenme ve öğretme doğası gereği öz düzenleyici öğrenme stratejileri başarıyı doğrudan etkilememektedir. Programlama dillerindeki sınavların zorluk dereceleri, öğrencilerin öz düzenleyici öğrenme stratejilerini kullanarak başarıya ulaşmada doğrudan bir etki oluşturmamaktadır. Öğrencilerin öz yeterlik algısını kullanabilmeleri, beklentileri ve hedefleri yüksek düzeyde algılamalarını pekiştirici bir unsurdur.

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DİSİPLİNLERİN KESİŞMESİNDE BİR UYGULAMA ALANI: İLKÖĞRETİM GÜNCEL OLAYLAR DERS PROGRAMI TASARISI

AN AREA OF APPLICATION WHERE DISCIPLINES INTERSECT: A CURRICULUM DRAFT FOR ELEMENTARY CURRENT ISSUES COURSE

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Özet

Okul, içinde bulunduğu toplumdan ayrı düşünülemez. Okul, dünyada meydana gelen bilimsel, teknolojik, kültürel ve ekonomik gelişmelerden etkilenir. Bu nedenle, okullarda güncel olaylar dersine yer verilerek öğrencilerin okulda öğrendikleriyle gerçek hayat arasında bağlantı kurmaları, öğrendiklerini gerçek hayattaki sorunlara uygulamaları, dersler arası ilişkileri fark etmeleri sağlanabilir. Bu çalışmanın temel amacı Türkiye'de İlköğretim programında yer alması düşünülen güncel olaylar dersi için bir program tasarısı hazırlamaktır. Hazırlanmakta olan bu program taslağı genel amaçlar, içerik, öğretim süreçleri ve ölçme - değerlendirme boyutlarından oluşmaktadır. Program taslağını oluşturmak için ihtiyaç duyulan veriler nitel araştırma yöntemlerinden olan doküman analizi ve görüşme tekniği ile elde edilmiştir. Çalışmanın bulguları açıkça ortaya koymaktadır ki; öğrenciler güncel olaylar dersi aracılığı ile derslerin aslında nasıl organik bağlarla birbirlerine bağlı olduklarını anlayacak, olayları farklı disiplinlerin bakış açılarını kullanarak yorumlayabilecek, sosyal duyarlılık bilinci kazanarak, topluma katkısı olan, topluma uyum sağlayan, kendine güvenen, kendini ifade edebilen, eleştirel ve yaratıcı düşünen, problem çözebilen bireyler olma yolunda gerekli becerileri kazanacaklardır.

Anahtar Kelimeler: İlköğretim Programı, Güncel Olaylar, Program Tasarısı

Abstract

Schools cannot be considered as separate from the society in which they operate. A school is influenced by the scientific, technological, cultural, and economic developments that occur in its respective society and around the world. Therefore, by teaching a current issues course at schools, students could be made to establish links between what they learn at school and real life, to apply what they learn to real-life problems, and to recognize interdisciplinary relationships. The present study mainly aims to develop a curricular scheme for a current issues course that is planned to be included in the elementary curriculum in Turkey. This curricular scheme under development contains the dimensions of general aims, content, educational states, and assessment-evaluation. The data required to develop the curricular scheme were obtained by document analysis and interview technique as qualitative research methods. As clearly demonstrated by the study results, through the current issues course, students will acknowledge the fact that how closely different disciplines are in fact tied t each other with organic bonds, will be able to interpret events using the perspectives of different disciplines, will be equipped with a sense of social awareness, and will acquire the skills required to become socially-contributing, socially-adaptive, self-confident, and self-expressive individuals as critical and creative thinkers and problem solvers.

Keywords: Elementary Curriculum, Current Issues, Curricular Scheme

Giriş

Güncel sözcüğü, günün konusu olan, şimdiki bugünkü (haber, olay vb.) olarak tanımlanmaktadır. Güncel olaylar ise bireyi ve ait olduğu toplumu ilgilendiren, birey ve toplumların karar verme ve düşünme sistemlerini etkileyen, gündemi oluşturan insan yada doğa kaynaklı olanın bilgisidir (Gürkan,.2009). Güncel olaylar dersi, öğrencilerin güncel olaylarla ilgilenmesini, toplum hayatında önemli rol oynayan kurumları, olayları ve sorunları fark etmelerini ve önemini kavramalarını sağlayan bir derstir. Güncel olayların geçmişe göre artan bir oranda eğitim programında yer almasının gereğini ise şu şekilde belirtmek mümkündür; Toplumsal, kültürel gelişme ve değişmeler, bilimsel ve teknolojik gelişmelerin insan yaşamı üzerindeki etkileri, insanların sık yer değiştirmeleri ve gezilerin artması, nüfus patlaması, siyasal ve ideolojik değişmeler, kitle ve iletişim araçlarındaki değişmeler, bilgi anlayışındaki değişmelerin öğrenme durumlarına etkisi, hastalıklar ve iyileştirme çabasının hız kazanması, farklı çözüm yollarının bulunması, yönetimlerim gelişmelere açık olmaları, dünya ekonomisi ve kaynağının yön değiştirmesi, dünyanın fiziksel yapısında meydana gelen değişmeler, doğal kaynakların tüketimi ve geleceğe etkinin kestirilmesi, küresel düzeyde farkındalık kazanma ihtiyacının hissedilmesidir (Paykoç,1987).

Güncel olayları öğretimde kullanmak, bilgili vatandaşlar ve yaşam boyu haber okuyucular yetiştirilmesine yardımcı olmaktadır. Güncel olaylarla çalışma, öğrencileri okul dışında gördükleri ve işittikleri haberlere de dikkat etmelerini teşvik etmektedir (Smith, 2005). Güncel olayları daha iyi anlayabilmek için, dersin konusu ile ilişkilendirmek, geçmişte meydana gelmiş olan benzer bir olayla karşılaştırmak önem arz etmektedir. Böylelikle olayın sebebi anlaşılabilmekte ve daha doğru değerlendirmeler yapılabilmektedir (Gedik, 2008). Günlük olayların kullanımı çocuğun yaşamla bağını güçlendirmesi ve güncel olaylara karşı farkındalık kazanmaları, farklı disiplinlerle ilişki kurmalarını sağlamalarını ve sürekli izleme isteği ve alışkanlığı edinmeleri bakımından önem taşımaktadır. Bununla birlikte güncel olaylar, öğrenmeyi anlamlı kılmakta ve kolaylaştırmaktadır(Gürkan, 2009). Haas ve Laughlin (2000)'e göre güncel olaylar, öğrencilerin araştırma ve eleştirel düşünme becerilerini geliştirmelerine ve öğrencilere Empati geliştirme, küresel düzeyde farkındalık oluşturma, hoşgörü geliştirme gibi duyuşsal özelliklerin kazandırılmasına yardımcı olur. Güncel olaylar öğrencilere taze içerik sunar ve öğrencilerin 20. Ve 21. Yüzyılı anlamalarını sağlar. Öğrencileri toplu görüşme tartışma grupları, televizyon ve gazete kullanım, afiş ve duvar resimleri hazırlama gibi etkinliklerle sınıfa bağlar (Mathews,2006).

Bu alanda yapılan araştırmaların niteliksel olarak azlığı nedeniyle, çalışma sonuçlarının eğitim ve öğretimde güncel olayların ele alınışına yönelik var olan eksikliklerin ve güçlü yanlarının belirlenmesini sağlayarak öğretmenlerin öğretmenlik çalışmalarına rehberlik edebileceği, Milli Eğitim Bakanlığı'nın program geliştirme çabalarına ve gelecekte geliştirilecek programlarlarda dikkate alınacağı düşünülmektedir.

Bu çalışmanın amacı; Türkiye'de uygulanan ilköğretim programlarına güncel olaylar ders programının eklenmesine yönelik bir model önerisi hazırlamaktır. Bu genel amaç doğrultusunda hem literatürün taranması, hem de ilgili alan uzmanlarına sorular yöneltilmiştir.

Çalışmanın Yöntemi

Türkiye'de uygulanan ilköğretim programına eklenmek üzere tasarlanan güncel olaylar ders programı tasarısını amaç edinen bu çalışma nitel bir çalışmadır. Bu çalışmada; görüşme ve doküman incelemesi, gibi nitel bilgi yöntemlerinin kullanıldığı, algıların ve olayların doğal ortamda gerçekçi ve bütüncül bir biçimde ortaya konmasına yönelik bir sürecin izlendiği araştırma olarak tanımlamak olanaklıdır. (Yıldırım & Şimşek, 2005)..

Çalışmada ihtiyaç duyulan verilere ilgili alan yazının incelenmesi ve Türkiye'de farklı devlet üniversitelerinde görev yapan on öğretim üyesi ve farklı ilköğretim okullarında çalışan on sosyal bilgiler öğretmenini ile yapılan yarı yapılandırılmış görüşme sonucu elde edilen görüşlerden ulaşılmıştır. Yarı-yapılandırılmış görüşme, sorular önceden belirlenip ve bu sorularla veriler toplanmaya çalışıldığı bir tekniktir (Karasar, 1998). Görüşmeler ses kayıt cihazı ile kaydedilmiş ve daha sonra çalışmanın cevap aradığı sorular çerçevesinde veriler analiz edilmiştir.

Bulgular ve Yorum

Bu bölümde Türkiye'deki ilköğretim programına eklenmesi önerilen Güncel Olaylar dersi program taslağının vizyonu, misyonu, temel öğeleri, genel amaçları, içeriği, öğretim süreçleri ile ölçme değerlendirme boyutu ana başlıklarıyla ele alınmıştır.

Güncel Olaylar Dersi Program Tasarısının Vizyonu ve İlkeleri

Önerilen Güncel Olaylar dersi programının vizyonu;; toplumsal olaylara ait unsurları anlayarak bu unsurları doğru ve etkin bir biçimde yorumlayan, çevre problemlerine karşı duyarlı olan, millî değerlere bağlı, vatanını seven ve koruyan, dünyanın ve insanlığın korunmasına yönelik sorumluluk duygusuna sahip,bireyler yetiştirmektir.

Güncel Olaylar Dersi Program tasarısında benimsenen ilkelere bakıldığında ise; programın öğrencilerde toplumsal olaylara yönelik genel bir farkındalık kazandırmaya çalıştığı,öğrenci merkezli yaklaşımları temele alan, bilgi aktarımından çok, öğrencilerin yaşantıları yoluyla bilgiyi yapılandırmalarının amaç edinildiği ve Türkiye'nin konumsal önemine, vatan bütünlüğüne olduğu kadar evrensel değerlere de duyarlı bir program taslağı olduğu görülmektedir. Güncel Olaylar dersi taslak programı'nın temel öğeleri beceriler, kavramlar, öğrenme alanları, değerler ve tutumlardan oluşmaktadır.

Beceriler

Beceri kavramı, öğretim etkinlikleri sonucunda öğrencilerde oluşturulması amaçlanan yeteneklerdir. Güncel Olaylar programında yer alan beceriler, bu dersi oluşturan tüm alt alanların gerektirdiği becerileri kapsamalıdır.

Kavramlar

Bilindiği üzere kavramlar programlarının temel öğelerinden biridir. Kavramlar yoluyla ilgili bilim dalının yapısı ve içeriği öğrencilere yansıtılır. Güncel Olaylar dersini oluşturan tüm alt alanlara ait kavramlar, kavram haritaları oluşturularak öğrencilere öğrenme yaşantıları sunulmalıdır Güncel Olaylar dersine ait önemli bir özellik ise de bu derse ait kavramların ulusal özellikler taşımasının yanında evrensel bir boyutunun da olması zorunluluğudur.



Şekil 1 Güncel Olaylar Ders Programı Taslağının Temel Öğeleri

Değerler ve Tutumlar

Güncel Olaylar taslak programı'nın üzerine yapılandırıldığı diğer bölüm ise tutumlar ve değerlerdir. Program beceri ve kavram öğretimiyle birlikte hoşgörü, bilimsellik, duyarlılık,vatanseverlik, barış, estetik ve sorumluluk gibi değerleri de kazandırmayı önemsemektedir:

Öğrenme Alanları

Güncel olaylar dersi Program taslağı "öğrenme alanı" adı altında organize edilmiş yapılardan oluşmaktadır. Öğrenme alanları, güncel olayların öğretiminde öngörülen bilgi, beceri, kavram, değerler ve tutumların sistematik bir şekilde ilişkilendirildiği tema ve konu alanlarından oluşur. Sözü edile bu öğrenme alanları; dünya barışı ve güvenlik, küresel ilişkiler, ekonomi, terör ,doğal afetler, sağlık, sanat, teknoloji, toplumsal değerler ve demokratik yaşam olarak önerilmektedir.

Güncel Olaylar Ders Programı Tasarısının Amaçları

Güncel olaylar dersinin genel hedefleri, geçmişle gelecek arasında geçişi sağlayan, bir köprü vazifesi görerek bireyin kendisinde var olan eski bilgilerle yeni öğrendiklerini ilişkilendirmesine yardımcı olmaktır.

Taslak olarak önerilen Güncel Olaylar dersinin genel amaçları hem alan yazından hem de uzman görüşler doğrultusunda aşağıda sıralanan şekilde oluşturulabilir.

1. Öğrencilerin dünyada ve kendi ülkelerinde fiziki yada toplumsal yönden meydana gelen hızlı değişimleri ve gelişmeleri takip etmeleri, bilgi sahibi olmaları hususunda farkındalık ve duyarlılık kazandırmaktır.
2. Öğrencilerin eleştirel düşünmelerini ve bilgiyi analiz etmelerini sağlamaktır.
3. Kendini, dünyayı ve bilgiyi sorgulayarak sağlıklı değerlendirmeler yapmalarını sağlamaktır.
4. Tartışma kültürlerini geliştirmeleri amaçlanmaktadır.
5. Demokratik davranmalarını sağlamaktır.
6. Geçmişte meydana gelen olaylarla, şimdiki olaylar arasında bağ kurmalarını sağlamaktır.
7. Öğrencilerin, çevresinde olup bitenlere karşı, sorumluluk sahibi, sorunlar karşısında çözüm üretmek için istekli vatandaşlar olmasını sağlamaktır.

8. Boş vakti faydalı bir şekilde geçirmeyi ve hayatta daha iyi şeyleri taktir etmeyi sağlamaktır.
9. Güncel olaylar dersi farklı disiplinlerin iç içe olduğunu göstermeli ve disiplinler arası bölünmelere izin vermeyecek şekilde olmalıdır.

Güncel Olaylar Ders Programı Tasarısının İçeriği

Bu ders kapsamında ele alınacak konuların seçiminde iki önemli ölçüt önem arz etmektedir. Bunlardan birincisi: Sınıf ortamına taşınan konunun kesinlikle bir eğitimsel değerinin olmasıdır. İkinci olarak da seçilen, sınıf ortamına getirilen konuların ilköğretim programındaki diğer konu alanlarıyla yatay ilişkiler kurulmasıdır. Bu noktadan hareketle belirtilen bu iki ölçüt ışığında ilgili dersin öğrenme alanları; ***Dünya Barışı Ve Güvenlik, Küresel İlişkiler, Sağlık, Sanat, Teknoloji, Toplumsal Değerler ve Demokratik Yaşam*** olarak önerilmektedir.

Bu öğrenme alanları ihtiyaçlar ve öneriler doğrultusunda çoğaltılabilinirler. Yukarıda belirlenen öğrenme alanları kapsamında sınıf ortamına getirilmesi planlanan örnek olaylar, ilgili dersin öğretmeni tarafından gazetelerden, dergilerden, internet ortamından, temin edilebilir. Ancak yukarıda da belirtildiği üzere seçilen örnek olayın hem eğitimsel değerinin olması, hem de birden fazla disiplinler ararında bütünleşmeyi sağlaması gereken bir özelliktir.

Bu dersin içeriği, içerik düzenleme yaklaşımlarından biri olan sarmal yaklaşımla düzenlenebilir. Bilindiği üzere sarmal yaklaşımın dayandığı temel düşünce; yeni öğrenmelerin ön öğrenmeler üzerine inşa edilmesidir. Önemli görülen örnek olayları sınıf düzeylerinde tekrar ele alınıp, genişliğinin ve derinliğinin arttırılmasıdır.

Güncel Olaylar Ders Programı Tasarısının Öğretim Süreçleri

Önerilen güncel olaylar dersi program tasarısı, yapılandırmacı anlayışı merkeze alan, öğrenci merkezli yaklaşımı savunan ve çağdaş öğretim strateji, yöntem ve tekniklerini (Buluş Yoluyla Öğretim Stratejisi, Araştırma ve İnceleme Yoluyla Öğretim Stratejisi vb.) uygulayan bir anlayışla geliştirilmelidir. Güncel olaylar dersi için, araştırma ve inceleme yoluyla öğretim stratejisi ve buluş yolu öğretim stratejisi ilgili dersin öğretmenleri tarafından kullanılabilinir. Bu öğrenme stratejileri güncel olaylar dersinin yapısına en uygun stratejilerdir. Bu stratejilerde öğrenciler, günlük olaylardaki bilgileri araştırarak, bularak, yorumlayarak, beceri haline getirerek, problemleri çözerek, keşfeder hale gelmektedir. Güncel olayların öğretiminde öğrenme sorumluluğu öğrenciye aittir ve öğrenme öğrenci merkezlidir. Güncel olaylarla işlenen dersler ile öğrenciler düşünen, araştıran, eleştiren, nasıl ve neden öğrendiğini bilen, olaylara farklı bakış açıları getirebilen bireyler olarak yetişmektedir (Arın ve Deveci, 2008).

Bu dersin işlenişinde; tartışma, örnek olay, münazara, panel, yuvarlak masa, beyin fırtınası, gözlem, inceleme-araştırma, kaynak tarama, değişik kaynaklardan elde edilen bilgileri tek metin veya bilgi haline getirme, olay incelemesi, simülasyon, rol yapma, drama, yerinde gözlem, röportaj gibi yöntem ve teknikler kullanılabilinir. İlan tahtası, güncel olaylar haritası, spor köşesi, mizah köşesi, karikatür köşesi, dur, bak ve düşün köşesi, gazete ve dergiler, televizyon, bilgisayar-internet, kelime köşesi bu ders kapsamında önerilebilecek araç-gereçler arasında sayılabilmektedir.

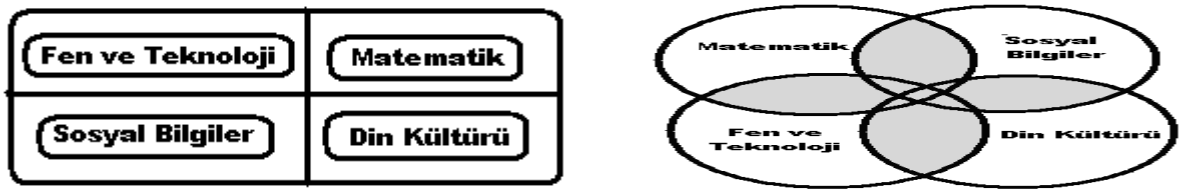
Güncel Olaylar Ders Programı Tasarısının Ölçme ve Değerlendirmesi

Güncel Olaylar Dersine ilişkin ölçme ve değerlendirme işlemleri geleneksel yaklaşımın yanı sıra alternatif ölçme ve değerlendirme yaklaşımları ile yapılması önerilmektedir. Geleneksel ölçme ve değerlendirme sadece çıktıya odaklanırken, alternatif ölçme ve değerlendirme yaklaşımı çıktı ile birlikte sürecinde değerlendirmesini kapsamaktadır. Bu nedenle sene sonunda yapılacak sözlü, yazılı, çoktan seçmeli testler yerine, öğrencilerin süreçteki gelişimlerini gösteren öğretim seçki dosyalarının (portfolyolerin) oluşturulması ve değerlendirme işleminin oluşturulan bu dosyaların ışığı altında yapılması önemli görülmektedir. Güncel olaylar dersindeki değerlendirmenin amacı; öğrenciyi başarılı ve başarısız diye ayırmak değil, öğrencinin o olaydaki performansını dikkate almaktır. Güncel olaylar dersi öğrenciyi sosyal yönden zenginleştirecek bir derstir.

Yapılan çalışma sonucunda; öğrencilerin güncel olaylarla ilgilenmesi, toplum hayatında önemli rol oynayan kurumları, olayları ve sorunları, fark etmelerini sağlayan bu dersin, ilköğretim ikinci kademe programlarına eklenmesi ihtiyacını ortaya koymaktadır.

Türkiye'de İlköğretim programında özellikle Hayat Bilgisi, Sosyal Bilgiler ve Fen ve Teknoloji derslerinin tek disiplin içinde bütünleştirilmiş model ile programa eklendiği görülürken Güncel olaylar ders program taslağının sözü edilen bu bütünleştirilmiş modelin bir uygulama alanı olarak ele alınması önem arz etmektedir.

Şekil 1. İlköğretim Programı ve Güncel Olaylar Ders Program Taslağı (Parçalı Model) ve Bütünleştirilmiş Modeli



Kaynak: Fogarty, 1991

Bu modele göre Güncel Olaylar dersi birçok disiplini içeren çoklu bir yapı olarak düşünülmelidir. Eğitimsel değeri olan ve diğer derslerle ilişki kurulması zorunluluğu ile Türkiye'de ve Dünyadaki reel yaşamı bütünüyle etkileyen birçok örmek olay bu ders kapsamında ele alınabilir.

Sonuç ve Tartışma

Sonuç olarak bakıldığında Türkiye'de mevcut ilköğretim programlarında bulunmayan güncel olaylar dersi ilgili literatürün ve uzman görüşleri bulgularına dayalı olarak bir ihtiyacın olduğu gözlemlenmektedir. Bu ihtiyaç doğrultusunda hazırlanan program taslağının dört teknik öğesi (amaçlar, içerik, eğitim durumları, ölçme ve değerlendirme) çağdaş program geliştirme anlayışına dayalı olarak geliştirilemeye çalışılmıştır. Program yapılandırmacı anlayışı merkeze alan, kavram, beceri, öğrenme alanları, değer ve tutum kazanımına önem veren bir anlayışla hazırlanmıştır. Genel amaçların belirlenmesinde sözü edilen bu dört temel (kavram,beceri, öğrenme alanları ve değer-tutum) dikkate alınıp amaçlar bu doğrultuda belirlenmiştir. Program taslağının içerik kısmında sarmal içerik düzenleme yaklaşımı benimsenmiş ve ön öğrenmelerin yeni öğrenilecek konulara bir temel oluşturması sağlanılmaya çalışılmıştır. Eğitimsel değeri olan birden fazla konu alanı ile ilişki gösteren örnek olaylar sınıf ortamında tekrar tekrar ele alınmış ancak bu tekrarlar öğrenilecek materyalin derinliğini ve genişliğini arttırma yoluyla gerçekleştirilmeye çalışılmıştır. Öğrenci merkezli strateji, yöntem ve teknikleri benimseyen program taslağı öğrenme sürecinde birinci veri kaynaklarına önem vermekte dolayısıyla öğrencilere ilgili alanın gerektirdiği zengin öğrenme yaşantıları-ortamları sunmayı amaçlamaktadır. Sınıf içi etkinlikler kadar sınıf dışı etkinliklere de yer verilen program taslağında eğitim durumlarının düzenlenmesi aşamasında teknolojiden de yardım alınmakta ve multi medya destekli öğrenme ortamları sağlanmaya çalışılmaktadır. Ürüne dayalı geleneksel ölçme değerlendirme yaklaşımından daha çok hem ürünün hem de sürecin birlikte ele alınıp değerlendirildiği bir ölçme değerlendirme anlayışı taslak programda yerini almaktadır. Dönem arası-sonu yapılan acık uçlu ve çoktan seçmeli sınavların yanında öğrencilerin süreç içindeki gelişimlerinin kayıt edildiği öğrenci seçki dosyalarının da ölçme değerlendirme işlemlerinde dikkate alınmasına özen gösterilmektedir.

Güncel olayların kullanıldığı öğretim uygulamalarının amacı; öğrencileri dünyada ve kendi ülkelerinde meydana gelen fiziki yada toplumsal yönden hızlı değişimleri, gelişmeleri, takip etmeleri, bilgi sahibi olmaları hususunda farkındalık kazandırmaktır. Öğrencilerin eleştirel düşünmelerini ve bilgiyi analiz etmelerini sağlayıp, Geçmişte meydana gelen olaylarla, şimdiki olaylar arasında bağ kurmalarını sağlamaktır. Güncel Olaylar Dersi farklı çalışma alanlarının iç içe olduğunu göstermeli ve bu alanlar (dersler) arasındaki yapay bölünmelere izin vermeyecek şekilde oluşturulmalıdır.

Güncel olaylar dersi ve kazanımlarının Türkiye'de mevcut ilköğretim programında yer alan diğer derslerin içinde ele alması gerekliliği konusunda bir görüş ve bunun karşısında bu dersin mevcut programa ayrı bir ders olarak eklenmesi gerektiğini savunan bir diğer görüş mevcuttur.. İlk görüşe göre, güncel olaylar dersi farklı dersler arası bölünmelere izin vermeyecek şekilde düzenlenmeli ve ayrı bir ders olarak programa eklenmelidir. Çünkü güncel olaylar dersi sadece Sosyal Bilgilerin Fen Bilgisi ve Türkçe konu alanları ile sınırlı değildir. Güncel olaylar dersi programdaki tüm dersleri içermekte ve sözü edilen bu konu alanlarının bir kesişme noktası olarak görülmektedir. Güncel olaylar dersinde sınıf ortamına getirilen konuların ilköğretim programındaki diğer konu alanlarıyla (derslerle) yatay ilişkiler kurulmasının önemi vurgulanmaktadır. İkinci görüşe göre ise ilköğretim programında yer alan derslerin ilk 10 dakikasında, sınıf öğretmenleri tarafından ve öğrencilerle birlikte sınıf içi konuşmalar ve tartışmalar şeklinde yürütülmesi ve hali hazırdaki programdaki Sosyal Bilgiler, Türkçe ve Fen ve Teknoloji derslerinin kazanımlarına eklenmesi gerekliliğidir. Ancak belirtilen bu uygulama, uzun yıllar yapılmış ve arzu edilen başarı düzeyine ulaşılamamıştır. Amacın eleştirel düşünen, bilgiyi analiz eden, kendini, dünyayı ve bilgiyi sorgulayarak sağlıklı değerlendirmeler yapan, demokratik davranan bir birey yetiştirmek olduğu düşünüldüğünde yukarıdaki uygulamanın süre açısından yetersiz kaldığı görülmüştür.

Yapılan çalışma sonucunda; öğrencilerin güncel olaylarla ilgilenmesi, toplum hayatında önemli rol oynayan kurumları, olayları ve sorunları fark etmeleri için bu dersin, ilköğretim ikinci kademe programlarına ayrı bir ders olarak eklenmesi ihtiyacının mevcut olduğu söylenebilir.

Öneriler

Disiplinlerin kesişmesinde bir uygulama alanı olan İlköğretim Güncel Olaylar Ders Program Tasarısı'nı hazırlama sürecinde görülen eksiklikler tespit edilerek, Milli Eğitim Bakanlığı'nın program geliştirme çabalarına, öğretmenlerin eğitim ve öğretim çalışmalarına katkıda bulunacak öneriler aşağıda sunulmuştur.

1- Bireylere güncel olaylarla ilgili problemleri çözecek tartışma ortamları hazırlanmalıdır.

2- Konular, ilköğretim programıyla uyumlu olmalı, genel bir konu sınırlaması yapılmamalı, diğer ders konularıyla ilişkileri kurulmalıdır.

3- Bu dersin değerlendirmesi, öğrencinin başarılı veya başarısızlığı şeklinde değil, performansa dayalı bir değerlendirme olmalıdır.

4- Bu dersin programında, Dünya Barışı ve Güvenlik,Küresel İlişkiler,Sağlık,Sanat,Teknoloji,Toplumsal Değerler,Demokratik Yaşam gibi öğrenme alanları önerilebilinir.

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DO THE ACADEMIC ACHIEVEMENT SCORES REGRESSION OF LEVEL EXAMINATION?

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Abstract

Transition to secondary education system that is a continuation of the harmonization process which gradually changing education program since 2004 while is not a test arrangement. Transition to secondary education system is consists of Level Examination (SBS) and Year-End Achievement Points (YBP). Level Examination (SBS) is in order to determine the level of 6, 7 and 8th grade students in primay education according to their achievements education programs and a non-compulsory examination. At this important point that practice exam is consist of students' outcomes in schools. Parents and students are of great importance that students academic examination of their knowledge at the school **as** on to know how much space and to make preparations for it as well as. This study purpose to determine of grade regression SBS score related to with Science and Technology, Social Science, Foreign Language, Mathematics and Turkish academic achievement score of the final year students 7. grade at primary school. Study sampling included student who are 7. Grade of primary school. Multiple regression analysis was used for data that SBS scores and academic achievement scores of students. According to the regression analysis, high and positive correlation relation with them between academic achievment and SBS scores of students.

Key words: Multiple Regression, Academic Achievement Points, Level Examination.

Introduction

Main duty of primary education is preparing the child to life and to next institution. Specially children at primary school preparing them to life is most important. Formerly secondary education selection and installation exam (oks) be done for students who graduated from compulsory primary education pass the next institution and for test whose knowledge. The examination tested and evaluated student`s achievements in a one session test for 120 minutes.

Came to 2005-2006 education year mainly changing happen at primary education program. Modernized primary education program based the construction approach that students have knowledge doing and living. In the process students who attended education evaluate achievement based process evaluation. Not only students` knowledge specialty and social and movement specialty are taking into consideration. The Ministry of Education improved a new system for adopted to modernized primary programs main idea and abolish negative and psycho-social effects of the question student selection and installation exam (OKS). The system named transition to secondary education system that is a continuation of the harmonization process which gradually changing education program since 2004 while is not test systematization.

With this system the new primary school program applied achievement and the other hand education gave in the school become meaningly for student, teacher and parents so students can evaluate all purpose in the process.

Transition to secondary education system consists of Level Examination (SBS) and Year-end Achievements Points (YBP). System based on a profile of student who's SBS and YBP points are same or approximate. In this point if YBP points less than SBS points stand for less interest for school and things out of school consider important, but if YBP points more than SBS stand for school achievements heighten subjectively.

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Level examinations (SBS) are central system exams at level of 6, 7 and 8th grade students in primary school that make compulsory lessons in education program out of visual arts, technology and conception, music, physical education, guidance/ social activities. That exams make for determine students level by gain an education programs. Level examinations are not compulsory. But; students should take these examinations because results effect points in registration on secondary institution with central system examinations. Level examinations make one time a year and have not got an extension or dignify notes examinations like as all central system examination rationale.

The examinations are not competition exam quality they are aim to students gained how much knowledge (MEB, 2008).

Exam questions may be changeable number by degree. Questions make based that year` education program according to lessons in weekly lesson program and lessons at instructions.

Questions make based gaining and evaluating sufficiency at explaining, analyzing, thinking critically, guessing results, solving questions etc.

On counting exam results firstly candidates points will gain to level examination who the level 6, 7 and 8th grade students in primary education their answering papers read with two optic readers by twice control system. And then lessons will be level examination their true and false answers evaluated valid answers mean to uncultivated points access by one-third false answers for all tests take out from true answers. Having obstacles candidates who exempt shapely questions when their uncultivated points evaluating firstly valid answers mean to uncultivated points access by one-third false answers for all tests take out from true answers. Accessing passing uncultivated points, evaluated mainly uncultivated points by transforming total number of questions in tests. So evaluated five different uncultivated points for every candidate.

Total points of all candidates` uncultivated points divide to number of students and access average points of every test. Standard turning evaluated with access average points of tests, uncultivated points and number of students enters to tests. Candidates every one tests` standard point access with that test` average and standard turning using every candidates uncultivated points changing to 50 and standard turning to 10. Evaluated standard points for every test multiplicities with given coefficient in table so access every test's predominantly standard points. Predominantly standard points of tests adding access evaluated total predominantly standard point (ASP) change minimal 100 and maximum 500 points dispersion (MEB; 2008).

In this point applying the examination is main question that include how much knowledge be learned. Parents and students are of great important that student's academic examination of their knowledge at the school as on to know how much space and to make preparations for it as well. Consequently the question of students academic achievements determine how much SBS make research`s problem. This study purposes to determine of grade regression SBS score related to with science and technology, history of revolution and Ataturk, foreign language, mathematics and Turkish academic achievement score of the final year students 8. A prediction currency, achievement waiting will be future that used aiming predetermine selection means deliberates (Ozcelik, 1998).

For analyze academic achievement points relating science and technology, history of revolution and Ataturk, foreign language, mathematics and Turkish selected because of in SBS has got questions related with this lessons.

Nevertheless reason of selected only academic achievement scores of the final year students 8 in SBS has got predominantly 8th grade.

METHOD

Model of Research

This research has got connected quality that directed towards to determine 8th grade students in primary education their academic achievement score how much predict their SBS score.

Workgroup

Workgroup of research come into being by 119 8th grade students in a primary school in Ankara in 2009-2010 education year.

Obtaining Data

Data of research firstly gained 119 8th grade students year-end science and technology, history of revolution and Ataturk, foreign language, mathematics and Turkish academic achievement scores on e-school administration data system and then student` SBS scores gained on Ministry of Education` exam results system on web site.

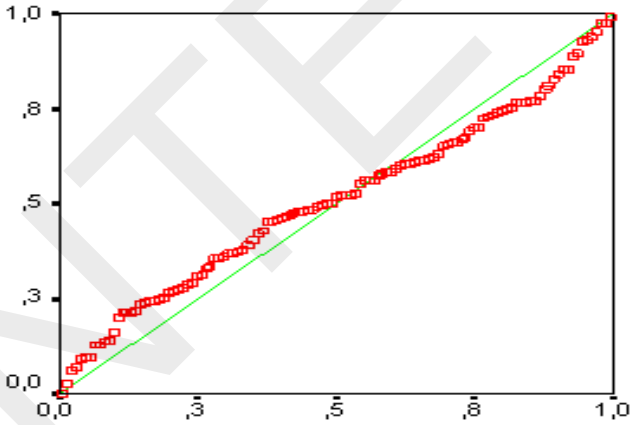
Analyses

Aim to 8th grade primary school students' year-end academic achievement scores how much predict their SBS scores made multiply regression analyze with other students who made same SBS scores their scores analyzing. Özdamar (1999) define analyze of regression, is a method directed towards to examine relation with predicted changeable and predictor changeable. Regression analyze has got 2 mainly function. The first one is guessing and the other one is helping to arbitrager for obtain politics (Orhunbilge, 1996).

Findings

First of all on hypothesis relating multiply regression analyze, predictor changeable and predicted changeable` relativities linear or not showed the graphic in below.

Graphic 1: Graphic of Academic Achievement Points with Level Examination Points Linear



When examined the graphic can said a lineral relativity with academic achievement points and SBS points. Consequently dots in an inclination of gathering around an axle.

Multiply regression analyze results relating 8th grade students level examination points prediction from academic achievement points show on Table 1.

Table 1: Multiply Regression Analyze Results Relating Level Examination Points Prediction

Changeable	B	Standard false	β	t	p	poly r	Partial r
Stable	-12,505	23,423	-	-,534	,594		
Science and technology	1,262	,380	,279	3,321	,001	,900	,298
History of revolution and Ataturk	1,504	,361	,260	4,170	,000	,870	,365
Foreign language	,056	,227	,014	,248	,805	,799	,023
Mathematics	,875	,273	,270	3,208	,002	,898	,289
Turkish	1,288	,406	,196	3,173	,002	,849	,286
R= ,947 R^2= ,898 Adjusted R^2 =,893 p= .0000 $F_{(5,113)}$=197,94							

According to table 1 firstly look into partial and poly correlation value between predictor changeable and predicted changeable a high positive relativity(r=.90) has got between academic achievement points and level examination points. But controlled the other changeable we can see correlation calculated (r=.29). Between two changeables sequently explain correlations value between the other predictor changeable with predicted changeable: the lesson history of revolution and Ataturk (r=.87) high positive correlation between academic achievement points and predictor changeable level examination but controlled the other changeable (r=.37) medium positive correlation has got between two changeables. Look into the lesson foreign language s achievement points (r=.80) high positive relation has got between predictor and predicted changeable. Controlled the other changeable (r=.02) low positive relation.

Looked at lesson mathematics (r=.90) high positive relation has got between achievement points and level exam controlled the other changeables (r=.29) medium positive relation. The lesson Turkish (r=.85) high positive relation has got between achievements points and level exam but controlled the other changeables (r=.27) medium positive relation. This results show a high qualifies relation between predicted changeable and predictor changeable. Consequently this high qualify relation is a result of show can be multiply regression analyze in the same time.

It gives high qualify and significant relation with science and technology, history of revolution and Ataturk, foreign languages, mathematics and Turkish achievement points and level examination points (R=,947 R2=,898,p<.01). Predictor changeables explain 90 % of total variance in level exam points. Nevertheless look into table 1 corrected value r2.893 produced. This value generally lower than value R^2 in regression analyzes results.

A little lower than value R2 here too. But as a result we can say predictor changeables explain 89% of total variance on predicted changeables.

Variance analyze made for testing propriety of come by regression model. Variance analyze table include below table.

Table 2: Variance Analyze Table for Regression Analyze

Variance source	Serb.Der. (sd)	Total of squares (KT)	Average of squares(KO)	F static of count	p
Regression	5	245022,659	49004,532	197,947	,000[a]
false	113	27974,684	247,564		
Total	118	272997,343			

To results of variance analyze made relating set models currency, this result show equitation is important because of $F_{(5;113)}$= 197,947>3,98

When inspected t-test results relating significant regression of coefficient saw science and technology, history of revolution and Ataturk, mathematics and Turkish achievement points significant a predictor on level exam points. When we looked at the lesson foreign languages achievement points is not significant effect on level exam points.

Regression model relating achievement points prediction their level exam points given below scheme.

SBS=-12,505+1,262science and technology+1,504history of revolution and Atatürk+0,056foreign languagel+0,875Mathematics+1,288Turkish

Discussing Contention and Comment

Aim of research determines 8th grade students' year-end achievement points how much predict their level exam points. For analyze made multiply regression analyze relating with science and technology, history of revolution and Ataturk, mathematics and Turkish achievement points with level exam points and as a result of a regression model relating this predictor changeable and predicted changeable constituted.

As came by diagnosis only foreign languages lessons achievement points have not got significant effect to predict level exam points other predictor changeables have got significant effect to predict level exam points. For analyze relating with science and technology, history of revolution and Ataturk, foreign language, mathematics and Turkish achievement points have got significant effect on level exam points attached.

In this way a high positive relation has got and clear they effective in predict this exam between students knowledges relating gained from school with level exam points. This result of research agree with results of multiply regression analyze between made in 2002 secondary institution student selection examination and students achievement points. The end of research found significant relations between some students whose first term notes and relating tests, some students second term notes and tests. (Deniz, 2003)

As a result we can say level examination is not a indifference exam from lessons already a student who study her/his lessons will be successful in this exam. In this way students should reading that evolving themselves with tests focal level exams.

They should be a person who integrates learned in school to life. We think about they need to believe that they should take seriously their school lessons if they do this when take an exam will be successful.

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DO YOUR WORDS REFLECT OR NEGLECT YOUR ACCENT?

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This paper aimed at revealing the accent preferences of ELT students in European University of Lefke, finding out the relationship between gender and accent preferences of students, and determining to what extent students are aware of the accent they use regarding their L2 vocabulary learning. The results showed that 112 students prefer using British English, while 40 students prefer using American English. Of 101 female students, 78 students stated that they prefer using BrE, whereas 23 students stated that they prefer using AmE. Of 51 male students, 34 students stated that they prefer using BrE, whereas 17 students stated that they prefer using AmE. Students who stated that they prefer using BrE used 11,25 of BrE related words correctly, while they used 3,75 of BrE related words incorrectly. Students who stated that they prefer using AmE used 6,3 of AmE related words correctly, while they used 8,7 of AmE related words incorrectly.

1. INTRODUCTION

English, a lingua franca, is spoken practically everywhere in the world with a variety of forms. The two most dominant types are British and American English. British English, also known as Commonwealth English is the form of the language spoken in the United Kingdom, Australia, Hong Kong, New Zealand and South Africa, as well as being used in organizations such as the U.N., the WTO and the E.U. American English is spoken in the United States and used in Japan, South Korea, the Philippines, and Taiwan. Although British and American English are in general, mutually understood, there are adequate word differences to potentially bring about misunderstandings in communication.

The same word expresses different meanings in British and American English. Generally speaking, there are two types. The first one is to add meanings. When Americans want to express a new thing or object, it seems to them that the most suitable method is to add a new meaning to one existing word. To illustrate, “clout” refers to power, influence or prestige, esp. in politics, “family” means one of the operational units of the Mafia, “point” indicates a charge of fee discounted by lender from a loan, by which the effective interest rate if increased. The other is to change the meaning. Many words that originate from the UK now possess a totally different meaning in the US. The following table shows the case clearly (Zhang, 2008:71):

Word	AmE	BrE
Bill	Bank note	A demand for payment of a debt
Billion	A thousand million	A million million
Guy	Fellow, any person	A ridiculous figure
Pressman	An operator of a printing office	A newspaper man
Public school	A municipal-run school	A private school

When expressing certain objects, things, or concepts, British and American English may adopt different words. The following table shows the case clearly (Zhang, 2008:72):

AmE	BrE
Bar	Public house, pub
Can (as a can of soup)	Tin
Candy	Sweets
Cookie	Sweet biscuit, small cake
Cracker	Biscuit (dry)
Long distance call	Trunk call
Railroad	Railway
Subway	Tube, underground

The reason why we have focused on word differences in American English and British English in this paper is that the teaching of word differences between American English and British English is, unfortunately, disregarded by foreign language teachers in ELT Departments in our country. Especially, in vocabulary lessons, language teachers do not provide their students with the examples of how the same word may represent different meanings or different words represent the same thing, which gives rise to students' facing with communication problems when interacting with (non)native speakers of English beyond the classroom context.

The aim of this paper is to reveal the accent preferences of ELT students in European University of Lefke, finding out the relationship between gender and accent preferences of students, and determining to what extent students are aware of the accent they use in relation to their L2 vocabulary learning.

2. METHODOLOGY

2.1. Subjects

152 students at European University of Lefke, Faculty of Arts and Science, Department of English Language Teaching participated in this study. These 152 students were selected randomly from a population of 232 students of the above mentioned department. The subjects participating in this study were students of three different classes. 90 of these students were in the 2nd year (ELT 2), 30 of the students were in the 3rd year (ELT 3), and 32 of the students were in the 4th year (ELT 4). The number of female students was higher than that of male students at each age group (See the table below).

Sex Distribution of the Subjects Surveyed				
Years	**N of Male Subjects**	**Percentage of Male Subjects**	**N of Female Subjects**	**Percentage of Female Subjects**
Year 2	34	38 %	56	62 %
Year 3	8	27 %	22	73 %
Year 4	9	28 %	23	72 %
Total	51	34 %	101	66 %

Table 1. Gender distribution of the learners surveyed

These 152 students were all beyond a certain level of proficiency – which is upper-intermediate – and 90 of them had taken and succeeded in the compulsory vocabulary course (*ELT 180 Lexical Competence*) in the 1st year program of the related department. However, they had difficulty in using American English specific words and British English specific words properly. The researcher himself observed the vocabulary

problem faced by the 2nd year and the 4th year students in relation to the use of American English or British English specific words, while lecturing them in courses like *ELT 274 Linguistics II*, *EDU 420 Teaching Practice* in the Spring Semester of 2007-2008 Academic Year.

2.2. Problem

The teaching of word differences between American English and British English is ignored in foreign language teaching by foreign language teachers. Especially, in vocabulary lessons, language teachers do not provide their students with the examples of how the same word may represent different meanings or different words represent the same thing, which gives rise to students' facing with communication problems when interacting with (non)native speakers of English beyond the classroom context.

Because non-native teachers of English are incapable of using a consistent accent in the foreign language classroom, students cannot find the chance to master a consistent accent in the target language. Living in a Turkish spoken milieu is another factor making the mastery of word differences between British English and American English difficult for Turkish learners of English.

Course books, prepared in accordance with *Common European Framework*, do not incorporate word differences between British and American English into vocabulary sections, which is a weak point in such course books in that word differences between British English and American English are concrete indicators of how colorfully people communicate in real life situations outside the classroom context by using a variety of words.

2.3. Aim of the Study

This study aims at finding answers to the following questions:

1. What are the accent preferences of ELT students in the European University of Lefke?

2. What is the relationship between gender and accent preferences of ELT students in the European University of Lefke?

3. To what extent are ELT students aware of the accent they use in relation to their L2 vocabulary learning?

2.4. Instruments

Since the aim of this research is to investigate to what extent students of ELT are aware of the accent they are using in relation to L2 vocabulary learning, the researcher designed a diagnostic test made up of 15 sentences in context to be used to elicit the vocabulary knowledge of the subjects concerning using words consistent with a specific accent, British English or American English and had a native speaker of English check the items in the test in terms of both grammaticality and acceptability. This diagnostic test was chosen as data collection instrument due to the following reasons:

- It was made up of sentences put into a real life like context.
- It included the most common word differences between British English and American English in sentences in a meaningful context.
- It fit the needs of the researcher aiming to find out whether students of ELT who took a vocabulary course were more successful than those who did not take such a course previously in using words relevant to their accent preference.
- It also gave the researcher the chance to learn students' viewpoints regarding whether it was necessary for a language teacher to know about word differences in American English and British English.

2.5. Data Collection Procedures

Upon selecting the data collection instrument, the researcher obtained the necessary permission from the head of the Department to conduct the research. After this procedure, the researcher gave the diagnostic test to the students of the 2nd, 3rd and 4th year in the Spring Semester of 2008-2009 Academic Year. In the test, the subjects were asked to choose the best word for the gaps in sentences depending on their accent preferences. The subjects handed in their papers to the researcher after they finished placing the best word into the relevant gap. Then, the scores were analyzed. The section below expounds data analysis and discusses the results in detail.

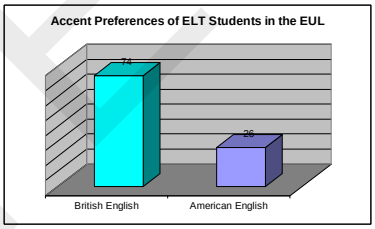
2.6. Data Analysis Procedures

After collecting the data at the beginning of the Spring Semester of 2008-2009 Academic Year, the researcher commenced with the evaluation of each paper by counting (a) words used correctly, (b) words used incorrectly and (c) words that were not used (ignored by the subjects) and for scoring purpose, he gave one point for each correct use. Incorrect use and those ignored by the subjects were not taken into consideration. As a subsequent step, the sum of correctly used words was divided into the number of subjects using the related accent (i.e British English or American English) to find out the frequency of correct use of words as the test performance of the subjects for the related accent in English. Thus, the researcher determined to what extent the subjects were aware of the accent they are using in relation to L2 vocabulary learning.

3. ANALYSIS OF THE DATA

In this section, the data collected will be presented and, at the same time, analysis of the data will be given. The researcher calculated the average correct use percentages for each accent related word in the 2nd, 3rd and 4th year (See Table 1 in Appendix). Thus, he determined problem causing accent related words for ELT students.

3.1. Accent preferences of ELT students in the European University of Lefke



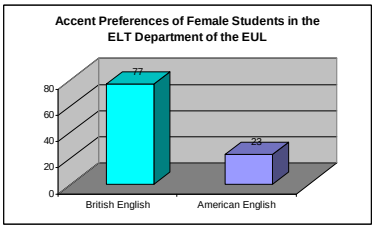
Graphic 1. Accent preferences of ELT students in the EUL

Of 152 students, 112 students (74 %) stated that they prefer using British English, while 40 students (26 %) stated that they prefer using American English. The reason why those who prefer using British English are more than the ones who prefer using American English is that most of the teachers at ELT department use British English in their lessons and students are heavily under the influence of their teachers. The following table shows the accent distribution of the subjects surveyed clearly.

Accent distribution of the subjects surveyed				
Years	**N of Subjects who prefer using BrE**	**Percentage of Subjects who prefer using BrE**	**N of Subjects who prefer using AmE**	**Percentage of Subjects who prefer using AmE**
Year 2	68	76 %	22	24 %
Year 3	21	70 %	9	30 %
Year 4	23	72 %	9	28 %
Total	112	74 %	40	26 %

Table 2. Accent distribution of the learners surveyed

3.2. Gender and accent preferences of ELT students

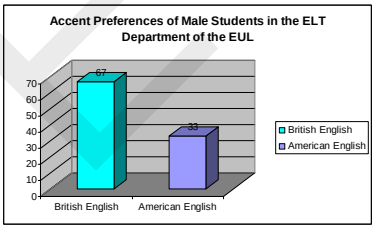


Graphic 2. Accent preferences of female students in the ELT Department of the EUL

Relevant to accent preferences of female students, the following points were striking. Of 101 female students, 78 students (77 %) stated that they prefer using British English, whereas 23 students (23 %) stated that they prefer using American English. The reason why those who prefer using British English are more than the ones who prefer using American English is that most of the teachers at ELT department use British English in their lessons and students are heavily under the influence of their teachers. The following table shows the accent distribution of the female students surveyed clearly.

Accent distribution of the female students in the ELT Department of the EUL				
Years	**N of Female Students who prefer using BrE**	**Percentage of Female Students who prefer using BrE**	**N of Female Students who prefer using AmE**	**Percentage of Female Students who prefer using AmE**
Year 2	46	82 %	10	18 %
Year 3	16	73 %	6	27 %
Year 4	16	70 %	7	30 %
Total	78	77 %	23	23 %

Table 3. Accent distribution of the female students in the ELT Department of the EUL



Graphic 3. Accent preferences of male students in the ELT Department of the EUL

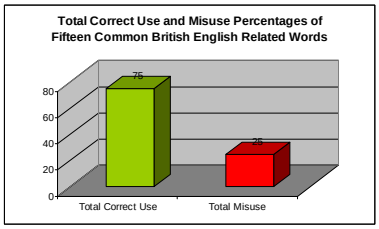
As for the accent preferences of male students, the following points were eye-catching. Of 51 male students, 34 students (67 %) stated that they prefer using British English, whereas 17 students (33 %) stated that they prefer using American English. The reason why those who prefer using British English are more than the ones who prefer using American English is that most of the teachers at ELT department use British English in their lessons and students are heavily under the influence of their teachers. The table below exhibits the accent distribution of the male students surveyed clearly.

Accent distribution of the male students in the ELT Department of the EUL				
Years	**N of Male Students who prefer using BrE**	**Percentage of Male Students who prefer using BrE**	**N of Male Students who prefer using AmE**	**Percentage of Male Students who prefer using AmE**
Year 2	22	65 %	12	35 %
Year 3	5	63 %	3	37 %
Year 4	7	78 %	2	22 %
Total	34	67 %	17	33 %

Table 4. Accent distribution of the male students in the ELT Department of the EUL

3.3. Awareness of ELT students on accent use in their L2 vocabulary learning process

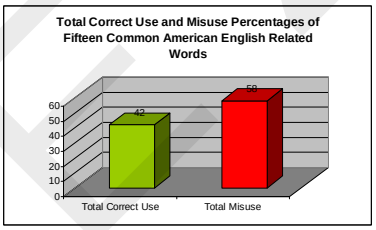
To investigate to what extent students of ELT are aware of the accent they are using in relation to L2 vocabulary learning, the researcher designed a diagnostic test made up of 15 sentences in context to be used to elicit the lexical knowledge of the subjects concerning using words consistent with a specific accent, British English or American English. Graphic 4 shows the total correct use and misuse percentages of fifteen common British English related words.



Graphic 4. Total correct use and misuse percentages of fifteen common British English related words

As seen in the graphic above, students who stated that they prefer using British English used 75 % of British English related words correctly, while they used 25 % of British English related words incorrectly. To put it differently, of 15 words put into a context, they were able to use 11.25 words correctly, whereas they could not use 3.75 words correctly in the related context. Hence, it can be inferred that students who stated that they prefer using British English are highly aware of their using a consistent accent in their L2 vocabulary learning process.

Graphic 5 exhibits the total correct use and misuse percentages of fifteen common American English related words.



Graphic 5. Total correct use and misuse percentages of fifteen common American English Related Words

As seen in the graphic above, students who stated that they prefer using American English used 42 % of American English related words correctly, while they used 58 % of American English related words incorrectly. To put it differently, of 15 words put into a context, they were able to use 6.3 words correctly, whereas they could not use 8.7 words correctly in the related context. Hence, it can be inferred that students who stated that they prefer using American English use a mixed accent rather than a consistent accent in their L2 vocabulary learning process.

4. CONCLUSION

Although there are many differences between British English and American English in relation to vocabulary, these two varieties are similar to each other in many ways. Hence, they should merely be viewed as the richness of the same language rather than two dissimilar languages. Further, we cannot state British English is superior to American English or vice versa. However, what is important is to raise students' awareness as to the differences between American English and British English and stimulate students to use target language words consistent with the variety they prefer using.

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DOKTOR VE HEMŞİRELERİN TÜKENMİŞLİK DÜZEYLERİNİN BAZI DEĞİŞKENLER AÇISINDAN İNCELENMESİ (KKTC ÖRNEKLEMİ)

THE RESEARCH ON THE EXHAUSTION LEVEL OF DOCTORS AND NURSES REGARDING SOME VARIABLES (A SAMPLE FROM TRNC)

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Özet

Araştırmanın amacı, hastahanelerde çalışan doktor ve hemşirelerin tükenmişlik düzeylerinin sosyo-demografik özellikleri açısından incelenmesidir. Çalışma evreni, Kuzey Kıbrıs Türk Cumhuriyeti özel ve devlet hastahaneleridir. Seçkisiz örnekleme yöntemi ile seçilen 269 [%2 (n=5) Öğretim üyesi Dr, %23 (n=64) Uzman Dr, %3 (n=6) Asistan Dr, %7 (n=20) Pratisyen Dr ve %65 (n=174) Hemşire] çalışma örneklemi olarak araştırmaya dahil edilmiştir. Veri toplama aracı olarak Maslach ve Jackson (1986) tarafından geliştirilen ve Ergin (1992) tarafından Türkçe'ye uyarlanan, Cronbach alpha güvenirlik katsayısı 0,71 ile 0,90 arasında değişen "Maslach Tükenmişlik Ölçeği" kullanılmıştır.Verilerin analizinde SPSS (Statistical Package for the Social Science)11.0 paket programı kullanılmıştır. Veriler için aritmetik ortalama, Pearson momentler çarpımı, t-testi ve tek yönlü varyans analizi (ANOVA) uygulanmıştır. Bu araştırmanın anlamlılık düzeyi 0,05 olarak alınmıştır. Araştırma sonucunda doktor ve hemşirelerin tükenmişlik düzeyleri arasında anlamlı ilişkiler bulunmuştur. Tükenmişlik düzeylerinin cinsiyete, yaşa, eğitim düzeyine, göre anlamlı olarak farklılaştığı saptanmıştır.

Anahtar Kelime: Duyarsızlaşma, duygusal tükenmişlik, kişisel başarı.

Abstract

The aim of the research is to investigate the level of Exhaustion based on their socio-demographic characteristics. The area of study is the Turkish Republic of Northern Cyprus private and state hospitals. 269[%2(n=5) faculty staff Dr, %23 (n=64) Specialist Dr, %3(n=6) Assistant Dr, %7(n=20)] chosen with the anthology method and added to the research as study exemplories.To gather data the "Maslach Exhaustion Measure" of the cronbach alpha reassurance coefficients 0.71 and 0.90. This method was developed by Maslach ad Jackson (1986) and adapted to Turkish by Ergin(1992).SPSS (Statistical Package for the social science) 11.0 packet program was used for the research. For the arithmetic average, Pearson moments product, t-test and ANOVA was applied. The significant average level of the research was recorded as 0,05.The result of the research shows meaningful relations in exhaustion levels of doctors and Nurses. Level of Exhaustion varies depending on sex, age, education level.

Key word: Incentive, emotional exhaustion, personal accomplishment.

GİRİŞ

İlk olarak Freudenberger (1974) tarafından, gönüllü sağlık personelinde görülen "Enerji, güç veya kaynaklar üzerindeki aşırı taleplerden dolayı başarısız olmak, yıpranmak ve yorulup tükenmeye başlamak" şeklinde ortaya atılan tükenmişlik kavramı insanlarla birebir ilişki kurmayı gerektiren mesleklerde daha sık karşılaşılan bir olgudur. Maslach ve Jackson (1981) tükenmişliği, duygusal tükenme, duyarsızlaşma ve kişisel başarı eksikliği olarak belirtmişlerdir. Cinsiyet farklılıklarının tükenmişliğe nasıl sebep olduklarını ortaya çıkarmak için insan hizmetleri servislerinde çalışan çok sayıda kişi üzerinde de bir araştırma yapmıştır. İnceleme sonucunda kadınların erkeklere göre daha fazla duygusal bezginlik yaşadıklarını ortaya çıkarmıştır.

Bilici M., Mete F., Soylu C., Bekaroğlu M.(1998) tarafından, duygusal tükenmişliği en çok bekarların yaşadığı, bunu boşanmış olanların izlediği ve evlilerin ise bu duyguyu daha az yaşadıkları

saptanmıştır. Maslach C., Leiter M.P (1997)'ye göre yaş ve tükenmişlik arasında açık bir ilişki vardır. Tükenmişlik, yaşlı iş görenlerde düşük, genç iş görenlerde ise yüksektir.Bilici ve arkadaşlarının (1998), Demir ve arkadaşlarının (2003) yaptıkları araştırmalarda yetersiz aylık gelirin duygusal tükenme ve kişisel başarı puanlarını düşürdüğü; mesleki statü ve yöneticilerin destek olmama durumları tükenmeyi önemli düzeyde artırdığı ve servis hemşirelerine göre yönetici hemşirelerin iş doyumu düzeyinin daha yüksek olduğu saptanmıştır.Gündüz ve arkadaşları (2003), araştırmasında eğitim düzeyinin tükenmişliğe etkisinin olmadığını bulmuşlardır.

Bu araştırma sonucu elde edilecek verilerle olası çözüm önerileri tartışılarak konu ile ilgili çalışma yapan sağlık bakanlığı müffettişlerine, hastahane yöneticilerine ve milli eğitim bakanlığına bağlı hemşirelik okulu eğitmenlerine katkı sağlanacağı düşünülmektedir. Bu araştırmanın amacı, doktor ve hemşirelerin tükenmişlik düzeylerinin belirlenmesi ve sosoyo-demografik özellikleri açısından incelenmesidir.

Problem Cümlesi

"Doktor ve hemşirelerin tükenmişlik düzeyleri sosyo-demografik özelliklerine göre farklılaşmakta mıdır?" Şeklinde ifade edilmiştir.

Alt Problemler

1. Maslach tükenmişlik ölçeğinin alt boyutları arasında anlamlı ilişkiler var mıdır?
2. Doktor ve hemşirelerin tükenmişlik düzeyleri;a) Cinsiyet değişkenlerine göre farklılaşmakta mıdır? b)Yaşa göre göre farklılaşmakta mıdır? c)Eğitim durumu değişkenlerine göre farklılaşmakta mıdır ?

YÖNTEM

Araştırma Modeli*:* Bu araştırma tarama modelinde gerçekleştirilmiştir. Tarama modelleri, geçmişten ya da şu anda halen mevcut olan bir durumu var olduğu şekliyle betimlemeyi amaçlayan araştırma yaklaşımlarıdır. Araştırmaya konu olan durum, olay, birey ya da nesne, kendi koşulları içerisinde ve olduğu gibi tanımlanmaya çalışılır (Karasar 2006).

Evren ve Örneklem: Lefkoşa bölgesindeki devlet ve özel hastanelerde çalışan doktor ve hemşireler çalışma evrenimizi oluşturmaktadır. Seçkisiz örnekleme yöntemi ile belirlenen toplam 269 kişi [%2 (n=5) Öğretim üyesi Dr, %23 (n=64) Uzman Dr, %3 (n=6) Asistan Dr, %7 (n=20) Pratisyen Dr ve %65 (n=174) Hemşire] örneklemi oluşturmaktadır.

Verilerin Toplanması: Araştırmada kullanılan" Maslach Tükenmişlik Ölçeği" ve "Kişisel Bilgi Formu" uygulaması Mart- Nisan 2010 ayları içerisinde gerçekleştirilmiştir.

Verilerin İstatistiksel Analizi: Verilerin analizinde SPSS (Statistical Package for the Social Science)11.0 paket programı kullanılmıştır. Veriler için Pearson momentler çarpımı, aritmetik ortalama, tek yönlü varyans analizi (ANOVA) ve t-testi uygulanmıştır. Bu araştırmada anlamlılık düzeyi 0.05 olarak alınmıştır.

Veri Toplama Araçları : Veri toplama aracı olarak Maslach ve Jackson (1986) tarafından geliştirilen ve Ergin (1992) tarafından Türkçe'ye uyarlanan, Cronbach alpha güvenirlik katsayısı 0.71 ile 0.90 arasında değişen "Maslach Tükenmişlik ölçeği" kullanılmıştır. Ölçek dokuz maddeden oluşan "Duygusal Tükenme", beş maddeden oluşan "Duyarsızlaşma" ve sekiz maddeden oluşan "Kişisel Başarı" olmak üzere üç alt ölçeği bulunmaktadır. Tükenmişlik tek bir puan ile ifade edilmemekte alt ölçeklerden alınan puanlar ayrı ayrı değerlendirilmektedir

BULGULAR

Bu bölümde, araştırmanın problemlerinin test edilmesi için yapılan istatistiksel analizler sonucunda elde edilen bulgular sunulmuştur.

Araştırmanın birinci alt problemi "Maslach Tükenmişlik ölçeğinin alt boyutları arasında anlamlı ilişkiler var mıdır?" biçiminde ifade edilmiştir.

Tablo 1'deki Pearson korelasyon analiz sonuçlarına göre "Duygusal tükenmişlik" ile "Duyarsızlaşma" arasında pozitif yönde orta düzeyde anlamlı ilişki bulunmuştur ($r=0,551$ $p<0,01$). "Duygusal tükenme" ile "Kişisel başarı" arasında negatif yönde orta düzeyde anlamlı ilişki

bulunmuştur(r=-0,412 p<0,01). “Duyarsızlaşma” ile” Kişisel başarı” arasında negatif yönde orta düzeyde anlamlı ilişki bulunmuştur(r=-0,443 p<0,01).

Tablo 1. Maslach Tükenmişlik Ölçeğinin Alt Boyutları Arasındaki İlişki

Alt Ölçekler	**Duygusal Tükenme**	**Duyarsızlaşma**	**Kişisel Başarı**
Duygusal Tükenme	1	0,551**	-0,412**
Duyarsızlaşma	0,551**	1	-0,443**
Kişisel Başarı	-0,412**	-0,443**	1

n = 269 **p<0,01

Araştırmanın ikinci alt problemi “Doktor ve hemşirelerin tükenmişlik alt düzeyleri, sosyo-demografik özelliklerine göre farklılaşmakta mıdır?” Biçiminde ifade edilmiştir.

Duygusal Tükenmişlik-Cinsiyet : Tablo 2’te Duygusal tükenmişlik alt ölçeğinin cinsiyete göre t–testi sonucu verilmiştir. Bulgulara göre kadınların tükenmişlik düzeyleri (X=2.66), erkeklere göre (X=2,121) daha yüksek bulunmuştur. Duyarsızlaşma ve kişisel başarı alt ölçekleri ile cinsiyet ortalamaları arasında istatistiksel anlamda fark bulunamamıştır.

Tablo 2. Duygusal Tükenmişlik Ölçeği Puanlarının Cinsiyete Göre t-Testi Sonucu

Cinsiyet	n	X	S	sd	t	p
Erkek	89	2,121	0,738	267	2,683	0,008**
Kadın	180	2,366	0,687			

n=269 **p<0,01

Duygusal Tükenmişlik Alt Ölçeği–Yaş: Araştırmaya katılan örneklemin “Yaş” durumu değişkenine göre duygusal tükenmişlik alt boyutlarına ilişkin puan ortalamalarının farklılaşıp farklılaşmadığını belirlemek için tablo 3’te sonuçları verilen “One–Way ANOVA” testi uygulanmıştır. Test sonucuna göre örneklemin “yaş” değişkenine göre duygusal tükenme alt boyutunda grupların puan ortalaması arasında anlamlı fark bulunmuştur (F=4,275 p<0,01). Duygusal tükenmişliğin hangi yaş gurupları arasında farklılaştığı Scheffe testi ile belirlenmiştir. Buna göre “25-34” yaş grubu ($\overline{x}$=2,413 ss=0,615) ile “45-54” ($\overline{x}$=1,979 ss=0,576) yaş grubu puan ortalamaları arasında anlamlı fark vardır (p=0,011). Ayrıca “35-44” yaş grubu ($\overline{x}$=2,362 ss=0,853) ile “45-54” yaş grubu ($\overline{x}$=1,979 ss=0,576) puan ortalamaları arasında da anlamlı farklılaşma vardır (p=0,040). Diğer yaş grupları arasında anlamlı fark bulunamamıştır.

Tablo 3. Duygusal Tükenmişlik Ölçeği Puanlarının Yaşa Göre ANOVA Sonuçları

Varyans Kaynağı	KT	sd	KO	F	p	Fark
Gruplararası	8,281	4	2,070	4,275	0,002**	(25-34)-(45-54)
Gruplariçi	127,844	264	0,484			(35-44)-(45-54)
Toplam	136,125	268				

n=269 **p<0,01

Duyarsızlaşma Ölçeği-Yaş: Araştırmaya katılan örneklemin “Yaş” durumu değişkenine göre duyarsızlaşma alt boyutuna ilişkin puan ortalamalarının farklılaşıp farklılaşmadığını belirlemek için tablo 4’de sonuçları verilen “One–Way ANOVA” testi uygulanmıştır. Test sonucuna göre örneklemin “yaş” değişkenine göre duyarsızlaşma alt boyutunda grupların puan ortalaması arasında anlamlı fark bulunmuştur (F=3,404 p<0,05). Duyarsızlaşmanın hangi yaş gurupları arasında farklılaştığı LSD testi ile belirlenmiştir. Buna göre “25 ve altı” yaş grubu ($\overline{x}$=1,891 ss=0,685) ile “45-54” ($\overline{x}$=1,445 ss=0,578) yaş grubu puan ortalamaları arasında anlamlı fark vardır (p=0,011). Yaş grubu “25-34” ($\overline{x}$=1,810 ss=0,634) ile yaş grubu “45-54” ($\overline{x}$=1,445 ss=0,578) olanların puan ortalamaları arasında anlamlı farklılaşma vardır (p=0,003). Ayrıca yaş grubu “35-44” ($\overline{x}$=1,854 ss=0,833) ile yaş grubu “45-54” ($\overline{x}$=1,445 ss=0,578) olanların puan ortalamaları arasında da anlamlı farklılaşma vardır (p=0,002). “55 ve üzeri” yaş grubu puan ortalamaları arasında anlamlı farklılaşma bulunamamıştır.

Tablo 4. Duygusal Tükenmişlik Ölçek Puanlarının Yaşa Göre ANOVA Sonuçları

Varyans Kaynağı	KT	s d	KO	F	p	Fark
Gruplararası	6,776	4	1,694	3,404	0,010*	(25 altı)-(45-54)
Gruplariçi	131,397	264	1,694			(25-34)-(45-54)
Toplam	138,174	268				(35-44)-(45-54)

n=269 *p<0,05

Kişisel Başarı Ölçeği-Yaş: Araştırmaya katılan örneklemin "Yaş" durumu değişkenine göre kişisel başarı alt boyutuna ilişkin puan ortalamalarının farklılaşıp farklılaşmadığını belirlemek için tablo 5'te sonuçları verilen "One–Way ANOVA" testi uygulanmıştır. Test sonucuna göre örneklemin "yaş" değişkenine göre kişisel başarı alt boyutunda grupların puan ortalaması arasında anlamlı fark bulunmuştur (F=6,535 p<0,01). Kişisel başarının hangi yaş gurupları arasında farklılaştığı LSD testi ile belirlenmiştir. Buna göre "25 ve altı" yaş grubu ($\bar{x}$=3,773 ss=,7392) ile "45-54" ($\bar{x}$=4,113 ss=,4334) yaş grubu puan ortalamaları arasında anlamlı fark vardır (p=0,018). Yaş grubu "25-34" ($\bar{x}$=3,647 ss=0,643) ile yaş grubu "45-54" ($\bar{x}$=4,113 ss=0,433) olanların puan ortalamaları arasında anlamlı farklılaşma vardır (p=0,000). Ayrıca yaş grubu "35-44" ($\bar{x}$=3,955 ss=0,514) ile yaş grubu "25-34" ($\bar{x}$=3,647 ss=,6438) olanların puan ortalamaları arasında da anlamlı farklılaşma vardır (p=0,000).

Tablo 5. Kişisel Başarı Ölçek Puanlarının Yaşa Göre ANOVA Sonuçları

Varyans Kaynağı	KT	Sd	KO	F	p	Fark
Gruplararası	8,827	4	2,207	6,535	0,000**	(25 altı)-(45-54)
Gruplariçi	89,149	264	,338			(25-34)-(45-54)
Toplam	97,976	268				(35-44)-(45-54)

n=269 **p<0,01

Duygusal Tükenmişlik-Eğitim: Araştırmaya katılan örneklemin "eğitim" durumu değişkenine göre duygusal tükenmişlik alt boyutuna ilişkin puan ortalamalarının farklılaşıp farklılaşmadığını belirlemek için tablo 6'da sonuçları verilen "One–Way ANOVA" testi uygulanmıştır. Test sonucuna göre örneklemin "eğitim" değişkenine göre duygusal tükenmişlik alt boyutunda grupların puan ortalaması arasında anlamlı fark bulunmuştur (F= 11,746 p<0,01). Duygusal tükenmişliğin hangi eğitim gurupları arasında farklılaştığı "Tukey" testi ile belirlenmiştir. Buna göre "lise" ($\bar{x}$=2,258 ss=0,787) mezunları ile "lisansüstü" ($\bar{x}$=1,888 ss=0,552) mezunları puan ortalamaları arasında anlamlı fark vardır (p=0,029). "Yüksekokul" mezunları ($\bar{x}$=2,558 ss=0,642) ile "lisansüstü" ($\bar{x}$=1,888 ss=0,552) mezunları puan ortalamaları arasında anlamlı farklılaşma vardır (p=0,000). "Üniversite" ($\bar{x}$=2,360 ss=0,715) mezunları ile "lisansüstü" ($\bar{x}$=1,888 ss=0,552) mezunları puan ortalamaları arasında da anlamlı farklılaşma vardır (p=0,000).

Tablo 6. Duygusal Tükenmişlik Ölçek Puanlarının Eğitime Göre ANOVA Sonuçları

Varyans Kaynağı	KT	Sd	KO	F	p	Fark
Gruplararası	15,977	3	5,326	11,746	0,000**	Lise-Lisansüstü
Gruplariçi	120,148	265	0,453			Y.okul-L.üstü
Toplam	136,125	268				Üniversite-L.üstü

n=269 **p<0,01

Duyarsızlaşma-Eğitim: Araştırmaya katılan örneklemin "eğitim" durumu değişkenine göre duyarsızlaşma alt boyutuna ilişkin puan ortalamalarının farklılaşıp farklılaşmadığını belirlemek için tablo 7'te sonuçları verilen "One–Way ANOVA" testi uygulanmıştır. Test sonucuna göre örneklemin "eğitim" değişkenine göre duyarsızlaşma alt boyutunda grupların puan ortalaması arasında anlamlı fark bulunmuştur (F=5,57 p<0,01). Duyarsızlaşmanın hangi eğitim gurupları arasında farklılaştığı "LCD" testi ile belirlenmiştir. Buna göre "lise" ($\bar{x}$=1,823 ss=,7318) mezunları ile "lisansüstü" ($\bar{x}$=1,475 ss=0,566)

mezunları puan ortalamaları arasında anlamlı fark vardır (p=0,012). "Yüksekokul" mezunları ($\overline{x}$=1,958 ss=0,737) ile "lisansüstü" ($\overline{x}$=1,475 ss=0,566) mezunları puan ortalamaları arasında anlamlı farklılaşma vardır (p=0,000). "Üniversite" ($\overline{x}$=1,768 ss=,7392) mezunları ile "lisansüstü" ($\overline{x}$=1,475 ss=0,566) mezunları puan ortalamaları arasında da anlamlı farklılaşma vardır (p=0,011).

Tablo 7. Duyarsızlaşma Ölçek Puanlarının Eğitime Göre ANOVA Sonuçları

Varyans Kaynağı	**KT**	**Sd**	**KO**	**F**	**p**	**Fark**
Gruplararası	8,209	3	2,736	5,57	0,001**	Lise-L.üstü
Gruplariçi	129,965	265	0,490			Y.okul-L.üstü
Toplam	138,174	268				Üniversite-L.üstü

n=269 **p<0,01

Kişiselbaşarı –Eğitim: Araştırmaya katılan örneklemin "eğitim" durumu değişkenine göre kişisel başarı alt boyutuna ilişkin puan ortalamalarının farklılaşıp farklılaşmadığını belirlemek için tablo 8'de sonuçları verilen "One–Way ANOVA" testi uygulanmıştır. Test sonucuna göre örneklemin "eğitim" değişkenine göre kişisel başarı alt boyutunda grupların puan ortalaması arasında anlamlı fark bulunmuştur (F=8,02 p<0,01). Başka bir deyişle personelin kişisel başarısı eğitime bağlı olarak anlamlı bir şekilde değişmektedir. Kişisel başarının hangi eğitim gurupları arasında farklılaştığı "LCD" testi ile belirlenmiştir. Buna göre "lise" ($\overline{x}$=3,843 ss=0,810) mezunları ile "lisansüstü" ($\overline{x}$=4,133 ss=0,460) mezunları puan ortalamaları arasında anlamlı fark vardır (p=0,012). "Yüksekokul" mezunları ($\overline{x}$=3,644 ss=0,6027) ile "lisansüstü" ($\overline{x}$=4,133 ss= 0,460) mezunları puan ortalamaları arasında anlamlı farklılaşma vardır (p=0,000). "Üniversite" ($\overline{x}$=3,847 ss=0,508) mezunları ile "lisansüstü" ($\overline{x}$=4,133 ss=0,460) mezunları puan ortalamaları arasında da anlamlı farklılaşma vardır (p=0,003).

Tablo 8. Duyarsızlaşma Ölçek Puanlarının Eğitime Göre ANOVA Sonuçları

Varyans Kaynağı	KT	sd	KO	F	p	Fark
Gruplararası	8,209	3	2,736	5,57	0,001**	Lise-L.üstü
Gruplariçi	129,965	265	,490			Y.okul-L.üstü
Toplam	138,174	268				Üniversite-L.üstü

n=269 **p<0,01

SONUÇ VE ÖNERİLER

Araştırma sonucunda, doktor ve hemşirelerin tükenmişlik alt düzeylerinin eğitim, yaş ve cinsiyet bağımsız değişkenlerinden anlamlı olarak etkilendiği, kişisel başarı ve duyarsızlaşma düzeylerinin cinsiyet değişkenine göre anlamlı olarak farklılaşmadığı saptanmıştır. Gündüz ve arkadaşları (2003) tarafından, yapılan araştırmalara göre eğitim düzeyinin tükenmişlik düzeyine etki etmediği bulunmuştur. Bu araştırmalar eldeki araştırma sonucuyla tutarlı değildir. Bilici M., Mete F., Soylu C., Bekaroğlu M.(1998) ve Maslach C., Leiter M.P (1997)'nun yapmış olduğu araştırma sonucunda, tükenmişlik düzeylerinin eğitim değişkeninden etkilendiği, yani anlamlı olarak farklılaştığı sonucuna ulaşılmıştır. Bu sonuç, eldeki araştırma sonucuyla birbirine paralel ve birbirini destekler niteliktedir. Araştırma sonuçları doğrultusunda şu önerilerde bulunulmuştur.1.Fiziki koşullar iyleştirilerek, gerekli dinlenme yerleri düzenlenebilir.2.Döner sermaye sistemi kurularak personelin verimine göre pirim verilebilir.3.Hemşirelerin tükenmişlik düzeyleri, iş yükünü azaltıcı tedbirlerle azaltılabilir.4.Hastahane psikoloğunun da katılımıyla aylık toplantılar yapılarak çalışanların sürekli eğitim ihtiyaçları tespit edilebilir.4.Acil servis ünitelerinde hemşire sayısı artırılarak iş yükü azaltılabilir. 5.Organizasyon şemalarında görev, yetki ve sorumluluklar net olarak belirlenerek iş akışı kolaylaştırılabilir.

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EDUCATION IN MULTICULTURAL CONTEXT AND THE GLOBALIZATION CHALLENGE

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ABSTRACT

The expansion of school education, within the perspective of modern ideals, undertook as a main requirement the equality of pupils in school. In this context, the organization of the curricula was settled according to the principles of uniformity. Taking into account the differential effects of that uniformity, the acknowledgement of the diversity was pointed out by means of a handicap. That also happened with the different models and programs of compensatory education that were projected within the classic uniformed patterns, still granting differential methodologies. Later on, the recognition of the right otherness encouraged a new political and educational discussion about multicultural challenge in school. This discussion has a special importance in societies with different cultures and different ethnic groups that are becoming more and more diversified, as it is the case of many countries in Europe. At the same time, our societies have been suffering the impact of economical and cultural globalization, in the last decades. Globalization has been affecting, in a rather expressive manner, the education and formation processes. It has been inducing a greater convergence in the organizational systems and in the curricula contents. In this new historical context, in which the transcultural economic production has a tendency to make symbols and representations in an uniform way, the following question can be presented: Which meaning can be put down to multicultural education? How to include otherness in the cohabitation of these new communication technologies which tend to abolish the geocultural diversity?

1. Modernity and education: From the uniformity paradigm to multicultural policies

Modernity carried out the construction of national education systems and, in turn, schools were the major instrument of construction and consolidation of nations as we know them. The inculcation of nationalism has become, therefore, a school function, but it also encouraged a pedagogy tending to homogenization. The flag of equality, flown by the French Revolution, served simultaneously to achieve the democratic ideals and the expansion of schooling, which materialized through the geographical spread of schools and the social expansion of school attendance. However, this ideal of equality also consolidated policies of curricula uniformity, i.e., it evolved progressively from "education for all" to "the same kind of education for all." The principle of equality eventually gave rise to the unification of school routes, and we reached, by the equalization of the knowledge that should be transmitted, to a unified curriculum, seen as a natural consequence of the unification of school resources. The uniform curriculum became thus a realization of the ideal of equality in education.

The ideal of equality was, of course, also applied to the pedagogical field. Its expression in the classroom came to take the form of the uniform pedagogy, which imposed the idea of treating all students the same way, to teach each and every one as if they were one, i.e., independently of their origin, group membership or condition. However, the evolution of psychology would eventually bring the scientific recognition of individual differences and hence reasons for a child-centered pedagogy. This shift was a true revolution that has resulted in several movements, like, for instance, the New Education movement or the Active School movement. But, while this pedagogy has been adopted by most reputable teachers and taught at various institutions, it was never valued by the democratization policies of education and it was never a major trend of school practices. Actually, quite simply happened that the egalitarian ideology - reflected in the maximum access for the same type of education - eventually stifle the tendency to value differences and the individualization of education. The purpose of giving everyone the same education, which translates into treating everyone the same way in the classroom led to the disregard of differences due to gender, class, culture of origin, family education, and, unfortunately, also to the disregard of needs, interests and motivations. In short, to the neglecting of individual differences and, what's worse, to their disqualification.

We can see here the unfolding of a very much typical education antinomy (Cabanas, 2002): on the one hand, we have the appreciated orientation to school democratization, which led to overcrowding and increased bureaucracy; on the other hand, we have the development of pedagogy towards individualization. However, mass school was developed at the expense of school's bureaucratization, that envisaged justice in terms of impersonal treatment and that countered, by its intrinsic dynamics, the pedagogical value of individuality. Indeed, bureaucratization was inherent to massification, which derived from education democratization, which brought about the extraordinary expansion of compulsory schooling. The institutional evolution of the school, within similar parameters, could only lead in a uniform and standardized structure, while the development of pedagogical ideas was operating in the opposite direction: the focus on children interests and needs, a tendency that claims both, a flexible pedagogy, capable of considering the child's response to define the conduct of teaching and learning, as a diversified pedagogy, able to guide adaptation to different types of students. It were the difficulties and tensions generated by this contradiction that created the feeling of "malaise dans l'École" and even the sense of a structural crisis, which affects the direct agents - parents, students and teachers – and involves society as a whole (Formosinho, 1987).

The process of expansion of school education was accelerated after the last World War, as democratization and industrialization requested it. At this point, the concept of equal access opportunities to schooling led to the development of policies of compensatory education regarding cultural disadvantages. But even having been channeled substantial financial and human resources for the benefit of disadvantaged groups and minorities, they didn't produce a clear equal academic success. Research held in the 60s and 70s, from both sides of the Atlantic, demonstrated beyond doubt a strong relationship between school failure, social class and the belonging to an ethnic minority (Bourdieu & Passeron, 1970). Hence the concept of equality has been redefined, in a way that requires equal educational opportunities for success in school, which raised political and educational measures that exceed the *incrementalism* of the past policies, whose benefits accrue mainly to the students of the upper social classes, whose children hold a more consonant familiar education, when compared to the values and style of school learning. It was this new agenda that motivated the markedly multicultural school policies.

2. Multiculturalism: difference and identity

The concept of multiculturalism is not easily defined, nor is it of little dispute. Perhaps the most fundamental way to address it is to start by recognizing, as did Burity (2001), that multiculturalism involves how to deal with the difference in our societies. However, dealing with difference is to deal with identity, or, if you will, with the identities that express it. Turns out their own identities in themselves, are commonly complex, i.e., consist of a dynamic and unique combination of differences, based on multiple affiliations, which, at the individual, result from the very process of personal development and, in social terms, from complex historical processes (Maalouf, 2000). Neither societies nor individuals can truly be understood as something that precludes the combination of differences and yet, the ones and others live, too often, an antagonistic relationship with the difference, whether it is inside or outside of themselves.

The first step in dealing with differences is to assume that it exists and in this sense, multiculturalism would be the concept that describes the existence of different cultures, for example, within a country or a more limited context as a city, but in which there may be some geographical and convivial separation. There may be, or not, a predominance of one cultural form, so that in the first case multiculturalism will remain a mere aspiration and the second will have what is conventionally called a "cultural mosaic" in which the desirable would be the existence of a effective coexistence of cultures in presence. That if we assume that the wealth of humanity is in its diversity and therefore the integration of the difference can enrich us.

As opposed to multiculturalism we point monoculturalism, which, in terms of mere agriculture, refers to the cultivation of a single plant and, in cultural terms, represents a homogeneous culture without diversity or dissension within. Something that seems to be, in itself, impossible to give up and even unnatural. But monoculturalism can be recognized as a trend, inextricably linked to nationalism, for the assimilation of difference. In some countries this is a trend, always latent, to assimilate immigrants, i.e., their differences and their cultures. A phenomenon intensely felt as a kind of dispossession and alienation. For some cultures monoculturalism represents the action and propensity to export themselves and impose on others, while refuse the acceptance of cultural differences, or at least resist the integration of these differences. This phenomenon can be qualified as ethnocentricity: a certain world and life view that is taken as more important than others and, what is worse, with the right to exterminate them.

Globalization is, in this area, a huge challenge, because, too often, ethnocentrism is presented as something quiet that develops through insidiously invasive means: certain TV programs, fashion, the

spread of certain business forms, etc. A multicultural policy will be targeted, of course, to promote respect for cultural difference, coexistence between cultures and the protection of minorities. But it also would seek to promote resistance to cultural homogenization, to the extent that it may represent the tendency of a culture to take over as the only legitimate, wanting to submit other cultures, disqualifying them and creating dependencies for them.

Multiculturalism involves, therefore, of itself, the idea of transition from a homogeneous culture for a host of diverse cultures, taking the naturalness of the conflict inherent in this diversity. According to Maalouf (2000), the list of factors that constitute an identity, a list of affiliations, is virtually infinite, but can be singled out: nationality, language, religious tradition, occupation, social environment, education, beliefs, conventions... It is inevitable that some hierarchy comes to arise between these elements, it is not, however, immutable, it changes with time and this change involves fundamental changes in behavior. And if there are many factors of distance and traditional dispute between different groups, from different nationality, different ethnicity and different sexual orientation, religion is perhaps one of the factors of greater societal cleavage, with implications for the school experience. Do not forget that, as recently in France, was widely discussed the admission of religious symbols in schools, considering that the use of certain items of clothing, with distinctly religious nature, aggravates disputes and racial segregation rather than contributes to the claim of minority groups identity.

Apart from religious affiliation, perhaps only the language we learn, naturally, to talk can be regarded as a more influential element in defining the identity of a human being. As Maalouf noted: "while it would not be difficult to prove that a man can live without a religion, clearly he cannot live without a language" (2000, 109). Moreover, while religion tends toward exclusivity, language does not, besides, once language has the characteristic of being simultaneously an element of identity and a means of communication, it is not possible nor desirable to separate it from whatever identity we can think of. Hence, for our author, "Language is bound to remain the mainspring of cultural identity, and linguistic diversity the mainspring of all other diversities" (Maalouf 2000, 109).

Multiculturalism is a concept associated with complex and controversial issues relating to differences in various schemes involving minorities, the marginalized and the oppressed, to those that exist in the margins of power and imposed canons. The most violent response to difference lies in the attempt to its segregation or annihilation, the most positive lies in its recognition and appreciation, looking to its integration and / or inclusion. Social inclusion seeks to offer opportunities to those in need of access to goods and services, and combat all forms of difference based exclusion, whether it derives from class, geography, education, sex, race or any given difference. The social inclusion paradigm led to a series of policies aimed at getting society to modify its facilities and services in order to accommodate each person needs. Its aim is to convert societies in suitable contexts for coexistence among all, given them opportunities to achieve realization of their rights, needs and potential. This means that persons are not stigmatized by their differences and that we try to recognize all people potential. For its part, educational inclusion relates to the restructuring process of culture, policies and practices experienced in schools, in order to respond to students diversity. This does not mean we could rely on simple integration, which looks for people adaptation to established environments; on the contrary it aims to change school and pedagogy, so they can embrace personal differences, promoting the achievement of all. Inclusive education requires, therefore, significant changes in the structure and functioning of schools that are accompanied by a transformation of practices in order to achieve the development of a multifaceted, dynamic and flexible pedagogy. In this case, even special needs of persons with disabilities would be met within mainstream schools. The truth is that our societies are heterogeneous and composed of different groups with conflicting interests and therefore we are obliged to meet and live together. Our schools express, inevitably, this reality and should develop suitable answers to deal with those problems brought up by heterogeneity (Praxedes, 2004).

If we already attempted to present some clarification regarding the meaning of multiculturalism, it is also certain that, as we said, multiculturalism is a controversial concept. Today we can identify at least six conceptions of multiculturalism (Hall, 2003): 1. Conservative multiculturalism: when the dominant majority seek to assimilate minorities to their traditions and customs; 2. liberal multiculturalism: when majorities look to integrate minorities as equals and citizenship is considered universal, but specific cultural practices could be left to private domains; 3. pluralistic multiculturalism: when different groups should live separately, in a political federation; 4. commercial multiculturalism, when the differences between individuals and groups must be resolved on market relations and private consumption, without questioning inequalities of power and wealth; 5. corporate multiculturalism (public or private) when difference should be administered so that the economic and cultural interests of minorities do not bother the dominant interests; 6. critical multiculturalism: when we become to question the origin of differences,

criticizing social and political exclusion and all the forms of privilege and hierarchy in contemporary societies. Obviously, this later perspective seeks to transform the life conditions of the dominated and excluded in order to give them the recognition, care, opportunities and resources they need. MacLaren (1995) distinguishes four postures of multiculturalism: 1. Conservative multiculturalism: it wants to build a common culture and national unity, understanding cultural diversity, racial or sexual as being assimilated to the traditional culture, generally defined by patriarchal and Euro-Americans standards; 2. liberal multiculturalism: which aims to assimilation policies, and although it presupposes we live in an egalitarian culture in terms of race or sex, points out the inequalities of educational opportunities in capitalist systems; 3. left-liberal multiculturalism: very sensitive regarding the operating modes of power and privilege, highlights the cultural differences dictated by class, race, gender and sexuality; 4. critical multiculturalism: that goes beyond the simple destabilization of dominant cultural meanings and seeks to transform the social and historical conditions that naturalize these meanings. The big problem of this approach is the idea that there is not really something like humanity, but only identities, constituted by the dominant contexts. However, not only do we have to take account of what distinguishes us, but as well what identifies us, not only what divides us, but also what unites us. In fact, it is not only traditions that deserve to be respected, because there are certain values that concern humanity globally (Maalouf, 2000).

If there is who supports multiculturalism as a postmodern sensibility that refuses totalitarianism and cultural hegemony and promotes a difference in many areas, there are also those who say that, therefore, he should be criticized for having contributed to the disintegration of culture and, in particular, for the emptying of its purpose. Conservatives have criticized multiculturalism for allegedly being a factor of social and economic instability and for being responsible for the promotion of relativism and mass culture at the expense of elite culture and Western civilization.

3. Valuing differences in a Post-modern society and the new challenges of globalization

It is no accident, nor a paradox that, at the moment that appeared more conditions for socio-educational uniformization, a strong proclamation of the right to difference has erupted. And no longer those rights regarding personality differences, whose recognition by scientific psychology was already obtained, nor the biological differences (ethnic or sexual), that had been initially devalued, but those related to regional and cultural differences, that had been legitimated by anthropological and sociological knowledge, and even religious differences, in the meantime legitimized by new theological and pastoral approaches, as also differences regarding language and dialect, that had been legitimized by sociolinguistics, and finally the differences of gender and sexual orientation, that were the subject of several legal measures. The social assertion, since the mid-6O, of minorities civil rights - social, regional, linguistic, ethnic, religious, gender and of sexual orientation - has led to a definition of democracy more based on the respect for minority rights than in the imposition of the will of the majority. Undoubtedly, that, for this development, it was very relevant the role played by the mass media, because, in a mediatic society, voice is important and thus minority's voice sometimes becomes more mediatic than the silent voice of majorities. Moreover, the acceptance and appreciation of the "new" differences corresponds to a transition from conflict and claims based on class struggles to claims clumped around identity, a process in which the decline of the labor movement is one of the most relevant facts (Valentine, 1997). This visible mutation is associated with, among other phenomena, labor migrations, free movement of persons within the European Union and the relocation of staff. Thus the globalized societies become increasingly multicultural, molding a reality that generates a corresponding movement of thought and action prone to political and educational acceptance of differences, which is in itself a feature of post-modernity, surpassing the egalitarian homogenizing concern of modernity. Truth is that economic immigration into the countries of the present European Union, in the second half of the nineteenth century, brought up significant contingents of workers from various regional origins, of various nationalities, various ethnicities, various languages and different religions. The United States and Canada already knew this phenomenon for a long time since it was part of their growth as nations, but they received immigration of people from Latin America and Asia. So now, in the big European and North American cities we commonly see people of different nationalities, languages, ethnicities and religions working and living side by side. It is this co-existence that puts new political problems to the education systems. And although the concept of multicultural education also covers, in terms of theoretical conceptualization, the differences of regional origin (urban or rural), class and gender, is clearly connoted with cultural differences associated with national, ethnic or religious, i.e., with differences concerning civilizations. It is also in this social context that the concept of compensatory education - based on the modern perspective about differences and the classic equality policy of educational opportunities - has been

gradually replaced by multicultural education, set in a postmodern conceptualization of acceptance and appreciation of differences as the basis of educational activity.

We can found different types of approach to multicultural education, which can be classified into three major basic categories: curricular and methodological approaches, that represent a change of content and teaching methods; sociomoral approaches, which call to a multidimensionality of attitudes, values and beliefs; and the organizational approaches, which induce a reorganization of the school teaching and a realignment of its management and organizational culture.

For Banks (1993), the curriculum approach is the most logical and practical to introduce a multicultural perspective in school. The author presents four ways for establishing a curricular approach that could induce increasing levels of multiculturalism. At a first level, relatively superficial, called contributes approach, the objective would be to episodically include in the curriculum some ethnic contents, without conducting a real reorganization; at a second level we have an additive approach, more systematic, that develops a cumulative curriculum transformation, but without question the dominant ethnocentric perspective. Therefore, Banks suggests a third level, the social-critical curricular approach, which refers to the analysis of the assumptions of knowledge construction. At this level, we have the questioning of those views from which, for example, a particular historical event is narrated. Finally, in a transformative approach, students will be encouraged to pluralize their outlooks, anchoring them in different socio-historical contexts.

Under the influence of the critical perspective regarding the traditional school monoculturalism, educational institutions have been developing new curricular approaches and new organizational structures, more in line with the different backgrounds of their students. In a symbiosis between the ethical principles of fairness and the economic principles of return, the so-called multicultural pedagogy has been incorporating new methods of learning and practice that ratify many directions previously considered by the academic culture. Conceptualized at several levels, the multicultural perspective incorporated in schools was attempting to represent it as a societal microcosm which enshrined the right of minority speakers to the expression of their identity, not in a peripheral way but in a central form for their own school environment. In a sense, being multiculturalism in is itself a byproduct of the growing multicultural migration, brought about by globalization, the transformation of the School ebbed towards the societal transformations that provided and required it. The truth is that, if the 60's developed at school and around the school a picture that marked the social representations and the operative pedagogy, the political, socio-economic and technological changes, typical of the late twentieth century and the beginning of the present century opened new educational paradigms that threaten to erode already established forms of educational innovation. In fact, as is widely recognized, with increasing economic globalization, there has been a reduction of state interventionism and the exhaustion of what can be said to be the "economic nationalism" in favor of monopolies that regulate the international financial and commercial markets.

We could say, therefore, that the emergent neoliberal globalization, in this new framework, shaped by the new information and communication technologies, recreate the reforms of the postwar capitalism, spurred by the theories assumed by the Keynesian welfare state, once the opening of international markets, with continuous flow of capital and people, has changed the criteria for competitiveness and employment rights, maintaining a policy of privatization in areas such as health, education and security - where state protection consigned was consigned. In this deification of a common market, supposedly to ensure higher levels of productivity, new theories and policies have been formulated, so a new paradigm of School reindustrialization is set up with the support of the digital media. That is, the so called knowledge and information society, with its peculiar demands of training in new technologies, implies a redefinition of the school role, now primarily devoted to the preparation of competent and competitive professionals, trained to the increasing demands of flexible work tasks. This information society is governed by "flows": "Flows are purposeful, repetitive, programmable sequences of exchange and interaction between physically disjointed positions held by social actors in organizations and institutions in society" (Castells, 1999, 57). Networks flows, reported to tangible and intangible products of human activity, organize and influence the social structure, in all its various levels, and the information processing of symbols and figures become the linchpin of an economic productivity supported by the new technologies of information and communication. The relation between information-economy and culture structures new positions and determines that the figure of human capital formation gains an added importance, though viewed from a perspective very different from the one that marked the "educational optimism" of the 60s.

Indeed, if the new economic and technical paradigm generates new societal hierarchies, according to a greater or lesser proximity to the flows of relevant information, then the level of education will determine increasingly the subjects' position in the social hierarchy. What the report Towards the Cognitive Society

defines as "cognitive loop". Therefore education will be, necessarily, transformed, more and more, because of the new information and communication technologies ubiquity, which are, among other factors, the major inducer of the globalization process. In fact, we can assign them the individual and societal changes that shaped a new cultural paradigm and that some have dared to distinguish from pos-modernity, designating this new paradigm as hypermodernity. This hypermodernity, that appear as a cultural project viscerally linked to the emergence of digital media, has a natural impact on school, progressively transformed by the operability of the new information technologies and communication. And, if for many, school technologization appears as a source of a greater customization and monetization of education, some authors (Carrier, 2000, Witty, 2003) denounce the dangers of this "re-industrialization" of school.

Indeed, this attempt of normalization, standardized by industry parameters is not new, and we could say that was by following the industry models of homogenization that mass schooling could be establish. It so happens that the constructivist process of teaching and learning that integrates the multicultural component, which was instituted by the active teaching methods, may be eroded because of the rationalization that transfers to a mechanized mediation the process of knowledge building. There is no doubt that the introduction of technologies ensures supposedly a greater individualization of learning, which also means the entry in school of equipment and products with a clear connection to the market. In analogy with what happens with the so called "cultural industries", also the academic institution will henceforth be subject to the industrialization process that virtually extends its field of action, with the modalities of distance learning, but leaves it more vulnerable to market requirements that will define potential students as "customers to satisfy." Thus, it is possible to anticipate that the introduction of ICT in school leads to a whole host of misconceptions: if digital media can be a support to more active methods of work, they also may raise a transmission process based on pre-formatted content and methods, so that classroom work could be the result of extrinsic models and contents. Thus, in this anonymous movement of knowledge, the pedagogical function would be set up as an imposition of legitimized knowledge, without any reflective and critical questioning about the contexts of legitimacy and powers of such knowledge. Yet ICTs, as human artifacts, appear as expression of a particular culture and consequent hierarchy of values, which is not always recognized. All societies generate cultural forms that produce and depend on information, but with the new technologies the access and manipulation of content, already formatted, becomes the central referent, with no assurance that such data may be a pull and cultural explanations of the occurrences that affect communities, in particular, the school community as a societal micro-cosmos.

As is widely recognized, it was the erosion of *particularisms* that elicited the modern project of the School, which undervaluated the primary individual linkage to family, language or ethnicity. In a second step, however, this homogenizing monoculturalism was critically questioned by the multicultural education project that, without devaluing formal transferable skills in school, wanted to reiterate the connection of these skills to the subject's cultural identities, in an attempt to diversify school space. In our view, this discourse, perhaps sometimes too radical, is nowadays threatened by a dominant purpose of school commercialization, supported by ICTs, which tends to reify the learning subjects, concealing the socio-constructive processes of knowledge. The very insistence on the concept of operational competence, as the only objective for learning, could constitute an ideology of *performativity* that relegates to the background all cultural forms of knowledge that are not aligned with the productivity market logics, and hence the disinterest in their teaching. Enlightenment, still omnipresent in the New Education movement, would become diluted by this new economistic environment that pressures to normalize school's space and time, according to the industrial model, and to model the learning process by the characteristics of the technological resources provided by the "education market". It is clear that ICTs can fulfill certain promises and make more effective some active forms of pedagogy. However, it seems always wise to give warn about the risks of certain technical discourse and the retreat that it represents regarding the transformative and critical perspectives of the proposed multicultural education.

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EFFECT OF PROBLEM CONTEXTS ON STUDENT'S MATHEMATICAL MODELING AND SOLVING PROCESSES

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Problem based approaches to teaching mathematics require teachers to be skillful in composing and posing suitable problem situations that foster students' construction of their knowledge. They also entail the inclusion of modules on problem construction and problem posing in pre- and in-service teacher professional development programs. This paper presents, in a case study, a micro-analysis of the thinking strategies used by a Lebanese grade 7 student, for solving two problems that usually involve the use of first-degree equations, prior to formal instruction in algebra. The two problems are similar algebraically, but are different in their context, wording and range of numbers involved. The student was observed and interviewed about her solving attempts. The analysis showed differences in the participant's thinking strategies to solve the problems and her techniques while solving the representative equations. These differences can be attributed to the differences in the statements and contexts of the problems used.

INTRODUCTION

Problem solving is widely advocated to be the main approach to mathematics teaching and learning, not only as a domain for application of learned concepts, properties and theorems, but also as a context for learning. Problem situations should be suitably engineered so that they create a need for the concepts to be learned, and so that they foster students' development of solving strategies and tools, which lead to the construction of mathematical concepts and properties.

Such an approach requires teachers' role to shift from being dispensers of knowledge based on rote memorization to creators of problem situations that are fertile for students' advancement of learning. This perspective entails the inclusion of modules on problem construction and problem posing in pre-service and in-service teacher professional development programs.

In the field of Algebra learning, math educators call for "rethinking" algebra and base its teaching on algebraic reasoning, critical thinking, problem solving, connections between prior arithmetic knowledge and intended construction of algebraic knowledge. Kieran and Chalouh (1993) encourage a *prealgebra* phase in the teaching and learning of algebra, whereby students can be initiated informally, to go through "an exploration of some key algebraic ideas" (Kieran & Chalouh, 1993, p. 181), instead of - or at least before - being formally instructed the algebraic procedures and techniques with no attention to meaning.

PURPOSE OF THE STUDY

The present analytical case study adopts the above trend and attempts to show the importance of the deliberate choice of problem features in mobilizing various solving strategies and techniques. It explores the prealgebraic thinking of a grade 7 student, Tania, while solving two problems, prior to any formal instruction in algebra. The study attempts to investigate Tania's algebraic thinking strategies for solving two algebraically isomorphic, but contextually different problems, and to analyze the evolution of those strategies as the participant solves the second problem one month after the first problem. The algebraic structure underlying the two problems is a first-degree equation with the unknown occurring on both sides of the equality sign, having the form:

$a + b + c + x = m\,x$, or, when reduced: $A + x = m\,x$

BACKGROUND AND FRAMEWORK

Research has investigated the difficulties that students face while learning algebra. One origin of such difficulties is that many students go through algebra by memorizing "rituals" Davis, 1987). They imitate the teacher and apply procedures and algorithms with no understanding of the meanings of the

unknown or the *equality* sign (e.g. Stacey & MacGregor, 1999; Sutherland, 1989; Yackel, 1997; Falkner, Levi & Carpenter, 1999; Herscovics & Kieran, 1980; Lubinski & Otto, 2002). These difficulties are mostly identified when algebra is taught as an independent isolated course, causing a sudden shift from arithmetic, and when it is seen as a set of formal procedures to be memorized and applied in a rote fashion.

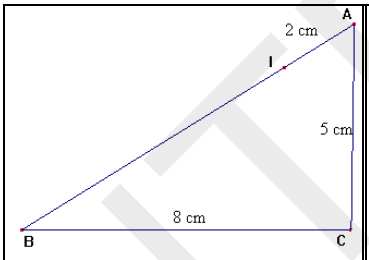
Among the reasons that explain the cognitive discontinuities involved in the shift from arithmetic reasoning to algebraic reasoning, Stacey and MacGregor (1999) mention the change from calculating with numbers to operating with unknowns, and the interpretation of algebraic expressions as being procedural or operational rather than being structural or conceptual. Constructing meanings of the symbols used (letters for numbers, the *equal* sign, the x for unknowns, etc.) constitutes a crucial component of developing algebraic thinking. As mentioned by Sutherland (1989), students perceive a need to use algebraic thinking only when pre-algebraic thinking is very inefficient or no longer adequate to solve the problem at hand. Consequently, the choice by curriculum developers and teachers of suitable problem situations to be used at the appropriate time is crucial in fostering the evolution of students' thinking toward algebraic and symbol-manipulation processes.

DESIGN OF THE STUDY

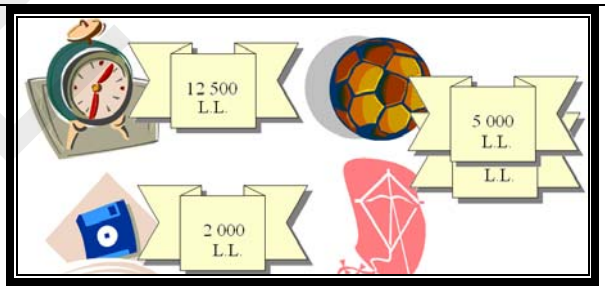
This case study uses the clinical analytical method. It utilizes the "clinical interview" technique which, as described by Ginsburg (1981), aims at exploring the students' mathematical thinking by discovering and identifying their cognitive processes. Tania, the participant, was observed and interviewed twice, in two "clinical interview" sessions, while solving two different, yet isomorphic, problems, adequately chosen according to didactic contextual variables, and involving first-degree equations. One month separated the two sessions, so that the solution plan or procedures for solving the first problem would not be automatically transferred to solve the second problem.

The Problems

Tania was faced, in the first session, with a simple geometric problem (Problem1 in Fig.1). One month later, she was given the second problem (Problem2 in Fig.1).



Problem1: In the figure below, find the measure of the segment [BI] knowing that the perimeter of the triangle ABC is triple the measure of the segment [BI].



Problem2: Samy and Mary went to the store. They have each the same amount of money. Below is the store display window. The price card of one of the objects has slipped under another price card.

Samy bought, with all his money, four different objects, identical to the items displayed in the window.

Mary bought, with all her money, four objects identical to the one whose price is hidden.

What is the hidden price?

Fig.1: Problems solved by participant

The two problems are algebraically isomorphic in the sense that they both can be solved using a first-degree equation having the form: a + b + c + x = mx. But they are contextually different in that problem1 involves simple geometric objects, while problem2 involves a real-life shopping situation with

more concrete objects. Problem1 was chosen for the fact that its elements can be identified by their letter labeling (e.g. IA, BC, etc.). They can be easily used in equalities or equations, and don't require the problem solver to use names or to create codes in order to represent them, which removes one of the obstacles in shifting from arithmetic to algebra. Problem2 involves, however, objects whose names cannot be carried for a long time in equalities/ equations. The problem solver will face the need of coding them in order to use them in equalities/ equations. The objects involved (alarm clock, ball, floppy disk and kite) were not named in the statement of the problem. The figure was used in order to represent them rather than naming them. The intention was to create in student the need for coding or naming them. In problem1, the numbers are small, and leave room for estimation or for guess-and-check strategies. However, problem2 involves big numbers (up to tens of thousands) that don't easily lend themselves to repetitive computations or to mental arithmetic operations. This was intended for blocking, as much as possible, non-algebraic procedures for solving the problem and for increasing the chance that the participant would develop algebraic procedures to solve the equations involved.

The two problems are mathematically and developmentally appropriate for 7th graders. However, they are not routine or stereotyped problems for that level, before instruction on algebraic equations. Special attention was paid to the use of simple grammatical structures and the choice of straightforward wording, within the student's mathematical vocabulary.

The Participant

Tania, the participant in this study, is a twelve-year old student in French, private, multicultural school in Beirut. She has completed the 6th grade and was promoted to the 7th grade. According to her school grades and her ranking, she is considered to be a high achiever in mathematics.

Procedures

The problems were presented to Tania in French. One month separated the two problem solving sessions, in order to avoid comparison, to reduce the chances of using the same solving strategies, and to allow chance for more advanced, or at least different strategies for the second problem.

Tania was interviewed according to the "clinical interview" technique. During the interviews, care was taken in order not to interfere in the solution process, or express approval, surprise or shock at any of the participant's answers. She was asked "how" and "why" she solved in a way or another, including questions such as: why did you choose this method? What makes you think that this will help?

During Tania's work, field notes were taken to record all her solution attempts. The session was audio-taped in order to keep track of her thinking-aloud discourse and her interactions with the interviewer. The main objective from these interviews and observations was to capture the emergence of Tania's problem solving and algebraic thinking, representations and procedures, for later comparison between the solution plans and thinking strategies used in the two sessions.

ANALYSIS AND RESULTS

The participant was able to reach a correct solution for both problems. The session for solving the first problem lasted around 45 minutes, while the second problem required only 20 minutes. However, the solving strategies and the symbolic representations used were different in the two situations. In both cases, the major difficulty was expressed by the participant as being the lack of information, or the existence of two unknown values:

"we only know that the perimeter is triple of BI. But we don't know what the perimeter is. We need it to find BI" (problem1) or "we don't know how much money each one has? Are you sure there is nothing missing in the problem?" (problem2)

Arithmetic and Semi-Algebraic Phase: According to the literature, the meaning that students attribute to the "equal" sign is one of the indicators of the shift from arithmetic thinking to algebraic thinking. In arithmetic thinking, the "=" sign means a formula or an operation sign to determine the steps to follow in order to find the answer, while algebraic thinking is characterized by the shift to the meaning of a relation sign, a statement of an equivalence that translates the information in the problem

(Behr, Erlwanger, & Nichols, 1976, p. 22). Tania's use of equalities actually evolved, in the order, from arithmetic equalities to algebraic equations.

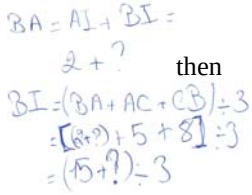


Fig.2: Equalities

In Problem1, because the points in the geometric figure are already labeled by letters, it was easy for Tania to include the segment measures by their given labels, without having to use other letters (as shown in the adjacent figures). In the phase of replacing segment codes by their numerical measures, the unknown IB was replaced by "?", used in all the equalities thereafter in the solution processes.

By using these equalities, Tania's aim was to find BA, because "*if we find BA, we can use it to find BI*". The problem was that BA was found in terms of the unknown BI (represented by "?"), which led to a cyclic situation. The second equality in Fig.2 provides a significant example where the unknown, BI, is represented in two different ways, with two different meanings: BI, on the left side of the equality, means "the answer to be found", while the symbol "?" on the right side of the equality, which represents BI, means a term needed for calculating the answer, whose value is not known. Even though a symbol "?" was used to express the unknown value of BI, the equation is rather a semi-algebraic one, first because it is perceived as a formula for calculating the unknown value BI, which occurs as the sole term to the left of the *equals* sign, and second because the way the symbol "?" was used holds the meaning of *missing information* rather than the algebraic meaning of *unknown*. Moreover, the right side of the "equal" sign is perceived as a sequence of operations to perform on values in order to calculate BI, among which is the missing value of BI. This fixation on the phase of formula-like equations lasted long, more than 25 minutes, in solving problem1.

However, in solving problem2, the participant shifted almost immediately to writing equations expressing numerical equivalences.

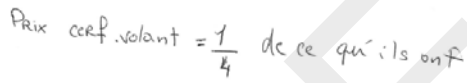


Fig.3: Equality (Problem2)

Fig.3 represents the only attempt of writing an equality, meaning a formula or an operation to perform in order to find the answer. Very quickly Tania decided that "*this is not useful, because we don't know how much they have"*.

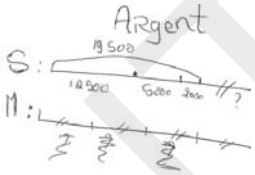


Fig.4: Visual support

The same symbol "?" was then used in solving problem2. The participant modeled the relationship using a number-line diagram and geometric codes (Fig.4), to create a visual support. The equality of prices, on one hand, and of the whole amount of money, on the other, were represented by the equality of segment lengths. This representation was later translated into an algebraic equation.

Algebraic Equations: The second type of equations were intended to represent the major relationships among known and unknown quantities.

In solving problem1, and after failure to find the measure of BI using various equalities, the participant tried to translate the main relation in the problem: "the perimeter of the triangle ABC is triple the measure of the segment [BI]" into an equality, in which the unknown occurs on both sides of the equal sign. Figure 4 shows the first attempt that started with:

"15 + ? = the triple of this". (15 being 8+5+2 and 15+? Being the perimeter)

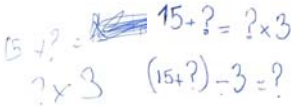


Fig.5 Fig.6

As of this moment, it was clear from Tania's thinking aloud that the problem was stabilized around the concern of finding "*the number that,* if *we add 15 to it, we get the triple of the original number*" (Fig.5), thus the concept of root. Fig.6 presents another form of the same equation, which the participant used "*so that I remember what I'm looking for*".

In solving problem2, Tania represented the situation, as well, with an equation, using the same symbol "?" to represent the unknown.

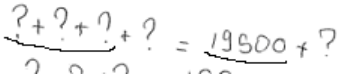


Fig.7

However, a major difference appeared between this equation and the one used to represent problem1. The equation (Fig.7) for representing problem2 contained additive expressions (? + ? + ? + ?) rather than multiplicative expressions (3 x ?).

Our interpretation is that this difference is related to the context and nature of objects in each of the two problems, on one hand, and to the language used in each: in problem1, the phrase "*triple the measure of the segment [BI]*" calls for writing a multiplicative algebraic expression. In problem2, however, the elements involved are discrete objects. Their prices are to be added together in order to find the total expenses. To express the given information "*four different objects, identical to the items displayed in the window*", addition is privileged as operation. To express the next given information "*four objects identical to the one whose price is hidde*n", and even though multiplication may be applied, but addition remains more suitable for Tania, for the following reasons:

1. To use the same logic and operation as for the second term of the equation,
2. the nature of the objects involved, four objects that are discrete,
3. the model (Fig.4) used by the participant is more conducive to additive relationships.

From the above, we can conclude that the context of the problem, the nature of objects involved, and the language used in the statement of the problem, had a significant effect on the type of representations used by the participant and the type of equations she wrote.

Strategies for Solving Equations: As Sutherland (1989) contends, one of the key conceptual changes in the transition from arithmetic to algebraic problem solving methods is the recognition that the unknowns can be used as if they were knowns. In the present study, the unknown represented by "?" was actually manipulated as a numerical value would be. Fig.2 and Fig.6 show examples of such manipulations, by which the symbol "?" was, in Fig.2, associated and commuted with numbers, and in Fig.6, manipulated in two equation forms by which Tania represented the main relationship in problem1. Tania wrote the second equation based on her knowledge that division is the inverse operation of multiplication, and that "*if 15 + ? is the triple of '?' then '?' is 15 + ? divided by 3*". Formally and symbolically, the couple of equations represent one of the symbol manipulation procedures in solving first degree equations. It seems to be the step: "a.x= b implies x = b ÷ a". In this situation, the participant performs such symbol manipulation with conceptual understanding of its origin, which will provide conceptual underpinnings for understanding the procedures for solving first degree equations when they are later formally taught.

In order to find the value of "?", Tania used her number sense and her understanding of the arithmetic operations, especially division. Her first suggestion was to "*try numbers*"; then, feeling that such a strategy is not mathematically legitimate, she added: "*of course not. we cannot try all numbers…. may be small numbers*". Thus she put in action the concept of root, by replacing the "?" with numbers, starting with 5 up till 9. After several guess-and-check systematic attempts, she moved to a new strategy:

> *This is 15 (tracing the known portion of the figure)… 15 plus half of 15…. 15 plus its half… divided by 3 […] Already, we have two parts (tracing the known portion of the figure)… Ah… that's it, now I know…when you look for this (tracing IB), you are looking for the third of the perimeter. We have the two thirds of the perimeter which is 15. So the third of it is 15 ÷ 2 = 7.5…euh… 7.5 + 7.5 + 7.5 = 22.5… that's it, this is the perimeter.*

From the above, we can conclude that Tania's finding the solution of the problem, root of the equation, was based on her understanding of fractions and of the numerical relationships between numbers that would satisfy the equation, not on any use of the algorithmic procedures formally used for solving first-degree equations. The role that the equation played was to structure the main relationship in the problem and to trigger that arithmetic thinking, which took support again in the geometric figure.

However, in Problem2, one month later, the solving strategy is very different. As seen in the previous section, the equation that Tania used to represent the problem was additive (Fig.7) rather than multiplicative, as in Problem1. This form of the equation was more conducive to using a balancing

procedure usually used formally to solve first-degree equations: "*This is the same as this (pointing to "?" in both sides of the equal sign), so we can say that these are equal to these (underlining the rest of the expressions in both sides)*" (Fig.7). Hence, Tania could reach a form of the equation where the unknown (represented by "?") occurs only on one side of the equality. She implicitly used one of the algorithmic procedures for solving first-degree equations, which is subtracting (or eliminating) the same quantity from both sides.

CONCLUDING REMARKS

The study presented in this paper is a qualitative and analytical case study, aiming at deeply understanding the participant's thinking and investigating mechanisms and catalysts for the shift from arithmetic thinking to algebraic thinking, rather than generalizing results. The situation belongs to the zone in which the development from arithmetic thinking to algebraic thinking is needed and fostered.

The analysis of the participant's strategies for solving the two problems showed an evolution of the algebraic representations and thinking form problem1 to problem2. Although the two problems are algebraically isomorphic, i.e. underlied by two equations having the same form, the participant used different representations to model each situation, and applied different strategies to solve the equations. Problem2 called for more algebra-like strategies, because its wording and context fostered additive rather than multiplicative formats of equations, and the range of numbers involved blocked the guess-and-check strategies. Introducing equations through problem solving situations created relevance and need for algebra. The given problems allowed the participant to intuitively deal with the concepts of unknown, root, equation, in her own ways, before being formally introduced to these concepts, thus before the algebraic procedures become symbolically formalized.

The study results highlighted the role and effect of the chosen problems, as catalysts for specific types of equations or solving strategies. These middle-ground problem situations can be seen as an important stepping stone toward algebraic thinking, since algebraic conceptual underpinnings are inherent to them, such as the writing and processing of algebraic and semi-algebraic expressions, the inversion of operations, the meaning of an unknown, a root and an equation, etc. Such methods of reasoning and gradual symbolizing constitute a way to facilitate the transition from arithmetic to algebraic modes of problem solving.

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EĞİTİLEBİLİR ZİHİNSEL ENGELLİ BİREYLERE KARMAŞIK BECERİ EĞİTİMİNDE BİLGİSAYAR DESTEKLİ MATERYALİN ETKİSİ

THE EFFECTIVENESS OF COMPUTER-AIDED MATERIAL IN COMPLEX SKILL TRAINING FOR EDUCABLE MENTALLY RETARDED CHILDREN

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Özet: Bu çalışmada; eğitilebilir zihinsel engelli bireylere yönelik karmaşık beceri eğitiminde kullanılmak üzere belirli kazanımlara yönelik geliştirilen çoklu ortam öğeleriyle zenginleştirilmiş bilgisayar destekli bir materyalin kullanılabilirliği ve etkililiği araştırılmıştır. Çalışma özel durum metodolojisi kapsamında yürütülmüş olup; çalışmanın örneklemini 2009–2010 eğitim-öğretim yılı bahar döneminde Trabzon Özel Dosteli Yunus Özel Eğitim ve Rehabilitasyon Merkezi'nde destek hizmeti alan, yaşları 9 ile 22 arasında değişen 23 eğitilebilir zihinsel engelli öğrenci ve aynı merkezde görev alan 9 öğretmen oluşturmaktadır. Veri toplama aracı olarak, geliştirilen çoklu ortam materyalini katılımcı öğretmenlerle birlikte uygulayan öğrencilerin hangi becerileri ne düzeyde gerçekleştirebildiklerine yönelik maddelerin yer aldığı gözlem formu ve 3 adet sorunun yer aldığı yarı yapılandırılmış mülakat formu kullanılmıştır. Çalışmada gözlem formu yardımıyla toplanan veriler frekanslar kullanılarak analiz edilirken, nitel verilerin analizinde içerik analizi yaklaşımından yararlanılmıştır. Çalışmanın sonunda, öğrencilerin çoklu ortam materyalini kullanarak hedef kazanımların birçoğunu gerçekleştirdiği ve materyalin hafif düzeyde zihinsel engelli öğrenciler üzerinde belirgin kazanımlara yönelik öğrenilmiş davranışları pekiştirmede ve genellemede etkin olarak kullanılabileceği sonucuna varılmıştır. Bununla birlikte ilgili öğretmenler materyalde kullanıcı kontrolünü artıran bazı değişiklikler yapılmasını önermiştir.
Anahtar Kelimeler: Özel eğitim, Eğitilebilir zihinsel engelliler, Bilgisayar destekli materyal, Çoklu ortam, Karmaşık beceri eğitimi.

Abstract: In this study, it is aimed to interpret the usability and effectiveness of a computer-aided material including multimedia components is developed to be used intended for specific educational objectives in complex skill training for "Educable Mentally Retarded Children". The case study metodology was used in this study. The research sample consisted of 23 educable mentally retarded children who are supported at Trabzon Dosteli Yunus Special Education and Rehabilitation Center in 2009- 2010 instructional year and 9 teachers as experts in special education. The data were collected by using the observation forms and semi-structured interviews including three questions. The data obtained from the observation forms is analyzed in the form of frequencies and the data obtained from semi-structured interviews is analyzed by means of content analysis. As a result, many of the students managed to reach the objectives by using multimedia material. It can be said that it is appropriate to use for education of slightly mentally retarded. This material can be used in order to intensify and generalize of the learned behaviour. Moreover, the experts suggest that it is a vital necessity to i mprove the user control in the developed material.
Keywords: Special Education, Educable mentally retarded, Computer-aided material, Multimedia, Complex Skill Training

1. GİRİŞ:

Son yıllarda gerek değişen sosyo-ekonomik durum gerekse var olan gereksinimler neticesinde, engelli bireylere yönelik özel eğitim faaliyetleri hızla artmaktadır. Özel eğitim; bireylerin akademik, iletişim, devim ve uyum alanlarında önemli eksiklik, kusur yaratan durumların önlenmesi, azaltılması ya da ortadan kaldırılmasıyla ilgili eğitsel değişkenlerin düzenlenmesi uğraşısı olarak tanımlanmaktadır (Özsoy, Özyürek ve Eripek, 2002). Özel eğitim, özel gereksinimi olan, bu özelliğinden dolayı farklı eğitim

gereksinimi ancak bireysel olarak planlanmış öğretim programıyla karşılanabilen çocukları kapsamaktadır (Ataman, 2003). Özel eğitim gereksinimi duyan üzere birçok engelli grubu gruplar arasında zihinsel engelli bireyler de dâhil olmak yer almaktadır. Bu bağlamda zihinsel engelli bireylerin eğitimi, özel eğitim alanı kapsamında ele alınmaktadır.

Zihinsel yetersizlik (engellilik), gelişim süreci içerisinde genel zihinsel işlevlerde önemli derecede gerilik, bunun yanında uyumsal davranışlardan (iletişim, öz bakım, ev yaşamı, sosyal beceriler, toplumsal yaralılık, kendini yönetme, sağlık ve güvenlik, işlevsel akademik beceriler, boş zaman ve iş) iki ya da daha fazlasında sınırlılıklar gösterme durumudur (Eripek, 1996). Dünya Sağlık Örgütü (WHO) verilerine göre ise, genel olarak herhangi bir toplumun nüfusunun yaklaşık % 10'unu, dünyanın 750 milyon ile 1 milyar kişisini engelli kişiler oluşturmaktadır (Perelman, 2007 akt:Subaşıoğlu, 2008). Zihinsel engelli bireylerin, engelliler içinde sayısız nedenlerle birlikte heterojen bir grup olduğu belirtilmektedir (Winnick, 1999 akt: Berktaş, 2007). Zihinsel engelliler eğitsel olarak belirli değişkenler (IQ seviyesi, dikkat, bilişsel eylem, gelişim vb.) açısından "eğitilebilir (hafif derece), öğretilebilir (orta derece) ve ağır derecede zihinsel engelliler" olmak üzere üç temel gruba ayrılmaktadır. Eğitilebilir (hafif) zihinsel engelli bireyler, zihinsel engellilerin %85'ini oluşturmaktadır (Özdemir, 2008). İlgili bireyleri tanımlarken kullanılan "Eğitilebilir" terimi bu gruba giren çocukların okuma, yazma, matematik gibi temel akademik becerileri öğrenebileceklerini açıklamaktadır (Ulukaya, 2009).

Karmaşık beceri eğitimi, bir dizi eylemin tam olarak gerçekleştirilmesiyle tamamlanabilecek bir süreçtir. Eğitilebilir zihinsel engelli bireylere karmaşık beceri eğitiminde farklı araçlar, yöntemler ve yaklaşımlar kullanılmaktadır. Bu bağlamda bilgisayar teknolojisindeki pek çok gelişmenin, özel eğitime gereksinimi olan öğrenciler için potansiyel çözümler sunduğu bilinmektedir (Parfitt, Jo ve Nguyen, 1998). Bu bağlamda öğretim teknolojisi ve eğitimde bilgisayar destekli materyal kullanımı ön plana çıkmaktadır. Akkoyunlu ve Yılmaz'a (2005) göre öğretim teknolojisi kullanılarak hazırlanan öğrenme ortamları, çeşitli kaynaklar ile öğrenme-öğretme ortamlarını daha çok duyuya hitap eden çevreler haline getirerek, öğrenci motivasyon ve başarısını da artırmaktadır. Birden fazla duyuya hitap eden dolayısıyla birden fazla veri türünü kapsayan ortamlar, çoklu ortam olarak isimlendirilmektedir (Akkoyunlu ve Yılmaz, 2005). Green (1995), özel eğitim gereksinimli öğrencilerin çoklu ortamla öğrenmek için yüksek düzeyde güdülü olduğunu ve uygun tasarlanmış çoklu ortam yazılımlarının öğrencilerin bilişsel ve bilişüstü stratejiler kullanmalarında yardımcı olabileceğini belirtmiştir (Parfitt ve diğ., 1998). Bu bağlamda, eğitilebilir zihinsel engelli bireylere yönelik karmaşık beceri eğitiminde bilgisayar destekli çoklu ortam yazılımlarının kullanımının gerekliliği ortaya çıkmaktadır.

1.1. Çalışmanın Amacı ve Önemi:

Bu çalışmanın amacı, eğitilebilir zihinsel engelli bireylere yönelik karmaşık beceri eğitiminde kullanılmak üzere belirli kazanımlara yönelik geliştirilen çoklu ortam öğeleriyle zenginleştirilmiş bilgisayar destekli bir materyalin kullanılabilirliğini ve etkililiğini ortaya koymaktır. Bu amaca ulaşmak için şu sorulara yanıt aranmıştır: (1) Geliştirilen bilgisayar destekli materyal ile uygulama yapan eğitilebilir zihinsel engelli öğrencilerin ilgili kazanımların ne kadarını gerçekleştirebilmişlerdir? (2) Araştırmacılar tarafından geliştirilen bilgisayar destekli materyalin eğitilebilir zihinsel engelli bireylerin karmaşık beceri eğitiminde kullanılabilirliğine ilişkin uzman görüşleri nedir?

Eğitilebilir zihinsel engelli bireylere yönelik karmaşık beceri eğitiminde bilgisayar destekli çoklu ortam materyali kullanımına yönelik bilimsel çalışmalara, yapılan literatür taraması sonucunda rastlanmamıştır. Ayrıca çalışma konusu ile ilgili gerçekleştirilen görüşmelerde zihinsel engelliler anabilim dalı alan uzmanı öğretim üyeleri, genel olarak özel eğitim alanında yeterince bilgisayar destekli materyal ve yazılım bulunmadığını özellikle belirtmişlerdir. Bu çalışma; çoklu ortam (ses, metin, video…) öğeleri ile zenginleştirilmiş bilgisayar destekli materyalin eğitilebilir zihinsel engelli öğrencilerin karmaşık beceri eğitimi sürecine yapabileceği etkilerin ve ilgili materyale yönelik uzman görüşlerinin araştırılmasının ilgili literatüre katkı sağlaması bağlamında önem taşımaktadır.

2. YÖNTEM:

Çalışma doğası gereği nitel desende oluşturulmuştur ve nitel araştırma desenlerinden özel durum metodolojisi kapsamında yürütülmüştür. Çalışmanın özel durum metodolojisi kapsamında yürütülmesinin nedeni; özel durum çalışmalarının araştırmacıya çok özel bir konunun veya durumun üzerinde yoğunlaşarak incelenen özel durumları en ince ayrıntılarıyla tanımlama ve değişkenler arasındaki sebep-

sonuç ilişkilerini açıklayabilme fırsatı vermesidir (Cohen ve diğerleri, 2005; Çepni, 2007). İlgili özel durumu daha derinlemesine incelemek amacıyla araştırma sürecinde görüşme ve gözlem yöntemi birlikte kullanılmıştır. Çalışmada, görüşme yapılan öğretmenlerin görüşlerinden birebir alıntılar yapılarak ve yapılan mülakatlar yazılı hale getirildikten sonra ham veri halinde ilgili katılımcıya kontrol ettirilerek (katılımcı kontrolü) araştırmanın inanılırlığı (geçerlik) sağlanmaya çalışılmıştır. Çalışmanın tutarlılığının sağlanması amacıyla; araştırma süreci, durumu ve yöntemi tüm açıklığıyla ortaya konulmaya çalışılmış, olası önyargıları engellemek amacıyla öğretmenlerle yapılan görüşmelerden elde edilen ham veriler araştırmacılar tarafından dörder kez okunmuştur. Araştırmanın doğrulanabilirliğinin ve aktarılabilirliğinin sağlanması amacıyla; bulgular bölümü katılımcılardan doğrudan alıntılarla desteklenmiştir.

2.1. Çalışmanın Örneklemi ve Veri Toplama Araçları:

Bu çalışmanın örneklemini, 2009–2010 eğitim-öğretim yılı bahar döneminde Trabzon Özel Dosteli Yunus Özel Eğitim ve Rehabilitasyon Merkezi'nde destek hizmeti alan, yaşları 9 ile 22 arasında değişen 23 eğitilebilir zihinsel engelli öğrenci ve aynı merkezde görev yapan 9 öğretmen oluşturmaktadır. Bu çalışmada veri toplama araçları, çalışmanın amacı ve alt problemleri ışığında belirlenmiştir. Veri toplama aracı olarak, geliştirilen çoklu ortam materyalini öğretmenleriyle birlikte uygulayan öğrencilerin hangi becerileri ne düzeyde gerçekleştirebildiklerine yönelik maddelerin yer aldığı gözlem formu ve 3 adet sorunun yer aldığı yarı yapılandırılmış görüşme formu kullanılmıştır. Çalışmada kullanılan görüşme formu ve yarı yapılandırılmış görüşme formu araştırmacılar tarafından geliştirilmiştir. Formların görünüş ve kapsam geçerliliğini sağlamak amacıyla iki alan uzmanından geribildirim alınmıştır. Gözlem formu, araştırma kapsamında geliştirilen materyalin uygulanması sırasında eğitilebilir zihinsel engelli öğrencileri gözleyen alan uzmanı öğretmenler tarafından doldurulmuştur. Yarı yapılandırılmış görüşme formu ise geliştirilen materyale ilişkin 9 öğretmen ile gerçekleştirilen görüşmelerde kullanılmıştır.

2.3. Çalışmanın Yürütülmesi:

Literatür taraması ve zihinsel engelliler alan uzmanlarıyla gerçekleştirilen görüşmeler neticesinde araştırma konusu belirlenip detaylandırılmıştır. Öncelikle eğitilebilir zihinsel engelli bireylerin karakteristik özellikleri ve karmaşık beceri eğitimi için gerekli ön koşul beceriler dikkate alınmıştır ve hedeflenen kazanımlar ile bilgisayar ortamına taşınacak etkinliklerin senaryosu ve içeriği zihinsel engelliler eğitimi alan uzmanlarının görüşleri alınarak oluşturulmuştur. Materyal, belirlenen kazanımlar ve hazırlanan senaryo doğrultusunda Adobe Flash programı ve ActionScript 2 betik dili kullanılarak bilgisayar ortamında araştırmacılar tarafından geliştirilmiştir. Ardından çoklu ortam tasarım ilkeleri dikkate alınarak ve iki eğitim teknolojileri alan uzmanı ve bir zihinsel engelliler eğitimi alan uzmanın görüşleri doğrultusunda ilgili materyal üzerinde düzeltmeler yapılmıştır ve uygulanabilir duruma getirilmiştir. Geliştirilen materyal, bilgisayarlarda masaüstü uygulaması olarak, eğitilebilir zihinsel engelli bireyler tarafından özel eğitim alan uzmanı öğretmen kontrolünde kullanılabilmektedir. İlgili materyal; zihinsel engelliler için hazırlanan öğretim programında yer alan, bir dizi eylemin gerçekleştirilmesini içeren ve bütün olarak karmaşık beceri olarak adlandırabileceğimiz aşağıdaki kazanımlara yönelik etkinlikleri içermektedir: 1) Günlük yaşam becerileri: Alışveriş yapar. 2) Sosyal beceriler: Basit selamlaşma, vedalaşma ifade ve eylemlerini kullanır. Kişilere karşı uygun davranışlar sergiler. Kişinin isteğini kabul eder. Ortama ve duruma uygun sosyal kurallara uyar. Verilen etkinliği tamamlar. 3) Motor beceriler: Nesne ile yürür. 4) Matematik beceriler: Dört işlem yaparak problem çözer. Paraları tanır. Parayı günlük yaşamda kullanır.

Geliştirilen bilgisayar destekli materyal, araştırmanın örneklemini oluşturan eğitilebilir zihinsel engelli bireylere, katılımcı öğretmenlerin eşliğinde uygulanmıştır. Katılımcı öğretmenler, bilgisayar kullanım becerisi düşük bireylere uygulama esnasında yardımcı olmuşlardır. Aynı zamanda gözlemci olarak katıldıkları her bir uygulama esnasında eğitilebilir zihinsel engelli öğrenciyi gözlemlemiş ve uygulama sonunda ilgili gözlemcinin materyal içindeki etkinlikleri gerçekleştirip gerçekleştirmediğine ilişkin gözlem formunu doldurmuştur. Katılımcı öğrencilere materyalin uygulanması ve gözlem formlarının doldurulması süreci 2 hafta sürmüştür. Ardından araştırmacılar tarafından yarı yapılandırılmış görüşme formu yardımıyla, uygulamaya katılan 9 öğretmen ile geliştirilen materyale ilişkin görüşmeler yapılmıştır.

2.4. Veri Analizi:

Araştırmada gözlem formlarından elde edilen veriler; frekans ve yüzdelik ortaya konulması amacıyla SPSS 16 istatistik programı ile analiz edilmiştir. Görüşme yöntemiyle elde edilen nitel veriler ise içerik analizi yaklaşımıyla analiz edilmiştir.

2.5. Etik İlkeler:

Araştırma etiği, bilimsel bir araştırmanın planlama ve yürütülmesi sürecinden uyulması gereken ahlaki ve bilimsel ilkeler olarak tanımlanabilir (Büyüköztürk, Çakmak, Akgün, Karadeniz ve Demirel, 2010). Çalışma sürecinde araştırmacılar etik kuralları göz önünde bulundurmuştur. Çalışmanın örneklemini oluşturan eğitilebilir zihinsel engelli bireylerin bilgisayar destekli materyali uygulama aşamasından önce, engelli bireylerin ebeveynlerine ve alan uzmanı katılımcı öğretmenlere yönelik araştırma sürecine ilişkin bilgilendirme yapılmış ve çalışma ile ilgili izin alınmıştır. Katılımcılara, isimlerinin ve görüşme verilerinin gizliliği ve araştırma verilerinin araştırma dışında kullanılmayacağına ilişkin güvence verilmiştir.

3. BULGULAR VE YORUMLAR:

3.1. Katılımcılara İlişkin Demografik Bulgular:

Araştırma kapsamındaki toplam 23 eğitilebilir zihinsel engelli öğrencinin demografik özelliklerine (cinsiyet, yaş) göre dağılımları Tablo 1'de gösterilmektedir.

Demografik Değişkenler (Yaş)		**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**21**	**22**	**Toplam**
Cinsiyet	**Kız**	-	2	1	1	1	-	1	2	-	-	-	**8**
	Erkek	1	1	1	3	2	1	1	-	2	2	1	**15**
	Toplam	**1**	**3**	**2**	**4**	**3**	**1**	**2**	**2**	**2**	**2**	**1**	**23**

Tablo 1: Eğitilebilir zihinsel engelli öğrencilerin demografik özelliklerine göre dağılımı

Araştırmaya katılan eğitilebilir zihinsel engelli öğrencilerin %65,2'sini (15 öğrenci) erkek öğrenciler, %34,8'ünü (8 öğrenci) kız öğrenciler oluşturmuştur. Ayrıca çalışmanın uygulandığı merkezde görev yapan ve özel eğitim alanında çalışan 9 öğretmen de çalışmaya katılmıştır.

3.2. Uygulama Gözlemine İlişkin Bulgular:

Geliştirilen bilgisayar destekli materyal ile uygulama yapan eğitilebilir zihinsel engelli öğrencilerin ilgili kazanımları gerçekleştirme durumları, alan uzmanı öğretmenler tarafından uygulamadan hemen sonra gözlem formuna kaydedilmiştir. Gözlem formunda "Evet" maddesi öğrencinin kazanımı gerçekleştirdiğini, "Kısmen" maddesi kazanımın kısmen gerçekleştirildiğini, ilgili kazanım yapılması gereken tüm eylemlerin yapılmadığını, "Hayır" maddesi ise ilgili kazanımın gerçekleşmediğini ifade etmektedir. İlgili gözlem formu verileri Tablo 2'de gösterilmektedir:

Kazanımlar /	**Evet**		**Kısmen**		**Hayır**		**Toplam**
Cinsiyet	**Erkek**	**Kız**	**Erkek**	**Kız**	**Erkek**	**Kız**	
1. Alışveriş yapar.	9	5	5	3	1	0	23
2. Basit selamlaşma, vedalaşma ifade ve eylemlerini kullanır.	7	6	7	2	1	0	23
3. Kişilere karşı uygun davranışlar sergiler.	9	7	6	1	0	0	23
4. Kişinin isteğini kabul eder.	11	6	4	2	0	0	23
5. Ortama ve duruma uygun sosyal kurallara uyar.	9	6	6	1	0	1	23
6. Verilen etkinliği tamamlar.	6	7	9	1	0	0	23
7. Nesne ile yürür.	9	7	6	1	0	0	23
8. Dört işlem yaparak problem çözer.	0	1	9	4	6	3	23
9. Paraları tanır.	9	2	4	5	2	1	23
10. Parayı günlük yaşamda kullanır.	7	2	6	5	2	1	23

Tablo 2: Eğitilebilir zihinsel engelli öğrencilerin ilgili kazanımları gerçekleştirme durumları

Tablo 2 incelendiğinde, belirlenen kazanımların büyük bir çoğunluğunun öğrenciler tarafından uygulama esnasında gerçekleştirildiği görülmektedir. 8 numaralı "Dört işlem yaparak problem çözer" kazanımını öğrencilerden bir kişi hariç diğerleri kısmen gerçekleştirmiştir veya gerçekleştirememiştir. Bu sonucun oluşması; materyaldeki ilgili kazanıma yönelik etkinliğin öğrenciler tarafından anlaşılamamasından veya araştırmacılar tarafından geliştirilen etkinliğin ilgili kazanımın amacına hizmet etmediğinden kaynaklanmış olabilir.

Öğrencilerin yaş değerleri arttıkça, kazanımları gerçekleştirme yüzdelerinin de arttığı göz çarpmaktadır. Bu durumun oluşmasında; yaşı büyük öğrencilerin bilgisayar kullanım becerilerinin daha iyi, önceki yaşantılarında materyalde sunulan durumlarla karşılaşma olasılığının daha fazla ve bilgi-beceri düzeylerinin daha yüksek olmasının etkili olduğu düşünülmektedir.

3.3. Öğretmenlerin Geliştirilen Materyale İlişkin Görüşlerine Ait Bulgular:

Çalışma kapsamında toplanan nitel veriler, içerik yaklaşımı kullanılarak kodlanmış ve temalar ortaya çıkarılmıştır. Analiz sonucunda iki ana temaya ulaşılmıştır:

- ✓ Geliştirilen materyalin özel eğitim alanına uygunluğuna ilişkin görüşler,
- ✓ Geliştirilen materyalde var olan eksiklikler ve uzmanların önerileri.

Katılımcılar (K: Katılımcı) / Temalar ve Alt Temalar		K1	K2	K3	K4	K5	K6	K7	K8	K9
Özel eğitim alanına uygunluk	Hafif düzeyde zihinsel engelli bireylere uygunluk	*	*				*	*	*	*
	Pekiştirme amaçlı uygunluk	*	*			*				
	Önceki yaşantılara ve öğrenci seviyesine bağlı uyumsuzluk	*				*	*	*		*
	Kazanımların kısmen uygunluğu	*	*		*			*		*
	Karmaşık beceri eğitimine uygunluğu	*	*				*	*	*	*
Eksiklikler ve Öneriler	Kazanımların genelliği (alt beceri basamakları)	*	*		*		*		*	
	Kullanıcı Kontrolü	*				*	*			
	Sınırlılıkların varlığı	*	*	*			*		*	

Tablo 3: Öğretmenlerin geliştirilen materyale ilişkin görüşleri

Araştırmaya katılan öğretmenlerin hepsi, geliştirilen materyalin özel eğitim alanında kullanımına ilişkin görüş bildirmişlerdir. Katılımcılar, materyalin özel eğitim alanında, eğitilebilir hafif düzeyde zihinsel engelli bireylerin karmaşık beceri eğitimi sürecinde daha etkili kullanılabileceğini savunmuşlardır:

"…evet, yazılım bizim alan için uygun yalnız hafif düzeyde yetersizliği olan bireyler için daha uygun olabilir." [K1]
"…bu yazılım; özel eğitim alanında kullanılabilir ancak hafif düzeydeki zihinsel engelli bireyler için karmaşık beceri öğretiminde başarılı olabileceğini düşünüyorum. Orta ve ileri derecedeki zihinsel engelli bireyler için seviyesinin yüksek olacağını düşünüyorum." [K7]

Katılımcılar; geliştirilen materyalin, eğitilebilir zihinsel engelli öğrencilerin daha önceden edindikleri bir beceriyi pekiştirme, kalıcılık ve genelleme amacıyla kullanımının daha verimli olacağı yönünde görüş bildirmişlerdir:

"…yazılım, var olan kazanımların, becerilerin pekiştirilmesi amacıyla kullanılırsa etkili olabilir." [K5]
"…ayrıca becerilerin öğretiminde edinim aşamasından ziyade kalıcılık ve genelleme aşamaları için, edinim öncesi değerlendirme yapmak için daha uygun olacağını düşünüyorum." [K1]
"…yazılım bir beceri öğretimi için belki genel kalabilir; ama çocuk tüm bu becerilere sahip olsa, alıştırma için kullanılabilir." [K2]

Geliştirilen materyalin, ön yaşantılarında öğretilmesi hedeflenen beceri durumu ile ilgili deneyim yaşamayan zihinsel engelli öğrenciler üzerinde etkili olamayacağı ve materyalin seviyesinin yüksek olduğu düşüncesi, katılımcılar tarafından şu şekilde ifade edilmiştir:

"…çocuğun yaşantısında alışveriş, markete gitmek, bir hayvanı gezdirmek gibi etkinliklerin olması gerekiyor. Eğer bunları yaşamamışsa ya da görmemişse bu yazılımı anlamlandırması güç olabilir." [K7]
"…özel eğitimdeki çocuklar için bu yazılım onların seviyesinden yüksektir. Çünkü birçok kavram bir arada öğretilmesi ve öğrenilmesi güç olabilmektedir." [K9]
"…ön koşul becerileri olmayan öğrencilerde başarılı olunamadı. Çünkü materyalin kullanımı biraz da bilgisayar kullanım becerisi gerektiriyor." [K1]

Katılımcılar; geliştirilen materyalde bazı sınırlılıkların var olduğunu, materyalin uygulanması ile hedeflenen karmaşık beceri eğitimine ilişkin her bir kazanımın detaylandırılması gerektiğini, materyale kullanıcı kontrolünü artırıcı düzenlemeler yapılmasının yararlı olabileceğini şu şekilde belirtmişlerdir:

"…her beceri daha alt becerilere ayrılabilir. Her becerinin içerisinde daha basit düzeyde kazanımlar alınabilirse materyalin daha fazla faydalı olabileceğini düşünüyorum." [K8]

"…yazılımda ve formda geçen bazı ifadeler ayrı olarak verilseydi daha iyi olabilirdi sanırım." [K4]
"…karmaşık beceri eğitiminde alt basamaklara ayrıntılı değinirseniz daha iyi olacağı kanısındayım" [K6]
"…uygulamacıya daha fazla kontrol hakkı verilirse daha iyi olurdu." [K1]

Katılımcılardan biri ise diğer katılımcılardan farklı olarak materyalin çoklu ortam öğeleri içermesinin zihinsel engelli çocuklar üzerinde sağlayacağı yararlar üzerinde durmuştur:

"Çocuklardaki nörolojik gelişime paralel olarak görselliğin algılamayı gerektirdiği dikkate alınarak, sunulan çalışmanın her çocukta başarı sağlayacağı kanaatindeyim. Görsellik algılamayı geliştirir. Çocuğun oyunsal hazzına da yönelik olduğundan zevkle çalışılan bir uygulama olmuştur." [K3]

SONUÇ:

Çalışmadan elde edilen veriler genel olarak incelendiğinde, eğitilebilir zihinsel engelli bireylere yönelik karmaşık beceri eğitiminde kullanılmak üzere belirli kazanımlara yönelik geliştirilen çoklu ortam öğeleriyle zenginleştirilmiş bilgisayar destekli materyalin kullanılabilirliğine ve etkililiğine ilişkin şu sonuçlar elde edilmiştir:

- ✓ Geliştirilen materyal, senaryosu ve içerdiği çoklu ortam öğeleri ile eğitilebilir hafif düzeyde zihinsel engelli öğrenciler için uygundur.
- ✓ Geliştirilen materyalde var olan senaryodaki durumlar ile önceki yaşantılarında hiç karşılaşmamış engelli bireyler için ilgili durumlar ile kazandırılması beklenen becerileri öğrenmek zor olabilir.
- ✓ Eğitilebilir zihinsel engelli bireylere karmaşık beceri eğitimi için belirlenen kazanımların oldukça genel olduğu görülmektedir. Bu yüzden materyalin etkili kullanımı için her bir kazanımın alt basamaklarının oluşturulması gerekmektedir.
- ✓ Geliştirilen materyal, öğrenilmiş davranışları pekiştirmek, genellemek ve kalıcılığı artırmak için daha uygun olabilir.
- ✓ Geliştirilen materyal üzerinde öğrenci ve öğretmen kontrollerini artırılacak değişiklikler yapılmalı, kullanıcı girişi olmalı ve kullanıcının her bir adımdaki hareketleri kayıt altında tutulmalıdır.

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EĞİTİM BİLİMLERİ FAKÜLTESİ ÖĞRENCİLERİNİN FAKÜLTE KÜLTÜRÜNE İLİŞKİN ALGILARI(KARS KAFKAS ÜNİVERSİTESİ EĞİTİM FAKÜLTESİ ÖRNEĞİ)

PERCEPTIONS OF EDUCATION FACULTY STUDENTS IN RELATION TO FACULTY CULTURE (SAMPLE OF KAFKAS UNIVERSITY OF EDUCATION FACULTY)

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ÖZET: Bu çalışmanın amacı Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algılarını belirlemektir. Bu amaçla çalışmada genel tarama modeli kapsamında yer alan ilişkisel tarama modeli kullanılmıştır. Araştırma evrenini Kars İli, Kafkas Üniversitesi Eğitim Fakültesi öğrencileri, örneklemini ise Fenbilgisi (74), Sosoyalbilgiler (65), Sınıf (76)ve Türkçe (32) öğretmenliği anabilimdalında öğrenim gören son sınıf öğrencileri oluşturmuştur. Araştırmaya toplam 247 son sınıf öğrencisi katılmıştır. Araştırmada veri toplamak için kullanılan ölçek, Erdem ve İşbaşı (2001) tarafından geliştirilmiştir. Ancak bu çalışmada Kürşad Yılmaz ve Ebru Oğuz tarafından üniversitede uygulanmak üzere tek boyutlu hazırlanan Fakülte Kültürüne İlişkin Algı Ölçeği kullanılmıştır. Ölçeğin güvenirlik katsayısı .89'dur. Elde edilen veriler t testi ve ANOVA testi ile SPSS 12.0 paket programı kullanılarak değerlendirilmiştir. Analizlerde anlamlılık düzeyi .05 olarak alınmıştır. Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algılarının dağılımını belirlemek için yüzde ve frekans hesaplamaları yapılmıştır. Çalışma sonunda öğrencilerin fakülte kültürüne ilişkin algılarının cinsiyete göre farklılık göstermediği ve araştırmaya katılan öğrencilerin fakülte kültürüne ilişkin algılarının öğrenim gördükleri bölümlere göre anlamlı bir farklılık gösterdiği bulunmuştur. Bu farkın Sosyal Bilgiler ve Türkçe Öğretmenliği bölümleri arasında olduğu sonucuna varılmıştır.

ABSTRACT: The purpose of this study is to investigate the perceptions students of Kars Kafkas University Education Faculty in relation to faculty culture. For this reason within context of general survey method which is based conducting survey was used in this study. Sample of this study was composed fouth year students of Kafkas Universty of Science Teacher department (74), Social Sciences Teacher Department (65), Classroom Teacher Department (76), Turkish Teacher Department (32). Total 247 fourth year student was attended to this investigate. In this study was used the inventory for collecting the data that was developed by Erdem ve İşbaşı (2001). But in this study was used "Inventory of in relation to faculty culture perceptions" which was adapted as one dimensional by Yılmaz ve Oğuz (2005) using at university level. The inventory reliabilty coefficient is .89. The data gathered were analysed statistically by means of t test and ANOVA test using SPSS 12.0 package program**.** In the analysis, significance level has taken as .05. Percentage and frequency calculations was used to determine the distribution of perceptions students of Kars Kafkas University Education Faculty in relation to faculty culture. In the end of the study was found student's perceptions don't indicate significant changes with respect to their genders but was found student's perceptions in relation to faculty culture indicate significant changes with respect to their departments and this significant changes was defined between with Social Sciences Teacher Department and Turkish Teacher Department.

1.GİRİŞ

İnsan toplumsal yasalara uyum sağlayarak yaşamını sürdürüken, doğal gereksinimlerini de karşılamak zorunluluğundadır. Bireyin ruh halini, içinde bulunduğu kültür ve çevre koşullarından bağımsız düşünmek olanaksızdır. Bireyin ruh halinin iyi durumda olabilmesi için; öncelikle temel gereksinimleri daha sonra sevme, sevilme, ait olma, kabul görme, saygı ve kendini gerçekleştirme gibi ruhsal gereksinimlerin karşılanması gerekir (Erdoğan vd. 2005). Bireyin bir örgüt içinde başarılı olabilmesi de, temel ihtiyaçlarının karşılanması ve kendini örgüte ait hissetmesiyle sağlanabilir. Her örgüt bir kültür

üretir. Örgütler üretikleri kültürlerle, dünyayı algılama ve amaçlarını gerçekleştirmede yapacakları görevleri belirlerler. Akademik örgütler de kültür, yönetim, akademik ve idari personel ile öğrenci alt kültürünün etkileşmesiyle oluşur. Akademik örgütlerin kültürlerini öğrenci tarafından algılanması önemlidir. Öğrenciler algılamış olduğu kültürü kendi değerlerinden geçirerek yeniden tasvir etmekte ve beklentilerini çevresinde değerlendirmektedir (Terzi 2007).

1.1. Örgüt Kültürü Tanımı ve Temel Boyutları

Örgüt kültürü 1980'li yıllarda yönetim literatüründe sıklıkla karşılaşılan bir kavram halini almıştır. Örgüt kültürü çalışmalarının Lewin ile başladığı görülmüştür. Ancak Kurt Lewinin 1963'te yapmış olduğu çalışma antropolojinin bir alt dalı olarak henüz gelişme aşamasında olduğundan inceleme konusu örgüt kültürü olmayıp iklim konusu olmuştur. Fakat çalışan kişilerin üretim açısından sahip oldukları değerler, örgütün şartları, fiziksel ortamlar ve çalışanların beklentilerine göre işlevlerin kazanılması şüphesiz ki; kültürün ve örgüt kültürünün gelişmesini sağlamıştır (Işık ve Gürsel 2009). Örgüt kültürü kavramı tanımlanması zor olan örgüt ve kültür kavramlarından oluşmuştur. Kültür üzerine yapılan tanımlar aşağıdaki gibi sınıflandırılarak verilmiştir. Kültür, sosyal bilimlerde birçok kavram gibi birden fazla tanıma sahiptir. Kültür, insan etkileşimini gerçekleştiren bir sonuçtur**.** Kültür, hayata anlam veren inançlar, değerler ve bilgiyi eylemle birleştiren entelektüel bir çatıdır. Kültür, bir toplumun bilgi, ideoloji, değer, hukuk günlük ritüel sistemine yansıyan gelişme modelidir (Yılmaz ve Oğuz 2005). Genel bir tanımla kültür, kuşaktan kuşağa aktarılan ve toplumda yaşayan insanların bütün öğrendiklerini ve paylaştıklarını kapsayan bir kavramdır (Arslan 2004). Kültür kavramında olduğu gibi örgüt kültürü kavramında da birden fazla tanımla karşılaşmaktayız. Schein'a göre örgüt kültürü, dışa karşı bütünleşme ve iç uyumlaşmayı sağlayabilmek için, grup tarafından var olan problemlerin çözümlenmesi ve yeni üyelerin bu problemlerin çözümünü kabul eden temel yaklaşımdır (Schein 2004). Stolp'a göre ise örgüt kültürü, karşılaşılan güçlükler karşısında örgütte oluşan kurallar, inançlar ve değerler doğrultusunda güçlüklerin aşılması ve yeni üyeler tarafından alıgılanmasıdır (Stolp 1994). Robbins'e göre örgütün diğer örgütlerden farklı olmasının sebebi bir örgüte ait üyeler arasındaki paylaşılan anlamlar sisteminin farklı olmasıdır (Robbins 1994). Schein (2004) örgüt kültürü kavramını 3 ayrı katman şeklinde açıklamaktadır. Buna göre, eğer kültür kavramı bir buz dağına benzetilecek olursa, suyun üstünde kalan katman bireyler tarafından "üretilen nesneler" (artifacts) olup, davranış biçimlerinden, teknolojiye kadar tüm gözlemlenebilir nesnelerdir. Orta katman "değerlerden" (values) oluşmakta ve çalışanlar tarafından paylaşılan, ancak gözlemlenemeyen yargıları içermektedir. Kavramın merkezinde ise "temel varsayımlar" (basic assumptions) vardır. Bunlar, bireylerin zihninde yer etmiş olan ve insanın hem kendi benliği, hem de çevresiyle kurduğu ilişki ağının doğasını, karakterini (düşünsel boyutunu) yansıtan, ancak gözlemlenemeyen üçüncü katmandır (Yahyagil; Schein 2004). Örgüt kültürünü genel olarak tanımlamak gerekirse, örgüt kültürü; bir örgütte paylaşılan temel sayıltılar, değerler, semboller ve uygulamalardır (Bilir vd. 2003).

Örgüt kültürü, araştırmacıların birçoğu tarafından soyut çevre olarak görülmekte ve bu nedenle boyutları kesin olarak belirlenememektedir. Örgüt kültürünün tanımlanıp ölçülmesinde, belirlenmesinde esas olan 10 boyuttan söz edilmektedir. Bunlar: Bireysel özerklik: Orgut calışanlarının sahip olduğu ozgurluk ve sorumluluk derecesidir. Risk toleransı: Çalışanların girişimci, yaratıcı ve risk almaya açık bir biçimde teşvik edilme derecesidir. Yön: Örgütün çalışanlarına verdiği açık hedefler ve kendilerinden beklenilen performans derecesidir. Bütünleşme: Orgut birimlerinin birlikte eşgudumlu olarak calışmaya teşvik edilmeleridir. Yönetim desteği: Örgut icinde üstlerin astlarına sağladığı acık iletişim, yardım ve desteğin derecesidir. Kontrol: Örgütte gecerli olan kural ve yonetmeliklerin sayısı ve calışanların davranışlarını kontrol etmek üzere yapılan denetimlerinin sayısıdır. Kimlik: Çalışanların örgütü bir bütün halde görme ve tanımlarının derecesidir. Ödül Sistemi: Nesnel olarak belirlenmiş ölçütlere göre verilen ödüllerin derecesidir. Fikir ayrılıklarına verilen tolerans: Orgutte calışanların duşunce ayrılıklarından kaynaklanan catışmaların ne kadarının tolere edildiği ve calışanlara verilen acık eleştiri ve mucadele etme derecesidir. İletişim modelleri: Örgütsel iletişimin, resmi otorite ve hiyerarşiyle ne kadarının sınırlandırıldığının derecesidir. Bu boyutları bir araya getirdiğimizde, orgut kulturunun bir resmi ortaya cıkmaktadır. Başka bir ifade ile bu boyutların toplamı orgutun kulturunu oluşturmaktadır. Orgut kulturunun yukarıda belirtilen boyutları, orgutte işlerin nasıl yapıldığına ve bireylerden neler beklenildiğine ilişkin bir temel oluşturmaktadır. Calışanlar ise bu boyutlara bakarak, orgutle ilgili nesnel olmayan butuncul bir anlam oluşturmaktadırlar (Güçlü 2004).

İçinde bulunduğu topluma uyum sağlamak zorunda olan örgütler, üyelerinin birbirini anlamalarını ve ortak noktalarda buluşmalarını sağlamak için bazı hususları dikkate almak zorundadır. Bu amaçla örgüt kültürünün oluşturan unsurların (Törenler, Mitler, Destanlar, Efsaneler, Öyküler ve Masallar, Semboller, Dil ve Tutumlar, Değerle ve Uygulamalar, Örgütsel İklim ve Felsefe) bir araya getirilerek örgüt içi devamın sağlanması gerekir (Topaloğlu ve Kara 2004). Örgütsel kültürler, örgüt üyelerinin davranışlarını

etkileme, temel inanç ve değerlerin örgüt üyelerince paylaşılma düzeylerine bağlı olarak güçlü ve zayıf olarak nitelendirilir. Güçlü örgütsel kültür, iş görenlerin örgütün öz değerlerine bağlılık düzeylerinin yüksek olduğunu ima eder. Zayıf örgütsel kültürde bu durumu pek göremeyiz (Özdemir 2006). Temel değerlerin örgüt üyelerince güçlü biçimde paylaşılıyor olması, üyelerin davranışlarının da daha kolay kontrol edilmesini sağlar. Örgüte yeni giren bir çalışan ast-üst ilişkilerini, işin nasıl nerede ve ne biçimde yapıldığını, çalışanlar arasında ilişkilerin nasıl şekillendiğini fark edecek ve davranışlarını buna göre şekillendirecektir (Işık ve Gürsel 2009). Örgüt kültürünün anlamlı olması ancak iletişimle mümkün olabilir. Bu nedenle**,** örgüt kültürü ve örgütsel iletişim kavramları arasında çok yakın bir ilişki vardır**.** Örgütsel iletişim yoluyla örgüt kültürünün temel öğeleri olan değerler normlar, hikayeler, tarih, gelenekler diğer bir deyişle örgütün sembolik dünyası yorumlanabilir (Çelik 2002). Kültür ve iletişim araştırmalarının önemi Schein tarafından vurgulanmıştır. Schein liderler tarafından koçluk, kasıtlı rol model ve örgütsel felsefenin biçimsel ifadeleri gibi açık ya da ima edilen mesajlar aracılığıyla kültürün iletilip yayıldığını ve böylece kültürün örgüte yerleştirildiğini ileri sürmüştür (Durgun 2006). Yönetim sembolü, okul kültürünün yönetilmesinde önemli bir role sahiptir, inanç, norm ve örgüt değerlerinin etrafındaki sembolleri simgeler. (Kapusuzoğlu 2004). Her okul, kendi kültürüne sahiptir. Okullar diğer kurumlardan da farklıdır. Okullar birçok önemli yöntemleri aynı olmasına rağmen kendi aralarında farklı olarak tanımlanır (Dalin etc. 1994). Akademik örgütlerde kültür, öğretim üyeleri, öğrenci ve yönetim alt kültürünün etkileşimi ile üretilir ve bu örgütlerin kültürel özelliklerinin incelenmesi, kültürün araştırma ve öğrenci yetiştirme süreçlerinin geliştirilmesindeki rolü nedeniyle oldukça önemlidir (Erdem ve İşbaşı 2001). Bu araştırmada Kafkas Üniversitesi Eğitim Fakültesi son sınıf öğrencilerinin fakülte kültürüne ilişkin algılarının belirlenmesi amaçlanmıştır.

2. YÖNTEM

2.1. Araştırma Deseni

Bu çalışmada genel tarama modeli kapsamında yer alan ilişkisel tarama modeli kullanılmıştır. Bu model iki ve daha çok değişken arasında birlikte değişim varlığını ve/veya derecesini belirlemeyi amaçlayan araştırma modelidir (Karasar 2008). Bu araştırma türü, ilişkinin derecesinin bir istatiksel ölçümünü içerir. Bu model sıklıkla eğitim araştırmalarında davranışları, inanışları düşünceleri ve bilginin diğer türlerini açıklamak için kullanılır (McMillan and Schumacher 2006).

2.2. Evren ve Örneklem

Araştırma evrenini Kars İli, Kafkas Üniversitesi Eğitim Fakültesi öğrencileri, örneklemini ise Fenbilgisi, Sosoyalbilgiler, Sınıf ve Türkçe öğretmenliği anabilimdalında öğrenim gören son sınıf öğrencileri oluşturmuştur. Bu öğrencilerin fakülte kültürünü anlayabilecekleri yeterli süreyi elde ettikleri düşünülerek veri toplama aracı eğitim fakültesinin son sınıf öğrencilerine uygulanmıştır. Araştırmaya katılan 247 son sınıf öğrencilerinin 74'ü Fenbilgisi Öğretmenliği, 65'i Sosyalbilgiler Öğretmenliği, 76'sı Sınıf Öğretmenliği, 32'si Türkçe Öğretmenliği Anabilimdalı öğrencileridir.

2.3. Veri Toplama Aracı

Araştırmada kullanılan ölçek, Erdem ve İşbaşı (2001) tarafından geliştirilmiştir. Orijinal ölçeğin, faktör analizi sonucunda, beş alt boyuttan oluştuğu belirlenmiştir. Bu alt boyutlar,"Aidiyet", "Semboller", "Güç Mesafesi", "İletişim/İlişki" ve "Örgütsel Yapı/ Etkinlik" alt boyutlarıdır. Ölçeğin güvenirlik katsayısı ise .89'dur. Ancak bu çalışmada Kürşad Yılmaz ve Ebru Oğuz tarafından tekrar düzeltmeler yapılarak en son hali olan ölçek kullanılmıştır. Araştırmada, araştırmanın amacına uygun olarak veriler üzerinde, öğrencilerin fakülte kültürüne ilişkin algılarının öğrenim gördükleri bölümlere göre değişip değişmediğinin belirlenmesi için Anova istatistiği uygulanmıştır. Yapılan istatistik analiz sonuçları .05 anlamlılık düzeyinde değerlendirilmiştir.

2.4. Problem Cümlesi ve Alt Problemler

Araştırmanın problem cümlesi, "Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algıları nasıldır?" şeklindedir.

Alt problemler ise aşağıdaki gibidir.

1.Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algılarının dağılımı nasıldır?

2. Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algıları cinsiyete ve öğrenim gördükleri bölümlere göre farklılık göstermekte midir?

3. BULGULAR ve YORUM

Bu bölümde araştırmanın alt problemlerini yanıtlamak için toplanan verilerin istatiksel çözümlemeleri ile elde edilen bulgular çizelge halinde sunulmuş ve bu bulgular ışığında yorumlar yapılmıştır. Kars Kafkas Üniversitesi Eğitim Bilimleri Fakültesi son sınıf öğrencilerinin örgüt kültürüne ilişkin algılarını ortaya koymak için öğrencilerin fakülte kültürüne ilişkin algılarının öğrenim gördükleri bölümlere göre değişip değişmediğinin belirlenmesi için Anova istatistiği aşağıda gösterilmiştir ve öğrencilerin fakülte kültürüne ilişkin algılarının dağılımı verilmiştir.

3.1. Birinci Alt Probleme Ait Bulgular ve Yorum

Araştırmanın birinci alt problemi "Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algılarının dağılımı nasıldır?" şeklindedir. Bu alt problemi değerlendirmek için öğrencilerin fakülte kültürüne ilişkin yüzde ve frekans hesaplamaları yapılmıştır.

Tablo 1: Öğrencilerin Fakülte Kültürüne İlişkin Algılamalarının Dağılımı

	İfadeler	**Tamamen katılıyorum**		**Katılıyorum**		**Kararsızım**		**Katılmıyorum**		**Kesinlikle katılmıyorum**	
		%	f	%	f	%	f	%	f	%	f
1	Fakültemizde uygulamalar esnasında bölümler arasında yüksek uyum vardır	5,3	13	15,4	38	23,5	58	36	89	19,8	49
2	Fakültenin yöneticileri sorunların giderilmesinde başarılıdır	1,2	3	19,8	49	23,9	59	36,4	90	18,6	46
3	Fakültenin yöneticileri dışarıdan gelen etki ve baskılara karşı fakülteyi korur.	3,6	9	25,5	63	32	79	25,5	63	13,4	33
4	Öğretim üyeleri iletişime her zaman açıktır.	13,8	34	42,5	105	18,2	45	19,4	48	6,1	15
5	Fakültenin eğitime yönelik hedefleri konusunda bilgi sahibiyiz.	4,5	11	21,9	54	27,1	67	31,6	78	15	37
6	Farklı sınıflardaki öğrenciler arasındaki iletişim güçlüdür.	6,5	16	23,9	59	15	37	37,2	92	17,4	43
7	Öğretim üyelerinin öğrencilere yaklaşımı insancıldır	10,5	26	42,1	104	24,7	61	15,8	39	6,9	17
8	Derslerin veriliş şekli bilgi aktarmaktan çok düşünce ve beceri geliştirici niteliktedir.	3,6	9	19,8	49	26,3	65	33,6	83	16,6	41
9	Fakültenin dışarıda (kampüste, kentte) olumlu bir imajı vardır	3,6	9	18,2	45	25,1	62	27,5	68	25,5	63
10	Fakültenin öğretim elemanları kendi aralarında işbirliği ve dayanışma içindedirler.	4,5	11	25,1	62	54,3	134	11,3	28	4,9	12
11	Fakülte yönetimi öğrencileri, yönetmeliklere ve uygulamalara yönelik zamanında ve doğru bilgilendirir.	2,0	5	21,1	52	30,0	74	27,1	67	19,8	49
12	Öğretim üyeleri hatalara karşı toleranslı davranırlar.	4,9	12	41,7	103	24,7	61	19,0	47	9,7	24
13	Öğrenciler hocalarını farklı sorunlarını iletecek kadar yakın görürler.	7,7	19	27,5	68	29,6	73	21,9	54	13,4	33
14	Öğrenciler fakültedeki uygulamalara yönelik sorunlarını veya düşüncelerini yöneticilere yeterli düzeyde aktarabilirler.	3,6	9	28,3	70	27,9	69	25,9	64	14,2	35
15	Öğretim elemanları fakülte ile özdeştir.	6,1	15	28,3	70	39,7	98	21,1	52	4,9	12
16	Fakülteye yeni gelen öğrencilerle eski öğrenciler çabuk kaynaşırlar.	8,9	22	30,4	75	23,5	58	23,5	58	13,8	34
17	Bu üniversitede Eğitim Fakültesi öğrencisi olmak bir ayrıcalıktır	21,1	52	22,7	56	17,4	43	16,6	41	22,3	55
18	Fakültenin araştırma görevlileri öğrencilere içtenlikle yardımcı olurlar	5,3	13	27,1	67	27,5	68	22,3	55	17,8	44
19	İdari personel öğrencilerin taleplerini karşılamada olumlu bir tutum içindedirler.	6,1	15	26,3	65	23,9	59	26,3	65	17,4	43
20	Fakültede öğrenci-hoca-personel arasında işbirliği ve dayanışma vardır.	3,6	9	23,5	58	36,0	89	22,3	55	14,6	36
21	Üniversite çağına gelen yakınlarıma bu fakülteyi tercih etmelerini öneririm	1,6	4	13,8	34	22,7	56	21,1	52	40,9	101
22	Fakülte, aile, toplum ve iş dünyasındaki beklentileri karşılamaktadır	4,5	11	13,4	33	25,5	63	31,6	78	25,1	62
23	Öğrenciliğim sona erse bile, kendimi Eğitim Fakülteli olarak göreceğim.	15,0	37	34,8	86	19,4	48	15,8	39	15,0	37
24	Fakültenin fiziki mekanları diğer fakültelere göre farklı ve özgündür.	12,1	30	12,6	31	7,3	18	26,7	66	41,3	102
25	Fakültede açılış, kuruluş, kapanış gibi günlerde törenlere önem verilir.	4,9	12	21,5	53	27,1	67	22,3	55	24,3	60
26	Fakültenin geçmişine ilişkin anılar, öyküler, olaylar eski öğrenciler tarafından yenilere aktarılır.	6,9	17	20,6	51	21,5	53	28,3	70	22,7	56
27	Diğer üniversitelerin eğitim fakültelerinin öğrencileri ile rekabette kendimi şanslı görüyorum.	4,9	12	17,8	44	19,4	48	24,7	61	33,2	82

Tablo 1'e göre araştırmaya katılan öğrencilerin verdikleri cevaplara göre cevap skalası tek tek değerlendirildiğinde, öğrencilerin en yüksek "kesinlikle katılmıyorum" cevabını 24. soru olan "Fakültenin fiziki mekânları diğer fakültelere göre farklı ve özgündür" ifadesi %41,3 oranında vermişlerdir. Bu soruya 102 öğrenci "kesinlikle katılmıyorum" demiştir. Bu durumda öğrencilerin fakültenin fiziki mekanını diğer fakültelerden ayırıcı bulmadığı söylenebilir. Buna göre eğitim fakültesinin kendine özgü olabilmesi için fiziki mekanlarda birtakım yeniliklerin ve iyileştirmelerin yapılması gerekli olabilir.
Öğrenciler "katılmıyorum" cevabını en yüksek oranda 6. soru olan "Farklı sınıflardaki öğrenciler arasındaki iletişim güçlüdür" ifadesine %37,2 oranında 92 öğrenci cevap vermiştir. Buna göre fakültedeki öğrenciler arasındaki iletişimin zayıf olduğu anlaşılır. Bu iletişim zayıflığı öğrencilerin birbirlerine her türlü bilgi aktarımını engelleyebilir. Bu nedenle başta yöneticiler ve öğretim elemanları öğrencileri bu açıdan yönlendirebilirler.
Öğrenciler "kararsızım" cevabını ise en yüksek oranda %54,3 ile 10. soru olan "Fakültenin öğretim elemanları kendi aralarında işbirliği ve dayanışma içindedirler" ifadesine vermişlerdir. Bu soruya 134 öğrenci kararsızım cevabını vermiştir. Bu durumun nedeni öğrencilerin fakültedeki öğretim elemanları arasındaki etkileşime tanık olmamaları olabilir. Öğretim elemanları çeşitli derslerde öğrencileri diğer öğretim elemanlarına yönlendirerek ya da ortaklaşa projelerde öğrencilere de görev vererek bu düşünceyi ortadan kaldırabilirler.
Öğrencilerin verdikleri "katılıyorum" cevabı %42,5 oranında en yüksek 4. soru olan "Öğretim üyeleri iletişime her zaman açıktır" ifadesine olmuştur. Bu soruya 105 öğrenci "katılıyorum" demiştir. Bu durumda öğrenciler ile öğretim elemanları arasında olumlu bir iletişim olduğu söylenebilir bu durum, sorunların çözümü için olumlu bir iletişimin gerekli olduğu düşünüldüğünde, sevindiricidir.
Bu ölçekte öğrenciler "kesinlikle katılıyorum" ifadesine en yüksek oranda, cevap vermemişlerdir.

3.2. İkinci Alt Probleme Ait Bulgular ve Yorum

Araştırmanın ikinci alt problemi "Kars Kafkas Üniversitesi Eğitim Fakültesi öğrencilerinin fakülte kültürüne ilişkin algıları cinsiyete ve öğrenim gördükleri bölümlere göre farklılık göstermekte midir? Bu alt probleme göre bölümlerdeki toplam kız ve erkek öğrenciler arasındaki fakülte kültürüne ilişkin algılar arasında anlamlı bir fark olup olmadığını değerlendirmek için t testi ve öğrencilerin fakülte kültürüne ilişkin algılarının öğrenim gördükleri bölümlere göre değişip değişmediğinin belirlenmesi için Anova istatistiği uygulanmıştır.

Tablo 2: Öğrencilerin Fakülte Kültürüne İlişkin Algılarının Cinsiyete Göre Karşılaştırılmasına İlişkin t-testi Sonuçları

CİNSİYET	N	$\bar{x}$	S	sd	t	p
BAYAN	76	74,4211	15,12020	245	-,091	,928
ERKEK	171	74,6082	14,94475			

p>.05

Tablo 2 incelendiğinde, öğrencilerin fakülte kültürüne ilişkin algılarının cinsiyete göre farklılık göstermediği belirlenmiştir [$t_{(245)}$=-,091, p>.05]. Buna dayanarak fakültede örgüt kültürünü oluşturan unsurlardan bayan ve erkek öğrencilerin aynı derecede etkilendikleri söylenebilir. Yılmaz ve Oğuz (2005) ile Argon ve Köşterelioğlu (2008) da yaptıkları çalışmalarda fakülte kültürünü algılamada cinsiyetler arasında anlamlı fark bulmamışlardır.

Tablo 3: **Araştırmaya Katılan Öğrencilerin Fakülte Kültürüne İlişkin Algılarının Öğrenim Gördükleri Bölümlere Göre Karşılaştırılmasına İlişkin ANOVA Sonuçları**

Varyans Kaynağı	Kareler Toplamı	sd	Kareler Ortalaması	F	p	Bölümler arasındaki fark (Tukey)
Gruplar arası	2211,842	3	737,281	3,386	,019	2-4
Grup içi	52905,276	243	231,474			
Toplam	55117,117	246				

p<.05

Tablo 3'te görüldüğü gibi araştırmaya katılan öğrencilerin fakülte kültürüne ilişkin algılarının öğrenim gördükleri bölümlere göre anlamlı bir farklılık gösterdiği bulunmuştur [$F_{(3,242)}$=3,386; p<.05]. Bu farklılığın hangi bölümler arasında olduğunu belirlemek için Tukey testi yapılmıştır. Bu testin sonucunda

Sosyal Bilgiler(2) ve Türkçe(4) bölümü arasında anlamlı fark bulunmuştur. Bu bölümlerdeki öğrencilerin ölçekten aldıkları puan ortalamaları aşağıda verilmiştir. Yılmaz ve Oğuz (2005) da, "Eğitim Bilimleri Fakültesi Öğrencilerinin Fakülte Kültürüne İlişkin Algıları" adlı çalışmalarında öğrencilerin öğrenim gördükleri bölümler ve fakülte kültürüne ilişkin algıları arasında anlamlı farklılık bulmuşlardır.

Tablo 4: Araştırmaya Katılan Öğrencilerin Fakülte Kültürüne İlişkin Algılarının Öğrenim Gördükleri Bölümlere Göre Ortalama ve Standart Sapma Sonuçları

Bölümler	N	$\bar{x}$	ss
Fen Bilgisi	74	76,45	16,60
Sosyal Bilgiler	65	71,49	14,49
Sınıf Öğretmenliği	76	72,82	13,12
Türkçe Öğretmenliği	32	80,43	14,39

Tablo 4'e göre araştırmaya katılan öğrencilerden Sosyal Bilgiler bölümünde olan öğrencilerin fakülte kültürüne ilişkin algı ölçeğinden aldıkları puan ortalaması $\bar{x}$=71,49 iken Türkçe Öğretmenliği bölümünde $\bar{x}$=80,43'tür. Bu bölümlerdeki öğrencilerin fakülte kültürünü oluşturan unsurlardan farklı düzeyde etkilendikleri söylenebilir. Buna göre Türkçe Öğretmenliği bölümündeki öğrencilerin fakülte kültürüne ilişkin algılarının daha olumlu olduğu söylenebilir. Uygulanan ölçekte bu bölümdeki öğrenciler daha çok iletişimi açığa çıkaran sorular için olumlu yargıda bulunmuşlardır. Örneğin; "Öğretim üyeleri iletişime her zaman açıktır", "Öğretim üyelerinin öğrencilere yaklaşımı insancıldır", "Öğrenciler hocalarını farklı sorunlarını iletecek kadar yakın görürler", "Öğrenciler fakültedeki uygulamalara yönelik sorunlarını veya düşüncelerini yöneticilere yeterli düzeyde aktarabilirler ", "Fakülteye yeni gelen öğrencilerle eski öğrenciler çabuk kaynaşırlar" gibi iletişim becerisiyle ilgili sorularda "katılıyorum" ifadesini daha çok işaretlemişlerdir. Bu nedenle bu bölümdeki öğrencilerin ve bu bölümdeki öğretim üyelerinin iletişim kurma becerilerinin daha gelişmiş olduğu söylenebilir.

SONUÇ VE ÖNERİLER

Araştırma sonuçlarına göre, öğrencilerin fakülte kültürüne ilişkin algıları incelendiğinde, "Farklı sınıflardaki öğrenciler arasındaki iletişim güçlüdür" ve"Fakültenin fiziki mekânları diğer fakültelere göre farklı ve özgündür" ifadelerinde olumsuz, "Fakültenin öğretim elemanları kendi aralarında işbirliği ve dayanışma içindedirler" ifadesinde kararsız ve "Öğretim üyeleri iletişime her zaman açıktır" ifadesinde olumlu olduğu saptanmıştır. Verilen cevaplardan fakülte yöneticilerinin, fakültenin kendine özgü olmasını sağlayacak fiziki mekan değişikliği gerçekleştirmeleri ve öğrencilerini kaynaştıracak çeşitli etkinlikler düzenleyip öğrenciler ve öğretim elemanları arsındaki iletişimi, bilgi paylaşımını sağlayabilmek adına, güçlendirmeleri önerilebilir. Ayrıca öğrenciler ve öğretim elemanları arasındaki olumlu iletişimin sürdürülebilmesi için uygun ortamlar düzenlenip, öğretim elemanları öğrencileri, bilgi alış verişi için diğer meslektaşlarına yönlendirebilirler. Bu durum aynı zamanda öğretim elemanları arasındaki etkileşimi de kuvvetlendirebilir.

Araştırmadan elde edilen diğer sonuçlardan biri de öğrencilerin fakülte kültürüne ilişkin algılarının cinsiyete göre farklılık göstermediğinin belirlenmesidir. Buna göre, farklı bölümlerde öğrenim gören kız ve erkek öğrencilerinin fakülte kültürünü benzer şekilde algıladıkları söylenebilir.

Araştırmadaki diğer bir sonuca göre, araştırmaya katılan öğrencilerin fakülte kültürüne ilişkin algılarının öğrenim gördükleri bölümlere göre anlamlı bir farklılık gösterdiği bulunmuştur. Bu farklılığın Sosyal Bilgiler ve Türkçe Öğretmenliği bölümlerindeki öğrenciler arasında olduğu bulunmuştur. Buna göre bu bölümlerde öğrenim gören öğrencilerin fakülte kültürünü farklı şekilde algıladıkları söylenebilir. Bu bölümlerdeki öğrencilerin fakülte kültürüne ilişkin algı ölçeğinden aldıkları puan ortalamalarına bakıldığında Türkçe Öğretmenliği bölümündeki öğrencilerin fakülte kültürüne ilişkin algılarının daha olumlu olduğu bulunmuştur. Uygulanan ölçek sonucu bu bölümdeki öğrencilerin öğretim üyeleri, eğitim fakültesi idari personeli ve birbirleri ile olumlu iletişim kurdukları ve eğitim fakülteli olmayı bir ayrıcalık olarak nitelendirdikleri görülmüştür. Türkçe Öğretmenliği bölümündeki öğrencilerin ve bu bölümdeki öğretim üyelerinin iletişim kurma becerilerinin daha gelişmiş olduğu söylenebilir.

Sonuç olarak yöneticiler fakülte kültürü boyutunda öğrenciler tarafından eksik ve yetersiz görülen noktalara odaklanıp bunları daha olumlu hale getirmeye çalışmalıdırlar. Bundan sonraki çalışmalar faklı fakültelerin farklı bölümleri arasında da yapılarak üniversitelerin fakülte kültürleri birbirleri ile karşılaştırılabilir.

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EĞİTİM FAKÜLTESİ ÖĞRENCİLERİNİN DARWİN'İN EVRİM TEORİSİ HAKKINDAKİ GÖRÜŞLERİ

THE OPINIONS OF THE EDUCATION FACULTY'S STUDENTS ABOUT THE DARWIN'S EVOLUTION THEORY

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Özet: Bu araştırmada üniversite öğrencilerinin bir biyoloji konusu olan Darwin'in evrim teorisi hakkındaki görüşleri, bu görüşün oluşmasında etkili faktörlerin neler olduğu ve aldıkları üniversite eğitiminin bu konudaki görüşlerini etkileyip etkilemediği araştırılmıştır. Bu amaçla % 54,8'i (n=317) birinci sınıf, % 45,2'si (n=261) ise dördüncü sınıf öğrencisi olmak üzere toplam 578 üniversite öğrencisine kapalı ve açık uçlu alternatifler içeren 7 soruluk bir anket uygulanmıştır. Evrim'in doğru tanımını işaretleme oranı Fen Bilgisi öğretmenliğinde 4. sınıfta 1. sınıfa göre artarken; Sınıf, Türkçe ve Sosyal Bilgiler öğretmenliklerinde azalma görülmüştür. Darwin'in evrim teorisine inanıp inanmadıklarına ilişkin soruya evet cevabı verenlerin oranı 1. sınıflarda % 14,8 iken 4. sınıfta % 23,5'a yükselmiştir. Aday öğretmenlerin böyle düşünmelerinde en etkili faktörün okudukları yazılar olup; canlıların oluşumuyla ilgili tüm teorilerin derslerde öğrencilere anlatılmasını uygun bulan aday öğretmen sayısı da yaklaşık % 50dir. Genel bir değerlendirme yapıldığında Fen Bilgisi ve Sosyal bilgiler öğretmenliği öğrencilerinde eğitim süreci sonunda konuya ilişkin olumlu tutum gelişirken; Türkçe ve Sınıf öğretmenliği bölümlerinde negatif tutumun arttığı söylenebilir.

Anahtar Kelimeler: *Evrim teorisi, Aday öğretmen görüşleri*

Summary: In this study, it was tried to determine what the opinions of the university students about Darwin's Evolution Theory were, what factors influenced them in building up these opinions, and whether their university education had any effects on determining their beliefs in this matter. For this aim, a questionnaire consisting of seven questions, which included open and close- ended alternatives, was given to 578 university students, 54,8%(n=317) of whom were 1st grade and 45,2% (n=261) 4th grade students. While the rate of the correct answers for the right definition of the Evolution Theory was increasing in the 4th grade when compared to the 1st grade in Science Education Teaching, the same rate decreased in Primary, Turkish, and Social Science Education Teaching. The rate of the students in the 1st grade who said yes to the question whether they believe Darwin's Evolution Theory was 14.8 %, and the same rate went up to 23.5 % in the 4th grade. The most effective factor for the candidate teachers to think so was the papers (or books) they read. In addition, the average rate for the candidate teachers was 50 % who approved all the creation theories of life on earth should be taught in classes. On the other hand, in a general overlook, it can be said that, at the end of the educational process, a positive attitude increased in Science and Social Science Education Teaching; however, a negative attitude increased in Turkish and Primary Education Teaching.

Key words*: Evolution theory, Opininon of the teacher candidate*

EĞİTİM VE MİMARLIK: ÜÇ BOYUTLU EĞİTİM ARAÇLARI OLARAK OKUL BİNALARI

EDUCATION AND ARCHITECTURE: SCHOOL BUILDINGS AS THREE-DIMENSIONAL EDUCATIONAL TOOLS

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ÖZET

Çevresel sorunların ciddi biçimde artmakta olduğu günümüzde bu sorunlara çözüm yolu olarak "sürdürülebilir gelişme" kavramı öne çıkmakta, tüm bilim dallarında kavramın açılımına yönelik çalışmalar yürütülmektedir. Bu bağlamda eğitim alanında da sürdürülebilir gelişme kavramının yaratmış olduğu bir değişim ve dönüşüm yaşanmış ve yaşanmaktadır. Eğitim ve öğretimin gerçekleştiği çeşitli düzeydeki kurumlarda öğrencilere sürdürülebilirlik bilincinin ve çevresel duyarlılığın kazandırılmasına yönelik programlara yer verilmektedir. Sürdürülebilir gelişme kavramının dahil edildiği eğitim programlarının yapılandırılması sürecinde, bu programların gerçekleştirileceği fiziksel bağlamın da göz önünde bulundurulması önem taşımaktadır. Özellikle 6-14 yaş grubundaki kullanıcılara hizmet eden temel eğitim okulları, genç kuşaklara sürdürülebilirlik bilincinin eğitimle birlikte öğretilebileceği yapılar olarak, diğer yapı tiplerine kıyasla büyük öneme ve potansiyele sahiptir.

Bu çalışmada temel eğitim kurumlarında sürdürülebilir gelişme bağlamında öğrencilere kazandırılması hedeflenen çevresel duyarlılık ile eğitimin süregeldiği fiziksel ortam olan okul binalarının mimarisi arasındaki ilişki irdelenmektedir. Bir başka deyişle, okulların mimari tasarım kriterleri ve öğelerinin, öğrencilere verilmesi hedeflenen çevresel eğitimi nasıl ve ne şekilde destekleyebileceği üzerinde durulmaktadır. Söz konusu fiziksel çevre elemanları kapalı ve açık alanlar olarak iki kategori altında sınıflandırılmakta ve eğitimsel potansiyelleri irdelenmektedir.

Anahtar kelimeler: sürdürülebilir gelişme, çevresel duyarlılık eğitimi, sürdürülebilirlik bilinci, temel eğitim

ABSTRACT

In these days environmental problems are increasing and "sustainable development" is the solution which is becoming prominent, there are works in all science disciplines exploring this concept. In this sense due to sustainable development concept transition has been done or is in current process in educational space.

There are programs for giving sustainable awareness to students in different organizations giving education and training at different levels. While forming educational programs containing sustainable development concept, the physical environment of these places should be well thought of. Especially elementary school buildings for students at the age of 6 to 14 should be designed with sustainable consciousness in order to give sustainable awareness to students along with the education, thus they are more important and have greater potential than the rest of the buildings.

In this work, environmental sensibility targeted to be given to the students of primary educational institutions with sustainable development in mind and the physical environment and architecture of these institutions are examined. In other words, how and in which shape to form the architectural criteria and components in order to support targeted environmental education to students are emphasized. The mentioned physical environmental components are divided into open and closed area categories and their educational potentials are examined.

Keywords: Sustainable development, environmental sensibility education, sustainable awareness, primary education

1. GİRİŞ

18. yy.' ın erken dönemlerinde yaşanmaya başlayan Sanayi devrimiyle birlikte, yerkürenin sahip olduğu doğal kaynaklar hızlı bir biçimde tükenmeye başlamıştır. Sözkonusu tüketimin sonucu olarak alarm vermeye başlayan çevre sorunları, 1970'li yıllarda "sürdürülebilir kalkınma" kavramını gündeme getirmiştir. Sürdürülebilir kalkınma, doğal kaynakların gelecek nesillerin de yaşamlarını sürdürebilmesine olanak tanıyacak şekilde kullanılmasını önermektedir.

1992 yılında Rio Konferansı'nın ardından hazırlanan Gündem 21 dökümanı, sürdürülebilir gelişme kavramını ayrıntılı bir biçimde tanımlayan bir eylem planıdır. Söz konusu belge sürdürülebilir gelişme kavramı kapsamında yer alan 40 bölümden oluşmaktadır. Dökümanın 4. Kısmını oluşturan "Uygulama Araçları" başlığı altındaki 36. bölümde "Öğretimin, kamu duyarlılığının ve eğitimin özendirilmesi" konusuna yer verilmektedir. Birleşmiş Milletler Avrupa Ekonomik Konseyi(UNECE)'nin "Sürdürülebilir Kalkınma İçin Eğitim Stratejisi Vizyonu" dökümanında sürdürülebilir kalkınma için eğitim şöyle açıklanmaktadır; "Bireylerin, grupların, toplulukların, kurumların ve ülkelerin, sürdürülebilir kalkınma lehine değerlendirmeler ve tercihler yapma kapasitelerini geliştirmekte ve güçlendirmektedir. Sürdürülebilir kalkınma için eğitim bireylerin bakış açısını değiştirerek dünyamızın daha güvenli, daha sağlıklı ve müreffeh hale gelmesini sağlar ve yaşam kalitesini artırır. Sürdürülebilir kalkınma için eğitim, yeni vizyon ve kavramların keşfedilmesi ve yeni metot ve araçların geliştirilmesi için gerekli eleştirel düşünce, daha fazla farkındalık ve daha fazla yetkilendirilme imkanları sağlayabilir" **[1].** Bu tanımlamadaki yeni vizyon ve kavramların geliştirilmesi, daha fazla farkındalık ve yetkilendirilme gibi edinimlerin sağlanması doğrultusunda eğitim programlarının yeniden gözden geçirilmesi ve revize edilmesi gerekmektedir.

Bir sistemin araç, süreç ve hedefleri ile sistemin içerisinde yer aldığı mekanın özelliklerinin uyum içinde olması önemlidir. Herhangi bir uyumsuzluk durumunda eğitim sisteminde aksaklıkların oluşabileceği söylenebilir. Sürdürülebilirlik anlayışıyla tasarlanan okul binaları, iç ve dış mekanlarının tasarımı yoluyla öğretime katkı sağladığı sürece daha da anlamlı olacaktır. Hathaway (1988) "Eğitsel Binalar" adlı makalesinin girişinde şöyle demektedir: "Bizler ilk önce binaları şekillendiririz sonra onlar bizleri şekillendirir. Okullar için bu çok önemlidir, çünkü gerek öğrenmeye ve insan becerisine yardımda ya da her ikisini de engellemek için eğitsel binaların birçok özelliğinin gizli güçleri vardır". Bu bağlamda sürdürülebilir temel eğitim binalarının tasarım ilkeleri şöyle sıralanmaktadır;

(a) Binanın inşa edileceği arsanın sahip olduğu doğal habitatı minimal düzeyde değişime uğratacak yerleşim,
(b) Binanın inşa, kullanım, yıkım gibi tüm yaşam döngüsü aşamalarında yenilenemeyen enerji tüketimini minimal düzeye çekebilmek için, toprak, güneş, rüzgar vb. doğal kaynaklardan enerji üretiminde yararlanma,
(c) Enerji tüketiminin azaltılabilmesi için doğal aydınlatma, doğal havalandırma gibi pasif tasarım yöntemlerinden yararlanılması,
(d) Binanın inşasında kullanılacak tüm malzeme ve ekipmanların sürdürülebilir (üretim ve nakliye enerjisi düşük, sağlıklı, geri dönüştürülebilir, tekrar kullanılabilir, yerel) özelliklere sahip olması,
(e) Binanın su tüketimini minimal düzeye çekebilmek amacıyla yağmur suyunun depolanması, iç mekanda düşük akışlı musluk ve ekipmanların tercih edilmesi,
(f) Binada oluşacak atık miktarının azaltılması için malzeme tüketiminin kontrolünün sağlanması, atıkların ayrıştırılarak toplanması için gerekli alan ayrılması,
(g) Binadaki ısıtma-soğutma-iklimlendirme sistemlerinin uygun şekilde tasarımı ve düzenli bakımının sağlanması,

Yukarıda sıralanan tasarım kriterlerinin her biri oldukça geniş kapsamlı tasarım konularını oluşturmaktadır. Bu çalışmada konu edilen tasarım ilkesi, sürdürülebilirliğin sağlanmasına yönelik sözü edilen tüm mimari tasarım stratejilerinin eğitim kurumlarında verilecek sürdürülebilirlik eğitimini destekleyecek biçimde öğrenciler tarafından görülebilir, izlenebilir, sorgulanabilir ve tartışılabilir olmasıdır. Başka bir ifadeyle, temel eğitim binalarındaki sürdürülebilir mimari tasarım stratejilerinin öğrenciler için nasıl eğitim aracı haline gelebileceği, bu stratejilerin eğitimsel açıdan taşıdığı potansiyellerin açığa çıkarılması ve bu konuya örnek oluşturan tasarım ilkeleri ele alınmaktadır.

2. EĞİTİM ve MİMARLIK: OKUL BİNASININ ÖĞRENME POTANSİYELİNE ETKİSİ

Okul binaları öğrencilerin evlerinden sonra en uzun zaman dilimini geçirdikleri ortamları oluşturmaktadır. Temel eğitim düzeyindeki(6-14 yaş grubu) çocukların algıları -yetişkinlere kıyasla- daha açık olduğundan

dolayı, içerisinde bulundukları çevreden daha fazla etkilenmektedirler (Yürekli H. ve Yürekli F., 2003). Okul binalarının sahip olduğu fiziksel mekan özelliklerinin, öğrenci ve öğretmenlerden oluşan kullanıcı grubu üzerindeki etkileri üzerine literatürde çok sayıda çalışma yer almaktadır. Özellikle derslik mekanlarının aydınlık düzeyi, iç hava kalitesi gibi özelliklerinin, öğrencilerin öğrenme, motivasyon ve konsantrasyon düzeyleri üzerinde önemli etkiler yarattığı çeşitli çalışmalarca kanıtlanmış ve eğitim alanında yankı bulmuştur (Heschong, 1999) (Kuller and Lindsten 1992) (Taylor and Vlastos, 1984). Bu çalışmanın konusu bağlamında spesifik bir noktadan bakıldığında, okul binalarının mimari tasarımının, bu okullardaki öğrencilere kazandırılması hedeflenen sürdürülebilirlik eğitimini destekleyeceği düşünüldüğünde, bu desteği maksimum düzeye çıkarabilecek tasarım kriterleri üzerinde durulması gerekmektedir. Öğretim ortamlarının sürdürülebilir tasarımı için bir model olarak mimarlık ve eğitimin kombinasyonuna yönelik çalışmasında Taylor'ın (2009) tanımladığı "ileri eğitim ortamı", eğitimsel hedeflerin mimari tasarımla bütünleştirilmesi anlamına gelmektedir. İdeal eğitim ortamını, vücut - beyin - ruh etkileşimli aktif eğitimi sağlamak için doğal, yapma ve kültürel çevrenin bir aradalığını mümkün kılacak ve titizlikle tasarlanmış fiziksel yerleşim olarak tanımlamaktadır. Aşağıdaki tablo, sözü edilen tanımı netleştirmesi açısından önemlidir;

Tablo 1. İleri eğitim ortamı: Okul tasarımı için bir model oluşturulmasına yönelik olarak mimarlık ve eğitimin kombinasyonu (Taylor, 31)

	DOĞAL ÇEVRE	YAPMA ÇEVRE	KÜLTÜREL ÇEVRE
MİMARLIK	Okul binalarının açık alanları kamusal park, spor sahası, bahçe, hayvanat bahçesi, doğal habitatların yaşam alanı, hava gözlem istasyonu ve deney alanı olarak hizmet verir.	Konstrüksiyon sistemleri Lynch'in tanımladığı strüktürel berraklık ve okunabilirlik kavramları ile eğitime katkıda bulunabilir. Eğitim programı mimari tasarımı tanımlar.	Müze, sanat galerisi, şehir meydanı gibi kültür yapılarından alınan tasarım fikirleri okul binalarına uygulanabilir.
EĞİTİM	Öğrencilerde iklim, topoğrafya, bitki ve hayvan dünyası, su vb. doğaya ilişkin konularda farkındalık geliştirilmesi için arazi analizi eğitim programına dahil edilebilir.	Her objenin arkasında bir kavram ya da fikir yatmaktadır. Öğrenciler fiziksel objeleri "okuyup" fikirlere dönüştürürler. Bu sebeple mimarlık pedagoji anlamına gelir. Fiziksel bileşenler ve imgeler eğitim için görsel işaret ve teşvik rolü oynarlar.	Stüdyo eğitim modeli, deneysel eğitim ve tasarım eğitimi birer eğitim aracı olarak mimarlık disiplininden ödünç alınır. Tüm eğitim süreci görsel ve sözlü olarak belgelenir. Performans derinlemesine biçimde eleştirilerek değerlendirilir.
BÜTÜNLEŞTİRİCİ KAVRAM	**AÇIK HAVA DERSLİKLERİ**	**ÜÇ BOYUTLU KİTAP**	**PROJE-TEMELLİ EĞİTİM İÇİN TASARIM STÜDYOSU**

Tabloda da ifade edildiği gibi, mimari tasarımda yer verilen sürdürülebilir tasarım özellikleri ancak aynı konuların öğretim programının kapsamına da girebilmesi ile mümkün olacaktır. Bu nedenle sürdürülebilir tasarım anlayışıyla meydana getirilen okul binalarının tasarım sürecinde –diğer uzmanların yanısıra- eğitim disiplininden gelen uzmanların da yer alması büyük önem taşımaktadır.

3. EĞİTİM BİNALARINDA SÜRDÜRÜLEBİLİRLİK EĞİTİMİNİ DESTEKLEYEN TASARIM İLKELERİ

Eğitim binalarında sürdürülebilirlik eğitiminin desteklenmesine yönelik tasarım ilkelerini ana hatlarıyla tanıtmayı hedefleyen bu çalışma açık ve kapalı alanlar olarak iki kategori altında organize edilmiştir. Söz konusu kategorileri detaylandırmak mümkündür.

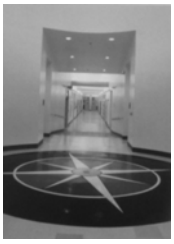
3.1. Kapalı Alanlar

Zararlı çevresel etmenler açısından yetişkinlere kıyasla çok daha savunmasız olan çocuklar düşük iç hava kalitesi, doğal aydınlatmanın yetersizliği, gürültü, kalabalık, dağınıklık ve çeşitli dikkati dağıtıcı etmenden olumsuz yönde etkilenmektedirler. Bu tür etmenler okula devamsızlık, hastalık, okul değiştirme ya da okula geç kalma gibi olumsuz durumları tetiklemektedir. Kontrast biçimde, kapalı mekanlardaki ideal fiziksel koşullar, çekici ve davetkar bir ortam okulun kullanıcılar tarafından benimsenmesini sağlamakta ve öğrenme potansiyelini desteklemektedir. Sürdürülebilirlik eğitimi açısından bakıldığında, dersliklerdeki doğal aydınlatma ve sıcaklık değişimlerinin, mekanik sistemlerin öğrenciler tarafından izlenebilmesi, iç mekanlarda doğal süreçlere atıfta bulunan güneş saati, prizmalar vb. elemanlardan yararlanılması, atık ayrıştırma alanlarının göz önünde bulundurulması önem taşımaktadır.

Duvarlar ve Zemin kaplamalarında Grafikler

Modern eğitim binalarının tasarımında eğitime katkıda bulunmak amacıyla zemin ve duvar yüzeylerinde grafiklere yer verildiği görülmektedir. Bazen doğaya referans veren, bazen de herhangi bir derse ait bir

kavramı içeren bu tür grafik tasarımlara binanın yoğun noktalarında yer verilmesi, eğitimsel getirisinin yanında estetik olarak ta mekanlara katkı sağlamaktadır.



Resim 1 ve Resim 2. Bina içi sirkülasyon alanlarındaki zemin kaplamalarında grafiklerin kullanımına örnek **[3]**


Resim 3. Duvarda grafikler (Taylor, 2009)

Mobilyalar

Çağdaş eğitim yaklaşımlarının öngördüğü proje temelli ve grup çalışmasına dayalı eğitim biçimleri, temel eğitim binalarındaki mekanların düzenlenmesine de yansımıştır. Günümüzde öğrencinin pasif durumda olduğu, öğretmen-merkezli eğitimin sonucu olan öğretmen masasına doğru yönlenmiş öğrenci sıraları biçimindeki derslik yerleşim düzeninden, farklı büyüklükteki grup çalışmalarına imkan veren esnek düzenlemelere geçilmiştir. Dersin türüne ve konusuna göre sınıfın yerleşim düzeninin farklı olması gerekebilmektedir. Bu yüzden de okullarda modüler mobilya (rahat hareket edebilen ve taşınabilen) kullanılması hem fiziksel konfor sağlar hem de interaktif iklimin oluşmasını kolaylaştırır (Cangelosi ve Lemoine, 1988). Öğretmenin orkestra şefi değil destekleyici olduğu, öğrenci-merkezli modern eğitim metodlarının gerektirdiği esnek ve değişebilir-dönüşebilir mekanların ön gördüğü mobilya ve ekipmanların özellikleri şöyle sıralanmaktadır;

(h) Sıra yerine geniş ve yatay çalışma masaları,
(i) Esnek, açılıp-kapanabilir, portatif, üst üste yığılabilir ve hareketli mobilyalar,
(j) Çağdaş eğitim yaklaşımlarını (grup çalışması, proje-odaklı çalışma, yeni teknolojilerin kullanımı vs.) destekleyecek nitelikte mobilya düzenlemeleri,
(k) Öğrenciler tarafından açılıp kaldırılabilen bölücü elemanlar

Bu özelliklerin yanısıra, tüm mobilya ve ekipmanların seçiminde kullanıcının yaş özelliklerine uygun, ergonominin göz önünde bulundurulması ön şart olmalıdır.

3.2. Açık Alanlar

Açık alanlar hem yetişkinler hem de çocuklar için güneşten elde edilecek D vitamini, temiz hava ve taşıdığı eğitimsel potansiyeller yönüyle büyük önem taşımaktadır. Ancak eğitim sürecinde doğal çevreden yararlanılması genellikle ihmal edilmekte, açık alanlar kullanıcılar için sadece teneffüs gibi boş zaman dilimlerine hitap eden alanlar olarak görülmektedir. Eğitimciler tarafından okulun sahip olduğu açık alanlara, bu alanların sağlayabileceği eğitimsel potansiyel açısından bakılmalı, öğrencilerin merak duygusunu harekete geçirebilecek bu alanlardan eğitim programlarında yararlanılmalıdır. Dunbar'ın da vurguladığı gibi (1994), doğal objeler ve mevcut strüktürler pek çok konuda gerçekleştirilebilecek yüksek kalitedeki derslerde elde hazır olan kaynak ve odak noktaları oluşturabilmektedir.


Resim 4. Scotch Oakburn Koleji ve Orta Okulu, Tazmanya/Avustralya **[4]**

Doğal topoğrafyaya fazla müdahale etmeden taşlarla oluşturulan anfi, öğrenciler için işlevsel bir toplanma mekanı oluşturmakta, gerektiğinde seminer, toplantı ve hatta derslerin yapılabileceği bir alan olarak işlev görmektedir.

Çitler ve parmaklıklar
Temel eğitim binalarını çevreleyen ve sınır oluşturan parmaklıkların genellikle güvenlik sebebiyle oldukça yüksek tutulduğu ve öğrenciler üzerinde "hapsedilmişlik" hissi yaratabildiği bilinmektedir. Ancak bu tür sınırlama elemanlarında bile, sözü edilen hapsetme hissi ortadan kaldırılarak, öğrencilerin eğitimlerinin bir parçası haline getirilebilmektedir. Aşağıdaki resim bu konuda etkili bir örnek teşkil etmektedir;


Resim 5. La Mesa Elementary School, mimar: Garrett Smith (Taylor, 2009, s: 184)

Öğrencilerin çeşitli çizgi tiplerini görerek öğrenebilecekleri bu parmaklıklar, tasarımcının binada yer alacak her türlü bileşenin taşıdığı –ancak açığa çıkarılmayı bekleyen- eğitimsel bir potansiyelinin var olduğuna dair etkili bir örnek oluşturmaktadır.

Eğitim bahçeleri
Okul binalarına ait dış mekanlarda sürdürülebilirlik eğitiminin desteklenmesi amacıyla sebze-meyve ve bitki bahçeleri, bazı canlı türlerine yaşam alanı oluşturan yeşil alanlar, etnik ve kültürel alanlar ayrılmalı, tasarımda açık hava dersliklerine yer verilmeli, su korunumuna yönelik sarnıç vb. elemanlardan yararlanılmalı, kompost alanı yer almalıdır. Ayrıca tüm bu donanımların, okul tatil olduğunda ya da okul saatleri dışında çevre toplumun kullanımına sunulması da toplumsal ve ekonomik açıdan önemlidir.


Resim 6. Sınıfların dışında ayrılan çalışma alanlarına bir örnek, Orchard Vale Temel Eğitim Okulu (Edwards, 2003, s. 123).

Yukarıdaki örnekte olduğu gibi, tasarımda derslik mekanları sadece kapalı alandan ibaret olarak görülmemeli, her dersliğin devamında dışa açılan "açık hava dersliği" kısmı yer almalıdır.

Toplumsal Sembollerin Eğitime Katkıda Bulunması
Okul binalarının içerisinde yer aldığı topluma ait tarihsel ve kültürel değerleri yansıtan bir ayna görevini üstlenmesi, bireylerin ortama aidiyet hislerinin güçlenmesi ve ortamı maksimum düzeyde benimsemeleri açısından önem taşımaktadır. Tarihsel ve kültürel değerler okul binasının iç ve/veya dış mekanlarında çeşitli biçimlerde sembolize edilerek ya da soyutlanarak yansıtılabilmektedir. Alltaki görsel bu konuya bir örnek oluşturmaktadır;


Resim 7. Arroyo del Oso Temel Eğitim Okulu, Albuquerque/New Mexico **[5]**

Arroyo del Oso Temel Eğitim Okulu'nda, bölge için fetiş bir simge olan ayı figürü (İspanyolca oso) okul binasının girişinde ve kütüphane gibi öğrencilerin birarada olduğu iç mekanlarda kullanılarak hem yerel kültür övülmekte hem de toplumsal katılım arttırılmaktadır.

4. SONUÇ

İçerisinde eğitim-öğretim süreçlerinin gerçekleştiği okul binalarının tasarımına yeni eğitim yaklaşım ve modellerinin girdi oluşturması ve bu yaklaşım ve modeller doğrultusunda mevcut okul tasarım konseptlerinin güncellenmesi gerekmektedir. Bu çalışmada ve literatürde yer alan pek çok araştırmada, eğitim binalarının mimari tasarımları ve işleyişleriyle eğitim ve öğretimi destekleme potansiyeline sahip olduğu vurgulanmaktadır. İçerisinde yaşanılan mekanlar kullanıcılarına mesajlar vermekte, hatta kullanıcısının tutum ve davranışlarını etkilemektedir. Bu açıdan bakıldığında eğitim binası tasarlayıcılarının, -günümüzde ve gelecekte- bu potansiyelin nasıl daha fazla ve etkin kullanılabileceği üzerine yeni yöntem ve ilkeler oluşturmaları, eğitim yaklaşımları ve sürdürülebilirlik konularındaki yeniliklere hakim olmaları önem taşımaktadır. Sürdürülebilir tasarımın ön şart olarak gördüğü disiplinlerarası ve kullanıcı katılımlı tasarım süreci, tasarımcının eğitimci, eğitimcilerin de tasarımcı rolünü üstlenmelerini gerektirmektedir.

Günümüzde sürdürülebilir gelişme kavramının eğitimdeki yansımasıyla birlikte eğitim binaları öğrencilerin hayata dair konularda aktif olarak yer aldıkları, deneysel faaliyetlerin gerçekleştiği ortamlar olarak daha esnek ve değişebilir-dönüşebilir mekanlardan oluşmalıdır. Açık alanlar ise eğitim programlarının bir parçası olarak "dış mekan laboratuarı" ya da "açık hava dersliği" olarak işlev görmelidir. Mimari tasarım sürecinde oluşturulan tüm mekan, bileşen, malzeme, mekanik sistem gibi alt konuların eğitime sağlayabileceği katkı araştırılmalıdır. Sürdürülebilirliğin ön gördüğü biçimde, eğitim binalarının tasarımında global ve yerel ölçekteki çevresel, ekonomik, sosyal ve kültürel değerlerin göz önünde bulundurularak tasarımla bütünleştirilmesi büyük önem taşımaktadır.

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[1] http://www.unece.org/env/esd/strategytext/strategyTurkish.pdf
[2] www.innovativedesign.net/pdf/03bldgteach.pdf
[3] http://schoolstudio.typepad.com
[4] www.daylighting-solutions.com/nm_leed.htm

EĞİTİMDE E-PORTFOLYO UYGULAMALARI

E-PORTFOLIO APPLICATIONS IN EDUCATION

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ÖZET
Eğitim teknolojisinin sürekli gelişim göstermesi, eğitimde yöntem ve uygulama çeşitliliğini de beraberinde getirmektedir. Bilgisayar destekli eğitimle başlayan süreç, internet olanaklarının artmasıyla birlikte günümüzde daha farklı bir boyut kazanmıştır. Öğrenci merkezli yaklaşımın kabul görüp yaygınlaşması da bu konuda önemli etkenlerden olmuştur. Portfolyodan e-portfolyoya geçiş, eğitim teknolojisindeki değişim sürecine verilebilecek güncel örneklerden biridir. Ödevlerle öğrenciyi merkeze alan yaklaşım gelişerek "Öğrenci İş Dosyası", diğer bir ifadeyle "Portfolyo" formatına dönüşmüştür. Portfolyo, öğrenicinin çalışmalarını topladığı büyük bir ödev ve çalışma koleksiyonudur. Bilgi ve iletişim teknolojilerinin eğitimin temel unsurlarından biri olmasıyla birlikte "e-portfolyo" kavramı, portfolyonun yerini almıştır. Bu çalışmada, e-portfolyo çeşitleri ile bunların eğitimde kullanımı hakkında bilgi verilecektir.
Anahtar kelimeler: Portfolyo, e-portfolyo, eğitim teknolojileri, elektronik iş dosyası, öğrenci iş dosyası.

ABSTRACT
Continuous developments in education technologies are accompanied by diversity of methods and applications in education. The process starting with computer-assisted learning is now in a different dimension via increasing internet possibilities. Another important factor in this issue is that learner-centred approach has been accepted widely and become widespread. Transition from portfolio to e-portfolio is one of the current examples to be given about changing process in education technology. The approach which places learners and assignments at the centre has turned into a "learner work file" or in other words "portfolio" format through developing. Portfolio is a big assignment and study collection where a learner collects his studies. The concept of "e-portfolio" has replaced portfolio as information and communication technologies have become main components in education. In this study, information will be given about types of e-portfolio and using them in education.
Key words: Portfolio, e-portfolio, education technologies, electronic work file, learner work file.

GİRİŞ

Öğrenci merkezli yaklaşımın kabul görerek yaygınlaşmasından sonra, bilgi ve iletişim teknolojileri bu yaklaşımın en önemli yardımcılarından olmuştur. Ödevlerle öğrenciyi merkeze alan yaklaşım gelişerek, "Öğrenci İş Dosyası" diğer bir deyişle "portfolyo" formatına dönüşmüştür. Portfolyo; öğrenicinin çalışmalarını topladığı büyük bir ödev ve çalışma koleksiyonudur. Bilgi ve iletişim teknolojilerinin eğitimin temel unsurlarından biri olmasıyla birlikte "e-portfolyo", "Elektronik İş Dosyası" kavramı portfolyonun yerini almıştır.

Depolama kapasitesi ile internet hızının ve bant genişliğinin artması, bunlara paralel olarak fiyatların düşmesi, hemen hemen öğrenci olan her eve bilgi ve iletişim teknolojilerinin de girmesini sağlamıştır. Bu sayede, özellikle karma eğitim veya harmanlanmış eğitim modellerinde vazgeçilmez bir araç olarak kullanılacağı öngörülen e-portfolyo, birçok ülkede hem eğitim hem de değerlendirme materyali olarak kullanılmaya başlamıştır.

Eğitim teknolojisi alt yapısının giderek gelişimiyle birlikte e-portfolyo uygulamalarının çoğalması, öğrenci merkezli yaklaşımın gelişmesine ve öğrencinin özgüveninin artmasına olanak sağlayacaktır.

E-PORTFOLYO NEDİR?

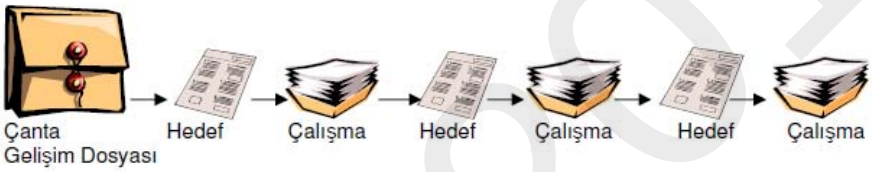
Portfolyo, öğrencinin gelişim sürecini, en baştan itibaren ayrıntılı bir şekilde inceleyerek çıktılarıyla birlikte ortaya koyan kişisel bir arşiv veya koleksiyondur. Başka bir tanıma göre ise, bireyin başarılarını ve öğrenmelerini dokümanlaştırdığı ve resmettiği bilginin, kişisel bir toplamıdır (Wikipedia, 2007). İlk zamanlarda genellikle kâğıt üzerine yapılan çalışmalar arşivlenirken, teknolojinin gelişmesi ile birlikte önce kaset, disket, CD, DVD, taşınabilir disk gibi elektronik ortamlarda tutulmaya başlandı. Ses ve

görüntü materyalleri ile daha etkin, daha dikkat çekici olan bu türüne, Elektronik Portfolyo (e-portfolyo) denir. Dijital Portfolyo veya Dijital Gelişim (Ürün) Dosyası gibi isimlerle de anılsa da, daha çok e-portfolyo kavramı tercih edilmektedir.

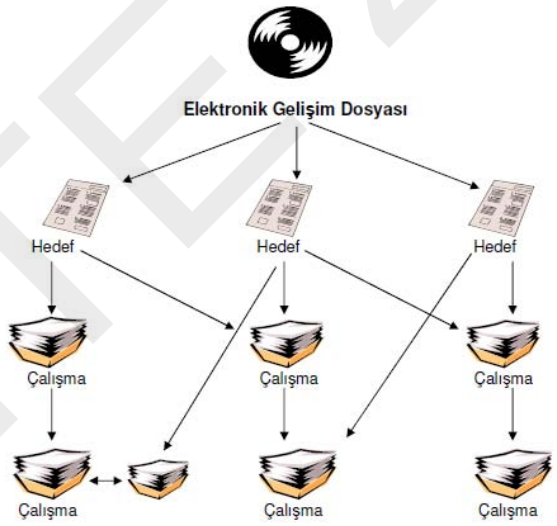
"- e eki, portfolyo kavramına neler katar?" sorusu, geleneksel portfolyolarla e-portfolyoların karşılaştırılmasından ortaya çıkan sonuçlarla cevaplanabilir. Buna göre;

- Daha geniş içerik,
- Farklı gruplara hizmet sunabilir (bireysel, öğrenci birlikleri, kuruluşlar, bölge ve şehirler, sosyal toplumlar),
- Arşivleme,
- Bağlantı kurma/ düşünme,
- İşbirliği,
- Tekrar düzenlenebilme,
- Yayınlama gibi ek özellikler sağlamaktadır.

Geleneksel portfolyoda, kağıt üzerine hedefler ve eserlerin ardı ardına sıralandığı doğrusal bir organizasyon söz konusu iken (Şekil 1), e-portfolyoda ise, çoklu ve karmaşık ilişkilere izin veren hiyerarşik bir yapı sunulur (Şekil 2).



Şekil 1. Geleneksel çanta gelişim dosyasının doğrusal (çizgisel) yapısı (Heath, 2005)



Şekil 2. Elektronik (dijital) gelişim dosyasının çoklu ve karmaşık bağlantılar kurmaya olanak sağlayan çok yönlü yapısı (Heath, 2005)

Portfolyo uzmanı David Niguidula'ya göre e-portfolyo; "öğrencilerin kendi ustalık ve yeteneklerini daha zengin şekilde sunabilmelerine yardım eden bir yazılımdır".

EĞİTİMDE NEDEN E-PORTFOLYO KULLANILIR?

Bu soruya Anne Gilleran'ın "Dijital dünyada, insanlar kendilerini dijital olarak sunabilmelidir." sözü cevap olarak verilebilir. EIfEL (European Institute for E-Learning) de bu soruya, "Bir bilgi ekonomisinde, bilgi işçileri kişisel bilgi yönetimi araçlarına ihtiyaç duyarlar." şeklinde cevap vermektedir.

05Zeynep Kazan, 2006 yılında tamamladığı yüksek lisans tezinde, Avustralya'lı öğretmenlerin, Avustralya Devlet Okulları Ağı ile birlikte, eğitimde gelişim dosyası kullanım amaçlarını şu şekilde ifade ettiklerini belirtmiştir:

- Öğrenciyi bir öğrenen olarak betimleyip, değerlendirmek.
- Öğrenme hedefleri ile paralel yapılar ve görevler oluşturabilmek.
- Öğrencilerin, öğrendikleri ile ilgili yansımalarda bulunmasını sağlamak.
- Öğrencileri, kendi öğrenmeleriyle ilgili sohbetler yapmaya teşvik etmek.
- Öğrencinin neyi, nasıl ve neden öğrendiğini göstermek.
- Seviyeler arasındaki geçişte yardım ve bilgi sağlamak.
- Değerlendirme tekniklerini geliştirmek (Demirli, 2007).

Eğitimde e-portfolyo kullanımı için birçok sebep sayılabilir. Bunların başlıcaları; depolama/erişim, çoklu ortam kullanımı, bilgisayar kullanım becerileri ve değerlendirmedir (Regis University Electronic Portfolio Project).

Depolama/Erişim: E-portfolyoda bilgi sabit disk, sunucu, taşınabilir diskler gibi dijital ortamlarda depolanmaktadır. Bu da çok küçük fiziksel alan demektir. Çok büyük hacimlerde klasörler dolusu bilgiyi küçük bir alanda depolama imkanı sunar. Bununla birlikte e-portfolyoya eklenecek basit araçlar sayesinde istenilen bilgiye çok hızlı ve kolay bir şekilde erişilebilmektedir. Kaybolan bilgi kolayca yerine yeniden konulabilmekte ve yeni öğrencini çalışması kolayca e-portfolyoya eklenebilmektedir.
Çoklu ortam kullanımı: Kağıt tabanlı portfolyolar hem etkileşimi düşük hem de öğrencinin birçok yeteneğini aynı anda göstermesi için yeterli ortamlar değildir. Kullanıcı e-portfolyoda ses, resim, animasyon ve hareketli görüntü gibi çoklu ortam nesnelerini çalışmasına ekleyebilmekte, buda çalışmasını daha etkili kılmanın yanında farklı yeteneklerini de sunma imkanı sağlamaktadır.
Bilgisayar becerileri: Öğrenci e-portfolyo içeriğini oluştururken kendi bilgisayar kullanma becerisini de artırmış olur.
Değerlendirme: E-portfolyoda öğrencinin çalışması daha önceden belirlenen standart ve kriterlerle değerlendirilmektedir. Bu da öğrenciye belirli bir plan yapma ve bu doğrultuda çalışmalarını devam ettirme zorunluluğu getirmektedir.

EĞİTİMDE E-PORTFOLYO KULLANIMININ AVANTAJ ve DEZAVANTAJLARI

E-portfolyo 1990'lı yıllardan beri gelişerek kullanılmakta ve teknolojik gelişmelere paralel olarak yaygınlaşmaktadır. Bir çok üniversite bu yeni eğitim ve değerlendirme yaklaşımını denemekte, bu konuda akademik çalışmalar yapılmaktadır. Bu çalışmalardan birinde Kazan (2006), e-portfolyonun avantaj ve dezavantajlarını bir araya toplayarak aşağıdaki gibi sıralamıştır:

Avantajlar

Elektronik gelişim dosyası etkin öğrenmeyi güçlendirir: Öğrenci merkezli eğitim ve etkin öğrenme, öğrencilerin kendi öğrenme sorumluluklarını aldıkları ve kendi öğrenmelerini yönettikleri zaman gerçekleşmiş olur. Gelişim dosyaları da öğrencilerin öğrenme ile ilgili hedefler koymalarına, düzenli olarak bu hedeflerini gözden geçirmelerine ve kendi sorumluluklarını almalarına yardımcı olurlar.

Elektronik gelişim dosyaları örgencileri motive eder: Yaptıkları çalışmaları bir izleyici kitlesine sunacaklarını bilmeleri, öğrencilerin, daha dikkatli ve özenli bir çalışma yapmalarını sağlar. Aynı zamanda, daha önce yapılan çalışmalara kolaylıkla ulaşıp kendilerini değerlendirerek daha bilinçli adımlar atabilirler.

Elektronik gelişim dosyaları geri bildirim araçlarıdır: Öğrenme hedeflerinin verimliliği, öğrenme stratejilerinin etkinliği ve bilgi sunumundaki açıklığın değerlendirilmesine olanak tanıyan bir geri bildirim sistemini oluştururlar. Sadece örgencilere geri bildirim vermekle kalmayıp aynı zamanda öğretmenler, okul, veliler ve diğer kişiler arasında da karsılaştırmalı bilgi değişimine olanak tanırlar.

Elektronik gelişim dosyaları değerlendirme araçlarıdır: Öğrencinin çalışmalarını ortaya koyan çok etkin bir metodu oluştururlar ve hedef davranışlara göre belirlenen şekilde, öğrenme süreci basından sonuna ölçülebilir. Değerlendirme, öğrenmenin bir parçası haline gelir. Araştırma öğelerini, öğretim ve rehberlik etkinliklerini, öğrencilerin gerçek çalışma ve ürünlerini aynı zamanda da eğitim sisteminin dışında yapılan çalışmaları, daha bütünleşik ve daha anlaşılır şekillerde değerlendirmeye ve göstermeye imkân tanırlar. Performans, tekrar tekrar gözden geçirilebilir.

Elektronik gelişim dosyaları örgenci çalışmalarının paylaşımına imkân tanırlar: İnternet sayfalarının dinamik yapısı ve elektronik ortamların kolay paylaşılabilir yönü, öğrenci çalışmalarının

anlamlı bir şekilde ve geniş bir kitleyle karşılıklı paylaşımına imkân tanır. Benzer çalışmalar yapan örgenciler arasındaki bilgi ve materyal paylaşımı is yükünü ve gereksiz tekrarı ortadan kaldıracaktır.
Gelişim dosyaları öğrencilerin sorumluluk ve özerklik duygusunu geliştirir: Kendini değerlendirmeyi, kendini ifade etmeyi ve değişiklikleri daha iyi izleme ve güncellemenin daha iyi bir yoludur.

Elektronik gelişim dosyaları yaşam boyu öğrenme kavramını geliştirir: Öğrencinin, her bilgi ve beceri birikimini hayat boyu yenilemesine ve gözden geçirmesine olanak sağlar.

Elektronik gelişim dosyaları öğrencilerin edimleri ile ilgili tartışma araçlarıdır: Gelişim dosyaları; öğretmen-öğrenci, veli-öğretmen, veli-öğrenci ve öğrenci-öğrenci arasındaki iletişimi yansıtan somut araçlardır.

Gelişim dosyası çalışmalarının etkili bir şekilde belgelenmesi için gerekli olan karmaşık düzenlemelere imkân tanır: Elektronik gelişim dosyalarının sunduğu essiz özelliklerden biridir. Bağlantılar sayesinde süreç içinde bir basamaktan bir diğerine ve geriye dönük çalışmalara istenildiği zaman geçilebilir. Bu şekilde çalışmalar daha yaratıcı olmakta ve diğer birçok değişikliğe olanak sunabilmektedir.

Elektronik gelişim dosyaları öğrencilerin teknolojiyi tanımasına olanak tanır: Teknoloji kullanımından uzak olan öğrencileri teknolojiye yakınlaştırır ve öğrencilerin teknolojiyi kullanma becerilerini geliştirir.

Elektronik gelişim dosyaları çok çeşitli sekilerdeki veriyi saklayabilirler: Elektronik gelişim dosyaları çok esnek bir yapıya sahiptir. Öğrenciler; sözlü ve yazılı çalışmalarını, resim dosyalarını, sanatsal çalışmalarını, animasyonlarını oluşturup saklayabilirler. Bu, öğrenen olarak öğrencinin bakış açısını genişletir ve öğrenmeyi daha heyecanlı hale getirir.

Elektronik gelişim dosyaları kolay erişilebilirdir: Öğrenci, öğretmen ve velilerin her zaman kolaylıkla ulaşabilecekleri şekilde depolanıp saklanırlar. İnternet üzerinden de dünyanın her yerinden ulaşılabilir ve herkesle paylaşılabilirler.

Elektronik gelişim dosyaları az yer kaplarlar ve kolay taşınabilirler: Öğrenci ürünleri, günümüz teknolojileriyle kapasitesi yüksek ancak fiziksel boyutları son derece küçük belleklerde kolaylıkla saklanıp taşınabilir.

Elektronik gelişim dosyalarını kaydetmek, kopyalamak, yedeklemek ve güncellemek kolaydır: Öğrenci dosyası örgenciyle birlikte gelişir. Bu gelişim doğrultusunda, elektronik gelişim dosyalarının yapısı, üzerlerinde kısa sürede kolay ekleme ya da değişiklik yapmaya elverişlidir.

Dezavantajlar

- Gelişim dosyasının doğasında bulunan kendi kendine öğrenme yöntembilimi öğrencinin olgunluğuna ve güdülenmesine bağlıdır. Bu nedenle bütün öğrenme biçemlerine uymayabilir.
- Eğer öğretmenler yansıma konusunda öğrencileri yeterince yönlendirip onlara destek olamazlarsa, öğrenciler çalışmaları ile ilgili nasıl yansımalar yapacaklarından tam emin olamayabilirler ve bu da örgencilerde bir güvensizlik hissi yaratabilir.
- Gelişim dosyaları hem ürün hem de süreçten oluşurlar. Gelişim dosyası sürecine gerekli zaman ayrılmazsa ortaya çıkan ürünün kalitesi de düşük olur. Bu bakımdan gelişim dosyaları zaman alıcıdır.
- Elektronik gelişim dosyası oluşturmak için gerekli yazılım, donanım ve cihazlara hazır bir şekilde ulaşılamazsa, kişinin bunları kendi imkânları ile temin etmesi pahalıya mal olabilir.
- Elektronik gelişim dosyası oluşturmak temel teknolojik bilgi ve beceri gerektirir.
- Elektronik gelişim dosyası hazırlama süreci zaman zaman stresli ve can sıkıcı olabilir.
- Elektronik gelişim dosyası oluşturmak zaman alır.

SONUÇ

1970'li yıllardan beri kullanılmakta olan portfolyo kavramı, teknolojiyle birlikte değişip gelişerek e-portfolyo ismini almıştır. İlk başlarda sadece tanıtım amaçlı olarak kullanılırken ilerleyen dönemlerde birçok farklı alanda kullanılmaya başlanmıştır. 1990'lı yıllardan sonra eğitim amaçlı olarak kullanılan e-portfolyo aslında gelişmiş bir ödev arşividir.

E-portfolyo platformunun yapılandırılması ve içeriğinin oluşturulması önemli bir süreçtir. Bu süreçte bilgi ve iletişim teknolojilerinin kullanımı büyük önem arz etmektedir. Bu sebeple birçok yazılım ve donanıma ihtiyaç duyulur. Ücretsiz yazılım ve donanımlar olmakla birlikte bu alanda birçok ticari yazılım ve donanıma mevcuttur. Bunun yanında mevcut e-portfolyo içeriğinin teşkil edilmesi de önemli bir

husustur. Bunun için öğrencinin iyi motive edilmesi ve yapılacak işlemlerin aşamalarının en baştan iyi şekilde izah edilmesi gerekir.

E-portfolyo kişisel gelişimi destekleyen ve sunan bir koleksiyondur. Öğrencilere kendi gelişimlerini görme fırsatı sunan bu yöntem önümüzdeki dönemde tercih edilen bir eğitim aracı olacaktır. Ayrıca öğrencilere akademik gelişmeyle birlikte teknoloji kullanımı konusundaki bilgi ve becerisinin gelişmesi konusunda da destek olacaktır.

Sonuç olarak öğrencinin merkezde olmasına ve kendi ürünlerini sergilemesine imkanı tanıyan bu yönüyle de önümüzdeki yıllarda daha çok tercih dilen bir süreç olacağı öngörülmektedir.

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EĞİTİMDE ERGONOMİ VE ERGONOMİK FAKTÖRLERİN VERİMLİLİK ÜZERİNDEKİ ETKİLİLİĞİ HAKKINDA ÖĞRENCİ GÖRÜŞLERİ (GAZİ ÜNİVERSİTESİ ENDÜSTRİYEL SANATLAR EĞİTİM FAKÜLTESİ ÖRNEĞİ)

STUDENTS OPINIONS ABOUT ERGONOMICS AND THE EFFECTS OF ERGONOMICS FACTORS ON EFFICIENCY IN EDUCATION (SAMLPE OF GAZI UNIVERSITY FACULTY OF EDUCATION OF INDUSTRIAL ARTS)

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Özet

Bir işyerinde çalışanların bedensel özellikleri ile insan bedeninin boyutları gözetilerek iş düzeninin kurulması ve insana uygun bir yerleşim sistemi oluşturulması anlamını taşıyan Ergonomi; çalışan insanların fizyolojik kapasite ve toleranslarını gözeterek işyerindeki stres etkilerini kontrol altına almayı ve çalışanların kapasitelerinin korunmasını ve yükseltilmesini amaçlar.

Bu araştırmanın amacı ergonomik eğitim ortamlarının verimlilik üzerindeki etkileri üzerine öğrenci görüşlerini ortaya koymaktır. Çalışmamızın ilk bölümünde ergonomi, verimlilik, eğitimde ergonomi ve ergonominin verimliliğe katkıları kuramsal olarak incelenmiş, ikinci bölümünde ise ergonomik açıdan fiziksel koşulların verimlilik üzerine etkileri konusunda Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesi öğrencilerinin görüşlerini almak üzere geliştirilen anket uygulanmıştır.. Çalışma betimsel bir çalışmadır. Yaklaşık 1200 öğrenciden kolayda örneklem yoluyla belirlenmiş 200 öğrenciye anket uygulanmış ve bu anketler SPSS istatistik programıyla değerlendirilmiştir. Ortaya çıkan bulgular ve sonuçlar doğrultusunda öneriler geliştirilmiştir.

Anahtar Kelimeler: Ergonomi, Verimlilik, Eğitimde Ergonomi

Abstract

Ergonomics' mean is to establish setup and to set off a residential system which suitable for human by protect physical properties of people working in a job with human' physical dimension. Ergonomisc' aim is to controll stress effects in a job by protect the capacity of working people and to concerve and raise of worker's capacities.

The aim of this research to present students views about the effects of ergonomics education environments on efficiency. In the first part of our study ergonomics, efficiency, ergonomics in education and the additive of ergonomics on efficiency were examined speculatively, in the second part made a survay – it reformed to receive opinion-, on Gazi University Faculty of Education of Industrial Arts' students about the effects of physical terms in terms of ergonomics on efficiency. The study is depictive. The survay is applied to 200 students whose designated about from between 1200 students with convenience sampling and this survays are reviewed with statistic programme of SPSS. Toward the findings and results offers developed.

Key Words: Ergonomics, Efficency, Ergonomics on Education

Giriş

Ergonomi, iş-insan ilişkilerinden doğan sorunlara uygulanabilen bir teknoloji olup, çalışan insana yönelik etüd ve çalışmalardır.

İnsanlar çalışma ortamında; soğuk-sıcak, yüksek ya da alçak basınç gibi çeşitli ortam stresleri ile karşı karşıya kalabilmektedir. İş ortamında ayrıca, toz, duman, zehirli gaz ve buharlar, zehirleyici maddeler, radyasyon gibi insan sağlığına zararlı ve aynı zamanda stres oluşturan birtakım faktörler bulunmaktadır. Yine endüstriyel gürültü, titreşimler, yetersiz ya da fazla ışık gibi çevresel faktörler de çalışan insanı olumsuz etkileyebilmekte, bu da, verim düşüklüğüne neden olabilmektedir. Tüm bu sorunlar karşısında, insan-makine-çevre ilişkilerini inceleyerek, böyle bir ortamda insanların sağlıklı ve üretken bir biçimde çalışabilmesi için gerekli düzenlemeleri yapmak önem kazanmaktadır. Bu alanda yapılan çalışmalar son yıllarda ergonomi alanının daha da önemsenmesine ve gelişmesine yol açmıştır (Erkan, 2003: 16).

Ergonomi iş bilimidir. Ergonomi bazen, işi uydurmak için kullanıcıyı zorlamanın yerine, kullanıcıyı işe uydurmanın bilimini tanımlar. Fakat bu tanımdan çok, asıl olan ergonomik prensiptir. Ayrıca ergonomi, insan mühendisliği olarak da bilinir (Adams, 2006: 23).

Ergonomi biliminde, sakatlıklar, düşük kaliteli iş, devamsızlık, kabul edilemez derecede yüksek oranda kullanıcı hataları, insan sorunu olmaktan çok sistem sorunu olarak kabul edilir (Bridger, 2003).

Ergonominin antropometri, fizyoloji, psikoloji, enformasyon, organizasyon, iş güvenliği gibi alanlarla yakından ilişkisi vardır. Ergonomi, tasarım, biyomekanik tasarım, kronometrik tasarım, antropomometrik tasarım gibi farklı tasarım gibi farklı tasarım yöntemlerini içerir(Weerdmeester, 2001).

Antropometri, çalışma araçları ve çalışma ortamının insanın vücut ölçülerine uyumunu sağlamayı amaçlar. İş ortamında antropometrik düzenlemeler, insan vücudunun ölçüleri ile iş sisteminin uyumunu içermektedir (Carayon,2006;649).

Ergonominin kökeni, iş psikolojisi, biyomekanik ve iş istasyonu tasarımına dayanmaktadır.Diğer yandan, insan faktörünün kökeni, deney psikolojisinden ve odak noktası da insan performansından ve sistem tasarımından gelmektedir (Anett,2003:1594).

İnsanın fizyolojik ve biyolojik özelliklerini, beslenme ile çalışma ve performans ilişkisini, insan-makine sistemleri ile çalışma koşullarını inceleyen ergonomi, çalışma ve dinlenme sürelerine de katkı sağlar.

Ergonominin amaçları göz önüne alındığında, ergonomik çalışmalardan aşağıda belirtilen sonuçları beklemek doğal olacaktır;

-Üretimde nitelik ve niceliğin birlikte artırılması,
-Mesleki hastalıklar ve iş kazalarının azaltılması,
-İş stresinin azaltılması, çalışma motivasyonunun artırılması,
-Örgüte devamsızlığın ve iş gücü devir hızını azaltılması,
- İş ve işçi sağlığı ile iş güvenliğinin sağlanması.

Görüldüğü gibi, bir örgütte ergonomik bir ortamın oluşturulması, işverene, örgüte işgörene ve dolayısı ile ülkeye önemli katkılar sağlamaktadır. Ergonomik çalışmaların sınırı oldukça geniştir ve yalnızca iş ortamı ile sınırlı değildir. Ürünlerin, üretim aşamasından, kullanım, bakım ve onarım aşamalarına kadar ergonomiden yararlanmaktan kaçınmak örgütsel anlamda olası değildir.

Genel bir ifadeyle verimlilik, bir üretim veya bir hizmet sisteminde üretilen çıktı ile bu çıktıyı yaratmak için kullanılan girdi arasındaki ilişkidir. Bu nedenle verimlilik, çeşitli mal ve hizmetlerin etkin kullanımıdır.Yüksek verimlilik en az kaynakla(girdi) daha çok üretmek, ya da aynı girdi ile kalitesi sabit kalmak ya da artırmak kaydıyla daha çok çıktı elde etmektir.(Kıraç,2005:19)

Avrupa Verimlilik Kuruluşuna göre verimlilik, her bir üretim öğesinin etkin kullanım derecesidir; verimlilik her şeyden önce bir düşünce tarzıdır ve var olanı sürekli iyileştirmeye çalışır. Her şeyin bugün dünden, yarın bugünden daha iyi yapılacağı inancına dayanır. Japon Verimlilik Merkezine

göre ise verimlilik¸doğru işleri, doğru biçimde ve ekonomik çalışma ile gerçekleştirmeyi amaçlayan akılcı bir yaşam biçimidir.

Öğretim ortamı, eğitim etkinliklerinin oluştuğu bir çevredir.Öğretim ortamı kavramı günümüze gelinceye kadar oldukça değişik biçimlerde yorumlanmıştır.Geçmişte eğitim ortamı denildiğinde yalnızca derslikler akla gelmekteyken, günümüzde bu kavrama, birey, araç-gereç ve özel düzenleme yaklaşımları anlamı yüklenmektedir.

Etkili ve verimli öğretme ve öğrenme etkinliklerinin gerçekleştirilmesinde öğretim ortamının ergonomik bir biçimde düzenlenmesinin katkısı büyüktür. İyi düzenlenmemiş eğitimsel etkinlikler ve bu etkinliklerin yapılacağı uygun olmayan bir öğretim ortamı, kişileri ve örgütleri istenilen sonuca götürmeyecektir.Etkili bir öğretim ortamı için, öğretim ortamlarının tüm boyutlarıyla ele alınıp, olanaklar ölçüsünde fiziksel değişiklikler de dikkate alınarak çağdaş bir şekilde düzenlenmesi gerekir (Küçükahmet,2000:150,152).

Öğrenme ve öğretme etkinliklerinde verimin artırılması, eğitim ve öğretimde ergonomik düzenlemelerin temel amaçlarındandır. Öğrenme ve öğretmede verimin arttırılması, öğrencilerin kazanımlarının da arttırılması anlamına gelir. Öğrenme ve öğretmenin fiziksel, sosyal ve psikolojik bir otamada meydana geldiği düşünülürse, ergonomik çevrenin öğrenme ve öğretme etkinlikleri için çok önemli bir faktör olduğunu söylemek kaçınılmaz olacaktır..

İş ve çalışma olgularını bilimsel olarak analiz eden ve insani tüm bu analiz süreci içerisinde odak noktaya yerleştiren ergonomi bugün itibariyle uğraşı konularını zenginleştirmiş, başta Yönetim Organizasyon, Davranış Bilimleri ve birçok alanda sonuçlarından yaralanılan yol gösterici, disiplinle arası bir yaklaşım haline gelmiştir.

1. Araştırmanın Amacı ve Önemi

Araştırmanın amacı; Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesinin yönelik olarak eğitimde ergonomik koşulların verimlilik üzerine etkisi hakkındaki görüşlerini tespit etmektir. Eğitim kurumlarından bulunan öğrenciler günlerinin büyük bir çoğunluğunu okulda geçirmektedir. Bu nedenle bir eğitim kurumu uygun koşullarda olmalıdır. Verimlilik sadece okul içinde araç gerecin olması ile değil bunların uygun koşullarda olmasına da bağlıdır. Bu koşulları değerlendirmek amacıyla böyle bir bilimsel çalışmaya ihtiyaç duyulmuştur. Araştırma fakülte binası ve sınıfların ergonomik açıdan değerlendirilmesi ve eksikliklerinin tespit edilmesi bakımından ve fakültede daha önce bu tür bir çalışma yapılmamış olmasından dolayı önem taşımaktadır.

2.Problem

Kaynakların etkin kullanılması ilkesi eğitim-öğretim faaliyetlerinde de geçerli bir ilkedir.Kaynakların etkin kullanımı verimliliği ve etkinliği de yanında getirecektir.Eğitim-öğretim ortamlarının ergonomik planlanması ve ergonomik düzenlenmesi kıt kaynakların etkin kullanılması ve eğitimde verimliliğe ve amaca ulaşma anlamında son derece önemlidir.Bu çalışmada aşağıdaki sorulara cevap alınmaya çalışılmıştır;

I. Eğitim ortamında aydınlatma sistemi çalışmaların verimliliğini etkilemekte midir?
II. Renk düzeni uygun yapılmaması çalışanların verimsiz çalışmasına neden olmakta mıdır?
III.Eğitim ortamında yerleşim düzeni ve ders araç gereçlerinin (tahta, masa, sandalye vb.) uygun koşullarda olması çalışmalarının verimini etkilemekte midir?

3. Araştırmanın Evreni Ve Örneklemi

Gazi Üniversitesi Endüstriyel Sanatlar eğitim Fakültesinde ortalama 1200 öğrenci bulunmaktadır. Bu araştırmanın evrenini oluşturur. Bu evren içinden 200 öğrenci örneklem seçilmiştir.

4. Veri Toplama Tekniği

Araştırmada anket uygulama modeli ele alınmıştır. Ele alınan ergonomik koşullar ve verimlilik aşağıdaki çerçevede incelenmiştir.

Anket çalışması tek formdan oluşmaktadır ve üç bölüm bulunmaktadır. Birinci bölümde öğrenciye yönelik kişisel bilgiler, ikinci bölümde yirmi iki tane ergonomik ve verimlilik ile ilgili sorular ve son bölümde ergonomik koşulların önem derecesine göre sıralanması istenmektedir. Ayrıca son bölümde öğrencilerin çalışmalarında verimliliği etkileyen ankette yer almayan diğer ergonomik faktörlerin neler olduğunu soran bir soru yer almaktadır. Araştırma sonucunda elde edilen verilerin, SPSS (Statistical Page Program For Social Science) programı ile bilgisayara giriş yapılmıştır.

5. Araştırmanın Sınırlılıkları

Bu araştırma, Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesinde 2007-2008 öğretim yılında öğrenim gören öğrenciler ile sınırlıdır. Araştırmada anket dışında veri toplama tekniği kullanılmamıştır.

6. Bulgular ve Yorum

Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesinde yapılan araştırmada fakülte binası ergonomik açıdan hangi konularda yeterli hangi konularda yetersiz olduğu araştırmanın sonucunda elde edilen bulgular doğrultusunda ayrıntılı bir şekilde incelenmiş ve yorumlanmıştır.

Tablo 1: Öğrenciler Hakkında Genel Bilgiler

BÖLÜM	FREKANS	ORAN %
1 (işletme Eğitimi)	50	25
2 (Endüstriyel Tek. Eğ.)	53	26.5
3 (Bilgisayar Eğitimi)	50	25
4(Aile ve Tüketici Bilim.Eğ.)	47	23.5
Toplam	200	100
SINIF	**FREKANS**	**ORAN %**
1 (Birinci Sınıflar)	47	23.5
2 (İkinci Sınıflar)	48	24
3 (Üçüncü Sınıflar)	52	26
4 (Dördüncü Sınıflar)	53	26.5
Toplam	200	100
CİNSİYET	**FREKANS**	**ORAN %**
1 (Bayan)	102	51
2 (Bay)	98	49
Toplam	200	100

Deneklerin % 25.1 işletme Eğitimi, %26.5'i Endüstriyel Teknoloji Eğitimi, %25 Bilgisayar Eğitimi, %23.5 ise Aile ve Tüketici Eğitimi Bölümünden oluşmaktadır.

Araştırmada her bölümün kademelerinden öğrencilere sorular sorulmuştur. Deneklerin %23.5'i birinci, %24'ü ikinci, %26'sı üçüncü ve %26.5' dördüncü sınıftadır. Toplam 200 öğrenci örneklem olarak seçilmiştir.

Araştırma kapsamına alınan 200 kişinin % 51'ini Bayan, %49'unu ise bay oluşturmaktadır

Tablo 2: Anket sorularının değerlendirilmesi

GÖRÜŞLER	Tamamen Katılıyorum		Katılıyorum		Kararsızım		Katılıyorum		Kesinlikle Katılmıyorum			
	f	%	f	%	f	%	f	%	f	%	f Top	% Top.
1. Fakülte binası ve diğer fiziki ortamlar (kantin, laboratuarlar) yeterlidir.	82	4	29	14.5	22	11	85	42.5	56	28	200	100
2. Fakültenin çalışma ortamı ergonomik koşullar (ısı, temizlik, gürültü, araç-gereç vs.) açısından yeterlidir.	7	3.5	44	22	35	17.5	86	43	28	14	200	100
3. Eğitim ortamının ergonomik olarak düzenlemesi çalışmalarımda verimliliği arttırır.	91	45.5	77	38.5	13	6.5	9	4.5	10	5	200	100
4. Sıra ve masaların yüksekliği çalışma ortamında kendimi Rahat hissetmemi sağlamaktadır.	32	16	86	43	32	16	33	16.5	17	8.5	200	100
5.Fakültemiz masa, sandalye, sıra, mobilya vb. eşyanın yerleşim biçimi (ergonomi) verimli bir çalışma ortamı yaratmaktadır.	14	7	74	37	53	26.5	36	18	23	11.5	200	100
6. Çalışma koşullarının iyileştirilmesi eğitimin niteliksel bakımdan iyileştirilmesine yardımcı olur.	102	51	75	37.5	12	6	5	2.5	6	3	200	100
7. Sınıfların yerleşim düzeni arkadaşlarımla ve öğretmenle iletişimimi kolaylaştırmaktadır.	33	16.5	66	33	45	22.5	37	18.5	19	9.5	200	100
8. Fakültenin içi olumsuz çalışma ortamını engelleyici şekilde temizdir.	17	8.5	59	29.5	47	23.5	56	28	21	10.5	200	100
9. Fakültenin içinin günlük temizlik yeteri kadar yapıldığı için kendimi sağlıklı bir ortamda hissederim.	24	12	66	33	38	19	45	22.5	27	13.5	200	100
10. Fakültede ders araç ve gereçlerimi koyabileceğim uygun bir ortam (dolap vb.) buluyorum.	26	13	44	22	18	9	32	16	80	40	200	100
11. Sınıfların aydınlatma sistemi dikkatimi derse odaklama konusunda yeterli düzeydedir.	15	7,5	98	49	45	22.5	34	17	8	4	200	100
12.Doğal aydınlatma (gün ışığı) yeterli düzeyde olduğu için psikolojik olarak rahatlamamı sağlar.	30	15	104	52	37	18,5	20	10	9	4.5	200	100

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13. Işık almayan bölümlerin (koridor vb.) aydınlatma düzeyi yeterlidir.	17	8.5	83	41.5	47	23.5	40	20	13	6.5	200	100
14. Fakültede sessiz bir çalışma ortamı bulduğum için verimli çalışmalar ortaya koyabilirim.	19	9.5	38	19	45	22.5	61	30.5	37	18.5	200	100
15. Sınıfın renk düzeni, uygun çalışma ortamı sağlamaya yönelik tasarlanmıştır.	24	12	78	39	51	25.5	37	18.5	10	5	200	100
16. Sınıfta kullanılan renk tonları motivasyonumu artırır.	39	19.5	77	38.5	58	29	21	10.5	5	2.5	200	100
17. Fakültenin koridor ve sınıflarında uygun renkler kullanıldığı için rahatlatıcı bir ortam yaratır.	28	14	75	37.5	61	30.5	25	12.5	11	5.5	200	100
18. Sınıflardaki tahtalar uygun kullanım kolaylığı sağladığı için zaman verimli kullanılır.	31	15.5	90	45	41	20.5	31	15.5	7	3.5	200	100
19. Tahtalardan çok amaçlı olarak yararlanılmaktadır.	16	8	61	30.5	51	25.5	55	27.5	17	8.5	200	100
20. Sınıfların ısı durumu ilgimi uygun düzeyde tutarak verimliliği arttırır.	37	18.5	98	49	30	15	28	14	7	3.5	200	100
21. Sınıflar uygun şekilde havalandırıldığı için çalışma ortamında kendimi rahat hissederim.	25	12.5	80	40	33	16.5	42	21	20	10	200	100
22. Uygun çalışma koşulları eğitim çalışmalarının doğru yapılmasında etkilidir.	102	51	59	29.5	21	10.5	9	4.5	9	4.5	200	100

Yapılan araştırmalar sonucunda öğrencilerin %42.5'i fakültenin binasını ve diğer fiziki ortamları (kantin, laboratuarlar) yetersiz görmüştür. %28'i ise bu soruya kesinlikle katılmamaktadır. Bunların ikisini düşündüğümüzde bu oldukça büyük bir orandır. ihtiyaçlara yönelik olarak yeni kullanım alanları oluşturulabilir.

Genel olarak ergonomik koşulların yeterli olup olmadığına yönelik sorulan bu soruda %43'ü genel olarak ergonomik koşulları yeterli bulmamaktadır. Bu ergonomik koşulların yeterliliği ile ilgili daha özel sorular ve değerlendirmeler yapılacaktır.

Eğitim ortamının ergonomik olarak düzenlenmesi verimliliği arttırma konusunda verilen cevaplar büyük bir oranı oluşturur.%45.5'i tamamen bu konuya katılırken, %38,5'i katıldığını bildirmiştir. %5'lik bir kısım ise bu konuya kesinlikle katılmamaktadır.

Öğrenciler okuldaki zamanlarının büyük bir kısmını oturarak geçirir. Bu nedenle bu soruya verilen yanıtlar önem taşımaktadır. Öğrencilerin %43 bu soruya katılıyorum derken, %16 kesinlikle katılmaktadır. Fakülte sıra ve masaların uygun olduğunu belirten çoğunluk fazla ise bu konuya kararsız olan ve katılmayanlar da yüzde olarak belli bir çoğunluktadır. Uzun süre oturmak zorunda kalan öğrenciler verimli bir şekilde derse katılmaları ve anlamaları için sıra ve masaları kullanırken kendilerini rahat hissetmelidirler. Aksi halde öğrenci sıkıntı içinde ders dinleyecek ve bedeninden rahatsız olacaktır. Bu durum ergonomik ilkelere aykırıdır ve çalışmaların verimliliğini azaltır.

Öğrencilerin %37'si yerleşme biçimi ile ilgili bu soruya katılırken, % 26'sı kararsız durumdadır. Sınıfların yerleşim düzeni dersin türüne gör değiştirilmesi gerekse de genel olarak tüm eğitim

kurumlarında ve fakültemizde genel sıra düzeni kullanılmaktır. Genel yerleşim düzeni dinleme ve not alma için uygundur. Fakültede bu tür çalışmalar yapıldığı için bu yerleşim uygundur.

Öğrencilerin %51'i bu soruya tamamen katılırken, % 37.5'i ise katılmaktadır. Bu oranlara oldukça yüksektir buradan da ergonomik faktörlerin verimlilikte ne kadar önemli olduğu ortaya çıkmaktadır.

Sınıftaki yerleşim düzeni konusunda değişik oranlar yer almaktadır. %33'lük kısım sınıfların yerleşim düzenine katılırken, % 9.5'lik kısım katılmamaktadır. Her ne kadar geleneksel yerleşim düzeyi kullanılması iletişimi engeller düzeyde olsa da üniversitelerde bu uygun karşılanabilir. Bir üniversite Öğrenci dinleme ve dinlediğini not etme konusunda bu düzen ona yetecektir. Ayrıca sınıflar kalabalık olduğu için bu düzen uygun olacaktır. Üniversite Öğrencileri uzun süreli olarak bir konuya dikkatlerini toplayabildikleri için bu düzen uygundur.

Fakültenin içinin temizliği konusunda sorulan bu soruda % 29.5 temizliğine katılırken, %28 temizlik konusundaki bu soruya katılmamaktadır. %23.5'i ise bu konuda kararsızdır. Temizlik konusunda farklı düşünceler yer almaktadır. Ergonomik olarak kendini temiz bir ortamda çalışan Öğrenciler kendilerini fiziksel ve ruhsal olarak
rahat hisseder. Kendini rahat hisseden öğrenci ise de derse katılma konusunda istekli olacaktır buda verimliliği arttıracaktır.

Öğrencilerin %33'ü fakülteyi temiz bularken, %22'si ise bu konuya katılmamaktadır. Yine oranlar çok farklı şekilde dağılmıştır. Bu konu ile ilgili daha ayrıntılı olarak fakültenin hangi bölümlerinin (tuvalet, koridor, çöp dökme vb.) temizliğinin yetersiz olduğu konusunda bir çalışma yapılabilir. Böylece hangi bölümlerin konusunda temizliği konusunda net sonuçlara ulaşılabilir.

Öğrencilerin %40'ı fakültede ders araç ve gereçlerini koyabileceği uygun bir ortam hiç bulduğunu söylerken, % 22'si yeterli ortam bulmaktadır. Katılmayanların oranına da dikkat edersek(%16) fakültede öğrencilerin büyük çoğunluğu bu ortamın bulamamaktadır. Öğrencilerin ihtiyaçlarına uygun düzeyde dolap gibi araçlar bulunmazsa eşyalarını sürekli taşımak zorunda kalacak bu da öğrencide yorgunluk yaratacaktır. Ayrıca ihtiyaca uygun dolap bulundurulması düzeni sağlayacaktır. Düzensizlik kargaşa ve zaman kaybına neden olabilir.

Öğrencilerin %49'u dersliklerdeki aydınlatma sisteminin derse odaklanma yeterli düzeyde olduğuna katılmaktadır. %4'ü ise aydınlatma sisteminin yeterli olmadığı konusuna kesinlikle katılmamaktadır. Öğrencilerin kendilerini tam olarak derse verebilmesi için mutlaka rahat ortamlarda çalışması gerekir. Burada %17'lik kısım ise kendini aydınlatmadan dolayı rahatsız hissetmektedir.

Öğrenicilerin %52'lik kısmı doğal aydınlatma düzeyini yeterli bulmaktadır. Doğal aydınlatma kullanılan bir ortamda çalışmak Öğrencileri psikolojik olarak rahatlatır. Ayrıca gün ışığını kullanılacak sayıda ve konumda pencere bulundurmak gün ışığından yeteri kadar yararlanma olanağı sağlayacağından elektrikten avantaj sağlayacaktır. Toplam %14.5'lik kısım ise gün ışığından yararlanmadığını belirtmiştir. Bu oran ise atölyelerin biraz daha gün ışığı aymayan katta olmasından kaynaklanabilmektedir. Türkiye'nin matematiksel konumu nedeniyle doğu, güney ve batıya bakan pencereler gün ışığından yararlanacaktır. Okulların yapımında bu konum dikkate alınmalıdır.

Öğrencilerin %41, 5'llk bir çoğunluğu ışık almayan bölümlerin aydınlatma düzeyini yeterli bulmaktadır. %20'lik kısım ise bu soruya katılmamaktadır. %20 yine önemli bir orandır ve bu her koridorun yeteri kadar aydınlatılmadığını gösterir. Sınıflar kadar özellikle ışık olamayan koridor ve merdiven gibi bölümlerinde yeteri kadar aydınlatılması gerekir. Çünkü bu bölümler bütün sınıfları bir birine bağladığı için çok kalabalık olacaktır. Kalabalık bir ortamın karanlık olması bir takım olumsuzluklara yol açabilir. Öğrenciler kalabalık, karanlık bir ortamda bulunması psikolojik olarak rahatsız olmalarına neden olabilir. Yeteri kadar dinlenemeden derse girecek ve verimliliği düşecektir.

Öğrencilerin % 30'5'lik kısmı fakültedeki ses düzeyinden memnun değildir. Sessiz bir ortamda çalışma imkanı bulmayan öğrencilerin dikkati dağılabilir ve dersi anlama konusunda verimlilikleri düşebilir. Özellikle okul binası inşa edilirken buna dikkat edilmesi ses geçirmeyi önleyici düzenlemelere

yer verilmelidir. Özellikle atölyelerin alt katlarda olması olumlu bir yaklaşımdır. Çünkü dersliklere ses gitme oranı azalmıştır.

Öğrencilerin %39'u renk düzeninin uygun çalışma ortamı sağlayacağını sorusuna katılmıştır. %5'lik kısım ise renk düzeni konusuna kesinlikle katılmamaktadır.

Renk tonlarının psikolojik etkisi çok fazladır. Bu nedenle Öğrencilerin % 38,5'i rengin motivasyonuna etkisi olduğunu katılırken, %2.5 'i ise kesinlikle katılmamaktadır

Öğrencilerin % 37.5'i sınıf ve koridorlarda uygun renkler kullanıldığını ve böylece rahat bir ortam yaratıldığını söylemiştir. % 5.5 ise uygun renkler kullanılmadığı belirtmiştir.

Renk ile ilgili sorulan üç soruda da öğrencilerin çoğunluğu renklerin önemini belirtmiştir. Sınıflarda açık renkler(yeşil) kullanılmıştır. Açık renkler motivasyonu arttırır, öğrencileri dinamik tutar ve aktif olmalarını sağlar. Ayrıca stresi azaltır ve çalışma isteğini canlı tutar. Bu nedenle ergonomik faktörler içinde renk önemli bir etkendir.

Eğitim ve öğretimde yaygın olarak tahtalardan yaralanılır. Zamanın verimli kullanılması açından yazı tahtaları en uygun şekilde kullanım kolaylığı sağlamalıdır. Öğrencilerin %45 tahtaların uygun kullanım kolaylığı sağladığı konusuna katıldığını belirtmiştir. Öğrencilerin %3,5 ise tahtaların kullanımının kolay olmadığını belirtmiştir.

Tahtalar sadece yazı yazmak için değil farklı amaçlar için de kullanılmalıdır. Öğrencilerin %30.5 tahtalardan çok amaçlı olarak kullandığını belirtirken, %27.5'i ise bu soruya katılmamaktadır. Sınıflarda beyaz tahta kullanılmaktadır. Amaca göre uygun olarak tahtalar faklı şekillerde kullanılmalıdır.

Öğrencilerin %49'u sınıflardaki ısı durumunun yeterliliğinin verimliliğini arttırmıştır. %3,5'i ise ısı durumun yeterliliği sorusunu kesinlikle katılmadığını belirtmiştir. Isı durumun uygun düzeyde olmadığı sınıflarda ilgi azalır ve çalışmalarda verimlilik düşer.

Öğrencilerin %40'ı sınıfların havalandırmasının yeterli olduğuna katılırken, %10'luk bir kısım katılmamaktadır. Havalandırılmış temiz sınıflar öğrencilerin rahat olmalarını sağlayarak verimliliğini artıracaktır. Havalandırılmamış oksijensiz ortamlar öğrencilerde üşüme hissi yaratacaktır. Bu da verimliliği düşürecektir.

Ergonomik faktörler ait sorulan bu son soruda öğrencilerin %51'i ergonomik koşullarının eğitimin doğru yapılacağına tamamen katılırken, %4.5'lik bir kısım ise kesinlikle katılmamaktadır. Ergonomik faktörler eğitimin bir parçasıdır. Eğitim ve öğretim ergonomik koşulların uygun olmasıyla daha da artacaktır.

Tablo 3: Önem Derecelerine Göre Ergonomik Faktörlerin Değerlendirilmesi

	ÖNEM DERECESİ	FREKANS	ORAN%
SICAKLIK	1.derece	34	17
	2.derece	38	19
	3.derece	33	16.5
	4.derece	30	15
	5.derece	26	13
	6.derece	24	12
	7.derece	15	7.5
TOPLAM		200	100
AYDINLATMA	1.derece	10	5
	2.derece	35	17.5
	3.derece	40	20
	4.derece	41	20.5
	5.derece	32	16
	6.derece	35	17.5
	7.derece	7	3.5
TOPLAM		200	100

GÜRÜLTÜ	1.derece	51.	25.5
	2.derece	28	14
	3.derece	40	2
	4.derece	33	16.5
	5.derece	19	9.5
	6.derece	12	6
	7.derece	17	8.5
TOPLAM		200	100
RENK DÜZENİ	1.derece	2	1
	2.derece	7	3.5
	3.derece	11	5.5
	4.derece	26	13
	5.derece	19	9.5
	6.derece	36	18
	7.derece	99	49.5
TOPLAM		200	100
TEMİZLİK	1.derece	49	24.5
	2.derece	23	11.5
	3.derece	26	13
	4.derece	25	12.5
	5.derece	45	22.5
	6.derece	19	9.5
	7.derece	13	6.5
TOPLAM		200	100
OTURMA RAHATLIĞI	1.derece	36	18
	2.derece	43	21.5
	3.derece	27	13.5
	4.derece	28	14
	5.derece	32	16
	6.derece	24	12
	7.derece	10	5
TOPLAM		200	100
YERLEŞİM DÜZENİ	1.derece	18	9
	2.derece	28	14
	3.derece	23	11.5
	4.derece	16	8
	5.derece	27	13,.5
	6.derece	49	24.5
	7.derece	39	19.5
TOPLAM		200	100

Önem derecelerine göre ergonomik faktörlerin sıralanmasının isteye yönelik yapılan bu değerlendirmede öğrencilerin sadece %17 birinci sırada ısı durumunun verimliliğini etkilediğini belirtmiştir.

Ergonomik faktörlerden aydınlatma konusunda öğrencilerin % 5'i bu konunun birinci sırada önemli olduğunu belirtmiştir.

Ergonomik faktörlerden gürültünün birinci sırada sadece %25.5'lik bir kısım verimliliğini etkilediğini belirmiştir. Ergonomik faktörlerden biri olan rengin birinci derece önemli olduğu konusunda % l'lik bir kısım yer almaktadır. %49.9'luk bir kısım ise 7. derece önemli olduğunu belirtmiştir. Zaten okulumuz uygun renklerde boyandığı için böyle bir sorun yaşanmamaktadır.

Ergonomik temiz bir ortamın verimliliği etkidiği konucunda ise % 24.5'lik bir kısım ilk sıraya yer vermiştir.

Rahat oturma koşullarının verimliliği etkilediği konusunda ise %18'Iik bir kısım bu konuyu birinci derece önemli olduğunu belirtmiştir.

Eğitimde önemli bir yeri olan yerleşim düzeninin verimliliğe etkisi konusunda ise %9'luk kısım bunu ilk sırada önemli bulmuştur.

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7.Anketteki Üçüncü Bölümün Değerlendirilmesi

Anketin üçüncü bölümünde ise öğrencilerden Fakültemize yönelik yapılan bu araştırmada ankette yer almayan ergonomik başka faktörlerin varsa belirtmeleri istenmiştir. Öğrencilerin büyük bir çoğunluğu ise bu bölümü cevaplamamıştır. 26 öğrenci bu bölümü cevaplamıştır.

Soruyu cevaplayan öğrenciler kantinin yetersiz olduğunu ve çok küçük olduğunu belirtmiştir. Bu anket uygulaması yapıldıktan sonra okulun değişik bölümlerine sıcak içecek sağlayacak makineler konulmuştur.

Diğer sorunlar ise okulun uzak olması ve ulaşım sorunun yaşanmasıdır. Bu nedenle yorgun olarak derse başladıklarını belirtmişlerdir. Ayrıca serbest çalışma yapabilecekleri kütüphane ya da çalışma salonları gibi bir bölüm bulunmadığını söylemişlerdir. İnterneti kullanma konusunda da internet salonunun yetersiz olduğunu belirtmişlerdir.

SONUÇ VE ÖNERİLER

Çalışmamızda eğitimde ergonomi konusundan hareket ederek, bir fakültenin nasıl olması gerektiği, eğitimde verililiği arttıran unsurlar, verimlilik ölçümünde kullanılan kriterler ve ergonomik bir eğitim ortamının nasıl olması gerektiği üzerinde durulmuştur.

Alan araştırması Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesi üzerinde yapılmıştır. Uygulama yapmış olduğumuz eğitim ortamında ergonomik faktörlerin bazı konularda yeterli olduğu saptanmıştır. Uygun ergonomik çalışma koşullarının sağlandığı eğitim ortamında verimlilik istenilen düzeye çıkacaktır.

Eğitim ortamını etkileyen aydınlatma, havalandırma, gürültü, renk düzeni, oturma rahatlığı, yerleşim düzeni, temizlik vb. faktörler incelenmiş ve ergonomi biliminin eğitim ortamına getireceği kolaylıklar ile öğrencilerin eğitim ortamında rahat etmesi, dersi etkili bir şekilde anlayabilmesi için en uygun koşulların sağlanması gerektiği vurgulanmaya çalışılmıştır. Öğrencilerin daha kısa sürede öğrenmeleri için ergonomi faktörü çok önemlidir. Öğrencinin rahat, sağlıklı ve huzurlu bir ortamda bulunması verimliliğini doğrudan olumlu yönde etkilemektedir. Önem düzeyine göre verilen sorulardan da görüleceği gibi en çok gürültü ve temizlik konusunda çalışmalarını etkileyeceğini belirtmiştir. Renk açısından ise çok düşük bir oran vardır ki bu da okulun uygun renklerde boyandığını gösterir.

Uygun bir ortamda eğitim görmeyen öğrenci bir an önce dersin bitmesini isteyecektir. Oysa kendisi için uygun bir ortam bulunsa dersi anlayacak ve daha verimli ders işlenecektir. Uygun koşulların sağlanmasının eğitimde verimliliği arttıracağından yola çıkarak, söz konusu çevresel faktörlerin en uygun şekilde düzenlenmesi için nelerin yapılabileceği üzerinde durulmuştur.

Ergonomi iş alanında olduğu gibi eğitim ortamında da insancıl eğitim ortamının oluşturulmasında ve verimin sağlanmasında önemli bir rol oynamaktadır. Öğrenciler için en uygun eğitim ortamları belirlenip ona göre yeni binalar inşa edilmeli ve eski binalar düzeltilmelidir. Böylece öğrenciden beklenen verim artacaktır. Ayrıca öğrenci için de eğitim ortamından kaynaklanan olumsuz faktörler soru olmaktan çıkacaktır.

Ergonomik faktörlerin her biri ayrı ayrı değerlendirilmeli ve en uygun çalışma koşulları sağlanmalıdır. Çünkü belli bir süre öğrenciyi sabit tutmak oldukça zor bir iştir ve birde uygun ortamla yoksa öğrenciden yeterli verim alınamayacaktır.

Sıcaklık; mevsime göre en uygun sıcaklık düzeyi ayarlanmalıdır. Gün ışığından yeteri kadar yararlanmalı ve karanlık olan bölümlerin yeteri kadar aydınlatılmasına özen gösterilmelidir. Okulun inşa edilmesi aşamasında sesi geçirmeyecek yalıtımlı malzemeler kullanılmalı ve okullar mümkün olduğunca gürültüden uzak yerlerde kurulmalıdır. Sınıf ve koridorların renk tasarımı uygun olmalı soğuk renkler (yeşil, mavi) kullanılmalıdır. Günlük temizliğin yanında haftalık gibi ara ara daha geniş çaplı temizlik yapılmalıdır. Sıra ve masalar öğrencinin rahatını sağlayacak şekilde olmalıdır. Yazı tahtalarından en uygu şekilde yararlanacak şekilde monte edilmelidir. Son olarak da yaygın olarak kullanılan geleneksel yerleşim düzeni aşılarak öğrencilerin öğretmenle ve arkadaşlarıyla iletişim kuracakları sınıflar oluşturulmalıdır.

Sonuç olarak öğrencilerin rahat edebileceği ergonomik öğrenme ortamları oluşturulduğunda, verimli çalışmalar beraberinde gelecektir. Sınıflardaki iç tasarım uzman mühendisler ve eğitimcilerin bilgiler doğrultusunda yapılırsa birçok sıkıntının önüne geçilmiş olacaktır. Bunun sonucunda eğitimde istenilen hedeflere daha kısa sürede ulaşılacaktır.

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EKONOMİ KAZANIMLARI İÇİN YÜKSEK ÖĞRETİMİ BEKLEMEK: GENEL LİSE EKONOMİ DERSİ PROGRAM TASARISI

WAIT 'TILL HIGHER EDUCATION TO GET ECONOMICS OBJECTIVES: THE CURRICULUM DRAFT FOR ECONOMICS COURSES IN HIGH SCHOOLS

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Özet

Bu çalışmanın amacı Türkiye'de yükseköğretime kadar olan süreçte uygulanan programlarda yer almayan ekonomi dersi için bir programı tasarısı geliştirmektir. Çalışma öğrencilerin gelişim ve hazır bulunuşluk düzeylerini göz önünde bulundurarak liselerde ekonomi eğitimi üzerine geliştirildi. Sorun merkezli program tasarım modeli temel alınarak hazırlanan program taslağının öğelerini belirlemek için ihtiyaç duyulan veriler nitel araştırma yöntemlerinden doküman analizi ve görüşme tekniği ile elde edilmiştir. Çalışmanın sonucu göstermektedir ki öğrencilerin ekonomiyle ilgili temel kavramları, üst düzey bilgi ve becerileri kazanmaları, bu alanda nitelikli ve bilinçli üretici ve tüketicileri yetiştirip Türkiye ekonomisinin gelişmesine katkı sağlaması açısından genel liselerde ve genel liselerin bazı alanlarında seçmeli ya da zorunlu ekonomi dersi programı geliştirilebilir.

Anahtar Kelimeler: Genel Lise Programları, Ekonomi Eğitimi, Program Tasarısı

Abstract

The purpose of this study is to develop a draft curriculum for economics courses that are not involved in the national curriculum untill higher Education in Turkey. A draft curriculum was designed for the economics classes in high shools based upon the students' developmental levels. This curriculum was prerapared depending on the problem-centered curriculum design model, and the data needed for determining the components of this draft were collected through two qualitative research techniques; interviewing and document analysis. The results indicated that it is required to have elective or mandatory economics courses in high shools and social depertmant of high schools in order to raise students who know about the basic concepts in economics, have high level of economical knowledge an economical knowledge and skills, and tend to be qualified and concious consumers and manufacturers for the development of the Turkish economy

Key Words: High School Curriculum, Economics Education, Curriculum Draft

Giriş

Eğitim insana yeni bir biçim verme süreci olarak tanımlanmaktadır. Bu süreçte, ne okul ne de öğretmen kendi tercihleri doğrultusunda insanı biçimlendiremez(Tezcan, 1991: 28). Eğitimin önceden saptanmış amaçları vardır. Eğitimin amaçları incelendiğinde, belirtilen farklı görüşlerin ortak olarak vurgu yaptıkları konu, eğitimin, insanı hem kendisi, hem de toplumu için değer yaratacak düzeye getirmeye çalışırken diğer taraftan bir ulusun geçmişi ile geleceği arasında köprü kurarak sentez yapmasıdır (Greg Ryan, Susan Toohey & Chris Hughes,1996).

Eğitimin amaçları ve içeriği üzerinde toplumsal dinamiklerin etkisi vardır. Bu dinamiklerden biri de ekonomidir (Kızılıok, 2007).İnsan sosyal bir varlık olduğundan Sosyal Bilimlerin çatısı altında incelenen ekonomiyle doğrudan ilişki içindedir. Eğitim ekonomi ilişkisini, ekonominin ilgili olduğu kavramlar, eğitim ve kalkınma, eğitim ve verimlilik, eğitim ve arz talebi konularını ekonomi eğitiminin çatısı altında değerlendiririz.(http://www.jstor.org/pss/3217319).

Ekonomik büyüme ve kalkınmanın sağlanmasında en önemli faktör iyi eğitilmiş ve verimli hale getirilmiş nitelikli insan gücüdür. Kalkınmanın gereksinim duyduğu insan gücü eğitim tarafından yetiştirilir. Eğitimin ekonomik işlevi, toplumdaki bireylere belli bir beceri kazandırarak onları üretici durumuna getirmek ve her alanda toplumun ihtiyacı olan insan gücünü yetiştirmektir(Fidan, 1986: 53).

Eğitimin ekonomik işlevlerinden birisi de bilinçli tüketiciler yetiştirmektir. Eğitim düzeyi yüksek insan gücü ile eğitim düzeyi düşük insan gücü arasında üretkenlik açısından fark vardır. Ancak bu nitelikleri kazanmış bir insan sınırsız ihtiyaçlarını önem sırasına göre sıralayabilir ve bunlar arasından en önemli olanlarını seçebilir. Geliri ile gideri arasında bir denge kurabilir. Bu şekilde bireysel kalkınma dolayısıyla toplumsal kalkınma da sağlanır (Batavan, 1987). Günümüzde eğitim artık öğrenciyi sosyalleştirmekle kalmıyor, onları ilgi ve yetenekleri doğrultusunda iş ve meslek hayatına hazırlıyor, iyi bir üretici ve tüketici haline getirmeye çalışıyor (Kızıloluk,2007). Ancak Türk eğitim sistemi içinde bu amaçları gerçekleştirebilmek için lisans programlarına dek “ekonomi” dersi bulunmamakta ve bu alana ilişkin kazanımlar farklı dersler aracılığı ile oluşturulmaya çalışılmaktadır.

Bu çalışmanın amacı Türkiye’de lisans programlarına kadarki süreçte programlarda yer almayan ekonomi dersi için bir program tasarısı hazırlamaktır..

Çalışmanın Yöntemi

Türkiye’de yükseköğretime kadar olan süreçte uygulanan programlarda yer almayan ekonomi dersi için bir programı tasarısı geliştirmek çalışmanın amacını oluşturmaktadır. Uygulanması tasarlanan ekonomi ders program taslağının genel amaçları, içeriği, eğitim durumları ve ölçme değerlendirme öğelerinin belirlenmesi için ihtiyaç duyulan veriler nitel araştırma yöntemlerinden olan doküman analizi ve görüşme tekniği ile elde edilmiştir.

Görüşme tekniğinde; uzman görüşlerinin toplanması aşamasında kullanılan yarı yapılandırılmış bir görüşme formu hazırlanmıştır. Belirtilen bu formda bulunan soruların tarafsız, açık-anlaşılır, uzmanların kişisel görüşlerini bağımsız ifade edebilecek özellikler taşımasına dikkat edilmiştir. Gereken durumlarda sonda sorulardan da yararlanılarak derinlemesine bilgi toplanma yoluna gidilmiştir.

Türkiye’nin dört farklı şehrinde (İzmir, Aydın, Manisa Ve Mersin) bulunan üniversitelerdeki eğitim bilimleri ve ekonomi alanında görev yapan on öğretim üyesinden konu ile ilgili görüş alınmıştır. Hem alan yazın taramasından hem de sözü edilen konu alanı uzmanlarından elde edilen veriler çalışmanın problemı ekseninde ele alınmış, analiz edilmiş ve yorumlanmıştır.

Bulgular ve Yorum

Bu bölümde Türkiye’deki genel lise programına eklenmesi önerilen Ekonomi dersi program taslağının vizyonu, temel öğeleri, genel amaçları, içeriği, öğretim süreçleri ile ölçme değerlendirme boyutu ana başlıklarıyla ele alınmıştır.

Ekonomi Dersi Program Tasarısının Vizyonu ve İlkeleri

Önerilen Ekonomi dersi program tasarısının vizyonu; ekonomik etkinliklere ve bu alandaki göstergeleri analiz ederek, ekonomik problemlerine karşı bilgili, duyarlı olan, bilinçli tüketici becerilerine sahip bireyler yetiştirmektir.

Ekonomi Dersi Programı tasarısında benimsenen ilkelere bakıldığında ise; programın öğrencilerde ekonomik olaylara yönelik genel bir farkındalık kazandırmaya çalıştırmaya yönelik olduğu,öğrenci merkezli yaklaşımları temele alan,. bilgi aktarımından çok, öğrencilerin yaşantıları yoluyla bilgiyi yapılandırmalarının amaç edinildiği ve Türkiye’nin konumsal ve ekonomik önemine, ulusal değerler yanında evrensel değerlere de duyarlı bir program taslağı olduğu görülmektedir. Ekonomi dersi taslak programı’nın temel öğeleri beceriler, kavramlar, değerler ve tutumlardan oluşmaktadır.

Beceriler

Beceri kavramı, öğretim etkinlikleri sonucunda öğrencilerde oluşturulması amaçlanan yeteneklerdir. Ekonomi programında yer alan beceriler, bu dersi oluşturan tüm alt alanların (Mikro Ekonomi, Makro Ekonomi) gerektirdiği becerileri kapsayacak şekilde oluşturulmalıdır.

Kavramlar

Kavramlar programlar içinde önemli bir yer tutmakta ve ilgili bilim dalının yapısı ve içeriğini öğrencilere aktarmada fonksiyonel bir yapıya sahiptir. Ekonomi dersini oluşturan tüm alt alanlara (Mikro ve Makro Ekonomi) ait kavramlar, kavram haritaları oluşturularak öğrencilere öğrenme yaşantıları sunulmalıdır Ekonomi dersine ait önemli bir özellik ise de bu derse ait kavramların ulusal özellikler yanında evrensel özellikler de taşıması gerekliliğidir.

Değerler ve Tutumlar

Ekonomi taslak programında temel oluşturan bir diğer bölüm ise tutumlar ve değerlerdir. Program beceri ve kavram öğretimiyle birlikte bilimsellik, kaynakları koruma, müteşebbislik, duyarlılık, vatanseverlik ve sorumluluk gibi değerleri de kazandırmayı önemsemektedir:

Öğrenme Alanları

Ekonomi dersi Program taslağı "öğrenme alanı" adı altında organize edilmiş yapılardan oluşmaktadır. Öğrenme alanları, ekonomi öğretiminde öngörülen bilgi, beceri, kavram, değerler ve tutumların sistematik bir şekilde ilişkilendirildiği tema ve konu alanlarından oluşur. Sözü edile bu öğrenme alanları; girişimcilik, serbest piyasa ekonomisi, tekelci ve duapol sistemler, ulusal göstergeler, bilinçli tüketim olarak önerilmektedir.

Ekonomi Dersi Program Tasarısı Genel Amaçları

Günümüzde alım gücünün gitgide düşmesi, ekonomik değerlerin sürekli değişmesiyle yaşanan dalgalanmalar, bireylerin ekonomik politikalar hakkında yorum yapamamaları, ekonomik kavramlar arasında yaşanan karmaşalar, bilinçli üretim ve tüketim ile ilgili davranışların kazandırılamaması ve ekonomik temelli yaşanan diğer olumsuzluklar göz önüne alınarak program tasarısı sorun merkezli program geliştirme tasarım modeli temel alınarak hazırlanmıştır. Ekonomi eğitimi ile öğrencilerin ekonomiyle ilgili temel ve üst düzey bilgi ve becerileri kazanmalarını, sağlam ekonomik yapı ve uluslararası piyasalarda rekabet gücü elde edebilmesi için, iyi yetişmiş insan gücü elde edebilmeyi, dolayısıyla verimliliği arttırarak ekonominin gelişmesine katkıda bulunmalarını sağlamak amaçlanmaktadır.

Bu çerçevede hazırlanan ekonomi dersi program tasarısı için belirlenen genel amaçlar şu şekilde düşünülebilir.

1.Toplumun sonsuz gereksinimlerinin karşılanmasında ekonominin yeterli olmayan kaynaklarını etkili şekilde kullanmayı beceri haline getirme.

2.Ekonominin işlemesinde para ve bankaların rolünü ve öneminin farkında olma.

3.Ekonomik hayatın içinde yer alan bir birey olarak aile ve diğer sosyal çevrelerde ülke kalkınmasına katkı sağlayacak tutum geliştirme.

4.Ülke ekonomisinin dünyanın diğer ülke ekonomileriyle işbirliği ihtiyacını ve önemini kavrayabilme.

5. Ekonomik belirtileri yorumlayabilme.

6. Ekonomik dönemlerin önemini ve bu dönemlerdeki değişkenlerin farkında olma.

7. Çağdaş ekonominin temel sorunlarını değerlendirebilme.

8. Ekonomik sorunların çözümünde hükümet tarafınca uygulanan politikalarla ilgili tutum geliştirebilme.

9. Bilinçli tüketim ilkelerini sosyal hayatın her kesiminde uygulayabilme.

Amaçlara ulaşmada program tasarısı içerik düzenlenmesi aşamasında titizlikle çalışılmalıdır.

Ekonomi Dersi Program Tasarısı İçeriği

Ekonomi dersi program tasarısında içerik, içerik düzenleme yaklaşımlarından sarmal programlama yaklaşımı çerçevesinde hazırlanmıştır**.** Böylece konular yeri geldikçe tekrarlanacak, konuların kendi

içinde ve birbirleriyle ardışıklık ilişkisi sağlanmış olacaktır. Bu özellikler göz önünde bulundurularak içerik üç ana başlık ve bu ana başlıklar altındaki alt kategorilerden oluşabileceği düşünülmektedir.

Ana başlıklar "Ekonomiye Giriş", "Mikro Ekonomi" ve "Makro Ekonomi" şeklinde düzenlenebilir. "Ekonomiye Giriş" ana başlığı altında ekonominin tarihteki etkileri, ekonomi bilimi ve temel yapı taşları ekonomi ve ekonomik sistemler, temel ekonomik kavramlar ve ilkeler, pazar, pazar elemanları ve işlevi konuları verilebilir. Böylece öğrenci yüzyıllardır toplumları derinden etkilemiş, dünya ülkelerinin yükseliş ve çöküşlerinde önemli yere sahip ekonominin geçmişi ile ilgili bilgi sahibi olacak ve geleceğin planlanmasında daha sağlam adımlar atmış olacaktır. Ayrıca ekonominin temel kavramları ve değişkenleri ile ilgili aldığı eğitimle yorumlama becerisini geliştirebilecektir.

Mikro ekonomi, ölçülebilen değişkenlere odaklanan ekonomi, gereksinimler ve işletmelerin işleyişi gibi bireysel boyutları yani bireylerin ya da iyi tanımlanmış birey gruplarının ekonomik etkinliklerini inceler. "Mikro Ekonomi" başlığı altında öğrencilere; tüketici davranışları, işletme, üretim piyasası, arz-talep kavramları, çevre-ekonomi ilişkisi, yatırım yöntemleri gibi konular verilebilir. Mikro ekonomi konuları ile öğrenciler kıt kaynaklarla ne tür seçimler yapabilecekleri ile ilgili kazanımları edinir. Üretimi etkileyen faktörlerin tespiti, çevre ekonomi ilişkisi, yatırım yöntemleri ve bunların ulusal ekonomi üzerindeki etkileri de yine bu başlık altında ele alınabilir. Bireyin aldığı eğitimden elde edeceği fayda maksimize edilerek toplumun elde edeceği refah seviyesinin de maksimize edilmesi sağlanmış olur.

Küresel büyüme, makro ekonomik denge, çağdaş makro ekonomik sorunlar, para ve bankacılık sistemi, mali ve para politikası, uluslar arası ekonomi konuları ise "Makro Ekonomi" ana başlığı altında verilebilir. Makro ekonomi yalnızca ekonomik olayları açıklamakla kalmamakta aynı zamanda yeni ekonomi politikalarının oluşturulmasına olanak vermektedir. Öğrencileri bu kazanımlar çerçevesinde eğitim alması geleceğin yönetici, ekonomist ve ekonomiyle her daim iç içe olan bireylerinin gelişmesine, kalkınmasına dolayısıyla ülkenin de kalkınmasına katkı sağlayacağı yadsınamaz bir gerçektir.

Ekonomi Dersi Program Tasarısı İçin Eğitim Durumları

Öğrenci merkezli stratejileri, yöntem ve teknikleri benimseyen Ekonomi dersi program tasarısında öğretim süreçleri **"öğretme"** kavramında daha ziyade **"öğrenme "** kavramı üzerinde odaklanmaktadır. Bu ders kapsamında öğrencilerin ekonomiye ilişkin kazanımları edinmede öğrenme sürecinin tam merkezinde olmaları ve kendi öğrenme sorumluluklarını üstlenmeleri beklenmektedir. Bu noktadan hareketle buluş yolu, araştırma ve inceleme yolu öğretim stratejileri taslak programın ilgili dersin öğretmenlerine önerdiği stratejilerdir. Belirtilen bu stratejilerle uyumlu yöntemlerin (tartışma, problem çözme, örnek olay ve proje) seçilip süreç içinde kullanılmaları önem arz etmektedir. Bireysel çalışmaların yanı sıra son yıllarda büyük önem kazanan grupla çalışma teknikleri, sınıf dışı etkinlikler, proje ödevleri taslak programın önerdiği eğitim durumu etkinlikleridir.

Yapılandırmacı anlayışı benimseyen Ekonomi taslak programı eğitim durumlarının düzenlenmesinde öğretmen ve öğrenci rollerinin dağıtılmasında büyük bir hassasiyet göstermektedir. Geleneksel anlayıştaki her şeyi üstlenen ve yapan bir öğretmen modelinden öğrencilerin bilgileri yapılandırmalarında onlara rehberlik eden ve yol gösteren bir model benimsenmektedir. Ders kitabı ve diğer materyaller gibi ikincil kaynakların kullanımından çok öğrenci deneyim ve yaşantıları yani birincil veri kaynakları daha büyük önem taşımaktadır.

Çağdaş yaklaşımların hızla gelişen ve değişe teknoloji ile desteklenmesi öğrenci başarısı üzerinde olumlu etkiler yaratmaktadır. Örnek olarak Almanya, İngiltere, Fransa ve ABD gibi ekonomi dersinin uygulanmakta olduğu ülkelere bakıldığında yöntem ve teknik olarak genellikle multi -medya destekli öğretim, problem çözme, bireysel ve grup çalışmaları kullanıldığı görülmektedir. Paul Heyne'e göre ise; ekonominin oldukça kompleks ve karmaşık eğitiminde kullanılacak ve öğrenmenin kalıcı olmasına katkısı sağlayacak en iyi yöntem, kazandırmak istediğimiz bilgi, beceri ve tutumları düşünerek konuyu kurgulanan hikayelerle anlatmaktır. Bunun yanında Van Fossen ve Herman (2006)'ın yaptığı araştırmalar Amerika Birleşik Devletleri'nde Ekonomi dersinde talep kavramının ve bu kavramın etkilediği sektörleri o günkü ekonomik göstergeler ışığında internet üzerinden öğrencilere aktarıldığını göstermektedir.

Ekonomi Dersi Program Tasarısı İçin Ölçme-Değerlendirme Süreci

Ekonomi program taslağına göre ölçme ve değerlendirme işlemleri hem sürece hem de ürüne yönelik olmalıdır. Ürüne yönelik değerlendirilmede sistematik (konu sonu), periyodik (ünite sonu) ya da dönem sonu yapılan yazılı ya da çoktan seçmeli sınavlar kullanılabileceği gibi sürece yönelik değerlendirme kapsamında öğrencilerin bireysel ve grupla yaptıkları çalışmalardaki performansları, bu sürece öğrencinin

katkısı ve katılımı öğrenci başarısının değerlendirilmesinde uygulanabilecek tekniklerdir. Ayrıca öğretmenlerin öğrencilerin gelişimleri ile ilgili tuttukları raporlar portfolyo dosyaları da bu aşamada değerlendirmede kullanılabilir. Özellikle batı toplumlarında sıklıkla kullanılan ve Türkiye'de son birkaç yıldır uygulanan öğrencinin kendisinin ve arkadaşlarının performanslarının değerlendirme sürecinde etkin olarak rol üstlenmesi (self assesment-peer assesment) ve bu tür becerilerinin de geliştirilmesi önerilen bu program taşlağının ölçme ve değerlendirme işlemleri için önem arz etmektedir.

Yukarıda tüm teknik öğeleri sunulan genel lise ekonomi program taslağı Türkiye'deki genel lise yapılanması içinde mevcut alanlar göz önüne alındığında şu şekilde programa dahil edilebilir;

Çizelge 1. Genel Lise Ekonomi Ders Program Tasarınsın Alanlara Göre Dağılımı

Sınıf/Alanlar	Sosyal Bilimler	Türkçe-Matematik	Fen Bilimleri	Yabancı Diller
9. Sınıf	Zorunlu (2 saat)	Zorunlu (2 saat)	Seçmeli (2 saat)	Seçmeli (2 saat)
10. Sınıf	Zorunlu (2 saat)	Zorunlu (2 saat)	Seçmeli (1 saat)	Seçmeli (1 saat)
11. Sınıf	Zorunlu (2 saat)	Zorunlu (2 saat)	Seçmeli (1 saat)	Seçmeli (1 saat)
12. Sınıf	Zorunlu (2 saat)	Zorunlu (2 saat)	Seçmeli (1 saat)	Seçmeli (1 saat)

Türkiye'deki genel lise programı için geliştirilmeye çalışılan ekonomi ders program taslağı liselerdeki sosyal bilimler ve Türkçe-matematik alanları için 9-12 sınıfları arasında zorunlu statüde ve haftada 2 saat olarak düşünülürken fen bilimleri ve yabancı diller alanları için seçimlik statüsünde haftada 1 saat olarak düşünülmektedir.

Sonuç ve Tartışma

Sonuç olarak bakıldığında Türkiye'de mevcut genel lise programlarında zorunlu ya da seçimlik statüde bulunmayan ekonomi dersi, ilgili literatürün ve uzman görüşleri bulgularına dayalı olarak bir ihtiyaç olarak alandaki yerini almıştır. Bu ihtiyaç doğrultusunda hazırlanan program taslağının dört teknik öğesi (amaçlar, içerik, eğitim durumları, ölçme ve değerlendirme) çağdaş program geliştirme anlayışına dayalı olarak geliştirilemeye çalışılmıştır. Program, yapılandırmacı anlayışı merkeze alan, kavram, beceri, değer ve tutum kazanımına önem veren bir anlayışla hazırlanmıştır. Genel amaçların belirlenmesinde sözü edilen bu dört temel (kavram, beceri, öğrenme alanları ve değer-tutum) dikkate alınıp amaçlar bu doğrultuda belirlenmiştir. Program taslağının içerik kısmında sarmal içerik düzenleme yaklaşımı benimsenmiş ve ön öğrenmelerin yeni öğrenilecek konulara bir temel oluşturması sağlanılmaya çalışılmıştır. Öğrenci merkezli strateji, yöntem ve teknikleri benimseyen program taslağı öğrenme sürecinde birinci veri kaynaklarına önem vermekte dolayısıyla öğrencilere ilgili alanın gerektirdiği zengin öğrenme yaşantıları-ortamları sunmayı amaçlamaktadır. Sınıf içi etkinlikler kadar sınıf dışı etkinliklere de yer verilen program taslağında eğitim durumlarının düzenlenmesi aşamasında teknolojiden de yardım alınmakta ve multi medya destekli öğrenme ortamları sağlanmaya çalışılmaktadır. Ürüne dayalı geleneksel ölçme değerlendirme yaklaşımından çok hem ürünün hem de sürecin birlikte ele alınıp değerlendirildiği bir ölçme değerlendirme anlayışı taslak programda yerini almaktadır. Dönem arası-sonu yapılan acık uçlu ve çoktan seçmeli sınavların yanında öğrencilerin süreç içindeki gelişimlerinin kayıt edildiği öğrenci seçki dosyalarının da ölçme değerlendirme işlemlerinde dikkate alınmasına özen gösterilmektedir.

Bulgulara dayalı olarak geliştirilmeye çalışılan genel lise ekonomi ders program taslağı, genel liselerin sosyal bilimler, türkçe- matematik alanları için zorunlu, yabancı diller ve fen bilimleri alanları içinse seçimlik statüde düşünülmektedir. Türkiye'deki mevcut genel lise programında önerilen bu taslak programın alanlara göre nasıl ele alındığı sunulan şekilde gösterilmiştir.

Genel olarak bakıldığında sosyal bilimlerin temel disiplinlerinden biri olan ekonomi ile ilgili temel ve gerekli üst düzey becerileri edinebilmenin yolu bu dersin formal eğitim yapılanması içinde programlara eklenmesinden geçmektedir. Ekonomi eğitimi ile bireyin ekonominin temel kavramları, ekonomik belirtiler ve ekonominin değişkenlerini analiz ederek yorum yapabilme, beceri ve tutum geliştirebilmesi, eleştirel düşünme yetisini kazanması, böylece zihinsel ve bireysel gelişimini tamamlayarak ekonomik hayatın bir parçası olarak kalkınmaya katkısının olması amaçlanmaktadır.

Amerika Birleşik Devletleri'nde birçok eyalette Ekonomi dersi lise programlarına 1970 -1980'li yıllarda konulmuştur. 1994 yılında ise Ekonomi dersi lise Sosyal Bilimler dersleri içindeki yerini tüm eyaletlerde zorunlu ya da seçimlik olarak almıştır. Bu derste makro ekonomi ve mikro ekonomi konuları bir araya getirilmiştir.(Aşçı, 2009)

Almanya'da lise programlarında uygulanmakta olan ekonomi dersiyle ekonominin, yaşanılan çevre ile olan ilişkileri, ulusal ekonominin temel yapı taşları, para piyasası, serbest piyasa ekonomisiyle ilgili bilgi ve beceriler öğrencilere aktarılmaktadır. Fransa'da lise Ekonomi dersi, *"Sosyal Bilimler ve Ekonomi"* adı altında okutulmakta olup bu derste; çalışan nüfus, çalışma yasaları, yatırım ve üretim, sosyal yapı, ekonomik yapı gibi konular işlenmektedir. Ekonomik ve sosyal olaylar hakkında bilgi toplayabilme, onları analiz edebilme, analiz ettikleri bu bilgilerin ışığında yeni görüşler oluşturabilme gibi üst düzey beceriler bu dersin amaçları arasındadır (http://www.education.gouv.fr/botexte/hs060208201542A.htm).

İngiltere'de lise programlarında yer alan Ekonomi dersi ile öğrencilere Ekonomi biliminin ne olduğu ve temel yapı taşlarının neler olduğu öğretilir. Ulusal ekonominin, piyasa koşullarının bireylerin yaşam standartları üzerindeki etkileri, gelir dağılımının toplumsal düzen üzerindeki etkisi, makro / mikro düzeyde ekonomik teoriler, enflasyon, istihdam, büyüme kavramlarının analizi ve hükümetin bu konularda neler yapabileceği zengin yoksul kavramları bu ders ile öğrencilere kazandırılmaktadır. (http://www.edinburghacademy.org.uk/curriculum/economics/alevel.htm).

Ekonomi dersi ülkelere göre farklı isimler altında programda yer almakta olsa da amaç ve içerik açısından aralarında çok büyük farlılıkların olmadığı görülmektedir. Makro ve mikro düzeydeki ekonomik faaliyetler ve sonuçları tüm ülkelerde bu dersin içeriğine eklenmiştir. Farklı olarak sadece Fransa'da Ekonomi dersi, *"Ekonomi ve Sosyal Bilimler"* olarak ele alınmış ve sosyal olguları ekonomi bilimi ile birleştirme yoluna gidilmiştir. Almanya'da ise, bazı eyaletlerde lise programlarında Ekonomi dersi, "Politik-Ekonomi" olarak adlandırılmış ve politik bilimlerle ekonomi konuları birlikte ele alınarak oluşturulmuştur (http://www.acikarsiv.gazi.edu.tr/index&secim=5&ses=&txtAbstract=geli%FEme).

Gelişmekte olan ülkeler arasında yer alan Türkiye'de ise ekonomik kalkınmanın, bilinçlenmenin, toplumsal hayatta üretim ve tüketim ile ilgili becerilerin kazandırılmasında etkin rolü olan ekonomi eğitiminin ne zorunlu ne de seçimlik ders olarak özellikle liselerin Sosyal Bilimler alanlarında programlarda yer almaması düşündürücüdür.

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E-OKUL UYGULAMALARINDA KARŞILAŞILAN SORUNLAR (İstanbul İli Anadolu Yakası Örneği)

Yasin IRMAK
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ÖZET

Türkiye' de son yıllarda Yönetim Bilgi Sistemlerinin Millî Eğitim Bakanlığı'nın tüm uygulamalarına yaygınlaştırılması için yoğun çalışmalar yapılmaktadır. Bu araştırmanın amacı, Millî Eğitim Bakanlığı Yönetim Bilgi Sistemlerinin uygulanmasında karşılaşılan sorunları belirlemek ve sistemlerin daha etkili bir şekilde kullanılması ve ihtiyaca uygun biçimde geliştirilmesi için öneriler sunmaktır. Araştırma genel tarama modeli kullanılarak yapılmış ve yöneticilerin konuyla ilgili görüşleri anket kullanılarak belirlenmeye çalışılmıştır. Araştırmanın çalışma grubunu, İstanbul ili Anadolu Yakasında (Kartal, Pendik, Maltepe, Tuzla, Çekmeköy, Kadıköy) ilçelerinde Teknik ve Endüstri Meslek Liseleri'nde görev yapan 92 okul müdürü, müdür başyardımcısı ve müdür yardımcısı oluşturmaktadır. Araştırmanın bulgularına göre, yöneticilerin Temel Bilgisayar Kullanımı ve Sistem Gereksinimleri açısından sorun yaşamadıklarını ancak Eğitim İhtiyacı ile Üst ve Alt Kademe Yönetimi açısından sorunlar yaşadıkları belirlenmiştir.

Anahtar sözcükler: Yönetim bilgi sistemleri, e-yönetim uygulamaları, e-okul.

ABSTRACT

In Turkey in recent years, the Management Information Systems all aplications of the Ministry of National Education to promete intensive studies are being carried. The purpose of this research is to identify problems the implementation of management information systems by the Ministry of National Education and to develop recommendations for systems to be used more effectively and for according to need to develop. The research made using a general screening model and managers' opinions on the subject using surveys are determined. Study group of research , the 92 Managers that study Technical and Vocational Training Schools in İstanbul province Anatolian coast (Kartal, Pendik, Maltepe, Tuzla, Çekmeköy, Kadıköy) districts. According to the findings of the research, managers were not having problems In terms of Basic Computer Use and Technological Tools but having problem In terms of training needs and Upper and Lower Level Management.

Keywords: Management information systems, E-government applications, e-school.

GİRİŞ

Bilgi toplumu haline gelmek ve bilgi teknolojilerinden en üst düzeyde yararlanmak isteyen devletler, gelişmiş ve uygun teknolojileri çağdaş yönetim teknikleriyle birleştirerek, vatandaşa hizmeti ön plana çıkaran yeni yapılanmalara gitmektedirler. Bunun ise, en önemli aşamasını Yönetim Bilgi Sistemleri (YBS) ' nin devlet kurumlarında uygulanması oluşturmaktadır. Yönetim Bilgi Sistemlerinin devlet kurumlarında başarılı bir şekilde uygulanması durumunda, vatandaşa verilen hizmetin kalitesi artmakta ve hizmetlerden memnuniyetin artması sağlanmaktadır. Diğer yandan devlet kurumlarının işleyişinde hız, kesinlik, doğruluk ve şeffaflık gibi özellikler geliştirilerek, yönetimin de işi kolaylaşmakta ve daha etkili bir hale gelmektedir (Bayrakçı, 2007).

YÖNETİM BİLGİ SİSTEMLERİ

" Yönetim Bilgi Sistemleri " terimi bir örgütteki yöneticilerin ve karar vericilerin ihtiyaçları için düzenlenmiş veritabanı yönetim sistemi anlamına gelmektedir. Yönetim bilgi sistemleri, yöneticilerin *etkili karar verebilmeleri* için, ihtiyaç duydukları bilgiyi sağlamak üzere tasarlanmış bilgi sistemleridir (O'Brien, 1990). Bu noktada; " bilgi ","bilgi yönetimi " ve " bilgi sistemleri " kavramlarının açıklanmasının yönetim bilgi sistemlerinin daha iyi anlaşılmasında yararlı olacağı düşünülmektedir.

Bilgi

Bilgi; hammadde, para ve personel gibi temel bir kaynaktır. Bilgi, enerji gibi bireyler ve örgütler için hayatî önemi olan kritik bir kaynaktır (Adekeye, 1997; Lucey, 1987). Yönetsel anlamda bilgi, yöneticinin kararlar almasında, değerlendirme yapmasında, sorunları belirlemesinde vb. etkinliklerde yararlanabileceği en temel kaynaktır (Demirtaş ve Güneş, 2002: 18).

Bilgi Yönetimi

Bilgi yönetimi kısaca önemli bilgilerin organize edilmesini ve nerede, ne zaman ihtiyaç duyulursa elde edilebilmesini amaçlamaktadır (Maglitta, 1996). Bu anlamda Best (1988) bilgi yönetimini şöyle tanımlamaktadır: "Bilgi yönetimi, örgütün performansını arttırmak üzere bilginin ekonomik; etkili ve hızlı bir şekilde üretiminin, kontrolünün, depolanmasının ve dağıtılmasının sağlanmasıdır " (Cowell, 2006).

Bilgi Sistemleri

Bilgi sistemleri bir örgüt içerisinde bilgiyi toplayan, dönüştüren ve gerekli yerlere dağıtan bir dizi insan, prosedür ve kaynaklar topluluğudur (O'Brien, 1990).

Bu bilgilerden hareketle *Yönetim Bilgi Sistemleri* , " yönetimin tüm düzeylerinde yöneticilerin sorumlu oldukları etkinliklerin planlanması, yönlendirilmesi ve kontrol edilmesi için gerekli, etkili ve zamanında kararları verebilmeleri için uygun bilgiyi, iç ve dış kaynaklardan gelen verilere dayanarak oluşturmak için çeşitli formal prosedürleri kullanan sistemlerdir " (Argyris, 1991).

YÖNETİM BİLGİ SİSTEMLERİNİN EĞİTİM ALANINDA KULLANILMASI VE TÜRKİYE' DEKİ DURUM

Milli Eğitim Bakanlığı adına Eğitim Teknolojileri Genel Müdürlüğü, birçok projeyi hayata geçirmiş, birçok projenin de planlamasını gerçekleştirmiştir. Hayata geçirilen projelerden en önemlileri Çağı Yakalama 2000 Projesi ile Milli Eğitimi Geliştirme Projesi (MEGEP)' dir.

Milli Eğitimi Geliştirme Projesi kapsamında değişik okullara bilgisayar laboratuarları kurulmuş, yönetim işlerinde bilgisayarın kullanılması için gerekli çalışmalara başlanmıştır. Milli Eğitimi Geliştirme Projesi kapsamında uygulamaya geçirilen projelerden en önemlilerinden biri de; Milli Eğitim Bakanlığı Bütünleşik Yönetim Bilgi Sistemi (MEBSİS)' tir. Personel, kurum ve öğrenci bilgilerini takip etmek, gerekli istatistikleri doğru ve zamanında oluşturmak, geleceğe yönelik planlamalar yapmak son derece önemlidir (İLSİS, 2010).

Türkiye' de 2006 Yılı İtibariyle Yönetim Bilgi Sistemlerindeki Gelişmeler

MEBSİS, ilk kurulduğunda birden fazla alt yönetim bilgi sistemini içeren bütünleşik bir sistem olarak tasarlanmıştır. Zaman içerisinde birçok bilişim sistemleri ve eğitim portalları kurulmuştur. Her biri ayrı amaçlarla kurulmuş bu sistemler 2006 yılında " Millî Eğitim Bakanlığı Bilişim Sistemleri (MEBBİS) " adı altında birleştirilmişlerdir. MEBBİS günümüzde yönetim bilgi sistemlerini (İLSİS, E-okul), karar destek sistemlerini (Kds) ve uzaktan eğitim portallarını (Açık Öğretim Lisesi, Açık İlköğretim Okulu) içeren bir dizi web tabanlı uygulamayı kapsamaktadır. Bu kapsamda Bakanlığın çeşitli birimlerinin faaliyetleri elektronik ortamda yapılmakta ve yönetim işlerinde bilgi ve iletişim teknolojilerinden yararlanılmaktadır (Bayrakçı, 2007).

E- OKUL YÖNETİM BİLGİ SİSTEMİ

Milli Eğitim Bakanlığı'nın MEBBİS projesiyle kurum ve personel bilgilerinin yönetimi için kurmuş olduğu yapının, okul ve öğrenci bilgileri için de sağlanabilmesi amacıyla e-okul projesi başlatılmıştır (MEB, 2007).

E-Okul Milli Eğitim Bakanlığı tarafından 2007 yılının Ocak ayında kullanıma açılmış olan bir okul yönetim bilgi sistemi yazılımıdır. Bir öğrencinin okula kaydından başlayıp, mezuniyetine kadar olan tüm süreci içerir. Şu an itibariyle öğrencinin okula kaydı, dosya bilgilerinin ve resminin sisteme işlenmesi, nakil alma ve nakil verme işlemleri, devamsızlık girişi ve devamsızlık takibi, okulun ders programının, okutulacak derslerin ve dersi okutacak öğretmenlerin bilgilerinin işlenmesi, sınav tarihleri ve gelişim raporu işlemleri e-okul sistemi üzerinden yapılabilmektedir.

E-Okul Uygulamalarında Karşılaşılan Sorunlar

Şüphesiz ki yıllardır klasik örgüt yaklaşımları ile yönetilmeye alışmış ve bunun gerektirdiği biçimde işleyen örgütlere bilgi ve iletişim teknolojilerinin adaptasyonu ve uygulanmaları kolay olmamaktadır. Özellikle bilgisayar temelli olan bu bilgi sistemlerinin örgütlerde uygulanması sırasında

değişik sorunlarla karşılaşılmaktadır. Bu sorunlar bilgisayar donanımları ve bunların finansmanından, örgüt üyelerinin bilgisayar kullanabilme yeterliklerine ve örgüt yapısının yeni sisteme uygunluğuna kadar çok geniş bir yelpazede incelenebilmektedir.

Araştırmacı tarafından yapılan görüşme ve literatür taramalarına göre e-okul uygulamalarında karşılaşılan sorunlar genel itibariyle; bilgisayar kullanımı ile ilgili temel bilgilerdeki eksikliklerden kaynaklanan sorunlar, programın nasıl kullanılacağının bilinmemesi ve gerekli bilgilendirme ve kursların yapılmamasından kaynaklanan sorunlar, yazılımsal hatalardan kaynaklanan sorunlar, donanımsal hatalardan kaynaklanan sorunlar, üst düzey yöneticiler tarafından yeterli liderliğin yapılmamasından ve alt düzey yöneticilerinin bu sürece katılmaması veya gereken desteği vermemesinden kaynaklanan sorunlardan oluşmaktadır.

Bu bağlamda, araştırmanın amacı; genelde MEBBİS; " Millî Eğitim Bakanlığı Bilişim Sistemleri " ve özelde de " E-okul " uygulanmasında ve kullanılmasında ortaya çıkan sorunları belirlemek ve bunlara bazı çözüm önerileri sunmaktır. Araştırmanın ortaya koyacağı sonuçlar bilgi toplumu haline gelmek ve bilgi teknolojilerinden en üst düzeyde yararlanmak isteyen eğitim kurumları adına önemlidir.

YÖNTEM

Bu araştırmanın yürütülmesinde genel tarama modeli kullanılmıştır. Araştırmayla, meslek liselerinde görev yapan yöneticilerin E-Okul Yönetim Bilgi Sisteminin kullanımında yaşadıkları sorunlar belirlenmeye çalışılmıştır. Bu belirlemelerin, yöneticilerin görüşlerine dayalı olması nedeniyle araştırma durum saptayıcı niteliktedir.

Araştırmanın evreni 2009 - 2010 Eğitim, Öğretim yılında İstanbul ili Anadolu Yakasında bulunan Orta Öğretim kurumlarında görev yapan okul yöneticileri, örneklemi ise 2009 - 2010 Eğitim - Öğretim yılında İstanbul ili Anadolu Yakasında bulunan ilçeler içerisinden Kartal, Pendik, Maltepe, Tuzla, Çekmeköy, Kadıköy ilçelerinde bulunan Teknik ve Endüstri Meslek Liselerinde görev yapan müdür, müdür başyardımcıları ve müdür yardımcıları oluşturmaktadır. Dağıtılan anketlerden 94' ü (% 94) geri dönmüş ve bu anketlerden 92' si kullanılabilir kabul edilerek değerlendirmeye alınmıştır. Tablo 1' de çalışma evreninde yer alan yöneticilerin bazı özelliklerine ilişkin bilgiler verilmektedir.

Tablo 1. Çalışma Evreninde Yer Alan Yöneticilerin Kişisel Özellikleri

Göreviniz	*f*	%	$\%_{gec}$	$\%_{ygın}$
Müdür	14	15,2	15,2	15,2
Md. Bş.Yard. ve Müd. Yard.	78	84,8	84,8	84,8
Toplam	92	100	100	

Veri Toplama Aracı

Bu araştırma için geliştirilen E-okul uygulamalarında Karşılaşılan Sorunları Belirleme Ölçeği' de Likert tipi bir ölçektir. Veri toplama aracı, okul yöneticilerinin E-Okul Yönetim Bilgi Sistemi' ni kullanırken karşılaştıkları sorunları belirlemeye yönelik olarak hazırlanmıştır. Ölçeğin hazırlanmasında öncelikle konuyla ilgili literatür incelenmiş ve yönetim bilgi sistemlerinin kullanımında karşılaşılması olası durumlar tespit edilmiştir. Ayrıca araştırmacı tarafından meslek liselerinde görev yapan öğretmenlere yönelik forum sitelerinden ve yapılan görüşmelerden hareketle, sistemle ve karşılaşılan sorunlarla ilgili ayrıntılı bilgiler edinilmiştir. Konu ile ilgili uzman görüşleri de alınmıştır. Tüm bu bilgiler ışığında hazırlanan durumlar ve sorunlar, yöneticilerin görüşlerin alınabilmesi için anket maddelerine dönüştürülmüştür.

Veri toplama aracının yapı geçerliliğinin sağlanabilmesi için temel bileşenler analizi yapılmıştır. Başlangıçta 52 madde olarak hazırlanan veri toplama aracı, yapılan kapsam geçerliliğinin sağlanabilmesi amacıyla başvurulan uzman görüşleri doğrultusunda 7 maddesi atılarak yeniden düzenlenmiş ve 45 maddeye indirilmiştir.

Veri toplama aracı, yöneticilerin kişisel özelliklerini ölçmeye yönelik 8 soru ve İLSİS yönetim bilgi sistemlerini kullanırken yöneticilerin karşılaştıkları sorunları değerlendirmeye yönelik 3 alt bileşenden oluşan ve toplam 45 soru maddesini içeren bir likert ölçeğidir. Birinci alt bileşen " bilgisayar

kullanımı ile ilgili yeterliklere ” ilişkin görüşleri ölçmeye yönelik 15 soru, ikinci alt bileşen “ sistem yazılımı ve teknolojik araçlar ”a ilişkin 15 soru ve üçüncü alt bileşen ise “ yönetime ” ilişkin görüşleri ölçmeye yönelik 15 soru maddesinden oluşmaktadır.

Ölçeğin üç faktörü ölçmeye yönelik toplam varyansı açıklama oranı %72'dir ve faktör yük değerleri, 31 ile 80 arasında değişmektedir. Cronbach Alfa Güvenirlik Katsayısı ise, 881'dir. Ölçeğin alt bileşenler için Cronbach Alfa Güvenirlik Katsayıları ise sırasıyla; 1. Bileşen: ,843; 2. Bileşen: ,845; 3. Bileşen: ,821 ve 4. Bileşen: ,833' tür.

BULGULAR

Verilerin Analizi

Ölçme araçları ile toplanan veriler bilgisayara aktarıldıktan sonra, gerekli istatistiksel çözümlemeler için istatistik paket programından yararlanılmıştır. Bu programdan yararlanarak; yöneticilerin kişisel özelliklerini ve İLSİS Yönetim Bilgi Sistemini kullanırken yaşadıkları sorunları incelemek üzere frekans (f), yüzde (%), aritmetik ortalama (X) ve standart sapma (S) değerleri tablolaştırılmıştır.

Tablo 2. EKSÖ Alt Boyutlarına Ait Örneklem Sayısı, Aritmetik Ortalama, Standart Sapma ve Standart Hata Değerleri

EKSÖ Alt Boyutları	*N*	*Min*	*Max*	*Xort*	*SS*
Temel Bilgisayar Kullanımı	92	1	5	4.58	6,138
Eğitim İhtiyacı	92	1	5	3.16	5,839
Sistem Gereksinimleri	92	1	5	3.69	8,798
Yönetimsel Sorunlar	92	1	5	2,58	6,812

Tablo 2 incelendiğinde meslek liselerinde görev yapan yöneticilerin, “ e-okul uygulamalarında karşılaştıkları sorunlara ” ilişkin; bilgisayar kullanımı ile ilgili yeterlilikler alanı içerisinde, *temel bilgisayar kullanımı* açısından yani bilgisayar kullanımı ile ilgili temel bilgilere ne derece sahip olduklarını belirlemek üzere, sistemin ve bilgisayarın kullanımıyla ilgili 8 soru sorulmuş ve verilen cevapların aritmetik ortalamaları incelendiğinde (Xort < 4,20) ile “ tamamen katılıyorum ” düzeyinde görüş belirttikleri görülmüştür. (Xort = 4.58). Buna göre yöneticilerin bilgisayarla ilgili temel bilgi ve becerilere sahip oldukları ve bilgisayarı rahatlıkla kullanabilecek düzeyde oldukları söylenebilir.

Yöneticilerin aldıkları hizmet içi eğitimler, onların yönetim bilgi sistemlerini kullanma sıklıklarını ve kalitesini etkilemektedir (Visscher, Wild, Smith & Newton, 2003). Yöneticilere *eğitim ihtiyacı* açısından yaşadıkları sorunları belirlemek amacıyla 7 soru sorulmuş ve verilen cevapların aritmetik ortalamaları incelendiğinde (Xort < 3.41) ile “ orta ” düzeyinde görüş belirttikleri görülmüştür. (Xort = 3,16). Buna göre yöneticilerin e-okul sisteminin gerektirdiği yeterliliklerin kazandırılması konusunda eğitim ve ilgili kursların mevcut ihtiyacı karşılamada yetersiz kaldığını düşündükleri söylenebilir.

Meslek liselerinde görev yapan yöneticilerin, “ e-okul uygulamalarında karşılaştıkları sorunlara ” ilişkin; *sistem gereksinimleri* açısından yani e-okul yönetim bilgi sisteminin kullanımı için gerekli *donanımlar ve yazılımlar* açısından yaşadıkları sorunları belirlenmeye yönelik 15 soru sorulmuş ve verilen cevapların aritmetik ortalamaları incelendiğinde (Xort < 4,20) ile “ oldukça ” düzeyinde görüş belirttikleri görülmüştür. (Xort = 3.69). Buna göre yöneticilerin teknolojik araçlarla ilgili önemli bir sorunla karşılaşmadıkları, yani; sistemin modüllerini kullanabildikleri, kullanılan dili rahatlıkla anlayabildikleri, sisteme kolayca giriş - çıkış yapabildikleri, istedikleri bilgileri yazıcıdan başarılı bir şekilde alabildikleri, sistemin güncel bilgileri içerdiği ve güncel bilgilere de kolayca ulaşarak ihtiyaçlarını karşılayabildikleri, sisteme bağlanmak için yeterli donanımlara sahip oldukları söylenebilir.

Yönetim Bilgi Sistemleri, örgütün çeşitli kademelerine hizmet etmek ve bilgi üretmek üzere kurulmuş sistemlerdir (Robson, 1997). Yönetim Bilgi Sistemleri' nin kullanımı örgütsel yapıyı çeşitli seviyelerde etkilemekte ve örgütün yönetim kademelerinden etkilenmektedir (Aldag & Stearns, 1991). Bu

noktada, yöneticilerin yönetim bilgi sistemlerini kullanırken karşılaştıkları üst yönetim ve alt yönetim kademesinden kaynaklanan *yönetimsel sorunlar* incelenmiş ve üst düzey yöneticilerin, sistemin etkili olarak kullanılması için gerekli liderliği yapıp yapmadıkları ve alt düzey yöneticilerin bu sürece destek verip vermediğinin araştırılması adına 15 soru sorulmuş ve verilen cevapların aritmetik ortalamaları incelendiğinde (Xort < 2,60) ile " biraz " düzeyinde görüş belirttikleri görülmüştür. (Xort = 2,58). Buna göre yöneticilerin e-okul sisteminde yönetimsel sorunlar açısından önemli bir yönetimsel sorun gördükleri söylenebilir. Uygulamada yaşanan bu sorunların nedeni ise, ekonomik açıdan kaynakların yetersizliği, okul sayılarının fazlalığı, örgüt yapısı ve bürokratik engeller, yöneticilerin bilgi ve teknoloji konularındaki anlayış ve bilgi eksikliği, iletişimsizlik gibi nedenlerden kaynaklandığı söylenebilir.

SONUÇ VE ÖNERİLER

Bu bölümde araştırmadan elde edilen sonuçlara ve literatür ile araştırmadan elde edilen sonuçlara bağlı olarak hazırlanan önerilere yer verilmiştir.

SONUÇLAR

Okul Yöneticilerinin tamamına yakın bir kısmı Temel Bilgisayar Kullanımı bakımından bir sorun yaşamadıklarını ve gerekli becerilere tamamen düzeyinde sahip olduklarını düşünmektedir. Eğitim İhtiyacı noktasından orta düzeyde görüş belirtmekte ve bu noktada sorunlar yaşadıklarını ifade etmektedirler. Sistem Gereksinimleri bakımından bir sorun yaşamadıklarını oldukça düzeyinde görüş belirterek ifade etmektedirler. Okul Yöneticilerinin Yönetimsel Sorunlar açısından büyük bir çoğunluğu sorunların yaşandıklarını, gerekli üst yönetim liderliğinin ve alt yönetim katılımının biraz düzeyinde olduğunu düşünmektedir.

YORUM VE ÖNERİLER

Bilgisayar sistemlerindeki değişimin çok hızlı olması ve eğitim sisteminde yer alan okul sayısının fazlalığı, MEB tarafından verilen hizmetlerin donanımsal ve yazılımsal olarak sürekli yenilenmesi gerekliliği; uygulama noktasında sorunlara yol açmaktadır. Ayrıca yöneticiler E-Okul Yönetim Bilgi Sistemi' ne giriş olanaklarıyla ilgili konularda üst yönetim kademesi tarafından finansal desteğin yeterince sağlanamadığını düşünmektedirler. Buna göre yöneticilerin gerekli donanımları sağlayabilecek finansmanı kendilerinin oluşturma kapasitelerinin de sınırlı olduğu ve malî desteği sürekli olarak üst yönetimden bekledikleri söylenebilir.

Yönetim Bilgi Sistemlerinin etkin bir şekilde kullanılması için yeterli donanımın şart olduğu göz önünde bulundurulursa, MEB'in bu konuda çeşitli adımlar atması ve gerekli donanımı okullara ve yöneticilere sağlaması gerekmektedir.

Yöneticiler, örgütsel yapı içerisinde alt kademedeki personelin E-Okul Yönetim Bilgi Sisteminin kullanımına katılımını olumlu değerlendirmektedirler. Bununla birlikte yöneticiler, E-Okul Yönetim Bilgi Sistemindeki bilgilerin alt yönetimin ihtiyacını karşılamasında ve sistemin tasarımına katkıda bulunabilmede sorunlar yaşamaktadırlar. Bu nedenle E-Okul Yönetim Bilgi Sisteminin tasarlanmasında, ihtiyaçların tespitinde alt kademe yöneticileri ile iletişim artırılmalı ve alt kademe yöneticilerin de bilgi ihtiyaçları araştırılarak, tasarım sürecine katkıda bulunmaları sağlanmalıdır.

Yaşanılan sorunlardan bir diğeri de Eğitim İhtiyacından kaynaklanmaktadır. Özellikle yaşı ve yöneticilikteki kıdemi düşük olan yöneticiler Eğitim İhtiyacından kaynaklanan sorunları daha fazla yaşamaktadırlar. Buna göre E-Okul Yönetim Bilgi Sisteminin kullanımı, faydaları, yeni özellikleri itibariyle yöneticileri ve öğretmenleri bilgilendirme adına Hizmet içi Eğitim faaliyetleri ve kurslar açılmalı ve bu sorun giderilmeye çalışılmalıdır.

Bu araştırma sırasında özellikle yönetim bilgi sistemleri konusunda, daha çok İşletme alanında araştırmalar yapıldığı ve eğitim alanında bu konudaki araştırmaların fazla yapılmadığı görülmüştür. Bu amaçla, özellikle okulların yönetiminde kullanılan bilgi sistemleri ile ilgili alanlarda çalışmaların yapılması alana bir ivme kazandırabilir.

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ERGENLERDEKİ CİNSİYET VE AİLE YAPISININ BOYUN EĞİCİ DAVRANIŞLARI YORDAMA GÜCÜNÜN ARAŞTIRILMASI

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ABSTRACT

The aim of this study is to investigate predictive power of gender and family structure of adolescents in the submissive acts. 206 students who study at a formal secondary school in İzmir constitute the sample. In order to collect data Submissive Acts Scale that was developed by Gilbert et al. (1991) and Family Structure Evaluating Scale that was developed by Gülerce were applied. In the solution and interpretation of the data Pearson's Product-Moment Coefficient, Multiple Regression Analysis, t -test, One Way Anova test were used and significance level is accepted. As a result, it is seen that family structures of adolescents predicts the submissive acts. Moreover there is a meaningful differentiation between submissive acts level and class variable and there is a meaningful differentiation between father education level and income variable. Meaningful differentiation was found between family structure and gender, class variable, income and mother education level.

Keywords: Family structure, submissive acts, adolescent.

GİRİŞ

Bireyler kişiliklerinin temelini, anne-babalarını ve ailedeki büyükleri taklit ederek, onlarla özdeşim kurarak kazanır (Fidan 1985; Çağdaş 2003: 169). Anne babanın ve ailedeki diğer kişilerin çocukla olan etkileşimi, çocuğun aile içindeki yerini belirlemektedir (Başal, 2003: 145). Bireyler, ailedeki değerler ile inanç ve tutumları algılamaktadır. Bu yüzden anne babanın bireye karşı tutumu ve davranışı, genellikle onun bir çocuğun nasıl yetiştirilmesi gerektiği hakkındaki inançlarına bağlı olmaktadır.

Çocuğun kişilik gelişimi üzerinde önemli etkisi bulunan anne-baba tutumlarının en belirgin özelliği "duygusal ilişki boyutu"dur. Duygusal ilişki boyutunun kabul edici tutumdan, reddedici tutuma kadar uzanan bir havuz içinde farklılaştığı araştırmalarla belirtilmiştir (Aksaray, 1992, Alisinanoğlu 1995, Bostan 1993, Öztürk 1990, Yavuzer 1994). Erkan'ın (2002) araştırmasına göre, koruyucu-talepkar ve otoriter ana baba tutumlarına sahip öğrencilerin, olumsuz değerlendirme ve sosyal kaygı düzeyinden yüksek puan aldıkları, demokratik ana-baba tutumuna sahip öğrencilerin ise düşük puan aldıkları gözlenmiştir. Ergenin aile ortamındaki ilişkilerine ve yapılarına yönelik pek çok çalışma olduğu görülmektedir. Anababaların sıcak ve kararlı tutumu yani duyarlılıkla talepkarlığı uygun bir biçimde birlestirmesi erken ve orta çocuklukta oldugu gibi ergenlik döneminde de psikolojik ve sosyal avantajlara yol açmaktadır (Steinberg ve Morris, 2001). Bu dönemde ergenler bireyselliklerini kazanabilecekleri uyumlu ve yakın bir ebeveyn –ergen ilişkisine ihtiyaç duyarlar (Steinberg ve Morris, 2001). Sonuç olarak birçok davranışların oluşumunda aile yapısının temel oluşturduğu anlaşılmaktadır.

Yapılan çalışmalar reddedici anne babaların çocuklarının, yetişkin rolü almada başarısız olduklarını göstermektedir. Sevgi, sıcaklık dikkat ve ilgiden yoksun çocukların akademik başarısı, benlik saygısı ve sosyal yeterliliği düşük olmakta (Macaboy ve martin, 1983; Ketsetsiz ve ark., 1998) ve bu

çocukların ileriki yaşlarda sigara kullanma, uyuşturucu madde bağımlılığı ve suça yönelme gibi problemli davranışları gösterme olasılıklarının arttığı görülmektedir (Steinberg ve ark.,1989, Barnes ve Farrell, 1992, Yılmaz, 1999; Acar, 1998, Akt., Örgün, 2000). Tutarsız ana-baba tutumunda da anne baba aşırı hoşgörü ile sert cezalandırma arasında gidip gelmektedir. Çocuk davranışını ana babanın keyifli ya da öfkeli oluşuna göre ayarlamaya çalışmaktadır (Yörükoğlu, 1985: 151-152). Bir diğer tutum olan baskıcı ve otoriter ana-baba tutumunda, sevgisini koşullu olarak gösteren, hemen her konuda çok katı genellikle cezaya dayalı disiplin uygulayan çocuğun üzerinde bir başarı ve davranış beklentisi olan, aile sorunlarında ve kendileri ile ilgili konularda söz hakkı tanımayan, kendi doğrularını temel doğru olarak kabul eden ana-baba davranışları vardır (Akt., Gökçedağ, 2001). Otoriter anne-baba tutumlarıyla büyüyen çocukların otoriteyle baş edebilmek için otoriteye boyun eğme davranışı gösterdikleri görülmüştür. Bu durum özellikle şiddetli cezanın uygulandığı ve cezadan kurtulmanın tek yolunun boyun eğmek olduğu ortamlarda görülmektedir. Bu çocukların çoğu yetişkin olduktan sonra da otoriteye sorgusuz uymayı sürdürmekte ve her ortamda gücü simgeleyen her şeye karşı boyun eğebilmektedirler (Gordon 1996, 1999). Genel olarak baktığımızda ana-babanın, çocuğun sosyalleşmesi için kullandığı yöntemler, aktarmaya çalıştığı değerler çocukların farklı kişilikler geliştirmesine neden olmaktadır (Maccoby, 1984 Mackinnon, Henderson & Andrews, 1992). Buna göre tutumların çocuğun kişilik gelişimindeki önemi nedeniyle, ana-baba-çocuk ilişkileri araştırmacıların ilgisini çekmiştir (Gander and Gander 1998, Pratto ve Ark., 1994, Cüceleoğlu 1997, Çaplı 1993, Adams 1995) ve birçok araştırmacı bireylerin farklı davranış kalıplarına sahip olmalarının kaynağını anne-baba tutumlarına göre açıklamaktadır. Bu davranış kalıplarından olan boyun eğici davranış, başkalarını kırmamaya, incitmemeye özen gösteren herkesi memnun etmeye çalışan hayır diyemeyen evet demeye eğilimli hoşlanmadığı durumları ifade etmekte zorlanan, öfkelerini göstermekte zorluk çeken, onaylanma gereksinimi duyan v.b. davranışlarla gözlenebilen bir kişilik özellikleri kümesidir (Gilbert and Alan, 1994). Gilbert ve Ark., (2003) yaptıkları çalışmada, boyun eğici davranışlarının daha çok korku temelli olduklarını bireyin kişisel gelişimini engelleyen bu davranış kalıbının depresyonun temel bir sebebini oluşturduğunu belirtmektedirler.

Toplumumuzun dinamik gücünü ve geleceğini temsil edecek olan gençlerimizin ruh sağlığı yerinde atılganca ve saygılı davranabilen özellikleri taşıması beklenmektedir. Buna göre gençlerin aile yapıları ve boyun eğici davranışlarının araştırılması önemli görülmektedir Bu çalışmanın genel amacı, ergenlerin aile yapısının ve boyun eğici davranışlarını bazı değişkenler açısından incelemektir. Bir diğer amacı da, öğrencilerin aile yapısının boyun eğici davranışları ne oranda açıkladığını belirlemektir. Bu amaçlar doğrultusunda geliştirilen alt amaçlar şunlardır:

1. Ergenlerin aile yapısı ve boyun eğici davranışları cinsiyet, yaş ve anne babanın eğitim düzeyine göre anlamlı farklılık göstermekte midir?
2. Ergenlerin aile yapısı, boyun eğici davranışları ne oranda yordamaktadır.

YÖNTEM

Evren ve Örneklem:

Araştırmanın evreni, 2010–2011 eğitim-öğretim yılında İzmir il merkezinde bulunan resmi orta öğretim kurumu ve öğrencisi oluşturmaktadır. Örneklem, evrende yer alan ortaöğretim kurumlarında öğrenim gören ve araştırmaya gönüllülük esasına göre katılan 256 ortaöğretim öğrencisinden oluşturulmuştur.

Veri Toplama Araçları:

Aile Yapısını Değerlendirme Aracı (AYDA): Gülerce tarafından aile içindeki iletişim, birlik, yönetim, yetkinlik ve duygusal bağlam alt boyutlarını ölçmek amacıyla geliştirilmiş olan ölçek 36 maddeden oluşmaktadır. Yüksek AYDA puanı "iyi" ve "sağlıklı" uyumu göstermektedir. Ölçeğin Cronbach alfa güvenilirlik katsayısı 0.70 olarak bulunmuştur.

Boyun Eğici Davranışlar Ölçeği (BEDÖ) : Gilbert ve arkadaşları (1991) tarafından, geliştirilen ve Türkçe'ye uyarlanması geçerlik ve güvenirlik çalışması (α=0.84) Savaşır ve Şahin (1992) tarafından, yapılmış olan boyun eğici davranışlar ölçeği 16 maddeden oluşmaktadır Ölçekten alınan puanların yüksekliği, daha fazla boyun eğici davranışa işaret etmektedir.

Verilerin Çözümü ve Yorumlanması:

Verilerin çözüm ve Yorumlanmasında; pearson momentler çarpımı korelasyon katsayısı, çoklu regresyon analizi, *t*- testi, One Way Anova testi kullanılmış ve gruplar arasındaki farkı belirleyebilmek için tukey testi kullanılarak anlamlılık $p<0.05$ alınmıştır. Verilerin değerlendirilmesinde ve hesaplanmış değerlerin bulunmasında SPSS 16 (Statistical package for social sciences) paket programı kullanılmıştır.

BULGULAR

Bu bölümde, araştırma ile ilgili olarak toplanan veriler sunulmuştur.

Ergenlerin Aile Yapısı ve Boyun Eğici Davranışları İle Cinsiyet, Yaş ve Anne Babanın Eğitim Düzeyine Göre Anlamlı Farklılıkların İncelenmesi:

Tablo 1: Aile Yapısı ve Boyun Eğici Davranış Toplam Puanlarının Cinsiyete Göre Ortalama, Standart Sapma Değerleri ve t Testi Sonuçları

Değişken	Cinsiyet	n	x	s	t	p
AYDA	Kız	148	1,5247	28,270	,786	,242
	Erkek	107	1,5543	31,632		
	Toplam	256				
BEDÖ	Kız	148	36,2148	8,248	,442	,68
	Erkek	107	36,7664	11,720		
	Toplam	256				

Tablo 1'e göre cinsiyet ile aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık görülmemektedir [t=, p>0,05].

Tablo 2: Aile Yapısı ve Boyun Eğici Davranış Toplam Puanlarının Yaşa Göre Ortalama, Standart Sapma Değerleri ve Anova Sonuçları

Değişken	Yaş	n	x	s	sd	f	p
AYDA	15	67	1,58	30,49	3-251		
	16	71	1,56	32,08			
	17	64	1,47	30,06		1,829	,142
	18	54	1,51	23,57			
	Toplam	256					
BEDÖ	15	67	36,56	6,889	3-252		
	16	71	37,49	10,436			
	17	65	34,21	7,924		1,653	,178
	18	53	37,62	13,443			
	Toplam	256					

Tablo 2'ye göre yaş ile aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık görülmemektedir [F(1,829; 1,653) p=(,142); (,178)>0,05].

Tablo 3: Aile Yapısı ve Boyun Eğici Davranış Toplam Puanlarının Annenin Eğitim Durumuna Göre Ortalama, Standart Sapma Değerleri ve Anova Sonuçları

Değişken	Annenin Eğitim Düzeyi	n	x	ss	sd	f	p
AYDA	Okur-yazar değil	13	1,261	31,96	4-251		
	İlkokul	111	1,558	29,83			
	ortaokul	23	1,599	27,44		4,582	**,001**
	lise	72	1,578	30,25			
	üniversite	37	1,450	22,29			
	Toplam	256					
BEDÖ	Okur-yazar değil	13	36,38	13,85	4-251		
	İlkokul	111	35,00	7,03			
	ortaokul	23	32,13	6,87		3,892	**,004**
	lise	72	37,94	12,25			
	üniversite	37	40,54	10,20			
	Toplam	256					

Tablo 3'e göre annenin eğitim durumu ile aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık görülmektedir [F(4,582; 3,892) p=(,001); (,004)<0,05]. Tukey testine göre boyun eğici davranış ile annenin eğitim düzeyi arasında anlamlı farklılığı oluşturan kategoriler okuryazar olmayan (x=36,38) ile ilkokul mezunlarıdır (x=35,08

Tablo 4: Aile Yapısı ve Boyun Eğici Davranış Toplam Puanlarının Babanın Eğitim Durumuna Göre Ortalama, Standart Sapma Değerleri ve Anova Sonuçları

Değişken	Babanın Eğitim Düzeyi	n	x	ss	sd	f	p
AYDA	Okur yazar	18	1,304	27,48	4-250		
	İlkokul	75	1,552	34,10			
	ortaokul	54	1,470	23,37		5,304	**,000**
	lise	64	1,571	23,72			
	üniversite	45	1,637	31,70			
	Toplam	256					
BEDÖ	Okur yazar	18	35,0	9,86	4-251		
	İlkokul	75	33,56	6,21			
	ortaokul	54	36,38	7,43		3,352	**,011**
	lise	64	38,23	13,45			
	üniversite	45	39,38	10,08			
	Toplam	256					

Tablo 4'e göre babanın eğitim durumu ile aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık görülmektedir [F(5,304; 3,352) p=(,00); (,01)<0,05]. Tukey testine göre boyun eğici davranış ile babanın eğitim düzeyi arasında anlamlı farklılığı oluşturan kategoriler, ilkokul mezunu (x=33,56) ile üniversite mezunları (x=39,88) arasındadır

Ergenlerin Boyun Eğici Davranışlarının Aile Yapısı, Cinsiyet, Yaş ve Anne-babanın Eğitim Durumuna Göre Yordanması:

Tablo 5: Ergenlerin Aile Yapısı, Boyun Eğici Davranışlarını Yordanmasına İlişkin Çoklu Regresyon Analizi Sonuçları

Değişkenler	*B*	*Standart Hata*	*Beta*	*T*	*p*	*İkili r*	*Kısmi r*
SABİT	31,81	4,819	---	6,601	,000	---	---
Cinsiyet	,020	1,240	,001	,016	,987	,026	,001
Yaş	,029	,565	,003	,052	,959	-,009	,003
Annenin eğitim durumu	,657	,533	,089	1,232	,219	,171	,076
Babanın eğitim durumu	1,469	,584	,183	2,517	,012	,211	,155
AYDA	-,023	,021	-,069	-1,079	,281	-,031	-,067

R= ,237 **R=**,056 ?
F(6-248)= 2,45 **p**=,025

Tablo 5'e göre cinsiyet, yaş, anne-babanın eğitim durumu ve aile yapısı değişkenlerinin ergenlerin boyun eğici davranışları ile anlamlı bir ilişki göstermektedir. Ele alınan değişkenler, boyun eğici davranışlardaki toplam varyansın yaklaşık %56'sını açıklamaktadır. Regresyon katsayısına göre yordayıcı değişkenlerin boyun eğici davranışlar üzerindeki göreli önem sırası babanın eğitim durumu, annenin eğitim durumu, yaş ve cinsiyettir. Regresyon katsayılarının anlamlığına ilişkin T testi sonuçlarına bakıldığında sadece babanın eğitim durumunun anlamlı bir yordayıcı olduğu görülmektedir.

TARTIŞMA VE SONUÇ

Araştırmanın sonuçlarına genel olarak bakıldığında**,** ergenlerin cinsiyetine göre, aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık bulunmamıştır. Bu da bize hem erkek hem de kız öğretmen adaylarının engellere karşı toleranslarını daha fazla, duyguları daha dengeli, yaşama yeteneklerini ve çevreye uyumlarını daha olumlu düzeyde algıladıklarını göstermektedir. Ancak Korkmaz (2001) ve Bulut'un (2005) çalışmalarında Kızların erkeklere göre daha az boyun eğici davranış özelliği taşıdıkları yaşama daha olumlu baktıkları görülmektedir. Bunun yanı sıra Dönmez ve Demirtaş (2009) lise öğretmenlerinin boyun eğici davranışlarına ilişkin algıları adlı çalışmasında öğretmenlerin cinsiyet değişkeni ile boyun eğici davranış düzeyleri arasında anlamlı bir farklılığın olmadığını bulmuştur. Bu bulgu çalışma ile paralellik göstermektedir. Öğrencilerin, yaş ile aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık görülmemiştir. Öğrencilerin, babalarının ve annelerinin eğitim durumuna göre, aile yapısı ve boyun eğici davranışlar arasında anlamlı bir farklılık görülmüştür. Filiz ve Tekin'in (2008) çalışmalarında ise boyun eğici davranış ile babanın eğitim durumu arasında anlamlı bir farklılık bulunmamıştır. Bu yönüyle araştırma bulgusu paralellik göstermemektedir. Yapılan çalışmada özellikle babanın eğitim durumunun boyun eğici davranışlar üzerinde anlamlı bir yordayıcı olduğu anlaşılmaktadır. Tekin ve Filiz'in araştırmasına göre Boyun eğici davranış düzeyi, Cinsiyet, gelir düzeyi, anne öğrenim düzeyi, baba öğrenim düzeyi, sınıf düzeyi, Beden eğitimi ve spor öğretmeni adaylarının umutsuzluk düzeyleri ile anlamlı bir ilişki bulunmaktadır. Cinsiyet, gelir düzeyi ve sınıf düzeyinin boyun eğici davranışlar üzerinde, üzerinde anlamlı bir yordayıcı olduğu görülmektedir. Elde edilen bu bulgu çalışmanın bulgusuyla parallelik göstermektedir. Çalışma sonucuna göre yordayıcı değişkenlerin boyun eğici davranışlar üzerindeki göreli önem sırası babanın eğitim durumu, annenin eğitim durumu, yaş ve cinsiyettir. Özellikle babanın öğrenim düzeyinin boyun eğici davranış düzeylerini etkilediği sonucunu ortaya çıkarmaktadır. Dönmez ve Demirtaş (2009) lise öğretmenlerinin boyun eğici davranışlarına ilişkin algıları adlı çalışmasında baba eğitim düzeyi açısından farklılaşma görülmüştür. Babaları okuma yazma bilmeyen öğretmenlerin ilkokul, lise ve üniversite olanlara göre boyun eğici davranış düzeyleri yüksek çıkmıştır. Bu bulgu; bizim yaptığımız çalışma ile paralellik göstermektedir.

Sonuç olarak, boyun eğici davranış ile anne-baba tutumları arasındaki ilişkiyi kapsamlı bir biçimde inceleyen araştırmalar yapılmalı, boyun eğici yapı ve davranış özelliklerinin değiştirebilmeye yönelik özellikle rehberlik servislerinde bilişsel-davranışçı yönelimli çalışmalara yer verilmelidir.

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ESTABLISHMENT FOR MISCONCEPTIONS THAT SCIENCE TEACHER CANDIDATES HAVE ABOUT GEOMETRIC OPTICS

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ABSTRACT

This study is planned to establish the misunderstandings that science teacher students have about optics. Study data was obtained from 35 sophomore students of Agri Education Faculty, Science Teaching Program during the time period of 2004-2005 fall semester, by applying a 3-tired multiple choice test, which contained 19 question articles and making interviews with ten different students. The result of the tests and interviews with students (teacher candidates) shows that students have misunderstandings about "light propagation", "light reflection," and "light refraction". Student's understanding levels on these subjects are 24.3%, 58% and 25% respectively. Some misunderstandings about light refraction are; "Special beams have drawn as they are reflected from the thin and thick edged lenses" and "Speed of light is constant and has the same value in all mediums". Some misunderstandings about reflection are; "About the formation of an object's view at plane mirror, the changes of level and the place of source of the light that illuminates the object and changes of the level and place of observer change the view that appears in the mirror" and "Special beams don't reflect but refract and pass through the mirror". In addition, to know that teacher candidate students have a low level of understanding about 'light propagation', 'light reflection' and 'light refraction.' In order to establish these misconceptions and fix them in relative programs, representative classes are needed and this is important for science education.

Key words: Science Education, Optics, Misconceptions, Teacher Candidates, Physics Education.

INTRODUCTION

In the recent time period, which the importance of science education is increasing, learning the basic science concepts will help students to be able to learn advanced science subjects easier. Instead of teaching subjects, Science Education seems to be tending to teach concepts in recent years. Therefore, as the other countries in the world, there are many studies continuing about concepts in our country too. In order to make sure that students have an understanding level for concepts, to establish the misconceptions and to fix the misconceptions, these studies are concentrate on developing materials and researches on teaching techniques to teach the concepts. Researchers reveal that some time, students have different understandings and statements from scientists have about concepts (Osborne 1982, Palmer 2001). From Scientific Environments, unaccepted Student Statements are generally, "Misconceptions", "Preconceptions", "Alternative Framework", "Common sense concepts", or "Spontaneous Knowledge" (Ayas, Ozmen, Costu, 2002). These Misconceptions full thoughts keep the person from understanding subjects and develop the concepts in their mind.

There are studies in Physics Science that are to establish student misunderstandings and understanding levels. Among these, Light and Light reflection, Light Refraction and the ones about colors are reserving important places [Kaya and Buyukkasap, 2004, Epik and dig. 2001, Buyukkasap and Samanci, 1988; Yildiz 2000; Feher and Meyer 1992; Galili and dig, 1991, Anderson and Karrquist, 1983]. Kaya and Buyukkasap have established student's understandings levels and misunderstandings about Light and atom (Kaya and Buyukkasap, 2004). As outcome of this research, we have established that student's understanding levels on Light and Atom are 26%, and 84% and misunderstandings on the Light and Atom are 34% and 6% respectively. Misunderstandings about Light were found as "Light is the Substance that illuminate the surface it attains", "Light is a group of lines that comes from a certain source and goes towards eternity" and it's relation with Atom is found as "Atom is the smallest indivisible piece of substance". Guesne and Dig (1985), Ramadas and Direves (1989) and Yildiz (2000) have worked on the definition and structure of Light. The misconceptions about the definition of Light that Yildiz has designated in his study with sixth grate (elementary school) students were found, as "Light is an illuminator substance", "Light is an effect that supplies to see" and "Light is as same as daylight". Guesne and his friends have established that 13-14 year

old students have been considering the light as existed. Ramadas and Direves made students to make definition of "light". Lots of student said that light was a group of long, slim and bright lines. Because of the fact that the distance that light takes directly is invisible, it is difficult for students to make definition of existence of the light.

As indicated in the literature, learners have widespread misconceptions. In order to cease them, first of all, teachers and pre-service teachers have to gain knowledge of the misconceptions. Therefore, it is very significant to establish these misconceptions on the topic. As a result, in this study it has been planned to establish that what misconceptions the pre-service teachers have about light.

Misunderstandings and lack of knowledge of 'Light Concept', 'Light Reflection' and 'Light Refraction' often cause difficulties for Candidate Teachers in their future jobs. Thus, on behalf of Science Education, these basic concepts have to be known as well and the misunderstandings about Light Reflection and Light Refraction must be established and removed. For this reason, research question of the study has designated, as "Do candidate teachers have a good enough understanding level on geometric optics?" In the process of solving this problem, sub-problems below will be solved.

Candidate Science Teacher's

1. Understanding levels on Light Propagation
2. Understanding levels on Light Reflection
3. Understanding levels on Light Refraction
4. What kind of misunderstandings they have.

METHOD

The data was obtained from 70 sophomore students, whom are attained from 90 students arbitrarily, of Agri Education Faculty, Science Teaching Program during the time period of fall semester in 2004-2005.

Study data has obtained by applying a 3-tired test, which contained 19 question articles and semi-structured interviews with ten of the sample students.

At first progress of the 3-tired test, questions were asked as written, at the second progress of the test, questions were asked on a diagram and at the third progress of the 3-tired test, and questions were prepared to make sure of the answers that were given to the first and second progresses. The reason of making three-progressed test was to increase the confidence of data. To prepare the questions for this test, resources that have been applied are; I- The test that was used by Chen and his Friends (2002) to high school students in Taiwan that was suppose to determine students' misconceptions about images at plane mirror, II- The test that was used by Yildiz to the sixth grade (elementary school) students to establish misconceptions about 'The Light Unit' and III- Experts opinions. Researchers prepared 30 multiple-choice questions on Light propagation, Light reflection, and Light Refraction to establish student's misunderstandings about subject. In order to examine the validity of these questions, five experts in Science field, which are in charge at the Agri Education Faculty and Kazim Karabekir Education Faculty, examined the questions by analyzing from the sight of validity, fixed the needs and brought the number of questions down to 22. The test was prepared as multiple-choice test and last choice of questions of the multiple choices test is prepared as "If you think that none of these choices is right, write your own answer or illustrate in a diagram". Only one article of the answer choices was prepared as correct and the others are to cause misconceptions. First practice of this test was applied to 32 first grade students of Agri Education Faculty. After first practice of the test, three unclear questions were taken out of the test because of not understandable. After unclear questions were taken out of the test, the other questions were reviewed and then the validity of the test 'α-coefficient number' was found 0.69.

In order to support the test results and establish the students' misconceptions, there are interviews composed of ten questions applied to the students. The purpose of semi-structured interviews was to make the person more comfortable and give them more room for their statements about topic and to let

them be able to explain their answers easier (Karasar 1994). Thus, it was possible to expose Candidate Teachers misunderstandings. Interview data were recorded in writing method.

During data analyzes, every correct answer to the questions in the test was taken as understanding and incorrect answers were taken as misunderstandings. Frequencies and percents of correct and incorrect answers have been calculated. The discussion on how to analyze data is continuing between educators. "It is needed to establish the same and different thoughts of students that they had about topic and its details, than compare the results," says Yin. To reflect the real thoughts of students, the sentences that students have said during interviews must be taken directly and unchanged (Yin, 1994). We have represented interview's data at the question-answer form. Data analyses are made in two different ways. Original and individual thoughts are taken directly just as Yin says, but same and different thoughts from more than one person are analyzed as taking frequency and putting into percentage.

FINDINGS

In order to establish understanding levels and concept misconceptions about 'optic', data gathered and analyzed with help of basic analysis methods. Below are two main titles that research findings are based on. These two titles are given as "The Findings Obtained From Test" and "The Findings Obtained From Interviews"

Test Results

As obtained from the test, frequency and percentages of correct answers for 'Light Propagation', 'Light Reflection', and 'Light Refraction' are given on tables 1, 2 and 3.

Frequency and percentage of the test

	Comprehension (Understanding)		**Misunderstanding**		**Sureness**	
Question	F	%	F	%	F	%
1	7	20.0	28	80.0	31	88.6
2	18	51.4	17	48.6	26	74.3
3	9	25.7	26	74.2	27	77.1
4	14	40.0	21	60.0	26	74.3
5	17	48.5	18	51.5	25	71.4
6	27	77.1	8	22.9	33	94.3
7	25	71.4	10	28.6	34	97.4
8	27	77.1	8	22.9	31	88.6
9	23	65.7	12	34.3	31	88.6
10	27	77.1	8	22.9	29	82.9
11	20	57.1	15	42.9	27	77.1
15	30	85.7	5	14.3	31	88.6

Table 1: The Light Reflection and Inventions obtained from images of Light Reflection.

Table 1 gives us an idea on that students have 58% average level of understanding on the subject 'Light Reflection'. The findings indicate that their understanding level of light reflection 58% is a quite low.

Misconceptions about light Reflection: In order to see an object from plane mirror in a dark room, the mirror needs to be illuminated (28.6%) while both mirror and object need to be illuminated (51.4%). The image of an object in the mirror is on the extension of observer's glance direction (20.0%). The image of an object in the mirror is always faced to the observer (22.9%). If light bulb is put to a higher level, the image of object will also appear at a higher level (11.7%). When it is put to a higher level, the image of object will appear at the lower level (57.1%). If the observer gets far from the mirror, the image of object will get far from the mirror too (31.4%). If the observer gets far from the mirror, the image of object will get closer to the

mirror (20.0%). Black object is invisible from the mirror (17.1%). The image lines that come from observer reflect from the mirror and than effect the black ball (28.6%). A beam that comes from a light bulb and goes to concave mirror in any direction gets refracted and continues on its way (17.1%). A beam that comes from a light source and goes to convex mirror in any direction reflect as to pass through the focal point that is behind the mirror (14.3%).

As we can see, students have many misconceptions about light reflection. It also appears at the 3rd progress that the participants have confidence for their answers to the 1st and 2nd progress (average 79.32%).

	Comprehension (Understanding)		**Misunderstanding**		**Sureness**	
Question	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
14	19	54.3	16	45.7	27	77.1
16	12	34.2	23	65.8	30	85.7
17	9	25.7	26	74.2	28	80.0
18	28	80.0	7	20.0	33	94.3
19	22	62.8	13	37.2	30	85.7

Table 2: The Light Refraction and findings obtained from the images that have occurred by Light Refraction

Students' average understanding levels are appearing as 25% from the data on table 2. As seen from the table the students' understanding level of light refraction is quite low.

Student misunderstandings that are obtained about light refraction: An observer that looks straight to the aquarium sees the fish farther (5.7%). An observer that looks straight to the fish that is in the aquarium sees the fish at the same position (5.7%). A beam that comes from a light source and goes to thin edged lens in any direction gets reflect and continues on its way (37.1%)

As we can see, students have some misconceptions about light refraction. It also appears at the 3rd progress that the participants in a great ratio have confidence for their answers to the 1st and 2nd progress (average 80.95%).

	Comprehension (Understanding)		**Misunderstanding**		**Sureness**	
Question	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
12	1	2.9	26	74.3	20	62.5
13	16	45.7	19	54.3	25	71.4

Table 3: The findings that are obtained from 'Light Propagation' questions.

Students understanding levels about Light Propagation are appearing as average 24.3% from the data on table 3. It is seen that the student understanding level of light propagation is very low. Every article of the question (12) about Light propagation is about; speed of Light propagation, the changes on Light when it changes the medium and it is waves, Light Frequency, and Light Intensity.

Student understandings that are obtained about light propagation: while beams are passing through a medium from one another, wavelength does not change (14.3%). While beams are passing through an medium from one another, its speed doesn't change (54.3%). While beams are passing through an environment from one another, its intensity doesn't change (5.7%). When Light enters into a medium, its frequency changes (73%). If a light wave passes through the air before a glass object then through the glass

object, into the air behind the glass object, the speed of light wave increases suddenly but it occurs lower than 3×10^8 m/s (22.9%). If a light wave passing through the air enters the glass object and then exits to the air again the light wave goes forward with the speed that it has from the glass object. (14.3%). If a light wave passing through the air enters the glass object and then exits to the air again, the light speed reduces (8.6%). There are important misunderstandings about light propagation as it appears. At the 3rd progress students (participants) have confidence for their answers to the 1st and 2nd progress (average 66.95%).

The Findings Obtained From Interview

The findings that are obtained from the interviews are given below.

1. What kind of changes occur with the speed of light if the light enters to denser medium from the air that has diffraction index 1 and repasts to the air?

Two students: "Its speed reduces, after it gets out of the medium no changes occurs with its speed".
Three students: "Its speed increases suddenly, but it gets a lover speed from the speed it has in the air".
One student: "its speed gets lower than it is in the air; after it repasts to air its speed reduces again".
Other students: "its speed reduces in the denser medium, after it gets in the air; it gets its speed as before".
40% of students have answered this question correct. Many of students have misconceptions about light speed when it changes its medium.

2. *When light enters to different medium. Which properties of light changes?*

When light enters to a different medium:
>Seven students: "Wave length does not change". Three students: "Wave length changes".
>Five students: "Light speed changes". Five students: "Light speed doesn't change
>Nine students: "Light frequency changes". One student: "Light frequency doesn't change".
>Two students: "Light intensity doesn't change". Eight students: "Light intensity changes".
Students have many important misconceptions about light propagation in different medium.

3. *If a pencil is put in front of a mirror in a dark room, to see the image of the pencil in the mirror should the flashlight be aimed at mirror or pencil or aligned parallel to the mirror? Why?*

Three students said "Plane mirror needs to be illuminated by applying lantern into it" three different students said "both mirror and object need to be illuminated" and last four students said, "Only object needs to be illuminated".

4. *Does an Image of a pencil in front of a mirror appear bigger when you look at the pencil from far distance or from a near distance? Why?*

Seven students said, "When observer gets far from the mirror, the image of pencil appears smaller", two students said, "When observer gets far from the mirror, the image of pencil appears bigger" and one student said, "the appearance wont change its size". Many students have thoughts that object has its image by the beams that are going from eyes.

5. *Does an Image of a pencil in front of a mirror slide down when you look at it from above or from down? Why?*

Seven students said, "When you look at the pencil from above its image gets smaller", three students said, "Its image does not chance". It seems to be that many students have the same misconception that they had from the question before.

6. In a dark room, does the image of a pencil in front of a mirror get smaller if the lamp is raised up or become distant? Why?

Six student said “When the light source is risen up, the image of the object becomes smaller” while three of them said, “When the light source is pulled up, the image of object gets bigger”. Lastly, one said, “image does not change”. They all still have the same misconception from two previous questions.

7. *Draw the special rays on the thick lenses and the ray that comes from any direction to it.*

Two students said, “Rays will reflect back from the lens”, five students said, “rays will have a straight direction” and none of the students knew what direction will rays have after they passed through the lens. The data prove that 20% of students think of lenses as reflectors, and they have not understood the Light Refraction subject, but have memorized the special rays only. Half of the students have understood the matter.

8. *Draw the special rays on the convex mirror and the ray that comes from any direction to it.*

Two students have described the special rays correct but these students could not state the way of the rays that come into convex mirror in any direction. Other students have described the way of special rays and the way that come into the convex mirror in any direction. It can be said that most of the students has understood the reflection of special rays from a convex mirror.

9. How does *the image of an object in a denser medium change according to their place as an observer looks it from air.*

Looking from an obvious angle through denser and transparent medium, “The image will get farter,” said two students, and the other students said “The image of the object will get closer while looking at it from an obvious angle”. “If you look through the object in the transparent medium directly, the image will be in its real position” said two students, but the others said the image will get closer. Most of students have understood light refraction and the images occur after the refraction but some of them still have misconceptions about refracted rays and the changes when they are in different mediums.

10. *Do black colored objects appear in the mirror? Explain the reason?*

Four students: “The reason black object has an image in the mirror is that black object scatters the light rays”. One student: “The light rays that come from observer’s eyes reflect from the mirror and illuminate the black object”. One student: “because of black object absorbs the light, black object does not appear in the mirror”. Other students said that black object appears in the mirror but they could not state the reason for that. As we can see most of students don’t have the knowledge of black object that it can spread light too.

DISCUSSION AND SUGGESTIONS

In order to establish the misconceptions about optics, this study has determined that students from Science Education department have low understanding abilities and many misconceptions about Light propagation, Light reflection, and Light Refraction.

According to test results: student understandings about light reflection established as 58% (Table 1). Students understanding levels on light reflection are low. Main misconceptions that candidate teachers have about light reflection; “In order to see the object in the plane mirror, mirror has to be illuminated”, “In order to see the object through the mirror in a dark room, both object and mirror need to be illuminated”, “If the light source that is used to make image appear gets moved, the size of image of object in the mirror will get effected by this movement”, “If observer moves, the image that has occurred in the mirror will move and its length will get longer”, “The beams that are sent to the mound-mirror and hole-mirror get refracted and pass behind the mirror”. There are misconceptions established, as black object doesn’t appear in the mirror. These misconceptions support findings obtained from interview. There are different investigators have established similar misconceptions too (Chen and His Friends, 2002). We think the reasons for these misconceptions to occur with students are because students have the thought of an object for in order to appear in the mirror, light to illuminate the object has to come from the mirror and also when teachers make drawings about image occurring, teachers don’t explain the light and observer that is in the environment.

Student understandings on Light Refraction established as 25% (Table 2). Students have very low understanding levels on refraction. Student's misconceptions about Light Refraction have been established. These are; "If you look at the object in a thick environment from a less thick environment, image of object will appear farter", a light beam that comes to the thin edged lens from any direction, gets reflected from thin edged lens than continue its way". The findings obtained from interviews show that very a few students have these misconceptions.

Student understanding levels on light spread have established as 24.3% (Table 3). Student understanding levels on light spread are very low. The misconceptions that are obtained from the questions that were asked about Light Spread: "Light refraction degree is not depended on light-speed-degree factor when light is spreading at different environments", "While the light is spreading in different environment, its speed, strength and wave-length doesn't change" and "While light is passing through clear environment from another clear environment, its frequency changes". The findings that are obtained from interviews support this result.

Student's low understanding levels on optics and reasons of their misconceptions about this subject are thought as insufficient knowledge from high school, the OSS (student selecting examination) as an obstacle for school lessons to be studied and lacking laboratory activities. In the research that Kaya and Buyukkasap have done on Light and Atom, they found elementary school, middle school and high school teachers and the materials they have been using for optics as reasons of students misunderstandings (Kaya and Buyukkasap 2004). As other reasons for our students misunderstandings, we think that is because of most of them had studied their middle and high schools at rural areas and also they had been taught science classes with the teachers whose field is not science.

Lecturers and teachers should explain the light that comes to the object and state the observer in the environment while they are explaining reflection subject and making drawings about image occurring.

The futures science teachers have to comprehend these concepts very well. The misunderstandings that teachers have will cause students to misunderstand same subject, which is an understatement. Misunderstandings that teachers have are reported in literature (Goodwin, 2000). Therefore, establishing misconceptions and misunderstandings on these subjects are needed in our faculty.

Student misunderstandings and concept misconceptions on optics are arising from middle schools and high schools teachers and materials they have used for classes. Researches and necessary precautions are needed for this subject.

Lecturers, teacher and text writer have to pay enough attention to these subjects and warn students about details, which can be misunderstood.

Also, high school and college level classes need to be taught with computer support and animation slights. Laboratory activities and developing optics materials studies needed.

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EXAMINATION OF THE LEVEL OF TEACHERS, WORKING IN SECONDARY SCHOOLS, LIFE SATISFACTION AND JOB SATISFACTION

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ABSTRACT
The aim of the research is to analyze and compare teachers, working in secondary schools, life satisfaction and job satisfaction. The other aim of the research is to examine there are significant differences in whether or not according to teachers, working in secondary schools, life and job satisfaction by sex, age, branches, marital status, having children or not, occupation seniority and salary. The research is descriptive. The universe of research is teachers working in İzmir provincial center in secondary institution. The research to obtain data used 'Life Satisfaction Scale' in which the scale was developed by Aysan (1994) and 'Job Satisfaction Scale' in which the scale was translated to Turkish by Gödelek (1988). Data analysis and descriptive data obtained from the scale were analyzed with SPSS 16 program. Comparisons among groups in the mean, average, standard deviation, one-way analysis of variance, 't' and Scheffe tests were applied techniques. Variable degrees of involvement from each other were determined with Pearson Correlation Coefficient. In conclusion, a correlation was found between teachers' life satisfaction scores and job satisfaction scores ($r = .511$, $p < .05$). Meaningful differences were found among teachers' gender, their branches, according to income life and job satisfaction level.
Key Words: Life Satisfaction, Job Satisfaction, Secondary School Teachers.

INTRODUCTION

Profession has an important place in the lives of individuals. The most important goal of performance-based teacher education is to a healthy generation, so a teacher has an important place in education process. However; teachers have got problems and they reflects on problems to school in recent years (Bozkurt & Aysan, 2004). According to the American Institute of Stress, teaching is one of the professions which makes difficult to cope with crucial problems (Baltaş & Baltaş, 1998). Life satisfaction is an important element of happiness. Life satisfaction is affected by national – level political turmoil, cultural and health - related factors in significant manner (Diener, 2000). Life satisfaction is also defined as the degree of reaching individual targets (Koç 2001). Satisfaction as a part of concept of life satisfaction is met expectations, needs, desire and wishes. Life satisfaction not only is the satisfaction of certain condition but also is generally understood as the satisfaction of all life. Life satisfaction is becoming good in different ways such as morale and happiness (Vara, 1999). Life satisfaction is defined as a positive assessment according to the criteria set by an individual in a way that their whole life (Diener, Emmons, Larsen & Griffin, 1985). Koç (2001). Life satisfaction in our country and abroad, there are studies life satisfaction and job satisfaction are working together (Ataklı, Dikmentaş & Altınışık, 2004; Austin, Saklofske, & Egon 2005; Avşaroğlu, Deniz&Kahraman (2005); Bulut, 2007; Frisch, 2005; Frone & Copper, 1994; Judge & Watanabe, 1994; Near, Rice & Hunt, 1987; Ünal, Karlıdağ & Yoloğlu, 2001; Vara, 1999, Yetim, 1992).

Work or run time holds an important place in the individual life and achievement of individual targets to increase the level of life satisfaction has increased. Economic status of teachers, professional status, their location and environmental conditions and expectations of service levels such variables are the factors that affect their life satisfaction. Hence, teacher's job satisfaction and perceptions of their profession affect life satisfaction. In this regard, the studies which teachers' work and life satisfaction of the factors thought to influence are needed.

Purpose of the Study

The aim of this study is examined relationship between teachers working in secondary schools' life satisfaction and job satisfaction. The another aim of this study is examined teachers working in secondary education level and job satisfaction level are thought to affected by some socio-demographic characteristics whether significant differences or not.

Problem Statement

Is there relationship teachers, working in secondary schools, between job satisfaction and life satisfaction?

Sub–Problems

1) Can teachers life and job satisfaction be different according to sex, age, branches, marital status, having children or not, occupation seniority and salary?
2) Are there meaningful relationship between teachers' job satisfaction and life satisfaction?

METHOD

Universe and Sample:

This study is descriptive. In the study, socio-demographic variables are independent, work and life satisfactions are dependent variables. The research was centered teachers working in secondary schools in the province of İzmir. The sample universe was randomly determined. Teachers within research are % 39, 2 (n=40) female, % 60,8 (n=62) male. Sample % 60,8 (n=62) mathematical branch, % 39,2 (n=40) verbal branch. % 84,3 (n=86) married %15,7 (n=16) single, having children % 84,3 (n=86)having not children % 15,7 (n=16)

Data Collection Tools

Personal Information Form: Personal information form was prepared by researchers. Teacher information on individual properties is in the form, this form is designed closed-ended questions relating to the profession of information and with a Likert-type items.

Life Satisfaction Scale (LSS): Life satisfaction scale was developed by Diener and others (1985). It was translated Turkish and adopted by Aysan (1994). As a result of the reliability of the scale; test-retest reliability r=.85, the item-test correlations are between 71 and 80.

Job Satisfaction Scale (JSS): Reliability and validity of scale studies were made by Hackman and Oldman (1980) with test-retest method. Mr. Gödelek has done the validity of the scale items studying in Turkey (1988). On reliability of the scale, Cronbach Alpha value was found pre-test .077, last test .081.

Data Analysis and Implementation

Descriptive data obtained from the scale were analyzed with SPSS 16 program on data analysis. Average, standard deviation, one-way analysis of variance, 't' and Scheffe tests techniques were applied on comparisons among groups. Variable degrees of involvement from each other were determined with Pearson correlation coefficient.

FINDINGS

The findings are given below.

According to the sex, a significant difference was observed among the teachers job satisfaction scores ($t=2,59$, $p<0,059$. Other hand, according to gender, a meaningful difference was not found among teachers life satisfaction scores (Table 1)

Table 1: According to teachers' gender, this is 't' test for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

		Life Satisfaction			**Job Satisfaction**		
SEX	n	X	ss	t	X	ss	t
Female	40	21,47	6,4	,61	38	9,98	2,59
Male	61	22,27	6,51		43,4	10,41	
	p=,543	**p>0,05**			**p=.011**	**p<0,05**	

According to teachers' age, life satisfaction and job satisfaction scores were compared with analysis of variance but significant difference was not found among the mean scores (Table 2).

Table 2. According to Teachers Age, this is Variance Analysis for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

		LIFE SATISFACTION			**JOB SATISFACTION**		
AGES	n	X	ss	F	X	ss	F
26-30	10	23	3,74	,896	40,4	11,22	1,008
31-35	19	23,15	5,49		40,52	9,72	
36-40	25	20,92	7,31		38,16	11,64	
41-45	20	22,55	6,76		44,95	10,72	
46-50	17	19,76	6,81		42,05	9,70	
51-55	10	23,8	6,82		42,6	9,17	
Sd=5	**p=,487**	**p>0,05**			**Sd=5**	**p=,418**	**p>0,05**

According to branches, meaningful difference was determined among the mean scores both life satisfaction mean score and job satisfaction mean score (p<0, 05) (Table 3).

Table 3. According to teachers' Branch; this is 't' test for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

		LIFE SATISFACTION			**JOB SATISFACTION**		
Branches	n	X	ss	t	X	ss	t
Verbal	61	23,27	6,39	2,6	43,22	10,76	2,36
Mathematical	40	19,95	6,09		38,27	9,55	
	p=,011	**p<0,05**			**p=,02**	**p<0,05**	

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According to marital status, meaningful difference was not found among the mean scores both life satisfaction mean score and job satisfaction mean score (Table 4)

Table 4. According to teachers' Marital Status, this is 't' test for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

	LIFE SATISFACTION				JOB SATISFACTION		
Marital Status	n	X	ss	t	X	ss	t
Married	85	22,01	6,42	,183	42,14	10,37	1,94
Single	16	21,68	6,86		36,62	10,48	
	p=,855	**p>0,05**			**p=,054**	**p>0,05**	

According to having a child, meaningful difference was not found among life satisfaction mean scores (p>0.05). Other hand, meaningful difference was determined between having a child and job satisfaction scores. (t=2,17; p<0,05) (Table5)

Table 5: According to Teachers' Having a Child Status, this is 't' test for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

	LIFE SATISFACTION				JOB SATISFACTION		
Child	n	X	ss	t	X	ss	t
Yes	80	22,3	6,31	1,03	42,41	10,1	2,17
No	21	20,66	6,97		36,9	11,24	
	p=,305	**p>0,05**			**p=,032**	**p<0,05**	

According to seniority, meaningful difference was not found between life satisfaction and job satisfaction scores(Table 6).

Table 6: According to seniority of the teacher profession, this is Variance Analysis for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

	LIFE SATISFACTION				JOB SATISFACTION		
Years	n	X	ss	F	X	ss	F
6-8 years	21	22,28	5,47	,77	43,66	10,94	1,166
9-11 years	10	24,2	2,44		37,6	7,44	
12 and Over	70	21,54	7,07		41,07	10,73	
	Sd=2	**p=,466**	**p>0,05**		**Sd=2**	**p=,316**	**p>0,05**

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According to teachers state of satisfaction with salary increases, meaningful difference was found among arithmetic means and life satisfaction and job satisfaction scores were comprised with variance analysis (Table 7).

Table 7. According to teachers' state of satisfaction with salary increases, this is Variance Analysis for inter-related differences averages and standard deviation, arithmetic mean scores which was taken from life satisfaction and job satisfaction scales.

		LIFE SATISFACTION			JOB SATISFACTION		
Pleasure	**n**	**X**	**ss**	**F**	**X**	**ss**	**F**
Agree	47	23,74	5,76	4,151	46,25	9	14,81
Not Sure	13	18,76	8,31		32,15	10,35	
Disagree	41	20,92	6,09			38,43	9,36
Sd=2	**p=,019**	**p<0,05**		**Sd=2**	**p=,000**	**p<0,05**	

Positive correlation was found between teachers' job satisfaction and life satisfaction scores. (r=,511, p<0,05) Table 8)

Table 8: This is correlation values between teachers' job satisfaction scores and life satisfaction scores.

		JOB SATISFACTION
LIFE SATISFACTION	r	.511
	P	. 000
	n	101

DISCUSSION

The findings of these studies were evaluated with the specified independent variables; the scale of the scores obtained from comparisons between the findings is examined, according to teachers' gender, job satisfaction showed a significant difference between. Male teachers' job satisfaction is higher than female teachers. Sarpkaya (2010) found meaningful differences job satisfaction according to gender in study which made with high school teachers. In another hand, meaningful difference was not found among life satisfaction scores' average according to gender. Ünal, Karlıdağ and Yoloğlu (2001) found meaningful difference between female and male according to life satisfaction scores on physicians in their studies. Avşaroğlu, Deniz and Kahraman (2005); Bulut (2007) were not found meaningful difference life satisfaction level according to gender in their studies. Significant difference was not determined between job satisfaction and life satisfaction according to marital status. Ünal, Karlıdağ and Yoloğlu (2001) found meaningful difference between married and not married in their studies. Significant difference was found between job and life satisfaction according to branches. Accordingly, verbal teachers' job and life satisfaction are higher than mathematical branch teachers. Meaningful difference was determined between job and life satisfaction according to increasing salary is enough or not. Especially this result, this difference was seen between teachers who pleasure possibility salary increases and indecisive teachers. Dikmentaş and Altınışık, (2004) found physical condition and fee as variable which living up to the job satisfaction University hospital of staff. Significant difference was determined among job satisfaction scores, according to teachers having children status in their studies. Meaningful difference was not found among life satisfaction and job satisfaction scores according to teachers' seniority and their ages. Avşaroğlu, Deniz and Kahraman (2005) did not reach meaningful difference teachers' job and life

satisfaction level according to their ages and length of service, in their studies. Sarpkaya (2010) did not found meaningful difference among job satisfaction levels according to ages and seniority on high school teachers in his studies. Positive correlation was found between teachers' life satisfaction scores and job satisfaction scores. In that way, the higher job satisfaction levels also increases life satisfaction. In this way, teachers' level of reach to individual target has increased life satisfaction.

In line with these results, following suggestions may be submitted, to meet corporate expectations of teachers, improving working condition to allow the development of occupational will lift up their job and life satisfaction. Towards the improvement of social environment and condition of teachers in the Ministry of Education and the work of taking the necessary precautions, they are important in improving the quality of life. Necessary for teachers to increase their quality of life and socio-economic status to improve the quality of life as a public policy priority should be.

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INTE 2010

EXPERT SYSTEM DESIGN FOR WRITING ASSESSMENT

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ABSTRACT
Assessment is an important tool serving to the aims of education. A well designed and conducted assessment therefore should give feedback to both teachers and students. As a consequence of an effective assessment, students are aware of their weaknesses and strengths whereas teachers ensure that they have carried out an objective procedure. This paper presents an expert system designed by Fuzzy Group Decision Support System (FGDSS) which has been used to evaluate the writing skills of students in English Language Teaching. The system offers both numerical scores and written feedback to students. The process of FGDSS has been explained and an exemplary implementation has been presented.

INTRODUCTION
Language assessment practices have been one of the most controversial issues to be explored in the language education as a consequence of spread of English as a means of communication. Evaluations are critical milestones to success in every language learning experience. Therefore, researchers have undertaken a number of studies on how to carry out the assessment of second language skills in a fair and objective manner. As a consequence of these attempts, the assessment of second language skill via computer appeared as an alternative way and brought a new perspective to the innovations in the era of evaluation. With reference to these values, the studies on fuzzy set expert system in educational grading systems have increased.

The fuzzy set theory has first been introduced by Zadeh (1965). However it has not applied to educational grading up until recently. The two approaches-a fuzzy set evaluation method and a matching function- presented by Biswas (1995) who can be regarded as the first initiative of the use of fuzzy set theory for grading purposes. This attempt formed a ground for the studies of Chan and Lee (1999) who used fuzzy sets to give two different marks to students with the same total score. Echauz and Vachtsevanos (1995) made another important research on the integration of fuzzy into assessment settings. They proposed the fuzzy logic system to convert the scores into letter-grades. Ma and Zhou (2000) integrated the peer and teacher evaluations into fuzzy set approach and brought a different perspective and usage to the previous research.

The fuzzy logic system proposed in this paper present different membership functions for several linguistic values with different weight and presents algorithms within it. Law (1996) proposed the required fuzzy system for this aggregation of different test scores to form a single score for each student and the definition of linguistic values whereas the fuzzy rules for grading purposes and genetic algorithms were introduced by Wilson, Karr and Freeman (1998). The assessment function of fuzzy in educational settings has not been limited with these research, many other researchers have made vital contributions to these developments (Cheng & Yang, 1998; Weon & Kim, 2001; Wu, 2003; Whang & Chen, 2006). Chang and Chen (2009) conducted the most recent studies of fuzzy system in educational settings. He presented a fuzzy peer assessment system (FPAS) based on the notion of student-centered learning. Bai &Chen (2008) presented an approach that can automatically construct the grade membership functions of strict-type grades and normal, and perform fuzzy reasoning to infer the scores of students.

Inspired by these valuable research, fuzzy logic has been used to assess the students' English proficiency which is sub-categorized under main skills and sub-skills (Cin et.al, 2008). In this study, fuzzy set approach has been developed and adopted for the specific purpose of assessment of writing skills of students. There are five main criteria and twenty six sub-criteria. Each main criterion is followed by numerous sub-criteria. In the process of assessment, each piece of writing has been evaluated by at least four instructors to increase the objectivity. Fuzzy logic approach supplied numerical results whereas designed expert system interpreted these numerical values

into written feedback which lists students' weaknesses and strengths in their writing. Thus, all assessors' evaluation are interpreted, combined and presented into single list of feedback form.

EXPERT SYSTEM DESIGN

The rapid development of internet and computer technologies eased dissemination of knowledge and information. Hence, the complex nature and uncertain information in social problems required the emerging of fuzzy decision support systems in social areas. Fuzzy Group Decision Support Systems (FGDSS) software is feasible to be used for multi-purpose decision making processes. Not only does it allows computers make decisions as human being do to be used in any area where human decision is necessary but it also combines the decision ability of human beings and speed of the computers. Thus, an excellent decision making progress can be obtained under imprecise, vague and uncertain conditions. The complexity of today's socio-economic problems requires more complex decision making processes. That is why decision makers have to consider many aspects of a problem during decision process. The necessity of considering all relevant aspects of a problem forces the decision makers to use fuzzy multi-criteria decision making systems. In the light of these theoretical and social framework, computerization of conventional objective testing is now recognized as an advanced concept of technology in education grading systems. Therefore, this makes it essential to use support decision system in educational grading.
The structure of the proposed expert system is shown in Figure 1. The system is composed of four main parts; instructor assessments' inputs, fuzzy inference, rule base and reports. Table 1 shows the criteria and values attained for each criterion in assessment procedure for this study. It has been adopted from Yasar University's writing assessment grid. Four different instructors have evaluated each piece of writing. They graded each criterion in fuzzy form, which are defined as membership function: "Unsatisfactory", "Poor", "Average", "Good" and "Excellent".

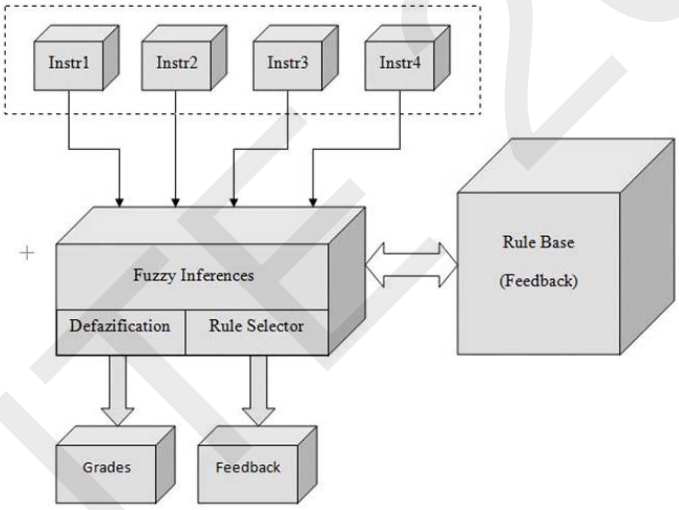


Figure 1. Structure of writing assessment system

Fuzzy assessment and rule selection processes are carried out in Fuzzy inference unit. Instructors' gradings are assessed according to Max-Dot Fuzzy inference method through which students' main criteria and total grades are obtained. These fuzzy grades defuzzyfied by Centre of Gravity method to find crisp grade of student (Cin et.al, 2008; Baba et.al, 2009). Obtained evaluation scores are employed to all rules defined in rule base. Fired rules are presented to students as feedback.

Rule based includes 90 comments to be presented as feedback to students. 12 of these comments are cross comments and refer to different combinations of criteria. These comments were prepared by a group of English Language teaching experts. A rule has been employed to all possible evaluation results. For example, student may have authentic and insightful purpose and clear ideas but s/he may not display proper use of word spellings. These comments are helpful in guiding students by eliciting their weak points as well as the strengths. They also provide advices on how to improve their writing.

Table 1 . Writing assessment criteria

Main Criteria	*Weights*	*Sub-Criteria*	*Weights*
Content	***0,30***	The paragraph is related to topic	0,34
		transition between the details	0.16
		reflective, analytical and insgihtful idea development	0,17
		relevant sentences	0,16
		authentic and insightful purpose	0,17
Organization	***0,25***	Topic sentence	0,20
		Supporting sentence	0,20
		sub-supporting sentence, details,examples, facts	0,20
		Title	0,20
		signal words and connectors	0,20
Sentences Structure	***0,15***	sentences express a complete thought	0,20
		use of correct words	0,20
		fair use of long sentences	0,20
		appropriate use of word order	0,20
		no run on sentences	0,20
Language	***0,20***	Subject-Verb agreement	0,15
		verb tenses are consistent	0,15
		rich vocabulary	0,25
		use of academic words	0,20
		correct use of relative clauses articles and tenses	0.10
		precise use of vocabulary	0,15
Conventions	***0,1***	word endings such as -s, -ed, -ing	0,20
		use of apostrophes and possesive nouns	0,20
		use of capitalization	0,20
		punctuation	0,20
		word spelling	0,20

A fuzzy algorithm consists of situation and action pairs. Conditional rules expressed, and IF and THEN statements are used. We utilize fuzzy if-then rules,

If x_1 is unsatisfactory **and** x_2 is poor **then** feedback #1.

Where, "Unsatisfactory", "poor" avarage", "good" and " **e**xcellent are linguistic values defined by membership functions on a real score, x_n is criterion of the writing assessment. Rule base is consisted of two different rule structures; single input-single output and multiple inputs – single output such as below;

If "*The paragraph is related to topic*"= Avarage **then** (*Y2)* "*It roughly refers to the assigned topic. It needs more focus on the topic"*

If "*rich vocabulary*"= Good **or** Excelent **and** "*word spelling*"=Poor **or** Unsatisfactory **then** *(Y85);"Although the paragraph is very rich in vocabulary, there are some spelling mistakes. This causes confusion and, interruption of communication in the paragraph"*

DEVELOPMENT SOFTWARE

The expert system designed for a particular purpose of writing assessment is user-friendly and can easily be used. The program has been developed by .NET platform. The software has four windows; setting, writing assessment, defining rules and scores and feedbacks.

In setting screen, main and sub criteria and their weights in decision support systems are defined. The user can enter the value of the membership functions and build the universe of discourse. Number of instructors and their evaluation weights are defined.

In writing assessment screen, shown in Figure 2. Fuzzy evaluation grade of each criterion (Poor:P, Unsatisfactory:U, Avarage:A, Good:G, Excelent:E) can be entered by instructors. Students' evaluation feedback and scores can be stored in software's data base. These data can be reached at any time to make comparisons with new scores to see the progress of students.

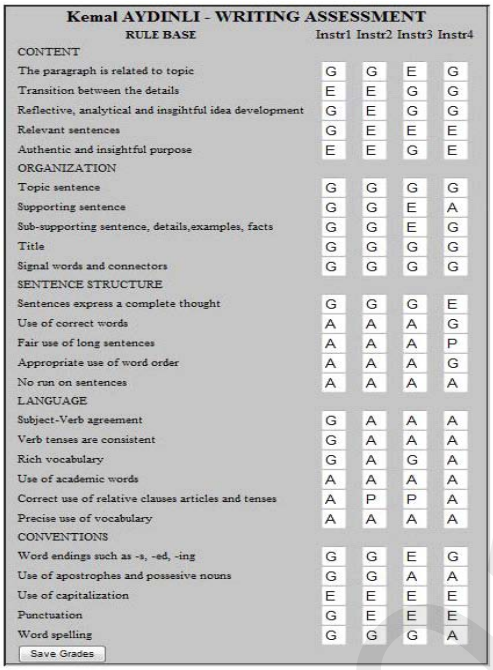


Figure 2. Writing assessment screen

An expert system should think the way the human expert does, its dynamic knowledge base should be expandable and modifiable. It should also interact with the language "natural" to the domain expert: it should allow the users to think in problem-oriented (Zimmerman, 1990). In the light of these descriptions, defining rules screen shown in Figure 3 is designed. The users can add, modify, remove rules of the expert system. Assessment criteria and fuzzy assessment scale can be easily chosen when defining the rules. The screen below shows how rule system works out. For example, if word spelling is graded as unsatisfactory or poor and rich vocabulary is scaled as good or excellent then the following comment is elicited from the comments.

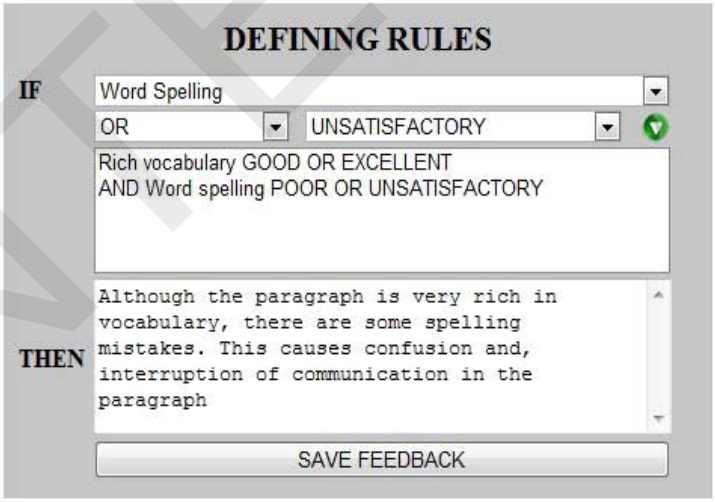


Figure 3. Defining rules screen

In the Scores and Feedback screen, Figure 4, fuzzy assessment score of writing skills and assessment feedback comments are given. On the right side of the screen, total score of the assessment is presented. Additionally, the score for each main criterion is also displayed on the left side of the screen. These scores drawn from the grades in Figure 2 were calculated by fuzzy group decision support system (Baba et al.,2009).

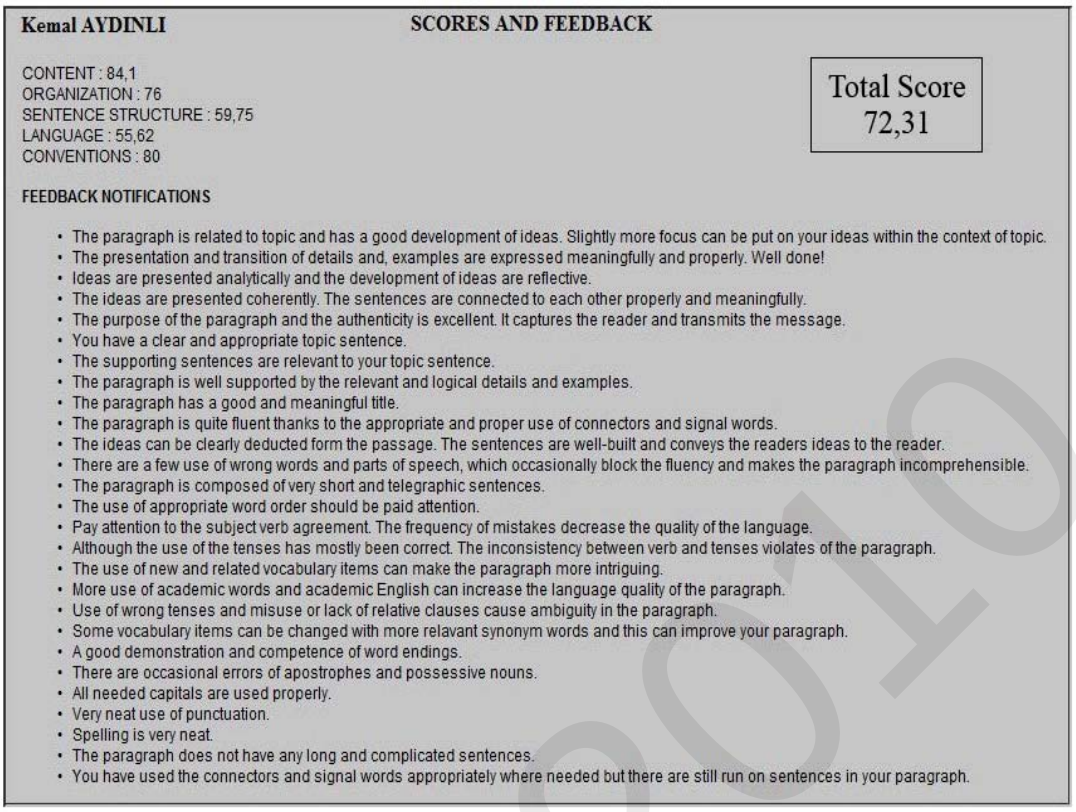


Figure 4. Scores and feedback screen

As it is seen in Figure 4, Aydinli's total score is 72,31 and score for each main criterion is presented respectively on the left side of the screen. The results show that Aydinli achieved a good score in content of his writing but the language criterion of his writing has been scored relatively low. As a consequence of these scores, which have been drawn from the grading of four different instructors, twenty-seven comments are presented above to guide the student on his strengths and weak points. Feedback does not only state the positive comments but also shows the problematic aspects of his writings. Moreover, it makes suggestions on how to improve some aspects of his writing. In the example above, Aydinli is very good at organizing and supporting his ideas and arguments coherently. He can successfully transmit his ideas to the reader. However, his sentence structure and use of language have some problematic aspects which block the fluency of the paragraph. Though Aydinli scored 84.1 from the content of his paragraph, as shown in the first comment, it is suggested that he should focus more on his ideas. Likewise, Aydinli's score for language is 55.62, which is not very high. Still feedback comments include positive and constructive comments on the patterns he is good at. For example, it appeared in the list that the use of tenses has been mostly correct. This figures out that student still receives positive comments on the skills that he scored low, and vice versa. This proves that designed system aim to offer an objective evaluation and feedback to each aspect of the writing.

CONCLUSION

In this paper, the fuzzy logic approach specifically designed for writing assessment procedure has been explained in detail and presented by screen interfaces. A high quality, a fairer and a smarter means of assessment should overcome the subjectivity problems. As a first step in channeling the research toward the concept of objectivity, transparency and logical reasoning in assessment of writing, an expert system has been designed.
Unlike the conventional assessment methods, FGDSS approach has been integrated in a computer-based assessment to deploy more objective assessment. With this system, promotion of instructional technologies in language assessment is aimed by providing the teacher with a fair and objective assessment process. Especially productive skills like writing require a wide range of criteria and more than one instructor's assessment. This designed expert system can easily incorporate many assessors and criteria and finally present a single evaluation sheet with a total score and written feedback.
It is hoped that the developed expert system will significantly contribute to the extant body of relevant research in foreign language assessment.

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INTE2010

EXPLORING SAFETY IN TOWNSHIP SECONDARY SCHOOLS IN THE FREE STATE PROVINCE

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Background

The South African Constitution and legislations make provision for the protection of the rights and safety of learners in schools (South African Schools Act 1996, Act 84 of 1996 and the Occupational Health and Safety Act 1993, Act 85 of 1993). In addition, South Africa is a signatory to the Convention of the Rights of the child adopted by the United Nations General Assembly in 1989, which makes it obligatory for members to pass laws and enforce measures to protect the child from all forms of violence, abuse, neglect, maltreatment or exploitation. Section 24(a) of the South African Constitution provides that: "everyone has the right to an environment that is not harmful to his/her health and well-being". Section 28(1) stipulates that: "every child has the right to be protected from, among others, neglect, abuse or degradation" (RSA, 1996). Thus, the learners' and educators' rights to a safe and secure school environment are protected by law. Learners are also protected by the following legislations: the Domestic Violence Act 1998, Act 16 of 1998 and the Child Care Amendment Act 96 of 1996, which compel the educator to report to the police if they have reasonable suspicion that a learner has been ill-treated or has suffered injuries, the probable cause of which was deliberate (Netshitahame and van Vollenhoven, 2002:314). Townships are densely populated and poor residential areas which, all too often, have undeveloped informal settlements.

Statement of the problem

There is a deep-rooted culture of violence in schools that has been cultivated in different ways over many years, making schools unsafe and insecure. The following media reports bear testimony to this assertion: "A high school pupil was robbed and killed by a fellow pupil, and a teacher was robbed at gun point in front of a class" (Kuppan, 2008:1). "A gang of four girls, one armed with a knife have been robbing their school mates of their money as they get off taxis and buses" (Kotlolo & Ratsatsi, 2009:1; Hosken, 2009:1). "Security guard shot and killed in cold blood by two robbers who robbed a nursery school" (Carstens, 2009:1). "Schools use private firms for security after a spate of attacks by armed robbers targeting parents dropping off and fetching their children" (Hosken & Bailey, 2009:1). "A grade 8 pupil at Zamazulu high school died after being accidentally shot with his father's gun by a friend in front of the class." (Ngobese, 2009:1). "Police are searching for a man who opened fire at his child's school, shooting the principal and injuring a 12-year-old pupil" (Skade, 2009:1). "Some schools are close to shebeens that sell liquor to learners during school hours. The sale of alcohol to learners has contributed immensely to violence in schools" (Mthembu, 2008:1). "A fight over a cirgarette ended in the bloody death of a pupil" (Sokopo, 2009:1).

A circumspect analysis of these incidents indicates that schools are not safe and secure and that the perpetrators of violence at schools come from within and without the schools. They include learners, parents of learners and gangs or individuals from the community. They target learners, educators and principals, security guards and learners' parents. Research found that when examining influences on school crime and disruption, it is important to take into account demographic factors such as school size and levels, poverty and levels of neighbourhood crime associated with increased violence (Khoury-Kassabi, Benbinishy, Astor and Zeira (2004); Gottfredson (1977); Redding and Shalf (2001); Laub and Lauritsen (1998); Mercy and Roseberg (1998) as cited in Nickers and Martens (2008:228). These demographic and community factors that influence or impinge on school safety are also found in South African townships, as well, where the study was undertaken.

Aim of study

The aim of this study is to shed light on and provide insight into the problems experienced by township schools in the Free State concerning safety. The study is set to explore the following research question: What are the safety problems facing teachers and learners in township secondary schools in the Free State?

The phenomenon of safety

To be safe is to be protected from any form of danger or harm, or to be secure. It is generally accepted that a safe school is a *sine qua non* for effective teaching and learning (Prinsloo 2005:10), and that good discipline is the most important characteristic of an effective school. A safe school is, therefore, a place where teachers teach and learners learn, and non-educators work in a warm and welcoming environment, free of intimidation and fear of violence, ridicule, harassment and humiliation – where everybody is physically and psychologically safe (Squelsh, 2001:138; Oosthuizen, 2005:14).

According to Maslow (Department of Education, 2008:87), human needs can be classified according to five levels of priority. The first and most pressing of these relates to biological and physical needs for survival. This is followed by a requirement for safety or a safe environment. The preceding discussion not only stresses the value of safety in a school milieu, but confirms the view that education, in the true sense of the word, cannot occur in the absence of safety. Maslow regards safety as the search for security, stability, dependency and protection, as freedom from fear, anxiety and chaos and the need for structure and order. This implies that a person yearns for safety thus making it an important requirement for survival and an important aspiration of a learner.

The learner's right to a safe school milieu

Teachers, by virtue of their profession and by law, are obliged maintain discipline at school and to act *in loco parentis* in relation to the leaner. Prisloo (2005:10) states that the functions that educators should fulfil, in terms of the common law principle, *in loco parentis*, include the right to maintain authority and the obligation to exercise caring supervision over the learner. There are two sides to the *in loco parentis* role of educators: the duty of care

"the obligation to exercise caring supervision" and the duty to maintain order "the obligation to maintain authority or discipline over the learner" (Maithufi (1997:260-261).

Section 29(1) of the South African Constitution stipulates that the leaner has the right to receive education (RSA, 1996). The learner's right to receive education implies that the leaner has the right to attend school and that this right must be protected. Since education can only take place in a safe and secure school environment, everything possible should be done to ensure that the learner experiences safety at school. Section 10 of the South African Constitution stipulates that everyone possesses inherent dignity and the right to have his/her dignity respected and protected; whereas Section 12(1) stipulates that everyone has the right to freedom and security which includes: the right to be free from all types of violence (RSA, 1996). Section 24(a) of the South African Constitution stipulates that everyone has the right to an environment that is not harmful to his/her well-being and to enjoy education in a harmonious and carefree environment (RSA, 1996). Section 28(2) of the South African Constitution stipulates that the best interests of the child are paramount in every matter concerning the child (RSA, 1996). It is in the best interest of the child to attend school and to receive education. Therefore, lack of safety at school is not in the best interest of the child because it will make it difficult for him/her to attend school and to receive education. The regulations for safety measures at public schools (RSA, 2001, par 4, sub par 2(e)), provides that no person may enter the school premises while under the influence of drugs or alcohol (Coetzee, 2005:285).

The teacher's right to a safe school milieu

Since the learner and the teacher operate in the same school environment, what applies to the learner with regard to safety also applies, *mutatis mutandis*, to the teacher. It is unequivocal logic that the teacher cannot provide adequate safety and security for the learner if he/she is not safe at school. An unsafe school milieu will, undoubtedly, undermine the teacher's authority and prevent him/her from exercising the right to maintain authority and the obligation to exercise caring supervision over the learner. The Occupational Health and Safety Act, Act 85 of 1993, provides for the health and safety of a person at work (Prinsloo, 2005:5). Section 12(1) of the Constitution (Bill of Rights) stipulates that the teacher has the right to the freedom and security of a person which includes being free from all forms of violence (RSA, 1996). Learners may also not feel safe and secure in a school environment where their teachers are unsafe.

Research design and methodology

Quantitative and qualitative approaches

A quantitative empirical investigation and a qualitative approach were used in this study.

Data used in this study were quantitatively acquired, recorded and analysed. The researcher had to use a qualitative method of inquiry to interpret the data and the findings and to make deductions.

Research sample

The sample in this study consists of 450 educators who were randomly selected from 44 township secondary schools. The sample completed a questionnaire. Of the 450 questionnaires distributed, 396 were suitable for processing, thus realising a response rate of 88 %.

Research method

Literature study.

A comprehensive study of relevant literature study was used in this research.

Questionnaire.

The participants were asked to indicate the current situation at their schools regarding safety by choosing from five possible answers, using a Likert scale in selecting a response.

Data from the questionnaires were computer analysed by a statistician using the Statistical Package for Social Sciences Primer Version 12.

Validity and reliability

The questionnaire was tested for validity using the Cronbach Alpha Coefficient.

Table 1: Cronbach Alpha Coefficient

Section	Items	Cronbach alpha Coefficient
Safety	35	.885

The Cronbach Alpha Coefficient average for safety in the secondary schools is .885. Since 0.7 indicates an acceptable reliability coefficient, the coefficient is reliable. The principles of reliability and confidentiality were also observed in this study.

Results

In the two tables the mean scores represent the following alternatives: 1 never, 2 rarely, 3 sometimes, 4 most of the time and 5 always.

Profile of teachers` safety in schools

Statements	N	Mean	Standard deviation	Range
Learners are violent	372	2.71	.989	4
Learners intimidate teachers	382	2.14	.954	4
Learners carry dangerous weapons	372	2.48	1.083	4
Learners carry fire arms	378	1.27	.656	4
Learners rob teachers	373	1.70	.874	4
Learners assault teachers	367	1.70	.904	4
Teachers are sexually harassed by learners	375	1.33	.740	4

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School is safe for teachers during school hours	374	3.83	1.295	4
School is safe for teachers after hours	376	3.47	1.376	4
School is safe for teachers during school holidays	374	3.45	1.415	4
Learners commit rape	366	1.61	.874	4
Learners commit murder	376	1.45	.761	4
Outsiders rob teachers	370	1.74	1.045	4
Outsiders intimidate teachers	370	1.74	1.045	4
Outsiders enter school premises without permission	370	2.40	1.208	4
Learners are sexually harassed by outsiders	375	2.19	1.175	4

According to the sample of this study, schools are sometimes safe for teachers during and after school hours, as well as during school holidays. Although this does not indicate that the situation regarding teachers' safety in schools is serious, it does mean that it is a cause for concern because when educators are not completely safe they may precluded from performing their teaching and related functions effectively.

Profile of learners` safety in schools

Statements	N	Mean	Standard deviation	Range
Learners fight among themselves	374	3.16	.875	4
Learners are violent	372	2.71	.989	4
Learners intimidate other learners	374	2.81	.988	4
Learners carry dangerous weapons	372	2.48	1.083	4
Learners carry fire arms	378	1.27	.656	4
Learners form gangs	382	2.66	1.314	4
Learners get involved in gang violence	380	2.57	1.297	4
Learners rob other learners	378	2.46	1.126	4
Learners assault other learners	380	2.88	1.024	4
Learners are bullied by other learners	376	2.90	.991	4
Learners are sexually harassed by other learners	371	2.02	1.025	4
Learners are sexually harassed by teachers	369	1.54	.859	4
School is safe for learners during school hours	374	3.94	1.234	4
School is safe for learners after hours	375	3.09	1.418	4
Learners commit rape	366	1.61	.874	4
Learners commit murder	376	1.45	.761	4
Outsiders rob learners	375	2.25	1.265	4
Outsiders intimidate learners	370	2.40	1.208	4

Outsiders enter school premises without permission	370	2.40	1.208	4
Outsiders sell drugs on school premises	378	1.97	1.074	4
Outsiders fight with learners	372	1.51	.936	4
Learners are sexually harassed by outsiders	375	2.19	1.175	4

According to the sample of this study, learners sometimes fight among themselves, schools are sometimes not safe for learners during and after hours. This indicates clearly that the learners' safety at these schools is not guaranteed but is a matter of chance.

Incidents regarding learners' safety that occur rarely in the secondary school sample of this study are: learners are violent, learners intimidate other learners, learners carry dangerous weapons, learners form gangs, learners get involved in violence, learners rob other learners, learners assault other learners, learners are bullied by other learners, learners are sexually harassed by other learners, outsiders rob learners, outsiders intimidate learners, outsiders enter school premises without permission and learners are sexually harassed by outsiders. Although these incidents occur rarely at schools almost all of them are serious forms of criminal behaviour and a considerable number of them are organised and premeditated. Their magnitude by far outweighs their frequency.

Conclusions

Despite the plethora of laws protecting teachers and learners in South African schools, scores of them are still unsafe. Schools do not only have to deal with common learner misdemeanours, but with learners involved in criminal activities at school, some of which are injurious to teachers and fellow learners. Multiple factors cause the township secondary schools under investigation to be unsafe for both learners and teachers. The perpetrators of crime and violence at these schools come from within and without the schools making the resolution of the problems difficult. The serious nature of some of the incidents that cause a lack of safety in schools should compel stakeholders to find a speedy resolution to the problems before the schools degenerate into anarchy. It is logical to assume that a lack of safety at these schools has a negative impact on academic performance and defeats the purposes of schooling. Because the learners' and teachers' safety in schools is guaranteed by the South African Constitution and by law, the state of a lack of safety for teachers and learners at schools implies transgression of the country's Constitution and laws.

Recommendations

The Department of Education, as an organ of government and the state, must ensure that schools are safe and secure during and after school hours. The government has the power and resources to provide for school safety.

Schools (principals and teachers) should consistently encourage learners to take responsibility for their part in maintaining school safety by, among others, reporting crime, learners who are in possession of drugs or weapons,

strangers, suspicious objects inside or outside the school, and anything that poses a threat to learners or the school. Schools should be fenced and access during and after school hours, should be controlled.

Learners should be taught conflict resolution techniques to equip them with skills to resolve disagreements, deal with bullies and cope with other issues that can spiral out of control if not addressed quickly (Fraser, 2007:49). In addition, schools should teach, as part of their curriculum, moral values such as respect, responsibility, obedience, honesty and human dignity, as these will inculcate good behaviour in learners. Since learners learn more by example than by what they hear, teachers should set good examples of behaviour that learners could emulate.

The Department of Education, School Governing Bodies and parents should act swiftly and decisively against a learner (or anyone for that matter) who is disruptive, who engages in violence or who is found guilty of serious misdemeanours and who place the lives of teachers and/or learners in jeopardy. It is important for parents and teachers to send a message to children that home and school are working together to ensure a safe and secure school environment for everyone involved in education (Fritz, 2006:2).

The schools, parents, community and the police should hold regular meetings where strategies of addressing community and school safety are discussed. The police should take decisive action, as this is their responsibility, against those who pose a safety threat to schools and community as well as against the perpetrators of crime in general. The police are, in actual fact, the custodians of the law and the Constitution and should conduct intermittent searches of learners particularly in trouble-prone schools to look for drugs, weapons and other illegal items. They must also take action against shebeen owners who sell liquor to learners.

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EXPLORING ORGANIZATIONAL COMMUNICATION THROUGH WEBSITE ANALYSIS: A PROBLEM-BASED LEARNING COMMUNITY EXERCISE

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ABSTRACT

This paper discusses the pedagogic value of website analysis. It describes such an exercise administered to third-year business students at a major university in the United Arab Emirates, in which students were required to analyze a range of business school websites. The analysis was conducted employing four frameworks: (1) identification of 'concept clusters' and the linguistic and navigational creation of these clusters; (2) 'framing' of information provided to tap into students' socio-cultural, intellectual, academic mindset; (3) the navigational mode by which meanings are created in the user's mind based on the presentation and sequence of hyperlinks; (4) the Ashridge mission model of purpose, strategy, values, and behavior standards. The heuristic value of the exercise was very high since, on completion of the assignment, students demonstrated a firm understanding of how organizational realities are created through the management of information on websites, a corporate strategy which has enormous relevance for organizational development, CSR, corporate communications, and marketing.

INTRODUCTION

This paper describes a highly successful approach to teaching communication theory related to web site analysis and design. The pedagogic technique was formulated as a problem-based learning exercise in which third-year business students were required to analyze the websites of a range of business schools and make recommendations for the enhancement of their own business school's website. The 170 students who engaged in the exercise are completing their Bachelor's degree in business at Zayed University, a major university in the United Arab Emirates (UAE) with campuses in Dubai and Abu Dhabi.

OBJECTIVE OF EXERCISE

The objective was for students to learn how information is framed on corporate web sites, a crucial channel for organizational communication with both internal and external stakeholders. The goal was to complement theoretical learning through the practical application of theory-related skills. The pedagogic experience was cyclical, that is, it

involved theoretical input followed by its practical application, which therefore contextualized and consolidated theoretical learning.

LEARNING CONTEXT

The value of choosing university web sites is that not only are students familiar with them, they also form an important group of stakeholders as (potential) students for the organizations that produce them. This facilitated their analysis of content and usability of the sites and enhanced their grasp of related communication theory. This context for learning was critical since cognition theory holds that context is central to effective learning (Sherwood, 2004). Attempting to advance student understanding of communication theory through web site analysis was apposite given the rising importance of online communication activity in general and the key role of corporate web sites in particular. The IT context was also appropriate since students at Zayed University are highly IT-literate with each student required to use their own personal laptop daily for a variety of pedagogic and communication purposes, including Blackboard and ePortfolio. These realities established a further degree of familiarity of the context within which students were immersed while learning about new tools for corporate web site analysis, a familiarity which enhanced their absorption and application of communication theory.

PROCEDURE OF EXERCISE

The procedure adopted in the exercise was first to teach students key concepts relating to communication strategy and website design, namely, concept clusters, framing, multi-modality, and a content analysis based on the Ashridge Mission Model. Each concept, and its application, was discussed in class and students were also provided with a set of academic papers which they could refer to in order to extend their knowledge. These are discussed in more detail below. Having learnt how these four analytical frameworks are applied to the processing of data presented on web sites, students were then asked to form themselves into groups of three or four. Luft (1970) points out that learning in groups allows students to discover more about themselves through working with others. These groups were then asked to select the website of three business schools from the Gulf region and three from other parts of the world, that were similar to their own, that is, business schools that were associated with a university. The purpose of this choice was to generate awareness of communication strategy as determined by cultural context. The Gulf web sites would have points of cultural identity with their own school while the other sites exposed them to different approaches to communication in diverse socio-cultural, political, and economic, and environments. The students selected web-sites in the UAE and beyond for the Gulf region, e.g. Qatar, Saudi Arabia, Oman etc. For those elsewhere in the world, the typical choices were the US, the UK, Canada and Australia.

THEORETICAL COMPONENT OF EXERCISE

To allow the students to apply their earlier learning on how information can be framed, how concept clusters are employed to develop an image identity or brand, how the navigational choices prompted by a web site carries semantic value, and how the mission statement can be analyzed, each group was asked to analyze their selected sites employing the following four analytical frameworks:

1. Identification of '*concept clusters*,' that is, recurring concepts that are used to create the image and perception of an organization, for example, leadership, excellence, global perspective (Planken, Waller, Nickerson, 2007).

2. 'F*raming*,' that is, how the business school taps into previous knowledge, background, mental filters, and experience of the audience to direct their recognition of the school in a particular way, e.g. the acknowledgement of Islamic cultural values on business school web-sites in the Gulf region. Students were required to classify the themes that the school presents to build its identity among its audience (Planken, Waller, Nickerson, 2007). They were also asked to consider how culture may affect our reading of the site (Hynes & Janson, 2007).

3. The *'navigational,'* function of the website, that is, how the audience reads particular sections and then navigates via hyperlinks to other sources of information on the site. Students had been taught issues relating to the fact that a web site user is required to engage in two modes when accessing information from a site – reading and navigating (Askehave & Ellerup Nielsen, 2005). The students were made aware of how such hyperlinks not only allow the audience to access related or supplementary information, but also serve to establish connections within the mind of the audience and therefore have a meaningful, or semantic, function. That is, they help in constructing a particular meaning thus determining audience response to the school. They were asked to pay attention to the number of clicks it takes to reach a particular body of information since this is a crucial factor in establishing links of meaning.

4. Students were instructed to analyze the effectiveness of the organizational mission of each school using the Ashridge Mission Model, that is, identifying the purpose, strategy, values, and behavior encouraged of organizational members (Rogers, Gunesekera, & Yang, 2010).

PROBLEM-BASED LEARNING COMMUNITIES AND EXPERIENTIAL LEARNING

The final part of the exercise required students to peruse their own business school's site in order to identify areas that needed improvement and then to make specific suggestions for the site's enhancement. This website had been looked at in class and students had agreed on its need for improvement. They were asked specifically to relate this to their analysis and assessment of the other six web-site that they had investigated. This part of the task established a context for problem-based learning which encourages cognitive learning, affective learning, and behavioral learning (Brownell & Jameson, 2004). In formulating the activity as the identified requirement to enhance their own school's web site, the student groups were transformed into learning communities with a specific problem to address. This provided the opportunity to transfer their learning of key communication theories to a practical domain and thus consolidate and expand on the applications of this theoretical knowledge (Kloppenburg & Baucus, 2004).

The value of posing the problem as the necessary improvement of their own business school's web site was that, as experiential learning proponents insist, learning is enriched when students are academically, socially, and emotionally involved in an exercise (Kolb, 1984). The students' loyalty to their school, their strong collectivist culture (Hofstede, 1994), and commitment to their country and its development (Erogul & McCrohan, 2008), stimulated a strong emotional connection with the exercise. Working in groups was also effective given the collectivist nature of the UAE culture. This multi-faceted connection with the problem strengthened their linking of theory with practice and would arguably encourage their application of the learning achieved in this context to other contexts rendering their undergraduate studies more coherent. This is an essential part of developing students as life-long learners, an essential skill if they are to adapt to the varied business environments they will enter after graduation (Goby & Lewis, 2000).

CONCLUSION

The student development of recommendations for the enhancement of their web site's provided the opportunity for their efforts to be recognized and validated. Throughout the project, the support of senior administration within the school was instrumental in achieving this, such that the students involved could see both the immediate application and value of their recommendations. Several of their recommendations were adopted by the school at a later date and their contribution therefore became part of the marketing of the school. As a learning exercise, students became more aware of organizational communication through their website analysis. They also had an opportunity to see how an integrated approach to theory and practice can be implemented in order to improve that communication in an effective and systematic way.

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FEN BİLGİSİ ÖĞRETMEN ADAYLARININ ÇEVRE OKURYAZARLIK DÜZEYLERİNİN BELİRLENMESİ

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ÖZET

Bu araştırmanın amacı; fen bilgisi öğretmenliği 1., 2., 3., ve 4. sınıflarda öğrenim gören öğretmen adaylarının çevre okuryazarlık düzeylerinin çevre okuryazarlığı bileşenlerine göre belirlenmesidir. Araştırma 2009-2010 eğitim-öğretim yılı Sakarya Üniversitesi, Eğitim Fakültesi İlköğretim Bölümü Fen Bilgisi Öğretmenliği Anabilim Dalı 1., 2., 3., ve 4. sınıflarda öğrenim gören 271 öğretmen adayı ile genel tarama modeli kullanılarak gerçekleştirilmiştir. Araştırmada veri toplama aracı olarak çevre okuryazarlığının bileşenleri olan bilgi, tutum, davranış ve algıyı içeren Çevre Okuryazarlığı Ölçeği kullanılmıştır. Veriler SPSS programı kullanılarak istatistiksel olarak analiz edilmiştir.

Araştırma sonucunda fen bilgisi öğretmen adaylarının çevre okuryazarlık düzeylerinin orta düzeyde olduğu tespit edilmiştir. Öğretmen adaylarının kısmen yüksek düzeyde çevresel tutuma, düşük düzeyde çevresel bilgi ve çevresel davranışa ve orta düzeyde çevresel algıya sahip oldukları belirlenmiştir. Aynı zamanda çevresel bilgi-çevresel tutum ve çevresel bilgi-çevresel davranış puanları arasında anlamlı pozitif yönde zayıf bir ilişki, çevresel bilgi-çevresel algı, çevresel tutum-çevresel davranış, çevresel tutum-çevresel algı ve çevresel davranış-çevresel algı puanları arasında ise anlamlı pozitif yönde orta derecede bir ilişki tespit edilmiştir.

Anahtar kelimeler: Çevre Okuryazarlığı, Çevre Eğitimi, Öğretmen Adayı

GİRİŞ

Her geçen gün gelişen ve değişen bilim ve teknolojiyle beraber insan yaşamının daha da kolay bir hal almasının yanında çevre ile ilgili problemlerin de arttığı bir gerçektir. Ne yazık ki bu olumsuz gelişmelerin en temelinde insanoğlunun davranışları ve yaşam şekli yatmaktadır. Çevre konusunda bilinçsiz ve olumsuz tutuma sahip bireyler çevre sorunlarının oluşmasında rol oynarken, aynı zamanda sorunlara karşı duyarsız davranabilmektedir. Önemli çevre sorunları konusunda bireylerin bilinçlendirilmesi, çevreye karşı daha duyarlı olmaları, çevrenin gelecek nesillere yaşanabilir bir halde bırakılması için çevre eğitimi çok önemlidir.

Çevre eğitimi, doğal ortamın korunması ve kullanılması ile ilgili duyarlığın gelişmesini, bireylerin tutum ve davranışlarının olumlu ve kalıcı yönde değişmesini hedeflemektedir (Bilgi, 2008). Bir süreç olarak çevre eğitimi, çevre sorunlarını çözmek için dünyanın doğal kaynaklarını zenginliklerini sürdürülebilir biçimde yönetebilecek becerileri insanlara kazandırarak duyarlı, sorumluluk sahibi bireyler yetiştirmeyi amaçlamaktadır (Ayhan, 1999). Bireylerin çevreyle ilgili olaylardan haberdar olması ve onları anlayabilmesi büyük önem taşımaktadır. Bireylerin insan ve çevre sağlığı konusunda yeterli düzeyde eğitilmesiyle, birey davranışlarında istenilen değişiklikler oluşturulabilir ve geleceğe yönelik sağlıklı nesiller yetiştirilebilir (Ünal ve Diğerleri, 2001). Özet olarak çevre eğitimi yaşam boyu öğrenme süreci olup, her geçen gün değişen çevresel problemlerin üstesinden gelebilecek çevre okuryazarı bireyler yetiştirmeyi amaçlamaktadır (Roth, 1992). Çevre okuryazarı bireylerden oluşan bir toplum yetiştirebilmek için çevre eğitimi kesinlikle gereklidir.

Çevre okuryazarlığı terimi ilk olarak 1968 yılında Charles Roth tarafından kullanılmıştır. Roth çevre okuryazarlığını, bireyin çevresel bilgi ve farkındalık düzeyi olarak tanımlamıştır. Disinger ve Roth (1992)'a göre ise; çevre okuryazarlığı aslında bireylerin sağlıklı çevresel sistemleri algılayıp yorumlayabilme kapasiteleriyle bağlantılıdır. Çevre okuryazarlığı gözlemlenebilir davranışlar açısından tanımlanmalıdır. Yani bireyler çevre ile ilgili bilgi, beceri, eğilim ve davranışlar gösterebilmelidirler.

Çevre okuryazarı bir birey çevre ile ilgili bilgiye sahip olmakla beraber, çevre sorunlarının sebepleri, sonuçları ve önlenmesinde beceri, tutum, davranış ortaya koyabilmelidir. Çevre okuryazarlığının farklı uzmanlara göre belirlenmiş okuryazarlık ile ilgili unsurları tespit edilmiştir. Hsu ve Roth (1999) tarafından çevresel davranış modellerinin incelenmesi sonucunda çevre okuryazarlığına ait Sorumlu Çevresel Davranışlar, Çevresel

Duyarlılık, Çevresel Tutum, Çevresel Sorumluluk, Bireysel Çevresel Etki, Çevreye Karşı Duyarlı Davranmaya Olan İstek, Çevresel Eylem Stratejileri Bilgisi, Çevresel Eylem Stratejilerini Uygulama Becerisi, Ekoloji ve Çevre Bilimleri Bilgisi olmak üzere 10 unsur tespit edilmiştir. Simmons (1995) tarafından yapılan başka bir çalışmada ise nitelikli bir çevre eğitimi için çevre okuryazarlığının Etki, Ekoloji Bilgisi, Sosyo-politik Bilgi, Çevre Sorunları Bilgisi, Beceriler, Sorumlu Çevresel Davranışlar, Sorumlu Çevresel Davranışları Belirleyici Ek Öğeler olmak üzere 7 temel unsuru içermesi gerektiği belirtilmiştir (Weiser 2001).

Çevre okuryazarı bireylerin yetiştirilmesi amacıyla verilen çevre eğitiminin bu amacı gerçekleştirip gerçekleştirmediğinin belirlenmesinde, çevre okuryazarlığını oluşturan unsurların göz önünde bulundurulması oldukça önemlidir. Ayrıca çevre eğitiminin temel amacının gerçekleştirilmesinde hangi noktalara önem verilmesi gerektiğini belirlemeyi de sağlamaktadır. Çevre okuryazarlığını oluşturan bu unsurların eksik olması, bireyin çevre okuryazarlığının önünde engel oluşturabilir (Kışoğlu, 2009).

Çevre eğitimi literatüründe en çok kabul gören çevre okuryazarlığı bileşenleri ilk olarak Roth (1992) tarafından tanımlanmış, bilgi, tutum ve değer, davranış ve beceri olarak ele alınmıştır.

- **Bilgi**: Sadece ekoloji bilgisi ile sınırlı değildir. Ekoloji bilgisi ile birlikte çevresel kavramların bilinmesidir. Aynı zamanda çevresel olayların ve bu olayların doğal sistemlerle olan ilişkilerinin bilinmesini kapsamaktadır.
- **Tutum ve değer:** Çevre ve çevre sorunlarına karşı bireylerin sahip olduğu duyarlılık ile bireylerin çevre hakkında kararlar alırken ve sorumlu çevresel davranışlarda bulunurken toplumun ahlaki ve etik değerlerini göz önüne alabilmelerini kapsamaktadır.
- **Beceri**: Bir bireyin sahip olduğu çevresel bilgi ve çevresel tutumları çevre sorunlarının çözümünde kullanabilme yeteneğidir. Psikomotor, iletişim ve yüksek düşünce olan bu beceriler çevre okuryazarı bireyde bulunması gereken becerilerdir.
- **Davranış:** Bir bireyin çevresel bilgi, çevresel tutum ve çevresel becerilerinin göstergesi ve çevre problemlerinin çözümüne aktif olarak katılımıdır (Kışoğlu, 2009).

Çevre problemlerinin temelinde çevreye karşı sorumsuz davranış, olumsuz tutum ve yetersiz bilginin yattığı bilinmektedir. Bu nedenle çevre eğitiminin en büyük amacı çevreye karşı olumlu tutum, sorumlu davranış ve yeterli bilgiye sahip çevre okuryazarı bireyler yetiştirmektir. Bu amaca ulaşabilmek için öncelikle çevre okuryazarı bireyler yetiştirebilecek nitelikteki çevre eğitimcilerinin yetiştirilmesi gerekmektedir. Bu bağlamda bu araştırmanın amacı çevre eğitimi konusunda önemli bir role sahip olacak gelecek kuşakları yetiştirecek fen bilgisi öğretmenliği programında öğrenim gören öğretmen adaylarının çevre okuryazarlık düzeylerinin çevre okuryazarlığı bileşenlerine göre belirlenmesi ve çevre okuryazarlığı bileşenleri arasında anlamlı bir ilişkinin olup olmadığının araştırılmasıdır.

Yöntem

Araştırmada tarama modeli kullanılmıştır. Tarama modelleri, geçmişte ya da halen var olan bir durumu olduğu gibi betimlemeyi amaçlayan araştırma yaklaşımlarıdır (Karasar, 2008). Bu çalışmada tarama modellerinden genel tarama modeli kullanılmıştır.

Çalışma grubu

Araştırmanın örneklemini 2009-2010 Eğitim Öğretim yılı Sakarya Üniversitesi, Eğitim Fakültesi, İlköğretim Bölümü Fen Bilgisi Öğretmenliği Programında öğrenim gören 271 öğretmen adayı oluşturmaktadır. Katılımcıların cinsiyet ve sınıflarına göre dağılımları Tablo 1'deki gibidir.

Tablo 1. Katılımcıların Cinsiyet ve Sınıflara Göre Yüzde ve Frekans Dağılımları

Cinsiyet / Sınıf	Bayan		Erkek		Toplam	
	f	**%**	**f**	**%**	**f**	**%**
1. Sınıf	49	26,5	24	27,9	73	26,9
2. Sınıf	52	28,1	28	32,6	80	29,5
3. Sınıf	46	24,9	15	17,4	61	22,5
4. Sınıf	38	20,5	19	22,1	57	21,0
Toplam	185	68,3	86	31,7	271	100

Tablo 1 incelendiğinde; araştırma katılımcılarının %68,3'ünün bayan, %31,7'sinin ise erkek olduğu görülmektedir.

Veri Toplama Araçları

Öğretmen adaylarının çevre okuryazarlığı düzeylerini belirlemek amacıyla alt bileşenlerden oluşan Çevre okuryazarlığı ölçeği kullanılmıştır. Ölçek çevre okuryazarlığının bilgi, tutum, çevresel davranış ve çevresel algı bileşenlerini kapsamaktadır. Araştırmada Çevresel bilgi testi, Çevresel tutum ölçeği, Çevresel davranış ölçeği, Çevresel algı ölçeği kullanılmıştır.

1. **Çevresel Bilgi Testi:** Araştırmacı tarafından geliştirilen bilgi testinde, öğretmen adaylarının çevre ve çevre sorunları hakkındaki bilgi düzeylerini ölçmek amacıyla 15 çoktan seçmeli soru bulunmaktadır. Testte her bir madde beş seçeneklidir ve her bir sorunun değeri 1 puan olarak belirlenmiştir. Testten alınabilecek maksimum puan 15 ve minimum puan 0'dır. Madde analizleri yapılan Çevre Bilgi Testinin güvenirlik katsayısı 0.63 olarak hesaplanmıştır. ***Frary'e*** göre güvenirlilik katsayısı 0.60-0.79 aralığında olan ölçekler düşük orta güvenirliliktedir ve araştırmalarda kullanılmaları uygundur.

2. **Çevresel Tutum Ölçeği:** Öğrencilerin çevreye karşı tutumlarını ölçmek için Kışoğlu (2009) tarafından geliştirilip güvenirlik katsayısı (α) 0.77 olarak hesaplanan tutum ölçeği kullanılmıştır. Çevre okuryazarlığı ölçeğinin bu bileşeni beşli likert tipinde (1=kesinlikle katılmıyorum, 2=katılmıyorum, 3=kararsızım, 4=katılıyorum, 5=kesinlikle katılıyorum) hazırlanmış ve 18 adet tutum cümlesi içermektedir. Ölçekteki ifadelerin puanlaması 4 puan üzerinden yapılmıştır. Ölçekte olumlu yöndeki ifadeler "kesin katılıyorum" 4 puan, "katılıyorum" 3 puan, "kararsızım" 2 puan, "katılmıyorum" 1 puan ve "kesinlikle katılmıyorum" 0 puan şeklinde, olumsuz ifadelerde puanlar bu puanlamanın tersi şeklinde yapılmıştır. Buna göre ölçekten alınabilecek en düşük puan 0 ve en yüksek puan 72'dir.

3. **Çevresel Davranış Ölçeği:** Öğrencilerin davranışlarını ölçmek için Kışoğlu (2009) tarafından geliştirilen ve güvenirlik katsayısı (α) 0.79 olarak hesaplanan çevresel davranış ölçeği kullanılmıştır. Çevre okuryazarlığı ölçeğinin bu bileşeni öğretmen adaylarının çevreye duyarlı davranışları hangi sıklıkta yaptıklarını belirlemeye yönelik olarak, üçlü likert tipinde hazırlanan (1=hiçbir zaman, 2=ara sıra, 3=her zaman) 20 adet davranış cümlesi bulunmaktadır. Ölçekteki ifadelerin puanlaması 2 puan üzerinden yapılmıştır. Ölçekte puanlama "her zaman" 2 puan, "ara sıra" 1 puan ve "hiçbir zaman" 0 puan şeklinde yapılmıştır. Buna göre ölçekten alınabilecek en düşük puan 0 ve en yüksek puan 40'tır.

4. **Çevresel Algı Ölçeği:** Öğrencilerin algılarını ölçmek için Kışoğlu (2009) tarafından geliştirilen ve güvenirlik katsayısı (α) 0,78 olarak hesaplanan çevresel algı ölçeği kullanılmıştır. Çevre okuryazarlığı ölçeğinin bu bileşeninde öğretmen adaylarının çevre ve çevre sorunlarına olan ilgilerini kendilerine puan vererek değerlendirmelerine yönelik olarak, 1'den 5'e kadar derecelendirilmiş (1=en düşük, 5=en yüksek) 3 adet değerlendirme cümlesi yer almaktadır. Ölçekteki ifadelerin puanlaması 5 puan üzerinden yapılmıştır. Ölçekte 1'den 5'e doğru puanlama yapılmıştır. Buna göre ölçekten alınabilecek en düşük puan 3 ve en yüksek puan 15'tir.

Verilerin Analizi

Araştırmada istatistiksel analizler SPSS 15 programı kullanılarak yapılmıştır. Öğretmen adaylarının çevre okuryazarlığı ölçeğinin bileşenlerinden almış oldukları toplam puanlar hesaplanmıştır. Çevre okuryazarlığının bileşenleri olan çevresel bilgi, çevresel tutum, çevresel davranış ve çevresel algı puanları arasında anlamlı bir ilişkinin olup olmadığının belirlenmesinde basit korelasyon testi uygulanmıştır.

Çevre okuryazarlığı ölçeğinin bileşenlerinin her birinin puan ortalamaları hesaplanmıştır. Öğretmen adaylarının bileşenlerden aldıkları puanların ve çevre okuryazarlık düzeylerinin belirlenmesi için her bir bileşenden alınan puanlar 100 puana standartlaştırılmıştır. Bileşenlerin standartlaştırılmış puanlarının ortalaması alınarak genel bir çevre okuryazarlık puanı hesaplanmıştır. ***Kibert (2000)*** tarafından yapılan benzer bir çalışmada belirlenen kriterler, öğretmen adaylarının çevre okuryazarlık bileşenlerinin (bilgi, tutum, davranış ve algı) düzeyleri ve çevre okuryazarlık düzeylerinin tespit edilmesi için kullanılmıştır. Standartlaştırılmış puanlar 100 puan üzerinden A (100-90), B (89-80), C (79-70), D (69-60) ve E (60 altı) şeklinde düzeylere ayrılmıştır. A çok yüksek, B yüksek, C kısmen yüksek, D orta ve E düşük düzeyi ifade etmektedir.

BULGULAR VE YORUMLAR

Bu bölümde elde edilen verilere uygulanan analizler ile ulaşılan bulgular aşağıda sunulmuştur.

1. **Fen Bilgisi öğretmen adaylarının çevre okuryazarlık düzeylerine ilişkin bulgular**

İlköğretim Fen Bilgisi Öğretmen adaylarına çevre okuryazarlığı ölçeği uygulanmış ve öğretmen adaylarının çevre okuryazarlığı düzeyleri, çevre okuryazarlığının dört bileşenine göre incelenmiştir.

Öğretmen adaylarının çevre okuryazarlığı ölçeğinden almış oldukları puanlar Tablo 2'de gösterilmiştir.

Tablo 2. Çevre okuryazarlığı bileşenlerinin puanları

Bileşenler	**En Düşük Puan**	**En Yüksek Puan**	$\bar{X}$	**SS**	**Standartlaştırılmış Puan/100**
Çevresel Bilgi	2	15	8,63	2,16	57,33
Çevresel Tutum	19	72	51,67	8,53	71,76
Çevresel Davranış	5	34	20,33	5,08	50,33
Çevresel Algı	3	15	10,18	2,13	67,86

Öğretmen adaylarının çevre okuryazarlığı ölçeğinin çevresel bilgi bileşeninden alabilecekleri en düşük puan sıfır (0) ve en yüksek puan 15'tir. Öğretmen adaylarının çevresel bilgi bileşeninden aldıkları en düşük puan 2, en yüksek puan 15 ve puan ortalamaları da 8,63 olarak hesaplanmıştır. Öğretmen adaylarının standartlaştırılmış bilgi puanları da 57,33 olarak hesaplanmıştır. Bu puan, Kibert (2000) tarafından belli edilen kriterlere göre, öğretmen adaylarının çevresel bilgi düzeylerinin düşük düzeyde olduğunu göstermektedir.

Öğretmen adaylarının çevre okuryazarlığı ölçeğinin çevresel tutum bileşeninden alabilecekleri en düşük puan 0 ve en yüksek puan 72'dır. Öğretmen adaylarının çevresel tutum bileşeninden aldıkları en düşük puan 19, en yüksek puan 72 ve puan ortalamaları da 51,67 olarak hesaplanmıştır. Öğretmen adaylarının standartlaştırılmış tutum puanları da 71,76 olarak hesaplanmıştır. Bu puan, Kibert (2000) tarafından belli edilen kriterlere göre, öğretmen adaylarının çevresel tutum düzeylerin kısmen yüksek düzeyde olduğunu göstermektedir.

Öğretmen adaylarının çevre okuryazarlığı ölçeğinin çevresel davranış bileşeninden alabilecekleri en düşük puan 0 ve en yüksek puan 40'tir. Öğretmen adaylarının çevresel davranış bileşeninden aldıkları en düşük puan 5, en yüksek puan 34 ve puan ortalamaları da 20,33 olarak hesaplanmıştır. Öğretmen adaylarının standartlaştırılmış davranış puanları da 50,33 olarak hesaplanmıştır. Bu puan, Kibert (2000) tarafından belli edilen kriterlere göre, öğretmen adaylarının çevresel davranış düzeylerinin düşük düzeyde olduğunu göstermektedir.

Öğretmen adaylarının çevre okuryazarlığı ölçeğinin çevresel algı bileşeninden alabilecekleri en düşük puan 3 ve en yüksek puan 15'tir. Öğretmen adaylarının çevresel algı bileşeninden aldıkları en düşük puan 3, en yüksek puan 15 ve puan ortalamaları da 10,18 olarak hesaplanmıştır. Öğretmen adaylarının standartlaştırılmış algı puanları da 67,86 olarak hesaplanmıştır. Bu puan, Kibert (2000) tarafından belli edilen kriterlere göre, öğretmen adaylarının çevresel algı düzeylerinin orta düzeyde olduğunu göstermektedir.

Öğretmen adaylarının çevre okuryazarlığı bileşenlerinden aldıkları standartlaştırılmış puanların birlikte değerlendirilmesi sonucunda çevre okuryazarlığı standartlaştırılmış puanı 61,82 olarak tespit edilmiştir. Bu puan, Kibert (2000) tarafından belli edilen kriterlere göre, fen bilgisi öğretmen adaylarının çevre okuryazarlık düzeylerinin orta düzeyde olduğunu göstermektedir.

2. Çevre okuryazarlığının bileşenleri olan çevresel bilgi, çevresel tutum, çevresel davranış ve çevresel algı puanları arasındaki ilişkiyle ilgili bulgular

Öğretmen adaylarının çevre okuryazarlığı ölçeğinin sonuçlarına göre çevre okuryazarlığı bileşenleri arasındaki basit korelasyona bakılmış aşağıdaki sonuçlara varılmıştır.

Tablo 3. Çevre okuryazarlığı ölçeğinin sonuçlarına göre çevre okuryazarlığının bileşenleri arasındaki basit korelasyon testi sonuçları

		Çevresel Bilgi	**Çevresel Tutum**	**Çevresel Davranış**	**Çevresel Algı**
Çevresel Bilgi	Pearson Korelasyonu (r)	1	,279**	,181**	,305**
	Sig(2-tailed)		.000	.003	.000
Çevresel Tutum	Pearson Korelasyonu (r)	,279**	1	,378**	0,402**
	Sig (2-tailed)	.000		.000	.000
Çevresel Davranış	Pearson Korelasyonu (r)	,181**	,378**	1	,507**
	Sig (2-tailed)	.003	.000		.000
Çevresel Algı	Pearson Korelasyonu (r)	,305**	,402**	,507**	1
	Sig(2-tailed)	.000	.000	.000	

** ilişki 0.01 altında ise anlamlı (2-tailed)

Tablo 3 incelendiğinde; çevresel bilgi-çevresel tutum, çevresel bilgi-çevresel davranış, çevresel bilgi-çevresel algı, çevresel tutum-çevresel davranış, çevresel tutum-çevresel algı ve çevresel davranış-çevresel algı arasında anlamlı bir ilişki olduğu görülmektedir.

Öğretmen adaylarının çevresel bilgi-çevresel tutum puanları arasında anlamlı pozitif yönde ve $r<0,30$ olduğundan çevresel bilgi-çevresel tutum puanları arasında zayıf bir ilişki vardır ($r=0,279; p<0.01$).

Öğretmen adaylarının çevresel bilgi-çevresel davranış puanları arasında anlamlı pozitif yönde ve $r<0,30$ olduğundan çevresel bilgi-çevresel davranış puanları arasında zayıf bir ilişki vardır($r=0,181; p<0.01$).

Öğretmen adaylarının çevresel bilgi-çevresel algı puanları arasında anlamlı pozitif yönde ve $0,30<r<0,70$ olduğundan çevresel bilgi-çevresel algı puanları arasında orta derecede bir ilişki vardır($r=0,305; p<0.01$).

Öğretmen adaylarının çevresel tutum-çevresel davranış puanları arasında anlamlı pozitif yönde ve $0,30<r<0,70$ olduğundan çevresel tutum-çevresel davranış puanları arasında orta derecede bir ilişki vardır ($r=0,378; p<0.01$).

Öğretmen adaylarının çevresel tutum-çevresel algı puanları arasında anlamlı pozitif yönde ve 0,30<r<0,70 olduğundan çevresel tutum-çevresel algı puanları arasında orta derecede bir ilişki vardır (r=0,402; p<0.01).

Öğretmen adaylarının çevresel davranış-çevresel algı puanları arasında anlamlı pozitif yönde ve 0,30<r<0,70 olduğundan çevresel davranış-çevresel algı puanları arasında orta derecede bir ilişki vardır (r=0,507; p<0.01).

SONUÇ, TARTIŞMA ve ÖNERİLER

Öğretmen adaylarına uygulanan çevre okuryazarlığı ölçeği verilerinin analizi sonucunda çevre okuryazarlığı bileşenlerinin standartlaştırılmış puanları hesaplanmış ve bu puanlara göre çevresel bilgi, çevresel tutum, çevresel davranış ve çevresel algı düzeyleri belirlenmiştir. Bu sonuçlar doğrultusunda öğretmen adaylarının çevresel tutum düzeyleri 71,76 puanla kısmen yüksek düzeyde, çevresel algı düzeyleri 67,86 puanla orta düzeyde, çevresel bilgi düzeyleri 57,33 ve çevresel davranış düzeyleri 50,33 puanla düşük düzeyde çıkmıştır. Bu sonuçlar Diekmann ve Preisendorfer (1998), Kuhlemeier ve diğerleri (1999) ve Kibert (2000) tarafından yapılan araştırmalarla benzerlik göstermektedir. Bu araştırmalarda yüksek tutum puanına karşı düşük bilgi ve/veya davranış puanları hesaplanmıştır. Bu durumun sebebinin gözlenemeyen veya kontrol edilemeyen sebeplerden kaynaklandığı düşünülmektedir. Sonuçta çevre ile ilgili değerlerin, tutumların, davranışların oluşmasında bireyin ailesi, toplum, içinde bulunduğu çevre, eğitim vs. gibi birçok faktör rol oynamaktadır.

Öğretmen adaylarının çevre okuryazarlığı bileşenlerinden aldıkları standartlaştırılmış puanların birlikte değerlendirilmesi sonucunda çevre okuryazarlığı standartlaştırılmış puanı 61,82 olarak tespit edilmiştir. Belirlenen kriterlere göre, fen bilgisi öğretmen adaylarının çevre okuryazarlık düzeyleri orta düzeydedir. Benzer olarak Kibert (2000) tarafından yapılan bir araştırmada da üniversite öğrencilerinin çevre okuryazarlık düzeyleri düşük düzeyde ve Kışoğlu (2009) tarafından yapılan başka bir araştırmada ise biyoloji öğretmen adaylarının çevre okuryazarlık düzeyleri orta düzeyde tespit edilmiştir.

Araştırmada aynı zamanda çevre okuryazarlığının bileşenleri olan çevresel bilgi, çevresel tutum, çevresel davranış ve çevresel algı puanları arasındaki ilişkiye bakılmıştır. Sonuç olarak çevresel bilgi-çevresel tutum ve çevresel bilgi-çevresel davranış puanları arasında anlamlı pozitif yönde zayıf bir ilişki tespit edilmiştir. Çevresel bilgi-çevresel algı, çevresel tutum-çevresel davranış, çevresel tutum-çevresel algı ve çevresel davranış-çevresel algı puanları arasında ise anlamlı pozitif yönde orta derecede bir ilişki tespit edilmiştir. Benzer olarak Dimopoulos ve Pantis (2003), Ökesli (2008), Makki ve diğerleri (2003) tarafından yapılan araştırmalarda çevresel bilgi-çevresel tutum arasında bir ilişki olduğu tespit edilmiş, düşük bilgi puanına karşılık yüksek tutum puanları elde edilmiştir. Aynı şekilde Kibert (2000) tarafından yapılan araştırmada da çevresel bilgi-çevresel tutum arasında pozitif yönde anlamlı zayıf bir ilişki tespit edilmiştir. Araştırma sonuçlarına paralel olarak Grob (1995) tarafından yapılan başka bir çalışmada ise çevresel tutum ile çevresel davranış arasında bir ilişki olduğu ifade edilmiştir. Kibert (2000) tarafından yapılan araştırmada çevresel tutum-çevresel davranış arasında orta düzeyde anlamlı bir ilişki olduğu ancak çevresel bilgi-çevresel davranış arasında bir ilişki bulunmadığı sonucuna varılmıştır. Farklı araştırmacılar tarafından yapılan çalışmaların sonucundaki farklılıkların o bölgenin kültürü, eğitim programı, öğrencilerin bireysel farklılıkları gibi sebeplerden kaynaklanabileceği düşünülmektedir.

Sonuç olarak bu araştırma ile ilköğretim fen bilgisi öğretmen adaylarının çevre okuryazarlık düzeyleri tespit edilmeye çalışılmıştır. Elde edilen sonuçlar neticesinde öğretmen adaylarının çevre okuryazarlık düzeylerinin orta düzeyde olduğu tespit edilmiştir. Çevre okuryazarlık bileşenleri arasındaki korelasyona bakıldığında çevresel bilgi-çevresel tutum, çevresel bilgi-çevresel davranış ve çevresel bilgi-çevresel algı puanları arasında anlamlı ilişki bulunmuştur. Bu sonuçlardan yola çıkarak öğretmen adayların çevresel bilgi düzeylerini arttırıcı yöndeki etkinliklerin öğretmen adaylarının çevresel tutum, davranış ve algı düzeyleri de artacağından öğretmen adaylarının çevre okuryazarlık düzeylerinin de artabileceği söylenebilir. Çevre okuryazarlık düzeylerinin yükselmesi ve gelecekte bu doğrultuda davranabilmede bu unsurlar önem taşımaktadır. Çevre okuryazarı bireylerin yetiştirilebilmesi için eğitim programları çevre eğitimi göz önüne alınarak hazırlanmalı ve etkili bir şekilde uygulanmalıdır. Öğretmenlerin çevre okuryazarlık düzeyleri tespit edilmeli ve eğitimlerle destek verilmelidir.

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FEN EDEBİYAT FAKÜLTESİ MATEMATİK BÖLÜMÜ ÖĞRENCİLERİNİN PROBLEM ÇÖZME BECERİLERİ İLE MATEMATİĞE KARŞI TUTUM PUANLARI ARASINDAKİ İLİŞKİNİN ÇEŞİTLİ DEĞİŞKENLER AÇISINDAN İNCELENMESİ

SEARCHING THE RELATIONS BETWEEN PROBLEM SOLVING ABILITY AND THE ATTITUDE POINTS TO MATHEMATICS OF ARTS AND SCIENCE FACULTY, DEPARTMENT OF MATHEMATICS STUDENTS IN TERMS OF VARIOUS VARIABLES

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ABSTRACT

The general aim of this study is to search the relations between problem solving ability points and the attitude points towards mathematics of Arts and Science Faculty, department of mathematics students, in terms of various variables. In the light of this study, it has been searched that wheather there is a relation between the points that the students of mathematics department take from solving problem inventory and the points that are taken from the attitude inventory to mathematics, in terms of variables as gender, class etc. The study has been designed according to scanning model. It has been executed at Mugla University, Arts and Science Faculty in 2009 -2010 education year. The group of study is consisted of N=82 students in Arts and Science Faculty. The 32 of this students are in first class and the remain of these are in fourth class. As the first data of this research, the scale of mathematics attitude has been used to determine the attitude of students towards mathematics. However as second data collecting tool, the problem solving inventory has been used to determine the points of students that are related to problem solving abilities. At the end of the study, it was observed that the points which are taken from problem solving inventory, increase as the attitude points towards mathematics increase.

Key Words: Attitudes towards Mathematics, Problem solving inventory.

ÖZET

Bu çalışmanın genel amacı; Fen Edebiyat Fakültesi Matematik Bölümü öğrencilerinin problem çözme becerileri ile matematiğe karşı tutum puanlarını çeşitli değişkenler açısından incelemektir. Bu genel amaç çerçevesinde matematik bölümü öğrencilerinin problem çözme envanterinden aldıkları puanlar ile matematiğe karşı tutum envanterinden aldıkları puanlar arasında cinsiyet, sınıf vb. gibi değişkenler açısından bir ilişki olup olmadığı irdelenmiştir. Araştırma tarama modeline göre tasarlanmıştır. Araştırma 2009-2010 eğitim öğretim yılında Muğla Üniversitesi Fen Edebiyat Fakültesinde yürütülmüştür. Çalışma grubu Fen Edebiyat Fakültesi 1.sınıf (n= 32) ve 4. Sınıf (n= 50) olmak üzere toplam N= 82 öğrenciden oluşmaktadır. Araştırmanın ilk verisi olarak matematiğe karşı tutumlarını belirlemek için matematik tutum ölçeği kullanılmıştır. İkinci veri toplama aracı olarak ise öğrencilerin problem çözme becerilerine ilişkin puanlarını belirlemek için problem çözme envanteri kullanılmıştır. Araştırma sonunda, öğrencilerin Matematiğe karşı tutum puanı arttıkça Problem çözme envanterinden aldıkları puanların da arttığı gözlenmiştir.

Anahtar kelimeler: Matematiğe karşı tutum, Problem çözme envanteri**.**

GİRİŞ

Her birey, yaşantısı boyunca çeşitli sorunlarla karşılaşır ve yaşantısını düzenleyebilmek için bu sorunları çözme eğilimindedir. (Kaptan, Aslan, Atmaca, 2002). Bununla beraber insanoğlunun en etkileyici ve diğer canlılardan ayırt edici özelliği olan düşünme de bu problemler ile başlar, problemin çözümü ise, birey için amaca dönüşür ve bu amaç bireyin düşünmesini yönlendirir. Böylece problemle ortaya çıkan düşünme, bir süreci oluşturur. İnsan beyninin, üretici yeteneğini kazanabilmesi için, pek çok şeye gereksinimi vardır; ancak beyin her şeyden önce değişik alanlara uygulanabilen yöntem gereksinimini duyar. Bilimsel yöntem olmadıkça, insan beyni tüm bilgilerle donatılsa da yalnızca depolar, üretemez. Bilimsel düşünmeye yönelik tutum ve beceriler bilimsel yöntem süreciyle kazandırılır. Bilimsel yöntem ise problem çözme süreciyle eş zamanlı olarak kullanılmaktadır (Kalaycı, 2001: 2-3, Akt: Özsoy, 2005). Problemin tanımı konusunda çeşitli kaynaklarda değişik tanımlara rastlanmakla birlikte, en genel anlamıyla bir problem; karmaşık ya da sonucu belirsiz bir sorudur. Araştırma, tartışma ya da bir düşünme meselesidir (Van De Walle, 1989:20, Akt:Özsoy, 2005). Problem çözme; genel olarak bilimsel bir konuda apaçık (net olarak) tasarlanan fakat hemen ulaşılamayan bir hedefe varmak için bilinçli olarak araştırma yapmaktır. Matematikte problem çözme ise, matematiğin yapısı gereği sorunun zihinsel süreçlerle (akıl yürütme) gerekli bilgileri kullanarak ve işlemleri yaparak ortadan kaldırılmasıdır (Altun, 1995: 3, Akt: Özsoy, 2005). Problem çözmede düşünmenin yanında duygunun, tutumun, adanmışlığın da çok önemli bir yeri vardır.

Günümüz eğitim sisteminde artık ‘öğretmek’ ten ziyade ‘öğrenmek’ önem kazanmaya başlamıştır. Peki, öğrenciler matematiksel problem çözmeyi nasıl öğrenmelidir? Bu soruya verilecek en güzel cevap, öğrencinin ne yapacağını bilmesi, yeni ilişkiler kurabilmesi, kendi öğrenme sürecinin farkında olması ve gerektiğinde bu süreçteki eksikliklerine çözüm yolları bulabilmesi olacaktır. Matematiksel problem çözmede böyle bir ‘öğrenme’ nin en kuvvetli destekçilerinden birisi ‘yürütücü biliş stratejileri’ nin, öğrenme-öğretme sürecine katılması olacaktır (Ektem, Sünbül, 2007). Yürütücü bilişin kelime anlamı, “biliş hakkındaki biliş”tir. Flavell’e göre, “bilişsel süreç hakkında ve bilişsel sürecin kontrolünde kullanılan bilgi” olarak tanımlanmıştır. Sonuç olarak, bilişsel süreçlerinin farkında olan öğrenicilere baktığımızda öğrenmede ve problem çözmede özgür irade veya otonomiye (özerkliğe) sahip olan insanlar olduğu gözlenmektedir. Bu öğreniciler karmaşık bilişsel aktiviteleri yaparken ne, nasıl, nerede, ne zaman ve neden öğreniyorum sorularına başvururlar (Gordon, 1996).

Bilim, bir alandaki varlıkları ve olayları inceleme, açıklama, onlara ilişkin genelleme ve ilkeler bulma; bu ilkeler yardımıyla gelecekteki olayları kestirme gayretleridir. Dolayısıyla Fen Bilimleri, doğayı ve doğal olayları sistemli bir şekilde inceleme, henüz gözlenmemiş olayları kestirme gayretleri olarak tanımlanabilir. (Kaptan, 1999). Ünal’a göre (1983), doğa bilimlerinin öğretilmesinde öğrencilerin sağlaması gerekli olan bazı gelişmeler şunlardır: Araştırıcı bir zihniyet, bağımsız düşünme yeteneği, bilimsel çalışmalara karşı ilgi, açık zihinlilik, temel gerçeklerin anlaşılması, çevrenin önemli etki kaynaklarına karşı duyarlılık, tabii olayların anlaşılması ve değerlendirilmesi, bilimsel problem çözmede beceri kazanılmasıdır (Kaptan, Aslan, Atmaca, 2002).

Matematik, toplumun büyük bir çoğunluğunda önemi ve faydası kabul edilen ve tüm bilimlere temel teşkil eden bir bilim olarak nitelendirilmektedir. Öğrenim görmemiş olsa bile, her insan saymayı bilir. Büyük-küçük, az-çok, uzun-kısa gibi mukayeseleri yapar. Benzer ve farklı nesneleri ayırır. Tamsayılarla toplama ve çıkarma işlemlerini yapabilir. Bunlar matematiğin temelidir. En az matematik bilen kişi, konuşma dilinden bildiği matematiği belleğinden silse, günlük yaşamında nasıl zorluklarla karşılaşacaktır (Karaçay, 2010). Ancak öğrencilerin birçoğu hata yapma korkusuyla matematik etkinliklerinden uzak durmakta ve başarısız olmaktadır. Matematik korkusu ve kaygısı üzerine yapılmış araştırmalar öğrencilerin matematikle ilgili yaşantıları arttıkça, matematiğe karşı olumsuz tutumlarında azalmalar gözlendiğini ortaya koymuştur. King’e (1997) göre, ’’Beşeri bilimciler konser salonlarından, resim galerilerinden ve güzel kitaplardan zevk alırlar; ancak matematik söz konusu olduğunda, Frankenstein görmüş insanlar gibi kaçışırlar. Bu durumun nedeni matematikteki estetik değerlerin, beşeri bilimcilerin kavrama yetilerinin dışında olması değil, doğru bakış açısının onlardan gizlenmiş olmasıdır’’ (Akt: Gürsul, 2008). Matematiğe yönelik farklı bakış açılarının oluşmasının birçok faktörleri olabilir. Bu faktörlerden bazıları bireysel yeteneğe dayandığı gibi bazıları ise çevresel faktörlere bağlı olabilmektedir. Çevresel faktörlerin çoğu eğitim ve öğretimle kazandırılan bilgi, beceri ve tutumlardır. Özellikle de eğitim ve öğretim yıllarının ilk dönemlerinde bireylere matematiğin nasıl öğretildiği ve o bireylerin matematiği nasıl algıladıkları çok önemlidir. Bu algılayış matematiğe karşı tutumları belirlemektedir.

Tutum, bilişsel ve duygusal öğeleri bulunan ve davranışsal bir eğilim içeren oldukça kalıcı bir sistemdir. Bir diğer ifadeyle tutum, öğrenmeyle kazanılan, bireyin davranışlarına yön veren, karar verme sürecinde yanlılığa neden olan bir olgudur (Ülgen, 1995). Tutum çok yönlü bir eğilimdir. İlk bakışta

sadece duygularla ilgili olduğu düşünülse de, bilişsel bir yönü de bulunmaktadır. Tutum bir davranış değil davranışlara, özellikle bireyin karar verme aşamasına önemli derecede etki eden bir eğilimdir. Tutum bir bireye atfedilen ve onun bir psikolojik obje ile ilgili düşünce, duygu ve davranışlarını düzenli biçimde oluşturan bir eğilimdir (Smith, 1968, Akt: Ayaz, 2009). Duyuşsal faktörlerden tutumların geliştirilmesi hem eğitim hem de öğretim sistemlerinin başarılı bir şekilde yürütülmesinde ve akademik başarı ve derslere karşı motivasyonu arttırmada çok önemli olduğu araştırma bulgularında görülmektedir. Gürsul (2008), Pesen ve Özgen (2008), Uslu (2006), Günhan (2006), Kaptan, Aslan ve Atmaca (2002), Özsoy (2005), Ayaz (2009), Durrani ve Tarig (2009), gibi araştırmacıların yapmış oldukları çalışma sonuçlarında, problem çözme yönteminin matematiğe yönelik tutumları olumlu yönde etkilediği ve deneysel çalışmalarda da gruplar arasında anlamlı bir farklılaşma yarattığını bulmuştur. Bu yapılan çalışmalar incelendiğinde, çoğunlukla hangi dersler olursa olsun problem çözme yönteminin öğrencilerin akademik başarılarını arttırdığı ve kullanılan derslere karşı öğrencilerin tutumlarını arttırdığı görülmektedir. Ancak yapılan çalışmalarda çoğunlukla problem çözme yöntemi daha çok geleneksel olarak adlandırılan düz anlatım yöntemi ile karşılaştırıldığı görülmektedir. Bu ise ayrı bir sorun olarak görülebilir. Bununla birlikte problem çözme yöntemi hiyerarşik bir sıralamayı, mantıksal ve matematiksel düşünme becerileri kullanmayı gerektirmektedir. Matematik dersinde problem çözme becerilerinin en üst düzeyde öğretilmesi öngörülür. Matematik eğitim ve öğretimi alan öğrencilerin, problem çözmede esas olan sıralama, düzen, tümevarım, tümdengelim, sezgi, kestirimde bulunma, soyutlama, transfer, yaratıcılık gibi becerilerini geliştirip uygulayabilmesi beklenir. Acaba matematik bölümü öğrencilerinin matematik bölümündeki derslerde problem çözme becerilerini kullanması onların matematiğe yönelik tutumlarını nasıl etkilemektedir?

Matematik bölümdeki 1. ve 4. sınıf matematik öğretim programları incelendiğinde; 1. sınıfta öğretilmesi beklenen Analiz I, Analiz II, Soyut Matematik, Lineer Cebir vs. gibi dersler hem düşünmenin temelini hem de daha sonraki derslerin alt yapısını oluşturur. 4. sınıfta ise 1. sınıf Analiz bilgisi gerektiren Fonksiyonel Analiz, Reel Analiz, Kompleks Analiz dersleri; Soyut Matematik bilgisi gerektiren Soyut Cebir, Sayılar Teorisi; Lineer Cebir bilgisi gerektiren Diferansiyel Geometri gibi dersler vardır. Matematik öğretim yöntemine bakıldığında; 1. sınıftan 4. sınıfa kadar verilen derslerde bilgi birbirinin üzerine koyularak öğretilir. 1. sınıf derslerine göre 4. sınıf dersleri daha ileri düzey matematik bilgisi gerektirmekte, daha soyut kavramlar içermektedir. 1. sınıf dersleri daha genel ve kapsamlı olarak konuları ele alırken, 4. sınıf dersleri matematiği dallara bölerek özelleştirilmiş konuları ele alır. Bu da 4 yıl boyunca yapılan matematik öğretiminin genelden özele, somuttan soyuta ve uygulamalı bilgiden teorik bilgiye doğru verildiğini gösterir.

Bu çalışmayı yapmamızın temel gerekçelerini şöyle sıralayabiliriz: Fen edebiyat fakültesi 1. ve 4. sınıf öğrencilerinin matematiğe yönelik tutumlarının değişip değişmediğini, öğrencilerin problem çözme envanterinden aldıkları puanların 1. ve 4. sınıf öğrencileri açısından farklılık gösterip göstermediğini, öğrencilerin 1. ve 4. sınıflar düzeyinde almış oldukları eğitim ve öğretimin onların problem çözme becerilerini bilimsel süreç içerisinde ulaşılabilecek en üst seviyeye ulaştırıp ulaştırmadığını ve buna paralel olarak öğrencinin matematiğe yönelik tutumunu olumlu hale getirip getiremediğini belirlemektir.

Bunlara dayalı olarak araştırmanın problem cümlesi: "üniversite öğrencilerinin problem çözme envanterinden aldıkları toplam puanlar ile matematiğe karşı tutum ölçeğinden aldıkları toplam puanlar arasında anlamlı bir ilişki var mıdır?'şeklinde ifade edilmiştir.

Bu çalışmanın genel amacı; Fen Edebiyat Fakültesi Matematik Bölümü öğrencilerinin problem çözme becerileri ile matematiğe karşı tutum puanlarını çeşitli değişkenler açısından incelemektir. Bu genel amaç çerçevesinde matematik bölümü öğrencilerinin problem çözme envanterinden aldıkları puanlar ile matematiğe karşı tutum envanterinden aldıkları puanlar arasında cinsiyet, sınıf vb. gibi değişkenler açısından bir ilişki olup olmadığını irdelemektir. Bu bağlamda aşağıdaki soruların cevapları aranmıştır:

1. Öğrencilerin problem çözme envanterinden aldıkları toplam puan ile matematiğe karşı tutum ölçeğinden aldıkları toplam puanlar arasında nasıl bir ilişki vardır?
2. Öğrencilerinin problem çözme envanterinden aldıkları puanlar, cinsiyet açısından anlamlı bir farklılaşma yaratmakta mıdır?
3. Öğrencilerinin problem çözme envanterinden aldıkları puanlar sınıflar açısından anlamlı bir farklılaşma yaratmakta mıdır?
4. Öğrencilerinin matematiğe karşı tutum envanterinden aldıklar puanlar, cinsiyet açısından anlamlı bir farklılaşma yaratmakta mıdır?
5. Öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanlar sınıflar açısından anlamlı bir farklılaşma yaratmakta mıdır?

METODOLOJİ

Yöntem

Araştırma tarama modeline göre tasarlanmıştır. Fen Edebiyat Fakültesi Matematik Bölümü öğrencilerinin problem çözme becerileri ile matematiğe karşı tutum puanlarını çeşitli değişkenler açısından incelemek üzere tasarlanan bir çalışmadır. Araştırma 2009- 2010 eğitim öğretim yılında Muğla Üniversitesi Fen Edebiyat Fakültesi Matematik Bölümü öğrencileri üzerinde yürütülmüştür.

Çalışma Grubu

Çalışma grubu Fen Edebiyat Fakültesi 1.sınıf kız= 25, erkek= 7 olmak üzere n= 32 ve 4. Sınıf kız= 24, erkek= 26 olmak üzere n= 50 öğrenciden oluşan toplamda N= 82 öğrenci çalışma grubunu oluşturmaktadır. Çalışma grubunu oluşturan 1. sınıf öğrencilerinin anne eğitim durumlarına göre dağılımları; %30, 4'ü ilköğretim, %7,6 'sı ortaöğretim, %2,5'i ise üniversite mezunu iken 4.sınıfların %43,0'ü ilköğretim, %10,1'i ortaöğretim, %6,3'ü ise üniversite mezunudur. 1. sınıf öğrencilerinin baba eğitim durumlarına göre dağılımları ise %28,0'i ilköğretim, %8,5'i ortaöğretim ve %2,4'ü ise üniversite mezunu iken 4. Sınıfları %35,4'ü ilköğretim, %18,3'ü ortaöğretim, %7,3'ü ise üniversite mezunudur.

Çalışma grubunu oluşturan 1. sınıf öğrencilerin ailelerinin aylık gelir durumlarına göre dağılımları; %29,3'ü asgari aylık gelir düzeyine sahip iken % 9,8'i ise asgari aylık gelirinin üstünde bir gelir düzeyine sahiptirler. 4. sınıfların ailelerinin aylık gelir durumlarına göre dağılımları ise %32, 9'ü asgari aylık gelir düzeyine , % 28,0'i ise asgari aylık gelir düzeyinin üstünde bir gelir düzeyine sahiptirler.

Veri Toplama

Öğrencilerin matematiğe karşı tutumlarını ölçmek için Duatepe, A. ve Çilesiz, Ş. (1999) tarafından hazırlanmış olan 38 maddelik bir ölçek kullanılmıştır. Ölçeğin geçerliliği için maddelerin bulundukları boyutlarla aralarındaki korelasyona bakılmış, birinci boyutta en küçük korelasyon değeri 0.55, ikinci boyut için 0.62, üçüncü boyut için 0.48, dördüncü boyut için ise 0.51 bulunmuştur. Ayrıca bu ölçeğin Cronbach alfa güvenirlik katsayısı 0.96'dır. 38 maddelik bu ölçeğin ilk boyutta yer alan 14 maddesi matematiğe karşı sevgi, ilgi ve zevk, ikinci boyuttaki 9 maddesi matematiğe karşı korku ve güven, üçüncü boyutta yer alan 7 maddesi ise matematiğin günlük ve mesleki hayattaki önemi ilgilidir. Son boyutta ise 8 madde yine ilgi, sevgi ve zevk ile ilgilidir. Öğrencilere uygulanan problem çözme envanteri, Heppner ve Peterson tarafından 1982 yılında geliştirilmiş olan, 1-6 arasında puanlanan ve 35 maddeden oluşan Likert tipi bir ölçektir. Maddelere verilebilecek tepkiler; "her zaman böyle davranırım", "çoğunlukla böyle davranırım", "sık sık böyle davranırım", "arada sırada böyle davranırım", "ender olarak böyle davranırım" ve "hiçbir zaman böyle davranmam" şeklinde sıralanmaktadır. Ölçekten alınan toplam puanların yüksekliği, bireyin problem çözme becerileri konusunda kendisini yetersiz olarak algıladığını; düşük puan ise, bireyin problem çözme becerileri konusunda kendisini yeterli olarak algıladığını göstermektedir. Ölçeğin güvenirlik çalışmasında ölçeğin tümü için elde edilen Cronbach α iç tutarlılık katsayısı 0,90, alt ölçekler için elde edilen katsayılar ise 0,72 ile 0,85 arasında değişmektedir.

Verilerin Analizi

Bu ölçek 32'si 1. sınıf ve 50'si 4. sınıf olmak üzere Muğla Üniversitesi Fen Edebiyat Fakültesi Matematik Bölümü öğrencilerine uygulanmıştır. Elde edilen bulgular SPSS Windows İstatistik Paket Programı'na yüklenmiştir. İstatistiksel işlemler olarak aritmetik ortalama, standart sapma ve t testi tekniği kullanılmış olup, anlamlılık düzeyi (p-puan) 0.05 olarak alınarak istatistiksel sonuçlara ulaşılmıştır. Bu analizler sayesinde bağımsız değişkenler ile bağımlı değişkenler arasındaki ilişkileri saptamak mümkün olmuştur. Bağımsız değişken ile (cinsiyet ve sınıf) bağımlı değişken (matematiğe karşı tutum ölçeği ve problem çözme envanterinden elde edilen puanlar) arasındaki ilişkilerin analizleri korelasyon, bağımsız gruplar t-testi analizlerine yapılmıştır.

Bulgular

Bu çalışmada araştırmanın amaçları doğrultusundaki sorulara ilişkin bulgulara yer verilmiştir.

Tablo 1. Öğrencilerin problem çözme envanterinden aldıkları toplam puan ile matematiğe karşı tutum ölçeğinden aldıkları toplam puanlar arasında nasıl bir ilişki vardır?

		Matematiğe karşı tutum puanı	Problem çözme puanı
Matematiğe karşı tutum puanı	Pearson Correlation	1	,031
	Sig. (2-tailed)		,786
Problem çözme puanı	Pearson Correlation	,031	1
	Sig. (2-tailed)	,786	
	N	82	82

** Correlation is significant at the 0.05 level (2-tailed)

Tablo 1'de görüldüğü gibi, öğrencilerin Matematiğe karşı tutum puanı ile Problem çözme envanterinden aldıkları puanları arasında anlamlı ve pozitif yönlü bir ilişki saptanmıştır. Diğer bir ifade ile öğrencilerin Matematiğe karşı tutum puanı arttıkça Problem çözme envanterinden aldıkları puanların da arttığı gözlenmiştir. Öğrencilerinin problem çözme envanterinden aldıkları puanlar, cinsiyet açısından anlamlı bir farklılaşma yaratıp yaratmadığını belirlemek için aşağıdaki tablo2'de t- testi analizi yapılmıştır.

Tablo 2. Öğrencilerinin problem çözme envanterinden aldıkları puanların cinsiyete göre t- test analiz sonuçları

Cinsiyet	N	Aritmetik Ort.	Std. Sapma	t	df	p
1	49	133,4898	12,60807	,404	80	,687
2,00	33	132,3030	13,68504			

Tablo 2'de görüldüğü gibi, öğrencilerinin problem çözme envanterinden aldıkları puanların, cinsiyet açısından anlamlı bir farklılaşma yaratıp yaratmadığını belirlemek için bağımsız gruplar t-test analizi yapılmıştır. T test analiz sonuçlarına göre cinsiyet açısından aralarında anlamlı bir farklılaşma saptanmamıştır (p=,687). Öğrencilerinin problem çözme envanterinden aldıkları puanlar sınıflar açısından anlamlı bir farklılaşma yaratıp yaratmadığı tablo 3'de t- testi analizi sonuçlarına göre bakılmıştır.

Tablo 3: Öğrencilerinin problem çözme envanterinden aldıkları puanların sınıflara göre t- test analiz sonuçları

Sınıf	N	Aritmetik Ort.	Std. Sapma	t	df	p
1,00	32	130,6875	11,45662	-1,303	80	,196
4,00	50	134,5000	13,77553			

Öğrencilerinin problem çözme envanterinden aldıkları puanların, sınıflar açısından anlamlı bir farklılaşma yaratıp yaratmadığını belirlemek için bağımsız gruplar t-test analizi yapılmıştır. T test analiz sonuçlarına göre sınıflar açısından aralarında anlamlı bir farklılaşma saptanmamıştır(p=,196). Öğrencilerinin matematiğe karşı tutum envanterinden aldıklar puanlar, cinsiyet açısından anlamlı bir farklılaşma yaratmadığı tablo 4'te t- testi analizi sonuçlarına göre bakılmıştır.

Tablo 4: Öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanların cinsiyete göre t-test analiz sonuçları

Cinsiyet	N	Aritmetik Ort.	Std. Sapma	t	df	p
1,00	49	104,9388	9,80733	-1,739	80	,086
2,00	33	108,5152	8,01218			

Öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanların, cinsiyet açısından anlamlı bir farklılaşma yaratıp yaratmadığını belirlemek için bağımsız gruplar t-test analizi yapılmıştır. T test analiz sonuçlarına göre cinsiyet açısından aralarında anlamlı bir farklılaşma saptanmamıştır (p=,086). Öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanlar sınıflar açısından anlamlı bir farklılaşma yaratmadığı tablo 5'de t- testi analizi sonuçlarına göre bakılmıştır.

Tablo 5: Öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanların sınıflara göre t-test analiz sonuçları

Sınıf	N	Aritmetik Ort.	Std. Sapma	t	df	p
1,00	32	104,5938	8,09165	-1,407	80	,163
4,00	50	107,5200	9,82134			

Öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanların, sınıflar açısından anlamlı bir farklılaşma yaratıp yaratmadığını belirlemek için bağımsız gruplar t-test analizi yapılmıştır. T test analiz sonuçlarına göre cinsiyet açısından aralarında anlamlı bir farklılaşma saptanmamıştır (p=,163).

TARTIŞMA VE SONUÇ

Matematik bölümü 1. ve 4. sınıf fen edebiyat fakültesi öğrencilerinin, matematiğe karşı tutum ölçeğinden aldıkları toplam puan ile problem çözme envanterinden aldıkları toplam puan arasında pozitif yönde anlamlı bir ilişki saptanmıştır. 1. ve 4. sınıf öğrencilerinin matematiğe yönelik tutum puanları arttıkça problem çözme envanterinden aldıkları puanlar da artmıştır. Öğrenciler matematiğe karşı olumlu tutum geliştirdikçe, problemleri çözme becerilerini de o derece geliştirebildiklerini söyleyebiliriz. Başka bir deyişle fen edebiyat fakültesi 1. ve 4. sınıf öğrencilerinin matematiğe yönelik tutumları arttıkça problem çözme envanterinden aldıkları puanlar da artmaktadır.

1.ve 4. sınıf öğrencilerinin problem çözme envanterinden aldıkları puanların, cinsiyet açısından anlamlı bir farklılaşma yaratmadığı saptanmıştır. Bu da öğrencilerin problemlere yönelik çözüm önerileri bulmada cinsiyet açısından bir değişiklik olmadığını göstermektedir. Başka bir ifadeyle sayısal düşünme yeteneğine sahip bireyler çözüme en kısa sürede ulaşmak isterler. Çünkü problem çözmenin aşamaları bellidir. Kurallar cinsiyete göre belirlenmemektedir.

1.ve 4. sınıf öğrencilerinin problem çözme envanterinden aldıkları puanların, sınıflar açısından anlamlı bir farklılaşma yaratmadığı saptanmıştır. Bunu ilginç bir sonuç olarak yorumlayabiliriz. Çünkü 1. sınıf öğrencileri 1. sınıftayken problem çözmede yetersiz olabilirler. Problem çözme becerilerini istenilen düzeylerde geliştirememiş olabilmeleri mümkündür. Ancak 4. sınıf öğrencilerinin almış oldukları matematik eğitim ve öğretim ile problem çözme becerilerini istenilen düzeylerde geliştirmiş olmaları beklenmektedir. Oysaki bu çalışmada ortaya çıkan sonuç 1. ve 4. sınıf öğrencilerinin problem çözme becerilerinde bir farklılaşmanın olmadığı göstermektedir. 1. sınıfta daha çok genel matematik konuları ağırlıktayken 4. sınıfta ise ileri matematik konuları daha fazla yer almaktadır. 4. sınıf ileri matematik daha fazla akıl yürütme, soyut zekâyı kullanabilme, üst düzey problem çözme becerilerini geliştirmeye yöneliktir. Böyle bir matematik eğitim ve öğretimini alan öğrencilerin problem çözmede 1. sınıftaki öğrencilere göre daha fazla yeterli olması gerekir.

1.ve 4. sınıf öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanların, cinsiyet açısından anlamlı bir farklılaşma yaratmadığı belirlenmiştir. Başka bir söylemle 1. ve 4. sınıf öğrencilerinin matematiğe yönelik tutum puanlarının aynı düzeyde olduğu belirlenmiştir. Kaptan, Aslan ve Atmaca (2002) yaptıkları çalışmada; edindikleri sonuçlar ile bizim edindiğimiz sonuçlar birbirine paralellik göstermektedir. Buna karşın Durrani ve Tarig (2009) cinsiyetin etkileri üzerine yaptıkları araştırmada, erkek öğrencilerin kızlardan daha az matematik kaygısı ve daha yüksek seviyelerde kendinden emin olma duygusu, haz ve sayısalda yeterliliği anlama kabiliyeti sergilediklerini ortaya koymuşlardır. Bu çalışmanın bulguları bizim çalışmanın bulguları ile paralellik göstermemektedir.

1. ve 4. sınıf öğrencilerinin matematiğe karşı tutum envanterinden aldıkları puanların, sınıflar açısından anlamlı bir farklılaşma yaratmadığı belirlenmiştir. 4. sınıf öğrencilerinin matematiğe yönelik tutumlarının 1. sınıftaki öğrencilerle aynı düzeylerde olmasını birçok faktöre bağlayabiliriz. Bu faktörleri; 4. sınıf öğrencilerinin zihinlerindeki matematiksel düşünme yeteneklerini zenginleştirememesi, bilgi düzeylerini arttıramaması ve çok yönlü düşünme becerilerini kazanmaması olarak söyleyebiliriz.

Matematiğe yönelik tutum geliştirmede birçok problem tabanlı öğrenme yaklaşımı geliştirilebilir. Gürsul'un (2006) yaptığı çalışmada çevrimiçi ve yüz yüze problem tabanlı öğrenme yaklaşımlarında eğitim alan öğrencilerin matematiğe yönelik tutumlarında 7 günlük kısa bir sürede istatistiksel olarak anlamlı olmasa da olumlu yönde bir gelişme olduğunu bulmuştur. Bu da öğrencinin problem çözme becerisine paralel olarak matematiğe yönelik olumlu tutumun geliştirilmesi için belirli bir sürenin gerektiğini gösterir.

Özgen, Pesen (2008), Ayaz (2009) ve Uslu'nun (2006) benzer çalışmalarında, probleme dayalı öğrenme yaklaşımının öğrencilerin matematik dersine yönelik tutumlarını arttırmada geleneksel öğretim yaklaşımlarından daha etkili olduğu sonucuna varılmıştır. Ayrıca bu araştırmalar ile elde edilen verilere bakılarak probleme dayalı öğrenmenin öğrencilerin matematik dersine ilişkin tutumlarını arttırmasının yanında, akademik başarılarını ve bilgileri kalıcılık düzeyini artırmada etkili olduğu söylenebilir. Deney grubu öğrencilerinin matematik dersine olan ilgi ve isteklerinin artışında öğrenmenin günlük hayattan seçilen problemler ve buna bağlı olarak hazırlanan etkinlikler ile gerçekleşmesinden kaynaklanmaktadır. Çünkü somut yaşantılar öğrencilere deneyim kazandırmakta ve derse yönelik olan ilgi ve motivasyon düzeylerinin gelişmesine katkıda bulunmaktadır. Bizim çalışmamıza bakıldığında da yine bu çalışma ile problem çözme envanteri ve matematiğe yönelik tutum arasında anlamlı bir ilişkinin olmasından dolayı paralellik gösterir. Elde edilen bu bulgular doğrultusunda öğrenciye matematiğe yönelik olumlu bir tutum kazandırmak için öğrenimde problem çözme becerisi öğrencinin ihtiyaçlarını karşılayacak doğrultuda kullandırılmalıdır. Bu durumda öğretimde uygun öğrenme ortamları yaratılmalı ve öğrenci merkezli, işbirlikçi ve gerçek hayatla ilişkili uygulama ve etkinliklere yer verilmelidir.

Günhan (2006) yapmış olduğu çalışmada ise matematiğin bir dalı olan geometri üzerinde probleme dayalı öğrenme yöntemini kullanarak öğrencilerin geometrik düşünme becerisi kazandırdığını ortaya koymuştur. Geometrik düşünme becerisi kazanan öğrenci geometrik şekillerin özelliklerini fark etme, açıklayabilme, analiz edebilme, şekillerin özelliklerinin önemini anlayabilme ve şekiller arası ilişkiler kurabilme becerilerini de beraberinde kazanacaktır. Öğrenciye bu becerileri kazandırabilirsek, öğrencinin problem çözme becerisini geliştirebilecek bu doğrultuda matematiğe karşı güven, sevgi, ilgi ve merak oluşmasını sağlayabileceğiz.

Özsoy (2005) ilkokul 5. sınıf öğrencileri üzerinde yaptığı araştırmada, matematik başarısı ile problem çözme becerisi arasında anlamlı ve pozitif yönde bir ilişki bulunduğunu ortaya koymuştur. Bu çalışmanın sonuçları ile bizim üniversite öğrencileri üzerinde yaptığımız çalışmanın sonuçları ile tutarlıdır. Buradan bir çıkarım yapacak olursak problem çözme becerisinin çok küçük yaşlarda öğrencilere kazandırılabileceği ve bu kazanım ile matematiğe yönelik olumlu tutumların geliştirilebileceğini söyleyebiliriz. 'Ağaç yaşken eğilir' atasözü bu bilimsel sonucun doğruluğunu çok net ortaya koymaktadır. Yukarıdaki çalışmaların sonuçları bizim çalışmanın sonuçları ile paralellik göstermektedir. Zira matematiğe yönelik tutum puanları arttıkça problem çözme puanları da artmaktadır. Ayrıca yapılan araştırmalar, matematiğe yönelik tutumları arttırıcı ve problem çözmeye dayalı kullanılan yöntemlerin öğrencilerin akademik başarılarını ve matematiğe yönelik tutumlarını arttırdığı yönündedir. Önemli olan öğrencilerin matematiğe tutumlarını arttırıcı, problem çözme becerilerini geliştirici öğretim yöntemlerini derslerin işlenişinde kullanmaktır.

Problem çözme yöntemi farklı derslerde kullanılmış bu derslere yönelik öğrencilerin tutumlarını olumlu yönde geliştirdiği görülmüştür. Eğer ilköğretimden başlayarak üniversite eğitim ve öğretiminde problem çözme yöntemi ile dersler işlenirse öğrenciler matematiğe karşı olumlu yönde tutum geliştirebilecek ve dolayısıyla akademik başarısında da bir artış gözlemlenecektir. Buna karşılık her yapılan çalışmanın matematiğe yönelik tutumları olumlu yönde geliştiremediği görülmektedir. Ancak önemli olan öğrencilerin matematiğe yönelik tutumlarına etki edebilecek faktörleri belirleyip bu faktörlere göre öğretim yöntemlerini saptamak olacaktır.

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FEN VE TEKNOLOJİ DERSLERİNDE KULLANILAN DRAMA TEKNİĞİ HAKKINDA ÖĞRETMEN VE ÖĞRENCİLERİN GÖRÜŞLERİNİN BELİRLENMESİ

IDENTIFYING THE TEACHERS AND STUDENTS' OPINIONS ON DRAMA TECHNIQUES USED IN SCIENCE AND TECHNOLOGY LECTURES

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Özet; Fen ve Teknoloji öğretim programında yer alan ve öğretmenler tarafından kullanılması önerilen öğretim tekniklerinden biri de dramadır. Fakat yapılan literatür taramasında tekniğinin öğretmenler tarafından bilinmediği dolayısıyla Fen ve Teknoloji derslerinde kullanılmadığı görülmektedir. Bu çalışmanın amacı drama tekniğinin Fen ve Teknoloji derslerinde kullanılması hakkında öğretmen ve öğrencilerin düşüncelerinin belirlemektir. Bu kapsamda 5. sınıf "Canlılar Dünyasını Gezelim Tanıyalım" ünitesinin işlenişi sırasında öğrenciler dört gruba ayrılmış, "hayvanları sınıflandıralım" ve "mikroskobik canlıların günlük hayatımızdaki etkileri" konuları iki ayrı drama etkinliği olarak gruplara verilmiştir. Grupların çalışmaları birer hafta ara ile dört saatlik derste sınıfça izlenmiş ve değerlendirilmiştir. Örneklemini bir öğretmen ve 9 beşinci sınıf öğrencisinin oluşturduğu çalışmanın verileri yarı yapılandırılmış mülakatlarla toplanmıştır. Çalışma sonucunda tekniğin kullanılmasının öğrencilere eğlenceli öğrenme imkânı sağladığı ve öğrenilenlerin daha uzun süre hafızada kalmasına yardımcı olduğunu belirlenirken öğretmenlerin müfredat yoğunluğu, alt yapıya sahip olmamak gibi nedenlerle Fen ve Teknoloji derslerinde bu tekniği kullanmadıkları belirlenmiştir.

Anahtar kelimeler; Fen ve Teknoloji dersi, drama tekniği, öğretmen ve öğrenci görüşleri, Fen eğitimi

Abstract; Drama is one of the techniques recommended to be used by those teachers who are involved in Science and Technology education programme; however, literature review conducted in the context of this study showed that the teachers haven't been aware of the technique and the technique hasn't been used in Science and Technology lectures. The aim of this study is to bring out how teachers and students approach to using drama technique in Science and Technology lectures. In this framework, in teaching the unit of "lets visit and meet the living creatures" for the 5th class, the students were divided into four groups and the topics of "lets categorize the animals" and "the impact of microscopic creatures on our daily life" were delivered to the groups as two different drama techniques. Studies of the groups were monitored and evaluated by the class during four hour classes at weekly regular intervals. The data of the study group of which the sample comprised 9 students from 5th class and a teacher was obtained with semi-structured interviews. At the end of this study, it has been concluded that while the technique enable student to learn in an enjoyable way and help them to keep the subjects in their minds for longer times; teachers haven't used the technique by the reason of lack of proper infrastructure and their heavy schedule.

Key words; Science and Technology lecture, drama technique, teachers and students' opinions, science education.

1. GİRİŞ

Ülkemizde 1980'lerden sonra hızla gelişen drama kavramı sözcük bakımından Yunanca "yapmak, etmek, eylemek" anlamlarına gelen "dran" kelimesinden türetilmiştir. Adıgüzel (2007) dramayı; herhangi bir konuyu, doğaçlama, rol oynama gibi tekniklerden yararlanarak, bir grupla ve grup üyelerinin birikimlerinden, yaşantılarından yola çıkarak canlandırmak" olarak tanımlamaktadır. Eğitimde dramanın asıl amacı bir kavramın, bir ders konusunun daha anlaşılır kılınması, bireyce ve grupça özümsenip içsel yaşantıya dönüşmesi, üzerinde düşünülerek dışa vurulmasıdır (Karamanoğlu, 1999). Dramanın bir teknik olarak sınıfta kullanıldığında, öğrencilere ders konularını etkili bir biçimde öğretilmesinin yanında Türk Millî Eğitim sisteminde, öğretim programlarının tümünde kazandırılması hedeflenen ortak becerilerden bazıları olan; eleştirel düşünme becerisi, yaratıcı düşünme becerisi, araştırma-sorgulama becerisi ve problem çözme becerisi gibi genel amaçlarının birçoğunu öğrencilere kazandırabileceği vurgulanmaktadır. (Koç ve Dikici, 2003). Okvuran'a (1993) göre drama; fazla duyu organına hitap etmesi, olayları ve durumları anlaşılır hale getirmesi, anadilinin daha iyi öğrenilmesine fırsatlar yaratması, soyut kavramları somutlaştırması açısından etkili bir öğrenme yoludur. Ayrıca dramaya katılanlar, gerçek dünyadaki bilgi ve deneyimlerini hayali bir dünya yaratmak için kullanmakta ve tasarladıkları durumları, rolleri tanımlarken olayları ve aralarındaki ilişkileri incelemeyi öğrenebilmektedirler (O' Neil ve Lambert, 1982). Fen ve Teknoloji öğretim programında yer alan ve öğretmenler tarafından kullanılması önerilen öğrenci merkezli öğretim tekniklerinden biri olan dramanın eğlenceli öğrenme ortamları yarattığı, öğrencilerin motivasyonunu ve başarısını artırdığı, kavram yanılgılarının giderilmesine yardımcı olduğu, soyut fen kavramlarını somutlaştırarak öğretimi kolaylaştırdığı bildirilmektedir (Erhan, 2000; Başkan, 2006). Ancak yapılan literatür araştırmasında drama tekniğinin öğretmenler tarafından bilinmediği, konu hakkında kendilerini eksik hissettikleri (Şenel, 2008), fen derslerinde bu tekniği kullanmadıkları dolayısıyla avantajları hakkında bilgi sahibi olmadıkları görülmektedir (Demir, 2004; Mutlu, 2008). Bu nokta drama tekniğinin fen ve teknoloji derslerinde kullananımı ile ilgili çalışmalarının önemini artırmaktadır.

Fen ve Teknoloji öğretim programının temelini oluşturan yapılandırmacı yaklaşımda önemli bir nokta öğrenmenin sosyal ortamlar içerisinde gerçekleştiği kabulüdür (Hein, 1991; Yager, 1991). Bu paralelde hazırlanan yapısalcı kitaplarda grup çalışması ve işbirlikli çalışma ortamları yaratılması gerektiği bildirilmektedir (Poyraz, 2006; Bozkurt vd., 2008). Fakat Fen ve Teknoloji ders kitapları incelendiğinde öğrencilere zengin sosyal öğrenme ortamları sunan dramaya yeterince yer verilmediği dikkat çekmektedir (Küçüközer vd., 2008). Öte yandan günümüz eğitim sisteminde önemli olan bir nokta da öğrencilerdeki bireysel farklılıklardır. Hazırlanan 2004 Fen ve Teknoloji Öğretim Programın vizyonu incelendiğinde bireysel farklılıkları ne olursa olsun bütün öğrencilerin Fen ve Teknoloji okuryazarı olarak yetişmesi hususuna özel önem verildiği görülmektedir (MEB, 2005). Çoklu zekâda bahsedilen zekâ türlerine bakıldığında ise yalnızca bilişsel düzeyde bilgileri amaçlayan değil, kişisel ve kişiler arası yaşantıları da amaçlayan öğretim tekniklerinin önemsendiği görülmektedir (Önder, 2004; Başkan, 2006). Switzer (2004)'e göre drama aktiviteleri de bu teknikler arasında yer almaktadır. Fakat, geliştirilen Fen ve Teknoloji ders kitaplarında yer alan etkinliklerin bu açıdan da fazla esnekliğe sahip olmadığı bildirilmektedir (Küçüközer vd., 2008). Bu durumun ise fen eğitiminin amaçlarına ulaşılması noktasında önemli bir sorun teşkil ettiği düşünülmektedir.

Fen ve Teknoloji dersi öğretim programının yapısalcı öğrenmeyi temel alması nedeniyle kavram öğretimini de ön plana çıkardığı bilinmektedir (MEB, 2005). Fakat yapılan araştırmalarda Fen ve Teknoloji dersinin bileşenlerinden biri olan biyoloji konuları ile ilgili olarak, öğrencilerin pek çok kavram yanılgısına sahip oldukları bildirilmektedir (Sungur vd., 2000; Türkmen vd., 2003). Biyolojinin temel konularından olan ve bireyin kendisi ve çevresiyle çok yakından ilişkilisi bulunan Canlıların Çeşitliliği ve Sınıflandırılması konusu öğrencilerin anlamakta zorlandığı ve ezberlemeyi tercih ettiği konulardandır (Aytaç, 2004; Çardak, 2002). Konu içerisinde geçen kavramların öğrencilerin bilimsel sınıflandırma ile karşılaştıkları ilk kavramlar olduğu belirtilmekte, konuyu bilimsel temellere dayandırarak tam öğrenen öğrencilerin, konunun diğer biyolojik kavramlarla olan ilişkisini kavrayarak anlamlı bir öğrenme gerçekleştirecekleri bildirilmektedir (Türkmen vd., 2003). Ayrıca Fen ve Teknoloji öğretim programının sarmal bir yapıda olması (MEB, 2005) ve konunun diğer biyoloji ve ekoloji konularını yakından ilgilendirdiği düşünüldüğünde (Çardak, 2002; Türkmen vd., 2005), Canlıların Sınıflandırılması konusunda geçen kavramların doğru ve eksiksiz öğrenilmesinin önemi ön plana çıkmaktadır.

Fen ve Teknoloji derslerinde drama tekniğinin kullanımı ile ilgili yapılan çalışmalar incelendiğinde ise çoğunun bu tekniğin kullanımının öğrencilerin ders başarıları üzerine olan etkisi üzerine odaklanan nicel çalışmalar olduğu konu ile ilgili nitel çalışmaların ise daha sınırlı kaldığı dikkat çekmektedir. Bu nokta drama tekniğinin Fen ve Teknoloji derslerinde kullanılması ile ilgili öğretmen ve öğrenci düşüncelerini önemli hale getirmektedir. Bu çalışmanın amacı Fen ve Teknoloji dersinde kullanılan drama tekniği hakkında öğretmen ve öğrencilerin düşüncelerinin belirlenmesidir.

2. YÖNTEM

Bu çalışmada özel durum yöntemi kullanılmıştır. Bu yöntem araştırılan problemin bir yönünün derinlemesine ve kısa sürede çalışılmasına imkân sağlamaktadır. Yöntemin en önemli avantajı ise bir problemin özel bir durumu üzerine yoğunlaşma fırsatı vermesidir (Wellington, 2000). Bu çalışma kapsamında "Canlılar Dünyasını Gezelim Tanıyalım" ünitesinin işlenişi sırasında öğrenciler dört ayrı gruba ayrılmış, ünitenin birinci başlığı olan Canlıları Sınıflandıralım'da yer alan "hayvanları sınıflandıralım" ve "mikroskobik canlıların günlük hayatımızdaki etkileri" konuları iki ayrı drama performans etkinliği olarak gruplara verilmiştir. Grupların yaptıkları çalışmalar birer hafta ara ile dört saatlik derste sınıfça izlenmiş ve araştırmacı tarafından hazırlanan bir rubrikle araştırmacı ve öğretmen ayrı ayrı değerlendirilmiştir.

2.1. Örneklem

Bu araştırmanın örneklemini 9 beşinci sınıf öğrencisi ve bir sınıf öğretmeni oluşturmaktadır. Çalışmada mülakata katılan öğrenciler araştırma etiği çerçevesinde Ö1, Ö2, Ö3,……., Ö9 kodları ile kodlanmıştır. Mülakat yapılacak öğrenciler sınıf öğretmeni tarafından dersteki başarı durumları dikkate alınarak (3 iyi, 3orta, 3 kötü) belirlenmiştir.

2.2. Verilerin Toplanması ve Analizi

Çalışmada veri toplama aracı olarak yarı yapılandırılmış mülakatlardan yararlanılmıştır. Bu kapsamda dokuz öğrenci ve bir sınıf öğretmeni ile yarı yapılandırılmış mülakatlar yürütülmüştür. Her bir öğrenci ve sınıf öğretmeni ile yapılan mülakat yaklaşık 20 dakika sürmüştür. Mülakatlar katılımcıların onayları alınarak ses kayıt cihazı ile kayıt edilmiştir. Görüşmelerden sonra kaydedilen veriler metne dönüştürülmüştür. Mülakatlardan elde edilen veriler betimsel ve içerik analizine tabi tutulmuştur. Betimsel analizde mülakat verilerinden öğrencilerin görüşleri anlamlılık ve önemlilik düzeyi dikkate alınarak analiz edilmiş ve gerekli yerlerde bazı ifadeler tırnak işareti içinde aynen verilerek düzenlenmiştir. İçerik analizi, belirli kurallara dayalı kodlamalarla, bir metnin daha küçük içerik kategorileri ile özetlendiği sistematik bir tekniktir (Büyüköztürk, vd, 2008). İçerik analizinde ise elde verilerden matris oluşturulmuştur.

3. BULGULAR

Çalışma kapsamında drama tekniğinin Fen ve Teknoloji derslerinde kullanımı ile ilgili yapılan yarı yapılandırılmış mülakatlara öğretmen ve öğrencilerin verdikleri cevaplar analiz edilmiştir. Çalışmada sınıf öğretmeninin sorulara verdiği cevaplar anlamlılık ve önemlilik düzeyi dikkate alınarak analiz edilmiş bazı ifadeler değiştirilmeden direkt olarak okuyucuya sunulmuştur. Sınıf öğretmeni ile yapılan yarı yapılandırılmış mülakata ait bulgular aşağıda sunulmuştur.

A: Siz bu ünite kapsamında kullanılan drama etkinliklerini nasıl buldunuz.

Ö: *Oyun ve drama etkinlikleri çok güzeldi. Öğrencilerin yanı sıra ben de bu etkinliklerden çok keyif aldım. Öğrenciler drama çalışmalarından da çok keyif aldılar. Başta öğrencilerin drama etkinliklerine katılmaları konusunda biraz endişeliydim, ama hazırladıkları dramalar öğrencilerimin bu konuda ne kadar yetenekli olduklarını bana gösterdi. Öğrencilerin birbirlerinden hiç çekinmemesi ve gösterilerini sunmak için duydukları istek açıkçası beni çok etkiledi. Derste aktif olmayanların bu etkinliklerde oldukça aktif olduğunu gördüm. Sizde fark ettiniz rollerini çok iyi yaptılar. Bu süreç içerisinde öğrenciler keyif alarak eğlenerek öğreniyorlar. Bu etkinlikler öğrenciler için çok yararlı.*

A: Neden yararlı?

Ö:Bu öğrenciler yaşları itibari ile aslında oyun çocuğu, yerlerinde duramıyorlar, enerjileri çok fazla. Oyun ve drama gibi aktiviteler bu sebeple, bu yaş çocuğu için bence çok yararlı ve tüm çocuklarında çok ilgisini çekiyor, enerjilerinin yararlı kullanılmasını sağlıyor, öğrenmelerini kolaylaştırıyor. Uygulama kullanılan drama etkinlikleri öğrenmeye eğlenceli bir boyut kattı. Öğrenilenler bu sayede daha kalıcı olabilir. Şu da önemli ki bu etkinlikler bazı öğrencilerin kendilerini ifade etmelerine de fırsatlar yarattı. Diğer fen derslerinde sessiz olan öğrenciler bile bu derste çok daha aktif oldu.

A: Başka ne yararları olabilir sizce

Ö: *Bu etkinlikler öğrenmenin farklı yollarını da öğrenciye sunuyor. Hem dikkatlerini derse çekebiliyorsun hem de bunu uzun süre devam etirebiliyorsun. Çalışmaları çok dikkatli dinlediklerini fark ettim. Bunlarda öğrenmenin başka yolları, bu arada bilmeyenlerde öğreniyor. Ayrıca bu etkinlikler konuların öğrencilerin kafalarına daha iyi yerleşmesini sağladığı gibi hatırlamayı da kolaylaştırıyor. Ayrıca öğrenciler drama çalışmalarını hazırlarken hem tasarlarken hem canlandırırken hem de izlerden öğreniyor. Bu durum ise hatırlamayı artırıyor.*

A: Siz daha önceden derslerinizde drama tekniğini kullanıyor muydunuz?

Ö:*Fen ve teknoloji derslerinde hiç kullanmadım. Geçen sene başka bir derste kullanmıştım.*

A: Ama yeni Fen ve Teknoloji öğretim programı bu tarz etkinlikleri de içeriyor.

Ö: *Öyle ama açıkçası öğretmenlerin çoğunun yeni programda kullanılacak teknikler hakkında ne bilgisi ne de zamanı var. Ünitelerin yetişmesi ve sınavlar ile ilgili kaygılarımız yüzünden bizler istesek de bu tarz aktiviteleri derslerde kullanamıyoruz. Keşke uygulayabilsek. Çocuklara konuyu en hızlı şekilde*

vermeye çalışıyoruz. Öğrenen öğrenci öğreniyor. Çünkü bizler öğrencilerimizin sınavlarda aldıkları puanlarla değerlendiriliyoruz. Buda konuyu hızlı verip daha çok soru çözmemizi gerektiriyor.

Yukarıda Fen ve Teknoloji derslerinde drama tekniğinin kullanılması ile ilgili sınıf öğretmeni ile yapılan mülakat bulguları incelendiğinde öğretmenin tekniğin bu dönem öğrencilerinin fazla enerjilerini olumlu anlamda kullanabilme adına çok yararlı olduğunu belirttiği kendisinin bu etkinliklerden çok keyif aldığı görülmektedir. Öğretmen bu etkinliklerin öğrencilerin öğrenmenin farklı yollarını öğrencilere sunarak öğrencilerin öğrenmelerini kolaylaştırdığını ve konunun öğrencinin kafasına daha iyi yerleşmesine imkân yarattığı bu durumların ise hatırlamayı artırdığını belirtmektedir. Ayrıca drama etkinliklerine derste aktif olamayan öğrencilerin bile çok istekli olarak katılmasının, öğrencilerin bu etkinliklerde gösterdikleri yaratıcılığın ve performansın öğretmeni etkilediği mülakat bulgularından görülmektedir. Bunun yanı sıra öğretmen ne kendisinin nede diğer arkadaşlarının istese de Fen ve Teknoloji dersinde bu tekniği kullanamadığını bildirerek buna neden olarak; yeterli alt yapıya sahip olamama, müfredatın yoğunluğu ve sınav başarıları ile değerlendirme gibi nedenleri öne sürmüştür.

Mülakatlarda yer alan dokuz öğrenci ile sürdürülen mülakatlarda ise öğrencilerin sorularına verdikleri cevaplar içerik ve betimsel analizine tabi tutulmuştur. İçerik analizinden elde edilen verilerden matris oluşturulmuştur. Betimsel analizde mülakat verilerinden öğrencilerin görüşleri anlamlılık ve önemlilik düzeyi dikkate alınarak analiz edilmiş ve gerekli yerlerde bazı ifadeler tırnak işareti içinde aynen verilerek düzenlenmiştir. Aşağıda öğrencilerle mülakatlardan elde edilen bulgulara yer verilmiştir.

Öğrencilerin Fen ve Teknoloji dersinde drama tekniğinin kullanılması ile ilgili sorulara verdikleri cevaplar; *dersi eğlenceli kılmak, eğlenirken öğrenmek, öğrenmeyi kolaylaştırmak, farklı öğrenme yolları sunması, akılda kalıcılığı artırmak* kodları kullanılarak Tablo 1'deki matris oluşturulmuştur.

Tablo 1. Fen ve Teknoloji derslerinde drama tekniğini kullanımının öğrencilere sağladığı katkılar hakkındaki öğretmen görüşleri

Ö.K	**Dersi eğlenceli kılmak**	**Eğlenirken öğrenmek**	**Öğrenmeyi kolaylaştırmak**	**Farklı öğrenme yolları sunması**	**Kalıcılığı artırmak**
Ö1	Güzeldiler, eğlendirici ve öğretici bir ders oldu	dramalar sayesinde hem eğlendik hem de öğrendik	Dersi daha iyi anlamana yardımcı olmak için hazırlanmıştı	G.B.	Öğrendiklerin akılda kalıcı oluyor.
Ö2	Çok zevkli idi	Bu sayede hem eğlendik hem öğrendik	Dramalar boş oyunlar değildi, öğrenmeyi kolaylaştırdı	G.B.	Öğrendiklerini unutmuyorsun
Ö3	Bu derste oyunlar çok hoşuma gitti eğlendim	Bu ünitede hem eğlendim hem öğrendim	G.B.	G.B.	G.B.
Ö4	güzeldi çok eğlendim dersleri böyle işlemek zevkli.	Yaptığımız dramalar sayesinde hem eğlendim hem de öğrendim.	G.B.	Dramalar hem hazırlarken hem de oynarken öğrenmemizi sağladı.	Aklımızda daha güzel kaldılar
Ö5	Dramaları çok beğendim	Dramalarla eğlenirken öğrendim	G.B.	G.B.	Drama ile öğrendiklerim aklımdan çıkmaz
Ö6	Yaptığımız dramalar çok güzel ve eğlenceliydi.	Bu üniteyi eğlenerek öğrendik.	Dramalar tekrar yapmayı sağlıyor böylece daha kolay öğreniyorsun	G.B.	G.B.
Ö7	Bu ünitede dramalar sayesinde ben çok eğlendim.	Bu derste oyun oynayarak eğlenebiliyorsun hem de	G.B.	Dramalarla başkasının hazırladığı gösteriyi	Bence konunun akılda kalmasını kolaylaştırıyor.

		öğreniyorsun		izlerken de öğreniyorsun.	
Ö8	Onlar harika idi. Çok hoşuma gittiler	Bu çalışmalar eğitici hem de ders konusu ile ilgili idi.	Dersi daha iyi anlamana yardımcı oluyor. Konuyu pekiştiriyorsun.	G.B.	Böyle çalışmalar ile konu daha çok aklında kalıyor.
Ö9	Dramalar çok güzeldi. Dersi eğlenceli yaptı.	Dramalarla hem eğlendik hem öğrendik	Dramalar dersi anlamayı kolaylaştırıyor	G.B.	G.B.

Ö.K: Öğrenci Kodları G.B: Görüş Bildirmedi

Mülakat verilerinin daha etkili sunulması amacıyla mülakat yapılan bazı öğrencilerin görüşleri anlamlılık ve önemlilik düzeyi dikkate alınarak analiz edilmiş ve araştırmacı ve öğrenci arasında geçen mülakat verileri olduğu gibi aşağıda okuyucunun dikkatine sunulmuştur.

A*: *Canlıları Sınıflandıralım konuları kapsamında yer alan dramaları nasıl buldun, Sence öğretici oldular mı? Niçin?

Ö1: *Güzeldiler, hoşuma gittiler. Oyunlar ve dramalar çok öğreticiydi. Dersi daha iyi anlamana yardımcı olmak için hazırlanmıştı. Bunlar sayesinde eğlenirken öğrendik konuyu. Öğrendiklerinde akılda kalıcı oluyor. Eğlendirici ve öğretici bir ders oldu benim için. Ben diğer fen derslerini bu kadar kolay anlamazdım. Ama bu fen dersi çok farklı oldu. Keşke dersleri hem böyle işlese*

Ö4: *Çok güzeldi çok eğlendim bu arada öğrendim de. Oyunlarla ders işlemek çok zevkli, dramalar çok güzeldi. Drama oynayacağımız metni hazırlarken biraz zorlandık herkesin düşünceleri farklı idi. Sonra kararlaştırdık Çalışmamız çok güzel oldu. Öğretmende çok beğendi.*

A: Ne yararı oldu sana bu etkinliklerin?

Ö4: *Bence yararı çok. Mesela dramaları hem hazırlarken hem de oynarken öğrendiğimiz konuları tekrar ettik. Böylece aklımızda daha güzel kaldılar. Dramalarda başkasının hazırladığı gösteriyi izlerken de öğreniyorsun. Sadece kendi yaptığınla değil mesela mantarların insanlara faydaları veya zararları denilinde ben hemen derste oynadığımız gösterileri hatırlayarak cevaplar verebilirim yani daha akılda kalıyor ama derste söyleyip geçiyoruz ve hiç hatırlamıyoruz sonra.*

Ö7: *Ben dersteki oyunları ve dramaları çok sevdim ve eğlendim. Bence konunun akılda kalmasını da kolaylaştırıyor. Fen derslerinden bazen sıkılıyorsun ama bu derste oyun oynayarak eğlenebiliyorsun ve hem de öğreniyorsun. Keşke yine böyle dersler yapsak.*

Yukarıda öğrencilerle yer alan mülakat bulgularında görüldüğü üzere tüm öğrenciler uygulamayı çok beğendiklerini belirterek bu tür etkinliklerin dersi sıkıcılıktan kurtardığı, eğlenirken öğrenme imkânı yarattığı, anlamayı kolaylaştırdığını, hem hazırlarken hem canlandırırken hem de izlerken öğrenme imkânı sunduğunu belirterek hatırlamayı kolaylaştırdığını ve akılda kalıcılığı artırdığını vurgulamışlardır. Ayrıca drama etkinliklerine Fen ve Teknoloji derslerinde daha çok yer verilmesi de öğrencilerin görüşleri arasındadır.

4. TARTIŞMA VE SONUÇ

Çalışmada öğretmen ile yapılan mülakattan elde edilen bulgular irdelendiğinde drama tekniğinin bu dönem öğrencisi için uygun olan tekniklerden biri olduğu görüşü dikkat çekmektedir. Literatürde özellikle ilköğretim birinci basamak çağındaki öğrencilerin oldukça enerjik oldukları yerlerinde duramadığı ve dikkatleri çabuk dağıldığı belirtilmekte, bu öğrencilerin hareket etmek, beş duyusu ve tüm bedeni ile algılamak, dinlemekten çok, aktif olarak sürece katılmak istediği bildirilmektedir (Kuyumcu, 2007). Ayrıca ilköğretim ilk kademesini oluşturan ve Piaget'e göre somut işlemler dönemi olarak adlandırılan 7–11 yaş dönemi, Freud'a göre çocukların kendilerini oyuna verdikleri bir evredir (Senemoğlu, 2004; Sevinç, 2004). İlgili literatürde, bu dönem öğrencileri için etkili ve kalıcı bir fen öğretimi noktasında öğretimin avantajlarından mutlaka yararlanılması gerektiği bildirilmektedir. Dolayısıyla çalışmanın bu sonucunun ilgili literatürle paralellik gösterdiği söylenebilir.

Çalışma kapsamında Fen ve Teknoloji dersinde drama tekniğinin kullanılmasının öğrencilere eğlenceli öğrenme imkânı sağladığı Tablo 1'de yer alan öğrencilere ait açıklamalarından ve öğretmenin konu ile ilgili görüşlerinden anlaşılmaktadır. Ayrıca benzer uygulamaların fen derslerinde sürekli yapılması da öğrencilerin görüşleri arasındadır. Yapılan benzer çalışmalarda öğrenciler, fen dersi konularını, okuyarak, test çözerek, formül ezberleyerek, derslerde yapılanları tekrar ederek değil, uygulamalı olarak

deneylerle ve oyunlarla öğrenmek istediklerini belirtmişlerdir (Sağırlı ve Gürdal, 2002; Başkan, 2006). Drama etkinlikleri ile öğrencilerin sıkılmadan, eğlenerek ve keyif alarak öğrendikleri bu durumun ise öğrencilerin derse karşı olumlu tutumlar geliştirmelerine yardımcı olabileceği düşünülmektedir. Öğrencilerin derse karşı sahip oldukları tutumların ise yapısalcı yaklaşımda oldukça önemli bir rolü olduğu bilinmektedir (Demirci, 2001). Fen eğitimde dramanın kullanılması ile fen kavramlarının, oyunlaştırılıp, öğrenmenin kolay, zevkli ve eğlenceli hale getirileceği, öğrencilerin derse karşı olan tutumlarını geliştireceği bu durumun ise dersteki başarıyı pozitif yönde geliştireceği bildirilmektedir (Ünüvar, 2007; Arieli, 2007).

Çalışmada kullanılan drama etkinliklerinin öğrencilere öğrenmenin farklı yolarını sunduğu da öğretmen ve öğrenci görüşleri arasında yer almaktadır. Drama tekniğinin öğrencilere farklı öğrenme yolları sunduğu, öğrencilerin bütün duyu organlarını kullanmasına fırsat verdiği için somut yaşantılar elde edebileceği, bilginin yapılandırılmasının kolaylaşacağı, dolayısıyla öğrenilenlerin daha kalıcı olacağı bildirilmektedir (Young ve Kellogg, 1993; Küçüközer vd., 2008). Dolayısıyla çalışmanın sonuçlarının ilgili literatürle örtüştüğü söylenebilir.

Çalışmadan elde edilen dikkat çekici bulgulardan biri de öğretmenlerin drama tekniğinin de içerisinde bulunduğu yapısalcı yöntem ve teknikler hakkında öğretmenlerin yeterince alt yapıya sahip olmamasıdır. Yapısalcı yaklaşım temelinde geliştirilen Fen ve Teknoloji öğretim programının etkili bir şekilde uygulanabilmesi için alt yapı ve materyal eksikliklerinin olmaması, düzenli ve devam eden bir hizmet içi programlarının düzenleniyor olması gerektiği bildirilmektedir (Gömleksiz ve Bulut, 2007). Bu durum çalışmanın yapıldığı sene itibari ile aradan 3 sene geçmesine rağmen öğretmenlerin yapısalcı yaklaşımda kullanılan teknik ve yöntemleri yeterince benimseyemediği sonucunu ortaya çıkarmaktadır.

5. ÖNERİLER

Yapısalcı yaklaşım esas alınarak hazırlanan Fen ve Teknoloji öğretim programı çerçevesinde öğretmenler tarafından kullanılması önerilen tekniklerden biri de dramadır. Bu tekniğin Fen ve Teknoloji derslerinde kullanılması ile ilgili olarak öğretmen ve öğrenciler olumlu görüşlere sahip olsalar bile tekniğin fen eğitiminde yeterince yer edinemediği bilinmektedir. Bu noktadan hareketle öğretmenlere Fen ve Teknoloji derslerinde tekniğin nasıl kullanılacağına yönelik sadece teorik değil uygulamalı drama hizmet içi eğitimi verilmesinin öğretmenlerdeki konu ile ilgili eksiklikleri giderebileceği düşünülmektedir. Ayrıca Fen ve Teknoloji ders kitaplarına bu tekniğin kullanımı ile ilgili örnek etkinlikler yerleştirilmelidir. Bunların yanı sıra öğrencinin merkezde olduğu ve yaparak yaşayarak öğrenme imkânının sağlanmasının esas alındığı yeni programda müfredatın hafifletilmesinin derslerde bu tarz etkinliklere daha fazla yer verilmesine imkân yaratacağı düşünülmektedir.

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GENEL EĞİTİM ÖĞRENCİLERİNİN ÖZEL EĞİTİM ÖĞRENCİLERİ İLE ETKİLEŞİMLERİ SONUCUNDA ALGILADIKLARI DEĞİŞİKLİKLER VE KAZANIMLAR

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Abstract

Having extracurricular activities together for peers with and without autism can be very beneficial social and learning experience. In this presentation, extracurricular activities of the peers with and without autism will be covered. Students with and without autism paired and came together regularly for special extracurricular activities (music and art activities) according to their interests and abilities. Compared with the beginning, they identified themselves and the peers with autism positively. Importance of these types of activities for special friendship of the peers with and without autism will be explained and be presented from the view point of general school students with the help of visual (video and pictures) materials. These kinds of activities are also very valuable for general and special education schools' programs for social integration. Therefore, they should be part of both kinds of school curriculum, similar to IB (International Baccalaureate) school programs, which will have great contribution for both type of education and social integration of the people with special need.

Keywords: Autism, peer mediated support groups, social integration, and leisure-recreational activities

GİRİŞ

Yetersizliği olan ve olmayan gençlerin, çocukların bir araya gelmesi iki ayrı grup açısından da son derece önemli ve faydalı bir deneyim olmaktadır. Özel eğitimi ihtiyacı olanlar için yaşıtları ile bir arada olmak, istendik ve yasal zorunluluk olsa da özellikle kaynaştırma ortamı dışında, özel-ayrı özel eğitim kurumlarına devam edenlerin; yaşıtlarıyla bir araya gelip spor, sanat gibi serbest zaman etkinliklerine katılma şansları daha az olmaktadır (Kleinert ve ark., 2007; Leyser ve Cole, 2004; Salend 1999). Oysaki iki grubun bir arada olabilecekleri, eğlenerek öğrenebilecekleri, farklı deneyimler yaşayabileceği bu tür etkinliklerin iki grup açısından da farklı faydaları ve kazanımları olabilmektedir. Bu iki ayrı grup hem bu birlikteliğin kendisinden, hem de etkinliklerden faydalanmış olurlar.

Yetersizliği olanlar arasında da özellikle otizmi olanların sosyal ilişkilerinde, iletişimlerinde sahip oldukları problemlerden (APA 2000; NAC 2009) ötürü özellikle akran aracılı etkinliklerden ve ilişkilerden yararlandıkları bilinmektedir (NAC, 2009; Rogers 2000 ve Zascavage ve ark., 2008).

İki grup her ne kadar başta ayrı algılansa, sınıflandırılsa da birlikte keyifli vakit geçirebileceklerini, ortak ilgilere, sahip olabileceklerini ve birlikte öğrenebileceklerini etkileşim süresince öğrenirler. Bu ilişkilerden ve etkileşimden her iki grup da farklı kazanımlar edinebilirler. Yetersizliği olan ve olmayan grupların farklı etkinliklerle bir araya geldikleri yurtdışında (Peer-Buddy Project, Circle of Friends ve Best Buddies (Huges, 1999; Whitaker ve ark.,1998; www.bestbuddies.org) ve yurtiçinde (Düşler akademisi ve alternatif kamp) farklı uygulamalar mevcuttur. Her iki grup açısından da faydalı olduğu bilinen bu tür etkileşimlerin ve düzenlemelerin, kaynaştırma programında olmayanların da dâhil edildikleri ve okullarındaki programının bir parçası haline gelmesi de her iki grup için kazançlı olmaktadır.

Genel eğitim öğrencilerinin, yetersizliği olan arkadaşları ile girdikleri etkileşimden kazanımları: sosyalleşme, yetersizlik konuları hakkında daha fazla farkındalık kazanma, farklılığın getirdiği öğrenme ve gelişme fırsatları (Copeland ve ark., 2002) ve faydalı olduğunu hissetme olarak örneklendirilebilir (Campbell-Whatley, 2001). Ayrıca akran aracılı öğrenmelerde, öğretici olarak görev alan öğrencilerde; öğretme sorumluluğu, farklılıklar konusunda bilinç, güven duygusunda artış gibi faydalar görülmüştür (Jones, 2007). Akran aracılı yaklaşımlar son derece yaygın ve kabul gören yaklaşımlar olsa da sadece fiziksel olarak bir arada bulunmak yeterli olmayabilmekte, katılacak akranların önceden hazırlanmaları gerekmektedir (Bass and Mulick, 2007).

Bu çalışmanın amacı öncelikle otizmi olan ve olmayan, bu tür ayarlamalar dışında belki de hiç bir zaman bir araya gelemeyecek bireylerin ortak ilgi alanlarına göre düzenli aralıklarla bir araya gelerek, resim-müzik çalışmaları gibi etkinliklerle etkileşimde bulunmalarını ve her iki grubunda faklı kazanımlar edinmelerini sağlamaktır. Bu amaç doğrultusunda otizmi olan ve olmayan akranların etkileşimleri sonucunda kendilerindeki ve otizmi olan arkadaşlarında gözlemledikleri değişikliklere ve kazanımlara ilişkin görüşleri paylaşılacaktır.

YÖNTEM

Çalışma, IB (Uluslararası Bakalorya) programı uygulayan okullarından birinde başlatılan benzer bir çalışmayı, İstanbul'daki bir Anadolu Lisesindeki öğrencilerin okullarında benzer etkileşimi gerçekleştirmek üzere gönüllü olmalarıyla başlamıştır. Otizmi olan yaşıtları ile belli etkinlikler eşliğinde bir arada olmak isteyen, bu gönüllü öğrenciler; etkinlikler öncesinde özel eğitimi, otizmi ve onlarla yapılabilecek etkinlikleri konu alan bilgilendirme toplantısına katıldılar. Ardından da ilgi alanlarına göre eşleştirildiler, genel olarak iki genel eğitim öğrencisinin, bir otizmi olan arkadaşı ile eşleştirilmesi kuralı esas alındı. Anadolu Lisesindeki bu gönüllü öğrenciler, otizmi olan öğrencilerle iki haftada bir olmak üzere müzik ve resim etkinliklerinde bir araya gelmişlerdir. Etkinlikler gönüllü öğrencilerin okullarında yapılmış, otizmi olan öğrencilerin okullara ulaşımları, birlikte bir şeyler yiyip-içmeleri, ardından okullarına veya evlerine ulaştırılmaları da yine bu okullar tarafından karşılanmıştır. Bu etkinlikler dışında otizmi olan öğrencilerin okuluna da gidip onların sınıflarında, akademik konularda da yardımcı olmaya çalışan gruplar da oluşturulmuştur.

10 hafta süren bu etkinlikler sonunda da bu öğrencilere kendilerinde ve otizmi olan arkadaşlarında gözledikleri değişiklikler ve kazanımlara ilişkin açık uçlu sorularla sorulmuştur. İsim yazmaları istenmeden yapılan bu anket uygulamasına da, 23 öğrenci katılmıştır.

SONUÇ

Genel eğitim öğrencileri etkinlikler sonunda katılımcıların 14'ü bu etkileşimin kendileri açısından çok, 9'u da orta düzeyde, 1'i de az faydalı olduğunu ve gerek kendileri gerek otizmi olan arkadaşları için son derece olumlu değişikliklerden ve kazanımlardan bahsetmişlerdir. Örneğin, ilk başta kendilerini nasıl iletişim kuracağını, davranacağını bilemeyen, kararsız, endişeli çekingen, nasıl yardımcı olacağını bilemeyen ve kendilerine ilişkin olumsuz ifadeler kullanırken, etkinlikler sonunda ise tam tersi olarak kendilerine ilişkin son derece olumlu ifadeler kullanmışlardır. Nasıl davranacağımı, iletişim kuracağımı biliyorum, daha sabırlı, sakin anlayışlıyım gibi. Tablo 1'de Anadolu Lisesi öğrencilerinin, kendilerini başta ve en sonunda nasıl bulduklarına ilişkin görüşleri sıralanmıştır.

Tablo 1: Anadolu Lisesi Öğrencilerinin Otizmi olan Arkadaşlarıyla Girdikleri Etkileşimin Kendilerini Nasıl Etkilediğine İlişkin Görüşleri

Etkileşimin başında kendileri nasıl bulmuşlardı?	Etkileşimin sonunda kendilerini nasıl buldular?
İletişim zor geldi (7) Acıma duydum (7) Ne yapacağımı bilmiyordum (5) Çekiniyordum (5) Korkuyordum (5) Farklı olduklarını düşündüm (3) Hiçbir fikrim yoktu (3) Endişeliydim (3) Hiç konuşamadık (3) Kapasitelerinin düşük olduğunu düşündüm-küçümsedim (2) Sıkılacağımı düşündüm (2) Topluma kaynaşmaları zor görünüyordu Otistik diye birbirimizle dalga geçerdik Faydalanmayacağımı düşündüm Sabırsızdım Sinirliydim Temkinliydim Soğuk-Uzaktım Önyargılıydım Sabırlıydım Anlayışlıydım Destek olunması gerek diye düşünüyordum	Bizim gibi olduklarını gördüm (10) Nasıl iletişim kuracağımı biliyorum (7) Nasıl davranmam gerektiğini öğrendim (7) Daha rahat davranabiliyorum (6) Onları anlıyorum (5) Onları sevdim (4) Sabırlıyım (4) Hepsinin yapabildiği işler olduğunu gördüm (3) Önyargılarımın yanlış olduğunu öğrendim (2) Alıştım (2) Zorlanmıyorum (2) Korkmuyorum (2) Bir şeyler paylaşabiliyoruz (2) Çekinmiyorum (2) Kolay yardımcı olabiliyorum Birlikte olmak beni mutlu ediyor Onlarla da iletişim kurulabilirmiş Farklı olanlara daha anlayışlıyım Anlayışlıyım Faydalı olduğumu görüyorum Acımanın yerini umut aldı Duygularımı işin içine katmayı öğrendim Otizmin diğer sosyal konular içinde en önemli olanı diye düşünüyorum Beni tanıdıklarında mutlu oluyorum Daha olumluyum Empati kurabiliyorum Az da olsa olgunlaştım

	Güvenim arttı Farkın aşağılanma anlamına gelmediğini, hor görmemizin gerekmediğini anladım

Benzer olumlu değişiklikleri otizmi olan arkadaşları içinde belirtmişlerdir. Tablo 2'de Anadolu Lisesi öğrencilerinin, otizmi olan arkadaşlarını başta ve en sonunda nasıl bulduklarına ilişkin görüşleri sıralanmıştır.

Tablo 2: Anadolu Lisesi Öğrencileri Etkileşim Sonucunda Otizmi olan Arkadaşlarının Nasıl Etkilediğine İlişkin Görüşleri

Otizmi olan arkadaşlarını başta nasıl bulmuşlardı?	Otizmi olan arkadaşlarını etkileşimin sonunda nasıl buldular?
Çekingendiler (4) Sıkılıyorlardı (3) İletişimleri azdı (3) Bizi tanımıyorlardı (2) Göz teması kurmuyorlardı (2) Cevap vermiyorlardı (2) Uygun davranmıyorlardı (2) Sadece öğretmen aracılığıyla ilişki kuruyorlardı Daha az konuşuyorlardı Bizi öğretmen gibi görüyorlardı Heyecanlıydılar Dikkatlerini veremiyorlardı Sabırsızdılar Yaklaşmıyorlardı	İletişimleri arttı (6) Daha rahat ve istekle geliyorlar (5) Değişik insanlarla birlikte olmayı öğrendiler (4) Bize alıştılar (3) Sosyalleştiler (3) Daha çok kurallara uyuyorlar (3) Etkinliklerde ilerlediler (2) Daha sakin (2) Daha yakınlar (2) Bizi tanıyorlar (2) Daha az çekingenler Daha dışa dönükler Daha hızlı hareket edebiliyorlar Daha dikkatliler Farklı ortamlarda bulunmak onlara faydalı oldu Sabırlılar Enerjikler Bizim gibi olduklarını gördüler Daha az sıkılıyorlar

Tablo 3'te de Anadolu Lisesi öğrencilerinin, otizmi olan arkadaşlarının ve kendilerinin bu etkileşimden edindiklerini düşündükleri faydalar sıralamıştır.

Tablo 3: Anadolu Lisesi Öğrencilerinin Otizmi olan Arkadaşlarının ve Kendilerinin Etkileşimden Edindiklerini Faydaya İlişkin Görüşleri

Kendileri için en önemli fayda	Otizmi olan arkadaşları için en önemli fayda
İletişim kurmayı öğrenmek (6) Otizmi hakkındaki yanlış bildiklerinin doğrusunu öğrenmek (6) Farklı bakış açısı kazanıp-hayatın farklı yönlerini görmemi sağladı (4) Sabırlı olmak (4) Anlayışlı olmak (2) Hayatın ve bazı şeylerin değerini anladım (2) Düşüncelerim değişti (2) Küçük şeylere üzülmemem gerektiğini anladım İnsanların farklı yanını görmeye başladım Önyargılarımdan kurtuldum Özgüvenim gelişti Faydalı olduğumu hissettim Öğrendim-Onları anlayıp-nasıl yaklaşacağımı öğrendim Aramızda bağ oluştu	Sosyalleştiler (8) Farklı insanlarla çalışma şansları oldu (5) Ortam değişikliği onlara faydalı oldu (4) Yeni öğrenimler-etkinlikler onları geliştirdi (4) Daha rahat iletişim kurabiliyorlar (3) Daha iyi-mutlu hissediyorlardır (3)

TARTIŞMA

Bu tür çalışmalar, iki farklı okulun-eğitimin (genel ve özel) öğrencilerinin düzenli olarak bir araya gelmesinin organizasyon ve düzenleme açısından zorlukları (zamanlama, ulaşım, iletişim gibi) olsa da (Copeland ve ark., 2002) sağladığı faydalar açısından son derece önemlidir. Çalışma sonucunda diğer çalışmalara (Campbell-Whatley, 2001; Copeland ve ark., 2002; Salend 1999; Zascavage ve ark., 2008) benzer olumlu kazanımlar da görülmüştür. Bu çalışmada da görülmüştür ki son derece zor bir yaş dönemi olan lise yıllarındaki bu öğrencilerde sağlanabilecek bu tür olumlu değişiklikler, bu çalışmaların gerekliliğini bir kez daha ortaya koyuyor. Özel eğitim ihtiyacı olan grup için faydaları zaten beklendik iken, asıl şaşırtıcı olan her iki okulda da yetersizliği olmayan, gönüllü gençlerin bu çalışmalardan kendilerinin otizmi olan arkadaşlarından daha fazla faydalandıklarını belirtmeleridir. Bu durum, kendi değişikliklerinin daha kolay ve daha çok farkında olmalarından kaynaklanabildiği gibi, ilk kez kendilerinden başka çok farklı olduğunu düşündüğü kişilerle olabilmenin kendilerinde yarattığı farkın büyük olmasından da kaynaklanabilir. En önemlisi bu tür etkileşimler ve etkinlikler, yetersizliği olmayan gruplara; farklılıklara rağmen bir arada olmayı, ortak paydada buluşmayı, farklılıklara toleransı, sabrı kazandırabilmekte ve bu da sosyal ilişkilerine, kendilerine ilişkin daha olumlu hissetmelerine katkıda bulunmaktadır.

Tüm katılımcılarının her açıdan fayda sağlayacağı bu tür çalışmaların ülkemizde de artması, yaygınlaşması hem genel hem de özel eğitim alanları açısından çok önem taşımaktadır. Öncelikle IB uygulayan okulların, zaten programları gereği bu tür etkinlikler yapması gerektiği için önce bu okullarımızdan başlayarak, ardından da gönüllü Anadolu Lisesi örneğinde olduğu gibi diğer okullar için de yaygınlaşsa ve okulların programlarının bir parçası olsa tüm katılımcılar ve toplum adına ümit verici gelişmeler sağlanabilir. Toplumun her aşamasında yetersizliği olanlara yönelik tutumun önemi ve bu tutumların değişmesinin zorluğu bilindiğinden, bu tür etkileşimlerin tutum değişikliği, yetersizliklere ilişkin farkındalığın, duyarlılığın artırılması gibi konularda olumlu katkılar getireceği de unutulmamalıdır, IB programlarında olduğu gibi müfredatımızın bir parçası olmalıdır.

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GENERIC COMPETENCES CAN IMPROVE THE QUALITY OF KNOWLEDGE ON AND ATTITUDES TOWARD BIOTECHNOLOGY IN SECONDARY SCHOOL STUDENTS

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ABSTRACT

Based on our previous research concerning genetically modified organisms among university students, we recognized that student knowledge about these is poor and their attitudes toward them, on average, negative. Biotechnological issues do not form part of the curricula at the most universities studies and rely primarily on the knowledge gained in secondary schools. To improve level of student knowledge on this topic, we have prepared a teaching unit concerning biotechnology in general secondary school (Gimnazija programme). We have unit.. We show how realization of a teaching unit concerning biotechnology in general secondary tested this unit in two Slovenian general secondary schools and evaluated it by questionnaire, given before and after the teaching unit, by considering generic competences can improve the level of students scientific literacy on this topic.

Key words: genetically modified organisms, GMO, secondary -school, knowledge, opinion

INTRODUCTION

Biotechnology is one of the most rapidly evolving fields of science and technology, with several posibilities of application in agriculture, food production, medicine, pharmacy, environmental sciences. Besides prospects and possibilities, it raises many concerns and doubts about the acceptability of techniques as genetic engineering, genetically modified organisms (GMOs), genetically modified foods or cloning (Ozden et al. 2008, Pardo et al. 2002). As members of social communities, people have responsibility to receive several personal and social decisions also for such issues. To do so they should be properly educated. A necessary component of such education is scientific literacy (science literacy), which should include knowledge of science (rules, methods, definitions, concepts (nature of science)) and understanding the impact of science and technology on society (Skribe-Dimec, 2007). Furthermore we must emphasize the importance of critical thinking in conection with a high level of scientific literacy. Only such a combination would allow people to resolve issues related to the progress of science, evaluate the results of scientific investigation and to take a balanced and rational decision based on available information.

Hovewer, this is not true in the case of biotechnology and genetics. The results of previous studies on students and teachers, usually high school graduates, we can conclude that knowledge about modern biotechnology, genetic engineering, genetically modified organisms (GMOs), cloning, the impact of GMOs on human health, animals, other organisms and the environment, usually only average, and attitudes mostly negative (Ambrožic-Dolinšek in Šorgo, 2010, 2009; Usak et al. 2009). As biotechnology is not an integral part of the curriculum of most university courses, therefore we cannot influence the science literacy of students at this level of education. Therefore, we pay attention to high school education.

There are several recommendations how to incorporate biotechnology into science teaching. The most important is that education should not be based solely on the accumulation of facts, but we need to equip learners with tools for understanding and evaluating of the potential dangers of GMOs and disadvantages of new technologies, understanding of social dilemmas and assessment options that are available. Activities should therefore include the GMO debate based on critical thinking, analysis, arguments and defense of views and positions (Chen and Raffan, 1999; Jallinoja and Aro, 2000; Lewis

and Leach, 2006). Therefore it is better in substance, to established specific topical about issues that are close to the participants, as several superficialy treated topics (Ekborg, 2008.). Wherever possible they shoud should have a possibility for direct experience with biotechnology (Prokop et al., 2007)

To improve level of student knowledge on this topic, we have prepared a teaching unit concerning biotechnology in general secondary school (Gimnazija programme). We tested this unit in two Slovenian general secondary schools and evaluated the level of students scientific literacy on this topic.

METHODS

Research was based on the implementation of a teaching unit in which students discussed individual practice of modern biotechnology and genetic engineering from specific areas. Teaching unit was organized in two ways. Both are evaluated by questionnare, given before and after the teaching unit. In questionnaire we examined knowledge, attitudes, acceptance and ability to interpret information and argument and the ability to design their own opinions based on scientific facts. The first unit named a classic teaching unit, involving work with worksheets from the material prepared for high school programs (Greenwood et al., 2008). In another unit, called the competence based teaching unit, we did not include a formal working papers instead of that it require the integration of generic competencies (Commision of the European communities 2006, Scottish Qualifications Authority, 2003). A set of competencies were: the ability to collect information, the ability to analyze literature and organizing information, the ability to interpret, the ability to synthesize the conclusions of the ability of learning and problem solving transfer theory into practice, use of mathematical ideas and techniques, adapting to new situations, concern for the quality, the ability of independent and teamwork, organization and planning of work, verbal and written communication, interpersonal interaction, security (the project "Development of scientific competence"). The result of this teaching unit was not only the acquisition of knowledge, but practicing the skills of asking questions, interpreting information and creating their own opinion based on specific arguments are not on fears and untrusted facts. By doing so, we want to improve scientific literacy, critical thinking, analysis of arguments and forming their own opinions about the world around them and opinion about events in it. Our research was conducted on a sample of students in the first and third year of II. gimnazija Maribor (II. Grammar School Maribor) and a third year of Škofijska gimnazija Anton Martin Slomšek. Pre- test has resolved 234 students, and post-test 221 students.

Questionnaire:

Students have solved the same pre-test and post-test. To find out student teachers' knowledge and opinion about GMOs, a questionnaire was assembled. The questionnaire was divided into four parts: (1) personal data; (2) knowledge, and (3) opinions about GMO and was completed anonymously. The survey questionnaire was extensive, since the rescue took about 30 minutes. It was composed of five parts in which we examined: (1) demographic data, (2) knowledge, (3) position, (3) the acceptability of genetically modified organisms (GMOs), (4) science literacy. Given the size of the results we have in our paper focused on the preliminary presentation of advances in science literacy (5).

Students were asked to solve the task in which they need to declare about the problem associated with modern biotechnology. Exercises do not only verified the knowledge and understanding of content (rules, methods, definitions, concepts, processes), but it was also necessary to show critical thinking, analyze arguments and take a position. Internal reliability of the questionnaire, expressed as coefficient Cronbach's Alpha, is 0.795, and considered as good.

The task was from the field of genetic therapy (GT). The text of the paper was adapted from Sadler and Zeidler (2005b): *"Gene therapy is a potential stem cell genetic engineering. (Currently not applicable to humans.). This type type of GT including changing of genes in germ cells of each specimen (egg or spermal cell) or embryonic cells (immediately after fertilization). The aim of GT was to remove undesirable genes and replace them with the desired. Gametes or embryo, resulting in such a way should contain "new" genes, "the original" genes should missing. Huntington disease (HB) is a neurological disorder caused by a single gene. Symptoms of the disease started somewhere between 35 and 45 years of age. The first symptom is an uncontrolled contraction and disruption of physical memory. The disease progresses 15 to 20 years and always ends with death. Usually, treatment is not possible. HB is a result of failure of a single gene and is therefore a candidate gene for gene therapy. Would you support the use the GT which would remove sexual defective gene from cells and replace it with a functional genome and create healthy new generations? "*

In thise case, students should use to support or not, to explain the reasons for the decision and state the arguments on how to convince the others for this decision. At the beginig and at the end of teaching unit teachers evaluated students responses numerically from 0 to 4 (Table 1).

Table 1: Evaluation scale for student answers

Number of scores	**Category of knowledge**	**Descriptor of evaluation – evaluation criterion**
4	Over and a surplus	Displaying more than the expected level of knowledge: Include diagrams or other visual material not present in teaching unit. Evaluate resources, the quality and/or quantity of evidence. Vključi diagrame ali drugo vizualno gradivo, s katerim dodatno predstavi svoje ideje ali ideje drugih. Include diagrams or other visual material for presenting their ore others ideas.
3	Complete and almost perfect	Discuss about one or more possible solutions, using the accurate and relevant evidence on the basis of the evidence takes their points of view, evaluation is not necessarily complete, and some evidence may be missing.
2	One-sided	Take a position, but the arguments presented are subjective, incomplete and unscientific.
1	Inadequate	Completely inappropriate position and arguments.
0	Empty.	Without the ability to respond.

Data analysis

The data analyses were performed with the statistical package SPSS® 17. Results of answers were rated by rearranged scale (Wilmes and Howarth, 2009) among zero and four: (4) over and a surplus, (3) complete and almost perfect (2) one-sided, (1) inadequate, (0) empty (Table 1). They are presented as means (M) and standard deviations (SD) (Table 2). To compare Pre-test and Post-test, Cohen's d (Thompson, 2007) was used. It was calculated by using Effect Size Calculator (http://www.uccs.edu/~faculty/lbecker/). Values of Cohen's d were: d>0,2 = small; d> 0,5 = medium; d> 0,8 = large.

RESULTS

Table 2: Progress in expressing their views related to the GM sugar beet resistant to herbicides after classical and competence based teaching unit

Classical teaching unit			
	Pre-test **N = 114**	**Post-test** **N = 111**	**Cohen's d**

1.	Would you support their decision?	DA (%) 68 (60)	NE (%) 46 (40)	DA (%) 64 (60)	NE (%) 43 (40)	
		M	SD	M	SD	
2.	Explain why you have chosen such an answer?	1.75	1.016	1.65	0.961	0.10
3.	What would convince / a friend to take such cultivation?	1.21	0.853	1.19	0.885	0.02
4.	Is there any reason to speak against this decision?	0.96	0.842	1.19	0.969	0.25
	Competence based teaching unit					
		Pre-test **N = 120**		**Post-test** **N = 110**		**Cohen's d**
1.	Would you support their decision?	DA (%) 81 (76)	NE (%) 26 (24)	DA (%) 86 (85)	NE (%) 15 (15)	
		M	SD	M	SD	
2.	Explain why you have chosen such an answer?	1.69	0.931	1.99	0.792	0.35
3.	What would convince / a friend to take such cultivation?	1.38	0.868	1.46	0.922	0.09
4.	Is there any reason to speak against this decision?	1.11	0.964	1.20	0.971	0.20

Effect size - Cohen's d: d>0.2 = small; d> 0.5 = medium; d> 0.8 = large.

Even after the teaching unit the science literacy of students in the case of biotechnology is still very low. Students responses were rated by scale between four and null: (4) over and a surplus, (3) complete and almost perfect (2) une-sided, (1) inadequate, (0) empty. The highest grade was a given to only 4 answers in whole sample. The grade 3 or 'perfect or almost perfect ", received only 12% answers and this is by our opinnion very low. Students often take a position pro et contra, but the arguments presented are mostly subjective, incomplete and unscientific, therefore their response is considered as one-sided and received grade 2. Such one-sided answeres were the mayority (42%) of all answeres. The grade 1 for inadequate answeres received 24% answers. The grade 0 for no response received 22% of answers and this means that one fifth of students can not form their opinions.

After the competence-based teaching unit students showed a slightly more positive relation to GMOs (Table 2) and also showed small but still higher science literacy, expressed as Cohen's d >0.2 (Table 2), while after classical teaching unit students show no progress. Students after the competence based teaching unit formed better responses in explaining their decisions for or against, of reasons for their decisions, explain the way to convince a friend with their decisions and against them. Despite the fact that the students show a very low level of scientific literacy, we must stress that they show great interest and wanted to know more about this topic. Their interest was not mater of approach - classical or competence - always high and the debate has been very active. They showed great interest for issues,

which can affect their daily lives and furthermore their narrow and broad social community. From the strong interest of students and from comments of teachers we can conclude that the scope is too broad and one school hour for such issues is far too little. As students tested hardly take sides and explain the reasons for and against these topics we cane concluded that they are not accustomed to express their value system and dipper understanding of the natural and social phenomena. Sometimes it seems that they do not understand what it is expected from them and why this is important.

We can establish that competency approach had a greater impact on all components of scientific literacy tested: expression of agreement and disagreement with statements, expression of reasons for their decisions, explain the way to convince a friend with their decisions and against them. Teaching unit realized as competency approach were not something new and students have already met such a way of work. But usually it has been connected with gaining of new knowledge and not with expression of their views. It is clear that students are not accustomed to express their views, that it is rare and not a usual part of school practice. It is obvious, that their education practice only rarely included the expression of values and a deeper understanding of natural and social phenomena. They are not used to give the arguments for and against. Finally, we get a sense, that they disparages such work and that it is of no value for them, perhaps because our school usually not asses such kind of work and some problems in answering and expressing their views are also due to their inexperience.

CONCLUSIONS

On the basis of one teaching unit we cannot make big conclusions. However, we can recognize that competency approach has given better results than classical approach, in both, in acquiring of knowledge, developing skills such as reasoning and in development of critical thinking. We believe that competence approach is missing in school practice and that it should be further encouraged. Another conclusion is, that teaching of science and technology, including biotechnology, shouldn't be only acquiring of new knowledge, but should always include its evaluation. This is, in the society which is overwhelm with conflicting information, more and more important.

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INTE 2010

GEOMETRİ DERSLERİNİN MATEMATİK ÖĞRETMEN ADAYLARININ GEOMETRİK DÜŞÜNMELERİNE ETKİSİ

THE IMPACT OF GEOMETRY COURSES ON PRESERVICE MATHEMATICS TEACHERS' GEOMETRIC THOUGHT

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ÖZET

Kişinin geometrik düşünme adına attığı ilk adım, etrafında gördüğü birbirinden farklı şekilleri tanımaya başlamasıdır. Daha sonra öğrenim hayatı boyunca alacağı geometri eğitimine paralel olarak bu alandaki düşünce düzeyi de yükselmektedir. Bu yükselmedeki basamaklar, Pierre Van Hiele ve Dina Van Hiele-Gedolf adlı iki Danimarkalı eğitimci tarafından beş farklı geometrik düşünme düzeyi olarak sınıflandırılmaktadır. Van Hiele kuramında geometrik düşünmenin gelişimi, Piaget'in gelişme basamakları gibi sıralıdır. Bu kuramdan faydalanarak öğrencilerin geometrik düşünme yeteneklerinin geliştirilmesi için yapılacak etkinliklerin, uygun hiyerarşik sıralamaya göre yapılması sağlanabilmektedir. Bu araştırmayla matematik öğretmen adaylarının lisans eğitimi boyunca aldıkları geometri derslerinin onların geometrik düşünmelerine ne oranda etki ettiğini ortaya çıkarmak amaçlandı. Araştırma 82 birinci sınıf ve 30 dördüncü sınıf ilköğretim matematik öğretmen adayı üzerinde nicel yöntem kullanılarak yapıldı. Veriler Van Hiele'nin testinin değerlendirme şekli ölçü alınarak analiz edildi. Bulgular birinci sınıf ile dördüncü sınıf öğrencileri arasındaki karşılaştırmalardan oluştu. Karşılaştırmalar lisans eğitimindeki geometri derslerinin öğrencilerin geometrik düşünme düzeylerine anlamlı bir etkisinin olmadığını göstermektedir.

ABSTRACT

The first step in a person's geometric thinking starts with recognizing the different shapes around him. Later, the thinking level in the field increases through the geometry education he receives in his whole life. The steps in this increment are categorized into five different geometric thinking levels by the two Danish educators, Pierre Van Hiele and Dina Van Hiele-Gedolf. Similar to the Piaget's development levels, the development of geometric thinking levels in Van Hiele theory follows an order. In this theory, the activities can be prepared in appropriate hierarchic order in order to develop students' geometric thinking abilities. With this study, it was aimed in what ratio geometry courses pre-service mathematics teachers took during their undergraduate program affect their geometric thinking levels. The data were collected from 82 first year and 30 fourth year pre-service mathematics teachers through survey method. The data were analyzed using the Van Hiele assessment criteria. The results were composed of the comparisons between the first and fourth year students' geometric thinking levels. Comparisons indicate that undergraduate geometry courses did not significantly affect students' geometric thinking levels.

Giriş

Geometri, matematiğin önemli parçalarından biridir. Tarih boyunca insan hayatını kolaylaştırmada önemli bir yere sahiptir. Bina ve köprü mimarisinden yüzölçümü hesaplamalarına, harita çizimlerinden, kullanılan eşyaların fonksiyonel boyutlarda üretilmesine kadar birçok alanda geometriden yararlanılmaktadır. Geometri nokta, doğru, düzlem, düzlemsel şekiller, uzay, uzaysal şekiller ve bunlar arasındaki ilişkilerle geometrik şekillerin uzunluk, açı, alan, hacim gibi ölçülerini konu edinen matematiğin bir dalıdır (Baykul & Aşkar, 1987, s.104). Günümüzde teknolojik gelişmelerle birlikte geometrinin önemi daha da artmaktadır.

Kişinin geometrik düşünme adına attığı ilk adım, etrafında gördüğü birbirinden farklı şekilleri tanımaya başlaması olarak gösterilebilir. Daha sonra öğrenim hayatı boyunca alacağı geometri eğitimine paralel olarak bu alandaki düşünce düzeyi de yükselecektir. Bu yükselmedeki basamaklar, Pierre Van Hiele ve Dina Van Hiele-Gedolf adlı iki Danimarkalı eğitimci tarafından beş farklı geometrik düşünme düzeyi olarak sınıflandırılmaktadır.

Van Hiele Kuramı

Öğrencilerin geometrik düşünme yeteneklerinin nasıl geliştiğine ilişkin çalışmalardan biri Hollandalı eğitimciler Dina Van Hiele-Geldof ve eşi Pierre Marie Van Hiele tarafından yapılmıştır (Şahin,

2008). Van Hiele geometrik düşünme modeli Dina Van Hiele ve eşi Pierra Marie Van Hiele'nin Utrect Üniversitesi'nde 1957 yılında tamamladıkları doktora çalışmasının bir ürünüdür. Dina doktora tezini tamamladıktan sonra 1958 yılında öldüğü için kuramı eşi Piere geliştirmiştir (Olkun ve Toluk, 2003). Kuram, başlangıçta Sovyetlerin dışındaki batı ülkelerinin dikkatini çekmemiştir. Sovyetler, Hiele'lerin çalışmasından etkilenmiş ve bu durum sonucunda kendi geometri müfredatlarında büyük değişiklikler yapmışlardır (Wirszup, 1976). Kuram, İngilizceye uyarlandığı tarihten itibaren tüm dünyada tanınmıştır ve halen geçerliliğini korumaktadır (Duatepe, 2000). Amerika'daki eğitimciler ise 1974 de Izaak Wirszup tarafından Ulusal Matematik Öğretmenleri Konseyi [National Council of Teachers of Mathematics (NCTM)]'in yıllık toplantısında sunulan bir yazıyla teoriden haberdar olmuşlardır (Hiele, 1986).

Van Hiele kuramında geometrik düşünmenin gelişimi, Piaget'in gelişme basamakları gibi sıralıdır ve beş düzeyden oluşmaktadır. Her insanın geometrik düşünme düzeyi gelişimi bu sıralamaya uygun bir şekilde ilerler (Şahin, 2008). Bu kuramdan faydalanılarak öğrencilerin geometrik düşünme yeteneklerinin geliştirilmesi için yapılacak etkinliklerin, uygun hiyerarşik sıralamaya göre yapılması sağlanabilir. Van Hiele kuramının, düşünme düzeyleri ve öğrenme aşamaları olarak iki bölümden oluşmaktadır. Gutierrez (1992)'de bu iki bölümü şöyle açıklamıştır: a) Düşünme düzeyleri, öğrencileri geometrik düşünmede kullandığı yolları tanımlar. Van Hiele kuramına göre öğrenci, öğrenme süreci boyunca birkaç düşünme aşamasından geçer. Van Hiele kuramındaki en önemli nokta, düzeyler arası geçiştir ve bu önemli noktadaki gelişim verilen eğitimin niteliğiyle doğru orantılıdır. b) Öğrenmenin aşamaları: Van Hiele kuramına göre öğrenci, geometrik kavramları öğrenirken çeşitli basamaklardan geçer. Öğrencilerin bir basamaktan diğerine geçişin kolaylaştırılmasında öğretmen çok önemli bir etkendir.

Van Hiele Düşünme Düzeyleri

Düzey 1- Görsel dönem (Visualization): Şekillerin sadece görüntüsü açısından değerlendirilebildiği düzeydir. Çocuklar bu düzeyde görüntünün tamamıyla ilgilenirler. Şekiller arasında kurulan ilişkiler sadece birbirine benzer görünmelerinden kaynaklanır. Şekillerin arasındaki farklılıkların görülmesinde yine sadece görüntüleri ön plandadır. Bu düzeyde soyutlama yapılamaz. Örneğin, kare kareye benzediği için karedir. Dikdörtgen ve kare arasındaki fark sadece görsel olarak değerlendirilerek sınıflandırma yapılabilir. Sınıflamadaki ana etken görsel farklılıklardır. Yine bu düzeyde bir şeklin nasıl durduğu gibi kendisiyle ilgisi olmayan özellikleri öğrencileri etkiler. Örneğin, bazı öğrenciler çapraz çizilen bir dikdörtgeni, dikdörtgen olarak tanımazlar. Okul öncesi eğitim gören öğrenciler ve ilköğretim birinci, ikinci, üçüncü sınıf öğrencilerinin genellikle bu düzeyde oldukları söylenebilir. Görsel dönemin düşünme ürünü, şekillerin benzerliklerine ve farklılıklarına göre sınıflandırılmasıdır.

Düzey 2-Analiz (Analysis): Şekillerde çeşitli ölçümlerin (kenar, açı) yapılarak deneysel yollarla özelliklerinin keşfedildiği düzeydir.Bu düzeyde öğrenci şekil üzerinde yaptığı ölçümlerle, şekle ait özellikleri tanır ve keşfettiği özellikleri ayrı ayrı değil bir bütün olarak ele alır, betimleme yapar. Betimlediği geometrik şekilleri özelliklerinden yola çıkarak sınıflandırır ve genelleme yapar. Bu düzeyde yapılan sınıflandırmada ana etken şeklin özellikleridir. Örneğin çizilen bir dikdörtgen üzerinde ölçümler yapılıp özellikleri keşfedilir ve betimleme yapılır böylece o dikdörtgene ait özelliklerin tüm dikdörtgenler için geçerli olduğu öğrenci tarafından belirtilir. Bu durum geometrik düşünme düzeylerinde genellemenin ilk basamağı olarak gösterilebilir. Analiz düzeyinde kare, dikdörtgen ve paralelkenara ait bütün özellikler öğrenci tarafından ifade edilebilir. Ancak kare ve dikdörtgenin, paralelkenarın birer alt kümesi oldukları fark edilemeyebilir. İlköğretim beşinci altıncı ve yedinci sınıf öğrencilerinin genellikle bu düzeyde oldukları söylenebilir. Analiz düzeyinin düşünme ürünü şekil özellikleridir.

Düzey 3-Formal olmayan sonuç çıkarma (Informal deduction): Bu düzeyde şekillerin özelliklerinden yola çıkılarak karşılaştırma yapılabilir. Karşılaştırma sonucunda elde edilen benzer ve farklı özelliklere göre sınıflandırma yapılıp, ardından bazı çıkarımlar yapılabilir. Örneğin, "evet kare aynı zamanda iç açıları dik olan bir yamuktur" şeklinde çıkarımlar yapılabilir. Bu düzeyde sınıflandırma yapılırken artık bir sınıfın diğerlerinin alt kümesi olup olmadığına karar verilebilir. Bir şekle ait özelliklerin diğer sınıflardaki şekillerde de sağlandığı görülebilir. Örneğin, " Bütün açıları dik açı olduğuna göre, bu şekil dikdörtgen olmalıdır. Eğer kare ise, bütün açıları diktir. Eğer kare ise bir dikdörtgen olmalıdır." şeklindeki akıl yürütmeler ve mantıksal tartışmalar yapılabilir. Bu düzeyde öğrenci " Eğer … ise böyledir." şeklinde mantıksal tartışmalar yapabilir. Bir şeklin belirlenebilmesi için bilinmesi gereken minimum özellikler öğrenciye verildiğinde, bu özelliklerden yola çıkarak şeklin hangi sınıfa ait olduğunu belirleyebilir. Formal olmayan sonuç çıkarma düzeyindeki bir öğrenci yapılan ispatları ve basamaklarını takip edebilir ancak kendisi ispat yapamayabilir. İlköğretim yedinci, sekizinci sınıf öğrencileri ve ortaöğretimin birinci sınıfındaki öğrencilerin bu düzeyde olduğu söylenebilir. Bu düzeyin düşünme ürünü, geometrik şekillerin özellikleri arasındaki ilişkilerdir.

Düzey 4- Mantıksal çıkarım(Deduction): Bu düzeyde şekillerin özellikleri cismin görüntüsünden bağımsızdır. Geometrik düşünmede soyut kavramlar zihinde oluşturulabilir. Bir problemde hangi varsayımdan yola çıkılarak nasıl bir ispat yapılabileceği tasarlanabilir. Tümden gelim yöntemi kullanılarak önceden ispatlanmış bir teoremden, farklı teoremlere ulaşılabilir. Örneğin, öğrenci kosinüs teoreminden yola çıkarak Pisagor teoremini doğrulayabilir. Bunun yanı sıra aynı teoremden yola çıkılarak yapılmış iki farklı mantıksal yöntemi karşılaştırabilir. Aradaki farklılık ve benzerlikler fark edebilir. Bu düzeydeki öğrenci ispatları ve aşamalarını anlayabilir ve benzer yöntemlerle kendisi de ispat yapabilir. Ortaöğretimde sayısal alanda öğrenim gören on, on bir ve on ikinci sınıf öğrencilerinin genellikle bu düzeyde olduğu söylenebilir. Mantıksal çıkarım düzeyinin düşünmenin ürünleri geometri için tümdengelimsel aksiyomatik sistemlerdir (Hoffer, 1983).

Düzey 5- Eleştiri (Rigor): Bu düzeydeki öğrenciler farklı aksiyomatik sistemlerin farklılıklarını ve aralarındaki ilişkileri fark edebilirler (Pesen, 2003). Öklid ve Öklid-dışı geometriler üzerinde çalışabilir. Öklid geometrisindeki aksiyomların ve teoremlerin Öklid-dışı geometrilerde geçerli olup olmadığını ispatlayabilir. Farklı aksiyomatik sistemlerde yeni teoremler geliştirebilmek için araştırma yapabilir. Eleştiri düzeyindeki öğrenci, paralellik aksiyomunun olmadığının varsayıldığı bir durumda, üçgende iki kenarın orta dikmelerinin kimi zaman kesişmeyeceğini, ancak iki orta dikmenin bir noktada kesişmesi durumunda üçüncü orta dikmenin de aynı noktadan geçeceğini anlayabilir (Altun, 1998). Bu düzeydeki öğrenciler ve araştırmacılar geometriye, çalışılacak bir bilim dalı gözüyle bakarlar. Genel olarak matematik alanında lisans ve lisansüstü eğitim alan, geometriye ilgi duyan kişiler bu düzeye ulaşabilirler. Eleştiri düzeyinin düşünme ürünü geometrideki farklı aksiyomatik, sistemlerin karşılaştırılmasıdır (Erdoğan, 2006).

Van Hiele kuramında geometrik düşünme düzeyleri hiyerarşik bir yapıya sahiptir. Öğrencinin bir üst düzeye geçebilmesi için bulunduğu düzeyi başarı ile tamamlaması gerekir. Bir düzeyin geçilebilmesi için, o düzeyde bulunan geometrik düşünme becerilerinin kazanılması gerekir. Öğrencilerin bir düzeyi atlayarak diğer düzeye geçmesi mümkün değildir (Crowley, 1987). Kuramda, düzeyler arasındaki geçişin sağlanmasında en büyük etken tecrübedir. Öğretimin konusu, niteliği ve öğretim yöntemi öğrencide tecrübenin oluşumuna etki eden faktörlerdir (Baykul, 2000). Bir ilköğretim dördüncü sınıf öğrencisi ile lise birinci sınıf öğrencisinin geometrik düşünme düzeyleri aynı olabilir. Benzer şekilde birçok lise öğrencisi henüz birinci düzeye ulaşmamış olabilir. Kuramın düzeyler arası geçişte kazanılan tecrübe önemlidir. Düzeylere ait uygun becerilerin öğrenciye kazandırılmasında öğretmenin kullandığı dil oldukça önemlidir (Kılıç, 2003). Şekiller ve özellikleri anlatılırken öğrencinin bulunduğu düzey göz önünde bulundurularak tanımlama ve betimlemeler yapılmalıdır. Örneğin, dikdörtgen aynı zamanda bir paralelkenardır. Bu ilişkiyi birinci düzeydeki (görsel dönem) bir öğrenciye açıklamaya çalışmak anlamsızdır. Bu, üçüncü düzeyde (informal çıkarım) bir öğrencinin yapabileceği bir ilişkilendirmedir. Henüz öğrenci birinci ve ikinci düzeye ait uygun geometrik düşünme becerilerini kazanmamıştır. Bu durum aynı zamanda düşünme düzeylerinin hiyerarşik yapısına da uygun değildir.

Bu çalışma ile ilköğretim matematik eğitimi bölümü öğrencilerinin lisans eğitimi sırasında aldıkları geometri derslerinin öğrencilerin geometrik düşünme düzeylerine etkisi araştırılmaktadır. Bu amaçla ilk olarak öğrencilerin geometrik düşünme düzeyleri belirlenmeye çalışılmış ve sınıflar arası karşılaştırma yapılarak derslerin etkisi araştırılmaktadır. Lisans eğitiminde alınan geometri derslerinin öğrencilerin geometrik düşünme düzeyleri üzerinde etkili olduğu sonucuna varılırsa aynı verilerden yararlanılarak her bir dersin, hangi düzeyler arasındaki geçişte etkili olduğu da araştırılmaktadır.

Türkiye'de ilk ve ortaöğretim öğrencilerinin geometri dersiyle ilgili korku ve kaygıları mevcuttur (Tutak ve Birgin, 2007). Öğretmen yeterliğinin öğrencinin matematik başarısı üzerinde etkisi olduğu bilinmektedir (Dursun ve Dede, 2004). Geometrinin çok önemli bir bilim dalı olması ve Türkiye'nin de bu alanda alt sıralarda bulunması (TIMSS sonuçlarında olduğu gibi (MEB, 2003)), geometri eğitiminde büyük rol oynayacak matematik öğretmenlerini yetiştiren eğitim ve fen fakültelerinin tüm bu verilerin bilinciyle hareket ederek öğretmen adaylarını yetiştirmesi gerektiğini ortaya koymaktadır.

Geometri eğitimiyle ilgili yapılan araştırmalarda öğrencilerin geometrik düşünme düzeylerini belirleme çalışmaları yapılmış ve çeşitli öğretim tekniklerinin veya teknolojilerinin öğrencilerin geometrik düşünce düzeylerine etkisi incelenmiştir (Erdoğan, 2006; Şahin, 2008; Tutak ve Birgin, 2008). Bu araştırmayla ilköğretim matematik öğretmen adaylarının lisans eğitimi boyunca aldıkları geometri derslerinin onların geometrik düşünmelerine ne oranda etki ettiğini ortaya çıkarmak amaçlandı. Bu oranın cinsiyet göre dağılımı da alt problem olarak araştırıldı. Araştırma katılımcılarının Van Hiele geometri testini cevaplandırırken gerçek bilgilerini yansıtacakları varsayıldı.

Yöntem

Araştırma 82 birinci sınıf ve 30 dördüncü sınıf ilköğretim matematik öğretmen adayı üzerinde yapıldı. Her ne kadar seçilen örneklemin birinci ve dördüncü sınıf katılımcıları farklı öğrenciler olsa da, öğrenci-

lerin üniversiteye giriş imtihanıyla aynı bölüme alınmış olmaları matematik ve geometri yetenek seviyelerinin birbirine yakın olduğu varsayımını doğurdu. Araştırmada nicel yöntem kullanıldı. Araştırmada geçen terimler tanımlarıyla şunlardır; Van Hiele kuramı: Geometri öğretiminde beş basamağın olduğunu ve her düzeyde bireyin yeni kavramlar üzerinde yoğunlaşıp, onları geliştirdiğini öne süren kuramdır (Hiele, 1986). Araştırmada betimleyici bir araştırma deseni içerisinde tek bir test kullanıldı. Van Hiele geometrik düşünme düzeyleri: Van Hiele modeli ile ortaya çıkan, geometrinin hiyerarşik yapısının betimlendiği beş düzeydir (Hiele, 1986).

Araştırmada veri toplama aracı olarak Usiskin (1982) tarafından hazırlanan Van Hiele geometrik düşünme düzeyleri belirleme testidir. Test Duatepe (2000) tarafından Türkçeye uyarlandı. Test her bir düzey için 5 adet çoktan seçmeli soru içermektedir. Testteki toplam soru sayısı 25'tir. Öğrencilerin her bir düzeyde başarılı sayılabilmeleri için, o düzeye ait 5 sorudan en az 4 tanesini doğru cevaplandırmış olması gerekir. Birinci düzeye ait en az 4 soruyu doğru cevaplayamayan öğrenci yarı görsel dönem olarak tanımlanan sıfırıncı düzeydedir. Öğrenci en son hangi düzeyin en az 4 sorusunu doğru cevaplandırdı ise o düzeydedir. Örneğin, bir öğrenci birinci ve üçüncü düzeyin 4 sorusunu doğru cevaplamış olmasına rağmen ikinci düzeyin ancak 3 sorusunu doğru cevaplayabilmiş ise birinci düzeyde kabul edilmektedir. Verilerin analizinde kuramın tanımından ve düzeylerinin içeriğinden faydalanıldı. Birinci ve dördüncü sınıf öğrencilerinin her birinin hangi düzeyde yer aldığı tespit edildi. O düzeye düşen öğrenci sıklığı yüzdelerle ifade edildi. Bu yüzdeler üzerinden düzeyler bazında birinci ve dördüncü sınıf karşılaştırması yapıldı.

Bulgular ve Sonuçlar

Bu bölümde, araştırmayla elde edilen verilerin analizine göre oluşturulan ilköğretim matematik öğretmen adaylarının geometrik düşünme düzey dağılımına yer verildi. Dağılım yüzdelerle ifade edildi. Düzeylerin sınıflar arası karşılaştırmasına, Tablo 1'de; cinsiyetler arası karşılaştırmasına ise Tablo 2'de yer verildi.

Tablo 1. *Birinci ve Dördüncü Sınıf Öğrencilerinin Geometrik Düşünme Düzeylerine Göre Yüzdelik Dağılımı*

Düzey	1. Sınıf (%)	4. Sınıf (%)
0	4	17
1	49	27
2	21	20
3	24	33
4	2	3
5	0	0
Toplam	100	100

Tablo 1'e bakıldığında sıfır, bir ve üçüncü düzeylerde bulunan katılımcı yüzdelerinde önemli oranda değişiklik göze çarpmaktadır. Birinci sınıflarda 1. düzeydeki öğrenci oranı %49 iken, bu oran dördüncü sınıflarda %22 azalarak %27 ye düştü. Bu orandaki azalmaya karşın sıfırıncı düzeyde % 13, üçüncü düzeyde ise % 9 oranında artış görüldü. İkinci düzeydeki öğrenci sayısında % 1 oranında azalma, dördüncü düzeydeki öğrenci sayısında ise % 1 oranında artış görüldü. Beşinci düzeydeki öğrenci sayısı ise her iki sınıf seviyesinde sıfır olarak tespit edildi.

Tablo 2. *Cinsiyet Değişkenine Göre Öğrencilerin Geometrik Düşünme Düzeyi Dağılımları*

	Kız			Erkek		
Düzey	1. Sınıf (%)	4. Sınıf (%)	Değişim	1. Sınıf (%)	4. Sınıf (%)	Değişim
0	2	14	+12	5	19	+14
1	52	14	-38	45	38	-7
2	12	14	+2	30	25	-5
3	34	58	+24	15	12	-3
4	0	0	0	5	6	+1
5	0	0	0	0	0	0
Toplam	100	100	0	100	100	0

Tablo 2'ye bakıldığında üçüncü düzeydeki kız öğrenci sayısının % 24 oranında arttığı; birinci düzeydeki kız öğrenci sayısının % 38 oranında azaldığı görülmektedir. Bu iki durum göz önüne alındığında kız öğrencilerin bir bölümünün, lisans eğitimi boyunca, birinci düzeyden üçüncü düzeye ulaştığı

söylenebilir. Bunun yanı sıra birinci, ikinci ve üçüncü düzeydeki erkek öğrencilerin sayısı lisans eğitimi boyunca azalmakta ve bu azalma sıfırıncı düzeydeki erkek öğrenci sayısına artış olarak yansımaktadır. Bundan hareketle birinci sınıftan dördüncü sınıfa gelinceye kadar erkek öğrencilerin geometrik düşünme düzeylerinde gerileme olduğu söylenebilir.

İlköğretim matematik eğitimi bölümü öğrencileri lisans eğitimleri boyunca Geometri ve Analitik geometri I-II olmak üzere üç ders almaktadır. Bu dersler içerik bakımından öğrencilerin geometrik düşünme düzeylerini doğrudan etkileyebilecek derslerdir. Bu derslerin yanı sıra soyut matematik dersi ise içerik bakımından 4. düzeyden 5. düzeye geçişte etkili bir ders olduğu kabul edilmektedir. Öğrencilerin formal yollarla mantıksal çıkarımlar yapmasını sağlayan bu ders dolaylı olarak geometrik düşünme düzeylerini etkileyebilecek içeriğe sahiptir.

Öğrencilerin, ilköğretimden, ortaöğretimin son dönemine kadar aldığı matematik ve geometri dersleri sonucunda, üçüncü veya dördüncü geometrik düşünme düzeyinde olması beklenir. İlk ve ortaöğretimdeki ders içerikleri bu beklentiyi karşılayacak şekilde hazırlanmıştır. Buna göre, çalışmada ilköğretim matematik eğitimi bölümü birinci sınıf öğrencileri göz önüne alındığında öğrencilerin sadece % 26 sının beklenen düzeyde olduğu görülmektedir(Bakınız Tablo 1). Matematik öğretmen adaylarının verilen lisan eğitimi sonunda dördüncü veya beşinci geometrik düşünme düzeyine ulaşmaları beklenir. Ders içerikleri bu beklentiyi karşılayacak şekilde hazırlanmıştır. Bu çalışmada öğrencilerin % 3 ünün bu düzeye ulaştığı görülmektedir (Bakınız Tablo 1). Bu durumun sonucu olarak lisans eğitimindeki geometri derslerinin öğrencilerin geometrik düşünme düzeylerine anlamlı bir etkisinin olmadığı ve istenilen geometrik düşünme düzeylerine öğrencileri ulaştırmadığı görülmektedir. Bu sonuçlara bakılarak öğrencilerin neden beklenen geometrik düşünme düzeyine ulaşmadığı ve geometri eğitiminin daha etkili nasıl yapılabileceği gelecek araştırma konuları olabilir. Bununla birlikte araştırmanın örneklemi yeni araştırmalar için aynı katılımcılardan oluşturulabilir. Uzun süreli bir araştırmayla Van Hiele testi uygulanmış birinci sınıf öğrencilerinin dördüncü sınıfa gelmeleri halinde teste yeniden tabi tutulması, düzey karşılaştırmasını bireysel düzeyde mümkün kılabilir.

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INTE 2010

IDEA-MINING AS AN INTUITIVE WAY OF EDUCATION FOR THE DEVELOPMENT OF CREATIVE INNOVATIONS, TEAM WORK AND GROUP PROCESSES.

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ABSTRACT
Idea-mining is a modern workshop design. It has two main intentions. The first intention is to teach social competences of fostering creativity to develop innovative solutions for questions out of the work or life environment. This lesson contains methodological knowledge as well as skills of problem solving thinking. The second intention is to enhance job related soft skills such as team work and group building processes. In order to reach both goals an idea-mining workshop uses the effects of intuitive learning. In a guided process the participants develop the contents on their own. The result is a high motivation and learning effect.

INTRODUCTION

The challenges we have to face have changed during the time. High quality output is no longer the only mission we have to accomplish. We strongly require inventing new ideas. So, there is an enormous shift in the necessity of innovations. On the other hand we also have an enormous shift towards team work and team building processes. But as important these fields are as difficult it is for teachers to educate people. The teachers' task demands new approaches of education.
One of these approaches is idea-mining. This workshop design was developed to combine both demands in an efficient and intuitive way of education. Due to the practical orientation of the lesson units the participants will discover the main contents personally under the close supervision of the teachers. The participants remain highly motivated and open-minded. This has a strong impact on the learning effect.

METHODS AND PROCEDURES

For the first task, the invention of new ideas, idea-mining uses special techniques and psychological processes to foster creativity. This creativity will be used along an initial question to find innovative answers. To reach this aim the participants will be confronted with different cues in an open minded atmosphere. First, the cues will lead the participants' thinking far away from the initial question. They focus on remote themes to enable creative work. After this step they will be lead back to the initial question to develop creative answers out of the creative work they have done before.
Let us get deeper into the psychological base of this idea-mining process. Different techniques (e. g. brainstorming and brainwriting are well-known ones) are used to secure the creative output. This prevents the loss of just one idea that can be useful in a following step. Different cues are used to enable participants to do their creative work. These cues will address different parts of memory to generate various ideas. We have five senses (seeing, hearing, tasting, touching and smelling) and therefore we have five different locations of memory for all impressions we get aware of by these senses. Beside this we have two further spaces for logical and fantastic cognition. These five plus two spaces of memory are the basis for all creative work.

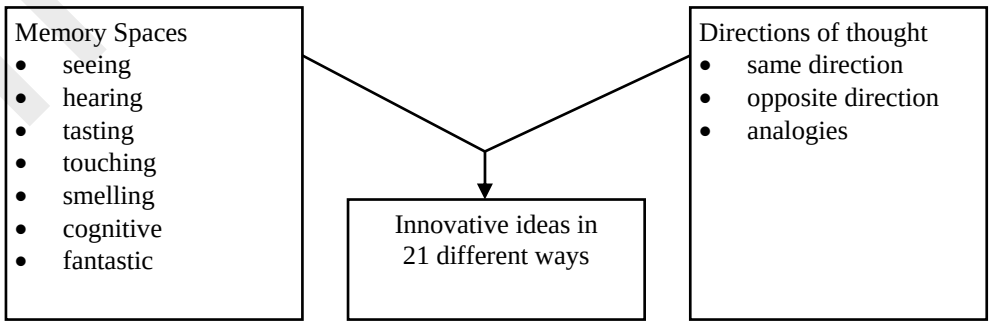


Fig.1: Process of developing creative ideas

Aside from the above-mentioned memory spaces we can use three different directions of thinking. We can think in the direction of a question, in the opposite direction and we can look for analogies. To think

in the direction of the question means to directly associate ideas to the given cue. For example, a picture as a visual cue can be shown to the participants with the task of writing down all ideas coming on mind.
To think in the opposite direction of the question means to change the cue to the opposite intent. For example, a cognitive cue for the original question "how can we convince people to visit our exhibition" can be "how can we avoid that people will visit our exhibition". The participants have to write down all ideas that come in mind. After this step, they have to find solutions on the basis of the reverse ideas.
To look for analogies of the question means to find situations that will contain a similar concept. For example, an analogy for the original question "how can we improve the marketing of our products" might be "how do birds mate". In this context, the participants now have to write down whatever ideas come in mind. In a next step, they have to develop answers to the original question on the basis of those ideas.
This step is repeated multiple times with different combinations of cues and directions of thinking. Hence a large amount of ideas is left after a complete day of working on a question. All participants will choose the best ideas of the day in a concluding step. After this selection the chosen ideas will be elaborated. The result of this elaboration will be a precise SWOR-diagram or project realization concept.
The experience all participants have during the day is an intuitive way of learning. The teachers introduce the techniques and cues. The participants learn how they can foster their own creativity and how to use this creativity to find solutions that otherwise would not be mentioned. The transfer of those techniques to enrich the daily job and private life will be an additional effect. An application of those techniques will enhance both quality and quantity of handling occurring obstacles.
For the second task, the improvement of team work and team building, the creative techniques will be a very efficient learning environment, too. An idea-mining workshop always starts with a get-to-know-each-other sequence. In this step some moderation methods like speed talking or partner interview will be used to gather facts about all participants. In the speed talking situation the participants will get in touch with half of all participants, in the partner interview situation they have to introduce each other in front of all participants.
After this initial sequence all participants will be divided into small working groups. These groups consist of up to four participants. All upcoming creative work will be done by those small groups. The groups get mixed after each work step to foster team work and group building processes. The main strategy behind this lies in group dynamic processes. Due to a small amount of working time for each task it is important to get into team work very quickly. The results of each group are a valid measurement of how far the group building processes have developed. The group success depends on the strength of team work. This instant feedback will have two different effects on the participants. First, they learn about the importance of working together in a team to come to efficient results. Second, they find out how beneficial the exchange of ideas is to come to new points of thinking.
By making these experiences and getting continuously feedback all participants will intuitively acquire social skills in team work and group building processes. The high impact of this education method derives from the personal experience of all participants. The participants will be enabled to transfer these experiences to their daily work or private life. This will enrich their personality and provide them with different opportunities in human-to-human interaction.

RESULTS

In the end the workshop is assessed with a fifty-items-questionnaire followed by three open questions. This way the participants evaluate the workshop and provide insight into what they thought of it. The fifty questions are answered on a seven point scale with a range between absolutely agree to absolutely disagree. The five open questions are answered in a marked blank area on the questionnaire. The fifty questions encompass the following factors: motivation, interest, satisfaction, structure of workshop, professionalism of the teachers, importance of the contents and practical orientation. The three open questions encompass the following areas: what did you like about the workshop, what didn't you like about the workshop, do you have any suggestions how to improve the workshop.
To this day a group of 291 participants, out of which 165 (56,7%) were female and 126 (43,3%) were male, have filled out the questionnaire. The average age is 31,31 (SD 12,837).

	Frequency	Percentage
University academics	202	69.4 %
Local level government personal	29	10.0 %
Business men	60	20.6 %

Tab.1: Participants' field of work

Table 1 shows the participants' fields of work. Mostly university academics take part in idea-mining workshops. This is not a surprise as the search for innovations and ideas outside the box is part of scientific work. In respect to the fact of changed challenges during the time companies have to come up with new ideas and approaches to products and markets. From this point of view it is also not a surprise that around 20% of the participants work in fields of management and technical development.

	Mean	**SD**
Motivation	1.52	.811
Interest	1.76	.948
Satisfaction	1.73	1.057
Structure of workshop	1,32	.659
Professionalism of the teachers	1.38	.683
Importance of the contents	2.37	1.292
Practical orientation	2.10	1.214

Tab.2: Results of the questionnaire

As shown in Table 2 all evaluated factors of the workshop turn out good. Especially the high grade of practical orientation is an approval of the workshop for day-to-day use in job environments. The overall high grades for motivation, interest and satisfaction endorse the intuitive approach. The results will endorse the predicted effect of intuitive learning. The open questions verify this impression. The participants describe the whole workshop as a valuable experience for them to successfully face every day obstacles. The structured sequence of theoretical input and practical exercise is a great benefit to the participants.

CONCLUSION

As a conclusion idea-mining turns out as a modern education approach. By applying an intuitive way of learning the participants will have experiences and learn about different methods on their own. Teachers guide the participants during the whole workshop. On the one hand this is necessary to teach the theoretical knowledge. On the other hand it is a safe place setting that participants can try out ideas without leaving the main course.

The high motivation and endurance of participants is an additional benefit of this workshop design. All participants realize immediately the progress they made throughout the day. This will strengthen the self-awareness and self-efficacy. Therefore, idea-mining is also a valuable method to enhance the development personality.

The interactive structure of this workshop enables participants to find their own approach to the contents and their own way of combining theoretical knowledge with their expert knowledge. The high level of concentration required by the workshop tasks has a high impact on intuitive learning and knowledge benefit. The learned units left "ready to use" knowledge that can be immediately incorporated into their working life.

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INTE 2010

INDIVIDUAL VALUES VS. SOCIAL LEGITIMACY: IS EDUCATION JUST AN INTEGRATION PROCESS IN MODERN SOCIETY?

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ABSTRACT

The rapid transformation of society and the status of modern individual force us to revisit the legitimacy of education in related to the facts such as knowledge, power, values and technology. The relation between education and social tendencies is very relevant to the value judgments of a particular society on knowledge. Thus not the antagonist but autonomous individual becomes the new stereotype of education in modern global world. What societies expect from the new individual of education is clear: instead of being in contradiction of social values and individual needs s/he must be useful to development. In my paper, I especially underline that the social legitimacy of individual is an obstacle for the goals of education. If education is for freedom, that is clear that societies after globalization do not consider the individuals' existentialist and humanitarian values rather they are very interested in the social legitimacy and the continuum of social system. In this sense, the shift of education from traditional socialization to professional scope is going to be considered within the framework of critical approaches of thinkers like Lyotard, Foucault, Adorno, and Thoreau.

Keywords: Values, Individual, Social legitimacy, Globalization, Model education.

INTRODUCTION

The normativity (theoretical implications) and performativity (practice) of education should be distinguished in the contemporary analyses of the philosophy of education. The normativity of education dictates us the ethical background of being an individual and some major historical necessities of humankind in order to enhance the personality of student according to some type of ideal. This ideal can be defined through by ideologies of states, cultures of societies, or even by the single picture of the world of a teacher. However, that is a fact that "what must be done" is not always properly realized. In our daily life there is a gap between what ought to be done and what is actually doing. The tension between "is and ought" has been a subjected among the philosophers of ethics since ages. In this sense I propose that the normativity of education is no longer a topic for our discussions after the phases of modern society and the globalization phenomena. The performativity of education is the utmost point in order to understand the changing face of education processes and educational necessities. The individual values of a modern individual are in conflict with the normativity of social legitimacy in modernized societies. The value judgments of societies have been transformed by global knowledge and technology. The modern individual is no longer the individual of enlightenment. The conflict between individual and society deeply affects the role of education.

I. EDUCATION AS PREPARATION FOR A CITIZENSHIP

The modern policy formation of education is quite relevant to the formation of the idea of citizenship. The hegemony of scientific and technological knowledge on societies resulted in the hegemony of the idea of democracy. The ideal of democracy is shared for everyone after the widespread action of knowledge. Freedom becomes the most demanded opinion in the individuals' lifestyle. However, this relation does not reflect the global picture appropriately. The western ideal of democracy becomes privileged qua the scientific and technological knowledge. In other word, being a citizen of one of the modernized and preferably western state promotes an ideal status of individualism. In this respect, the methods of education and the context of knowledge are all modified according to the policy or hegemony of the relation between states and societies. This modified and prescribed type of education is away from criticizing existing laws according to deep and various individual ideals. This type of education under the

shadow of hegemony of socialization process is normative and a part of integration process. The dominance of ideologies on man limits the performance of those values in both intrinsic and extrinsic spheres. I mean the process of education has intrinsic values for individuals and extrinsic values for societies. That is to say, the intrinsic values of individuals are dominated by the extrinsic values of societies which are conjectural. On the one hand, the global knowledge sharing via technology makes individuals more liberal. On the other hand, the acceleration of the process of modernization with globalization is not enhancing the context of "individualism" in a philosophical level against society as much as enlightenment had succeeded. This asymmetry of values is the leading critic of Jean François Lyotard (1824-1998). He argues that modern education is a reduction of education to "learning". (Fazzaro & Walter, 18). Lyotard's distinction between education and learning underlines the transformation of knowledge by the modern societies into technical information. Learning becomes a tool of descriptive knowledge in terms of the technical use of knowledge. This sort of education only deals with pragmatic issues of daily life. Beside this, the "deep" sides of knowledge are not welcomed by the content of education since they are considered useless. This legitimate function of education in the discourse of social values is depended upon technical mind and the hegemony of development which is so greatly shared by the actors of globalization.

Following Lyotard's criticism of knowledge, Gough argues that the social construction of reality is becoming tightly based on the technical knowledge day-by-day. (Gough, 79) Individual construction of reality is surpassed by the social legitimacy of knowledge. The formation of education as learning process consequently serves for the identity of citizenship of a particular society's historical and shared official ideology. The education process as a learning activity does not force the students to ask about the deeper roots of being an individual. The concept of a good education is not defined for individuals but predominated by the policies of rule-makers. (Ibid, 92). For Lyotard our societies are good samples of the post-cultural, post-modernization and post-industrialization type of societies. In those societies information is no longer under the control of education. The widespread accessible knowledge is making the knowledge given in schools less inevitable. (Lyotard, 16). This transformed and manipulated direction of education stems from the fraction of information and learning.

Henry David Thoreau (1817-1862) is the important figure in the history of American civilization and he is famous with his disobedient attitude against rule-makers' dominance on individualism. He especially criticized the concept of citizenship and instantiated the idea of civil disobedience in 19th century of America. In the works of Thoreau, we come to a special kind of philosophy that is based on a search for the real nature of man. He emphasizes the role of education in the Antiquity and figures out that mythology and literature are crucial to improve humanity. The ideal of humanity, for Thoreau, is no longer valuable for the sake of the purposes of industrialization. Thus, Thoreau considers that the cruel desires of industrialization put the concerns of social legitimacy closer to the advantages of rule-makers. Thoreau insists on the idea that the imminence between society and actors of politics is the end of the individualism. Thus, the individual values are not independent from the social ones. The losing power of individual values is a result of pragmatic technical mind. (Thoreau, 91-93.)

In the current understanding of education the notion of citizenship functions as the main figure for teaching that who we are. However, to teach the objective dynamics of the heritage of humanity is not the subject of education policies. The framework of education is teaching and learning that are limited to local and particular needs of societies. This narrowed outlook of education is a result of the dominance of social legitimatization.

II. THE POSTMODERN STATUS OF EDUCATION AS INTEGRATION PROCESS

The postmodern status of education is about whether the education process develops the autonomous character of individual or education as learning some kind of ready information only serves for the social integration. This is the main issue of critical philosophers. This point of view mentions that the status of individual is a tool for the hegemony of the status of society and dominant policy. (Illich, 9-10). Michel Foucault (1926-1984) argues that the perception of self-identity is shaped by the process of education. (Foucault, 175). That is to say the character of individual and the social values are identically given in education. For Theodor W. Adorno (1903-1969) education as a learning process of capitalism is equal to a process of integration controlling by the system. In the formula of Adorno the ideals of humanity leaves their places to the purposes of commerce and misconception of modernization. (Adorno, 52-54).

The most prominent instantiation of the conceptualization of education in post-modern societies is the relation between education and aesthetics. The aesthetical activities of individuals are based on a picture of life and world. And their products should tell us something more than the ordinary social system. In

other words aesthetics should give room for creating activity in the minds of individuals. However, Siegfried Kracauer (1889-1966) says that the individuals' feeling of redemption cannot be left as long as the education system does not promote the eccentric ideas. That is to say to be an ordinary is a socially constructed "false need". (Kracauer, 93-94.)

In modern societies, education is so highly developed that the public biographical status of individuals are designed according to their educational backgrounds. Thus the effect of education in society is not just the integration of individuals and their socialization and also to define the social status of individuals. This central element of education in the organization of division of labor in the society constructs competencies between individuals. Thus the role of education in modern societies is closely being experienced by the individuals as members of society. In this sense "the legitimating effects of education transcend the effects education may have on individuals being processed by the schools." (Meyer, 56.) I think that the traditional organization of schools has not been aborted. Furthermore, the experiences provided by schools are transformed by the process of modernization.

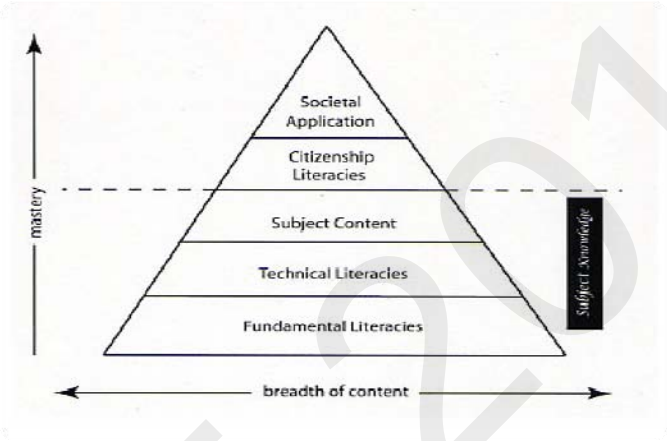


FIG.1. The mastery concept of education (http://uwacadweb.uwyo.edu/CLAAS/Literacies.asp)

In parallel to the rise of the technological knowledge the mastery concept of education becomes more interconnected to the technical literacy. Students are expected to develop their social application qua selecting the needed information content from the breadth of content of information. In this model, "[c]ontent is taught by actively making connections between subject material and the socio-political world, and successful students complete the course with an ability to apply the subject knowledge in settings beyond the classroom." (Ibid.) For John W. Meyer, this integrated model of traditional education can be re-evaluated in terms of socialization process of modern society as such:

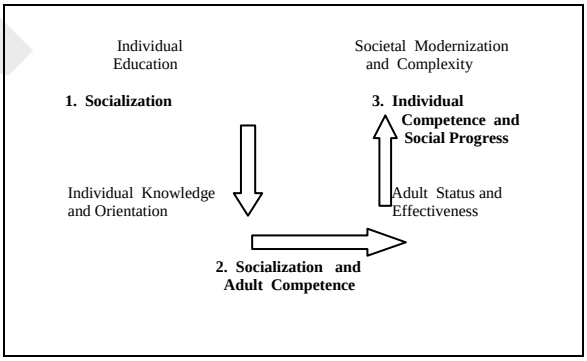


FIG.2.J.W.Meyer's model of traditional socialization theory (Meyer, 57.)

Thus, in Meyer's criticism whenever we consider the effects of value the socialization process in education does not warrant that personal qualities suggests a success in the individual level but it is a fact that education process always works for the societal needs of modernization and competence. Here the

problem is the dominance of the idea that individuals are educated in order to be fixed set positions in society. Therefore, educational systems themselves are, in a sense, ideologies.

CONCLUSION

The philosophical criticism of education in modern society in terms of the expectations of globalization has many issues to be discussed in detail. However, here I argue that the criticism of education is not about the necessity of education but it is about the context of education. In this sense, as the post-modern critical approaches of philosophers illustrated above, the context of education is a reduction of individual values to social legitimacy. This one-sided function of education is equal to the passive activity of learning. And, in this schema the learning process is no more than an integration process. The information in the education process is determined by the needs of capitalist system. Thus, individual values are under a great threat of globalized and modernized ideals of societies. In this paper, keeping a philosophical outlook, I mainly focus on that the intrinsic values of individual should be considered more than the extrinsic values of societies. The modern education is a system of institutionalized transforming social roles for individuals without taking the individuals' values and dreams into consideration. This agent producing education is for committing socialization.

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INFORMATION AND COMMUNICATION TECHNOLOGY IN EDUCATION CERTIFICATE

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Abstract
The paper proposes establishment of Information and Communication Technology in Education Certificate (ICTEC). The ICTEC aims to provide educators with skills through professional training, utilize ICT in teaching and learning, and enable them to restructure and strength their career opportunities. The ICTEC is designed to ensure that trainers such as teachers and instructors receive thorough training on how to use technology as a mechanism for improving instructions, implementing ICT effectively, bring to the class all of the content, motivational and management expertise to capture students' imaginations and connect learning in the students, use technology to foster students' curiosity and creativity, as well as engage students in meaningful problem-solving activities. It will enable trainers to develop technology-rich lesson plans, teaching strategies, and assessment. The contents are built from education and ICT perspectives, including: application of ICT and Internet in education, graphical design, multimedia, curriculum design and strategies, and e-learning development.

INTRODUCTION

Some ICT certifications are offered through industry-based or product-oriented such as MCP (Microsoft Certified Professional), Cisco, IBM, and ECDL-ICDL [5]. In the Association for Computing Machinery (ACM) [8], they list the value of ICT certification as: 1) guaranteed currency of knowledge, 2) intellectual and skills leadership of certified employees, 3) greater efficiency, and 4) greater organizational knowledge.

Users are every day more confident when dealing with huge development of ICT, and present and future generations can not be exogenous to their use and possible applications [5]. One studied [4] presented how long (in years) it took different technologies to be adopted by 25 of North American householders: Electricity (46), Car (44), Phone (35), TV (26), PC (15), Cell Phone (13), and Web (7). Webs have features such as [4]eliminating barriers such time and distance and it can be used as product and delivery medium. Another [4] sited how long it took (in months) different technologies to reach 10 million customers: Radio (240), TV (120), Netscape (28), Hotmail (18), and Napster (12). The ICT represents major learning tools in modern education [1]. All these technologies are available and instructors need to be trained to utilize them through training program such as the ICTEC.

In the technology education fields, the change of paradigm made by intensification of the Internet uses. The online education allows the study of levels courses through electronic medium and Internet [2]. This leads to new perspective and emergence of educational construct, socio-cultural and transcendent paradigm [7].
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The investments in ICTE faced difficulties for several reasons. The education new developments are assigned to certain person such chairperson, coordinator, and principle. In most cases, the development will be completed when the person leaves the organization. There are lack of well developed and clear strategies, based on scientific and technician approaches, for using ICTE. The visions of the decision makers in education organization are not clear in some cases when new factors are affecting the education process. The certificates such as ICDL, Audio-Wave, and others do not solve the all problems related to using the ICT in education. Even if some of the certificate are very good, but there are less experts to train educationalists. Most of the teachers to be trained do not have enough time to attend training sessions. One more reason is there are many ideas but there are less well defined standards regarding hardware, software, curriculum, network and internet sites for education purposes The ICTEC is proposed as an attempt to reduce the effects of such obstacles.

A study [4] revealed that retention is impacted by teaching methods as: Lecture (5%), Reading (10%), Audiovisual (20%), Demonstration (30%), Discussion group (50%), Practice by doing (75%), and

Teaching others (90%). The ICTEC will train instructors and teachers to use all these methods and implement, in appropriate and integration ways, on-action learning. In this paper, we introduce an ICTEC. The reasons, vision, aims, intended learning outcomes, contents, and implementation of ICTEC are presented. This paper is a revised version of one was submitted to the Second e-TQM Forum [13].

AIMS AND INTENDED LEARNING OUTCOMES

The ICT development lead to changes in: work, the organization of work, and required competencies. Among reasons for establishing information and communication in education certificate (ICTEC) are: 1) the world of education is characterized by rapid change, increasing globalization ad growing complexity in terms of educational concepts, especially in the use of information and Communication Technology (ICT) in Education. 2) New educational structures are increasingly driven by information and knowledge; in particular, computers are becoming more widely available at schools, and this relative familiarity with information and communication technology (ICT) forms a backdrop against which the future of education and training must be planned, 3) There are needs for developed information and supported services for educationalists on the use of (ICT) in education every where in the glob, and 4) The learning, specially e-learning, has enlarged its scope and include the use of: web-based teaching materials and hypermedia, multimedia, web sites, discussion boards, collaborative software, e-mail, blogs, wikis, computer aided assessment, education animation, simulation, games, learning management software, electronic voting systems, with other possible methods being used [5].

The ICTEC is to develop information and supported services for educationalists on the use of (ICT) in Education at all acadaemic levels. The ICTEC is designed to: 1) Ensure that teachers receive thorough training on how to use technology as a mechanism for improving instructions, 2) Assist teachers in implementing ICT effectively, as well as student data to assess and modify instructions, 3) Bring to the class all of the content, motivational and management expertise to capture students' imaginations and connect learning in the students, 4) Use technology to foster students' curiosity and creativity, as well as engage students in meaningful problem-solving activities, 5) Enable teachers to develop technology-rich lesson plans, teaching strategies, and assessment, and 6) Enable educators to use the new learnig methods such as: using web-based teaching materials, multimedia, collaborative software, e-mail, computer aided assessment, education animation, simulation, games, learning management software, with other possible methods being used.

The ICTEC is to provide participants with understanding, knowledge, cognitive, design, analysis, practical, and combat skills in ICTE [9]. This provides them with skills that enables them to: 1) promote and assess the use of information and communication technologies in Education, 2) support the implementation of ICT in education in accordance with the priorities set by the ministries of education and E-learning initiatives, 3) improve the understanding of the impact of (ICT) on the organization of teaching and learning, 4) design methods and tools for the development of innovative learning environments, 5) stimulate the development of services and systems to ensure access to multimedia products and internet based services for education, 6) identify suitable areas for progress of the use of (ICT) in education, 7) assess the pedagogical and organizational impact of (ICT) on learning processes and environments, 8) undertake field studies and action research on (ICT) in practice, and 9) invigorate the involvement of teachers in the conceptualization of educational multimedia resources and services for E-learning.

The awarded people of the ICTEC will be provided opportunities to develop and demonstrate knowledge and understanding, and high quality skills in the information and communication technology and education. The holder of ICTEC will be able to: 1) know and understand the aims and uses of the ICTE in their organization and teaching and learning environments, the role of ICTE in implementing change and opportunities and processes involved, and the processes involved in planning, analyzing, appropriate to purpose and audience in context of ICTE delivered in a timely fashion, 2) gain cognitive skills to: demonstrate an understanding of reflective practice and the ability to learn and teach from his and others experiences, apply his knowledge and understanding effectively to arrange of issues and problems relative to ICTE in the workplace, and explore, analyze and evaluate practical ways to improve workplace practices, 3) have key, practice and professional skills: communicate information, arguments and ideas effectively using styles and language appropriate to purpose and audience in context of ICTE delivered in a timely fashion, investigate, gather , and interpret information about his work to meet specific

requirements of his professional development, use the workplace to learn, teach, develop, and record his professional competence including awareness of ethical issues relevant to education workplace .

E-learning relates to students and e-teaching relates to teachers and their experiences of design, development, and implementation. Being a professional in ICTE, instructor will be knowledgeable, well-prepared always, and communicate ideas clearly. That will help their students- not to include malpractices such as plagiarism, cheating, etc- to submit assignments and quizzes on time, do not hesitate to contact instructor, and use e-book, e-journal, and learning management systems such as: Blackboard, Moodle, WebCT, and KEWL in very user-friendly ways.

CURRICULUM STRUCTURE

The modules or the courses will be built from education and information and communication technologies perspectives. They are based on knowledge areas: application of ICTE (ICT and Internet application), multimedia (text, video, audio, animation, graphic, images), Education (design, teaching and learning strategies and evaluation), and development (visual programming languages or software tools and e-learning development) using ICT tools. Proposed titles of the modules or courses, at this time, to be studied can be: Application of ICT in Education (A1), Developing Education Websites (A2), Multimedia for Education (M1), Graphical Design (M2), Teaching and Learning Strategies (E1), Curriculum Design (E2), Visual Programming (D1), and Project: Developing e-learning Content (D2). They can be studied in a period from one year to tow years, if the candidate is seeking a degree with a certificate. A candidate can pass exams in these areas and will be awarded the ICTEC. However, for a degree purpose, upon completion of these courses, a graduate can be awarded a high diploma or a master degree. A candidate can studied from 24 credited semester hours (courses only) for high diploma or 33 (courses plus thesis) for a Master degree.

Table-1: The major intended learning outcomes and the most related courses

Learning Outcomes/ Modules	A1	A2	M1	M2	E1	E2	D1	D 2
Will be able to Know and Understand								
1. The aims and uses of the ICTE in their organization and teaching and learning environments.	X					X		
2. The role of ICTE in implementing change and opportunities and processes involved.	X	X			X	X		X
3. The processes involved in planning, analyzing, appropriate to purpose and audience in context of ICTE delivered in a timely fashion		X			X	X		X
Cognitive skills								
4. Demonstrate an understanding of reflective practice and the ability to learn and teach from his and others experiences.			X	X	X	X		X
5. Apply his knowledge and understanding effectively to arrange of issues and problems relative to ICTE in the workplace.	X	X			X			X
6. Explore, analyze and evaluate practical ways to improve workplace practices.	X	X	X				X	X
Communication Skills								
7. Communicate information, arguments and ideas effectively using styles and language appropriate to purpose and audience in context of ICTE delivered in a timely fashion.	X	X	X	X			X	X
8. Identify, assess, and use information and data to accurately in large context associated with ICTE.	X	X	X				X	X
9.Compare and use a variety of approaches to understand relevant issues or problems in teaching and learning in the context of ICTE.	X				X	X	X	X
Professional Skills								
10. Identify and select appropriate evidence of carrying out aspects of work roles relevant to ICTE.	X			X	X		X	X
11. Investigate , gather , and interpret information about his work to meet specific requirements of his professional development.	X	X		X	X		X	X
12. Use the workplace to learn, teach, develop, and record his professional competence including awareness of ethical issues relevant to education workplace.	X	X	X	X				X

It is supposed that a pre-requisite for the courses or the modules for the ICTEC to be learned is basic computer skills or a certificate such ECDL/ICDL or IC3 [10]. These skills include knowledge of computer system components and introduction Information Technology; and the skills to use Computer, Windows, Word Processing, Database, Spreadsheet, and PowerPoint, Internet and E-mail.

The intended learning outcomes (ILOs) will be achieved by teaching and learning the content of these courses. Each course will provide the participant with knowledge and understanding, cognitive, key, practical and professional skills. Table-1 shows the major skills and the courses related mostly.

Table-2: Course Descriptions and Software Tools

Course	Description and examples of ICT Tools
A1. Application of ICT in Education	The course provides a hands-on experience in which teachers/instructors use a variety of software commonly used in Basic and Secondary Schools. It will acquaint participants with Technology and its applications used in educational settings. Topics include: Technology in learning and teaching process, Computer Aided Instruction, Computer Managed Instruction, Computer Application in Education, Evaluating education programs, integrating technology across the curriculum, and professional Ethics. Participants will use application software, hypermedia, e-mail, and the Internet. Tools: Micrsoft Office(Word, Power point, Excel, Access, Publisher), Kid Pix.
A2. Developing Education Websites	This course examines the use of the Internet to improve teaching and learning in education settings. Topics include: accessing global information resources, collaborative online Learning environments, video conferencing, distance learning, Information search and retrieval, and web page development. The participant will use Web applications to develop educational web content. Tools: Front page, Authorware, Dreamweaver.
E1.Teaching and Learning Strategies	This course provides participant with instruction in curriculum development, standards implementation, and learning theories and techniques. Topics include: curriculum concepts, types and curriculum orientations; foundations of curriculum: cognitive, social, psychological and philosophical; curriculum elements: educational objectives, content, learning activities, instructional strategies, methods and evaluation; the relationship between curriculum and instruction from different theoretical perspectives. Tools: Inspiration, Markin, Virtual Image
E2. Curriculum Design	This course provides the student with theoretical perspective of the design process. Topics include: design process, cognitive, behavioral, human and social frames, models of modern designs; effective and proper design of teaching for the classroom environment. The students will be able to acquire skills needed in the filed of design, implementation, application and evaluation of instructional design. Tools: Paint, Kidpix , Inspiration
M1. Multimedia for Education	This course involves the development of multimedia instructional materials for classroom application. Topics include: integration of a variety of multimedia: text, graphics, animation, speech, sound, video; hypermedia stacks, concepts maps, and slides presentations. Students will use computer and information technology to develop and produce instructional materials including video products. Tools: Sound Forg, Movie maker, Photoshop.
M2. Graphical Design	This course examines the use of computer graphics, animation and visual literacy in educational settings. Topics include: processes of design, composition, color utilizing, psychology of color utilizing, and visual literacy; Using computer for visual design and production, projected and non–projected media, two–dimension and three–dimension design; Animation, Simulation, and Computer human interactive. The students will use software for development of E-learning materials both in print and for web. Tools: Camatsia, Movie maker, Flash, Visual Programming, Photoshop.
D1. Visual Programming Languages	This course introduces participants to the basic logic in computing and using of visual programming to teach programming concepts for classroom instruction. Topics include: basic programming instructions, objects, projects, icons, development of programs using VB or/and VB.Net, and interface with data base and internet media. The students will be able to design thematic/integrated lessons and to write programs and connect them with database and internet media using the using Visual Basic (VB) or VB.Net. Tools: Visual Programming (Visual Basic, VB.Net).
D2. Project: Developing e-learning Content	This assigns a student a comprehensive project to integrate his understanding knowledge, cognitive, practical, and communication learning and teaching skills gained from the ICTE program. The student will start the project by producing the plan, specifications and the design for producing the content for a selected module. The student will present the implementation and the presentation of a comprehensive e-learning materials. Participants from School Principles will have the option to produce their project to include School Management such as planning, scheduling, and School Information Systems. Tools: Project Maker, Macromedia Authorware, Visual Programming Language, Flash, Multimedia.

Table-2 shows suggested courses that a participant will be trained or self-learned before taking exams to get the ICTEC. Each course description includes: the main objectives to be gained, the main topics to be covered, and the major activities or assignments. The ICTE tools include some of the current known software.

IMPLEMENTATION AND QUALITY ASSURANCE

The ICTEC can be implemented by several approaches. One way is similar to ECDL/ICDL, when doing the test, but with different contents [9]. It can be graduate certificate, after completion of 32 points, or graduate diploma in ICT Education, after completion of 64 points, similar to that in [10]. The aims are to provide teachers with the skills to integrate ICT into their teaching and implement a professional development model to enhance standards-based instruction through engaged learning and technology integration in the IT area. A third approach is a blended approach, or close to a blended learning, as the initiative case implemented by the University of Jordan in cooperation with Ohio University and the Al_Faisal International Academy [3]. They award ICTE High Education Diploma upon completion of 30 credit hours.

The materail could be presented as online training, online trianing with suitable face-to-face teaching, face-to-teaching, or self learned. Online can be used to save travel costs and efford of face-to-face tecahing. The trainers must have qualified faculty to deliver suitable knowledge. Online learning can uses variety of e-learning tools such: digital storytelling, program specific Wiki, vodcasting, Skype, WebCT, Moodle, and Blackboard [5].

An indicator of mastering software tools in the program leading to the ICTEC is the progress of gaining the skills of using the tools. The skills will be developed from basic software to programming lanuages, as it indicated in Table 2. The developed software can be in the order: 1) Basic software such as: MS Word, Excell, Publisher, Power Point, and Kid Pix; 2) Multimedia such as: Sound Forg, Movie maker, Photoshop; 3) Project management such as MS Rpoject; 4) Internet programming such as: HTML, Front page, Authorware, Dreamweaver; 5) Image and Animation Tools such as: Inspiration, Multimedia, Camatisia, and Flash; and 6) Visual Programmng and Information Management such as Visual Basic and VB.Net.

To assure the quality of the ICTEC, several issues should be reviewed and measure. This can be done after or during the studying and the traininig to have the ICTEC. Among the methods to assure the quality of the certificate are: questionaires to be answered by the candiates, interview, examining students taught by holders of certiciate. These methods can deals with the articultion of mission and gaols of the certicficate, the resourcese proivvided during preparation on trainnig on the ICTEC, support, content quality, usefulness of ICTE, and important of the content in profession as teachers. For example, the articulation of the mission and objectives the methods can meaasures: the promotion of the use of the ICTE, support the implementaion of ICTE in accordance with priorities set by directors of educations and e-larning inititatives, impact of the ICT on the organization of teaching and learning, tools for the developmnet of innovative learning environmnet, stimultation the developmnet of services to ensure access to multimedia and interentr based services for education, and new teaching pedagogies. The quality of the resources, for example, can be measured by asking about the qulity of: computer support, e-learning platform, internet access, e-mail connectiviety, materials provided, online teaching environmnet, and software provided.

CONCLUSION

This paper presents an invoative to establish an ICTEC. The ICTEC is to provide participants understand, knowledge, cognitive, design, analysis, practical, and combat skills in three knowledge and application areas of ICTE. These areas are: information and communication technologies, educations, and integration of these two in application product. It will enable them to: promote the use of ICT in Education, support the implementation of ICT in education and E-learning initiatives, design methods and tools for the development of innovative learning environments, stimulate and ensure access to multimedia products and web-based services for education, assess the pedagogical and organizational impact of ICT on learning processes and environments, and invigorate the involvement of teachers in the conceptualization of educational multimedia resources and services for E-learning. An ICTEC holder will be capable to implement ICT in teaching and learning on action.

The entire plan to start the ICTEC is described in this paper. The ICTEC needs to be accredited by an international organization and carried immediately. The ICTEC is promising in terms of knowledge economy. In addition to gaining knowledge and better service, a holder of the ICTEC can be promoted to

a higher rank or increased in his salary. This certificate can be used as major requirement and high qualification for hiring staff or teacher in ITCE areas

Several reseach can be conducted to invetigate the effects and impacts of those holding the ICTEC on teaching students at scools and their achievements. Some indicators to be investigated are: students creativity, their critical thinking in solving problems, their abilities in communication and cooperation, their abilities in utilizing of ICT, and their appreccaiton of ICT applications and processes.

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INTELLIGENCE STUDIES IN HIGHER EDUCATION. DESIGNING AN INTELLIGENCE STUDIES CURRICULUM FOR THE ROMANIAN CIVILIAN UNIVERSITIES

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ABSTRACT

While intelligence is not a new phenomenon, the academic study of intelligence is. Intelligence studies as an academic discipline was slow to develop in universities. Perhaps the cause was the secrecy attaching to intelligence matters, or the reluctance of academe to engage with clandestine services. This article looks at the status of intelligence studies as a discipline and as a study program, then consider the relevant academic initiatives in intelligence studies, also revealing the main approaches to studying intelligence.
Currently, the intelligence paradigm shift is heading to a decentralized type of intelligence as opposed to the concept of "central intelligence". Similar to Robert Dahl's *Polyarchies* - where power is no more concentrated at a single decision centre, instead dispersed within society – the covert hierarchical intelligence model seems to be surpassed by an open source pluralist intelligence model. It is precisely such a model upon which the emergence of intelligence studies curriculum is based.
As part of the wider doctoral research „Reforming the intelligence sector through academic education. Implications for the military higher education", the paper focuses on the lack of intelligence education as a threat to the national security and also on the *Intelligence – University nexus* as a critical part of todays Knowledge Society and of the Bologna process to create the EHEA by making academic degree standards&quality assurance standards compatible throughout Europe. Firstly, we will examine the use of Open Source Intelligence OSINT in the academic field and its importance in designing Intelligence Studies curriculum for the Romanian Higher Education. Then, we will argument the need for Intelligence Studies as a new field of intellectual inquiry, scholarly debate and as an academic study program within the fundamental field of study "Political and Social Sciences", based on the new context of the 21st century: the heightened role of intelligence in international affairs and in its influence upon political agenda setting, decision making and policy making; the preminence of intelligence and security issues in political discourse as well as at the level of public opinion. A key-issue of the paper is about the research and institutional efforts to be made in order to 1.describe the conceptual framework in which intelligence will be studied, considering that Intelligence Studies can support a considerable number of diverse subject areas, and can be accurately described as interdisciplinary; 2.identify the beneficiaries and the potential educational bidders; 3.validate the Intelligence Studies as a new qualification by the ACPART (*National authority for establishing and regularly updating the national framework for higher education qualifications*).

KEYWORDS:
Intelligence studies, Academic Outreach, Research cluster, Interdisciplinary, Intel curriculum

BIASES, PREJUDICES AND MISPERCEPTIONS TOWARD THE INTELLIGENCE ACTIVITY. THE ROMANIAN CONTEXT

The Intelligence – University Nexus during the Communist Regime

Before 1989, Romania featured a repressive Communist regime that used its intelligence apparatus, the "Securitate", to transform the country into a police state dominated by physical and moral torture, fear, intimidation and suspicion among citizens. The so called "enemies of the regime" underwent permanent surveillance, harassment and imprisonment, but the "Securitate" maintained control over the entire population, keeping records via a network of recruited collaborators and informants of all ages and social backgrounds. The "Securitate" had special units monitoring Romanians, dissidents living abroad and political prisoners. The First Unit of DSS (Directia I) had the mission of monitoring, neutralizing and attract as informants the academics and intellectuals who criticized the Communist regime and its "Cultural Revolution" which aimed at creating a new intellectual elite and "The New Man" that lacked a

critical spirit through the ideologization of the educational system by replacing academics with communist activists, by suppressing the university autonomy, by replacing the academic disciplines with courses of "Marxism Leninism" and "dialectical and historical materialism", by the mandatory imposition of Russian language, by physical removal of those academics and intellectuals resisting communism, by exclusion of students having "bourgeois" family background, and, last but not least, by using the "re-education through torture" method in regime's prisons.

Post-Communist Romania: The "Securitate" Legacy & Public Hostillity

The lack of transparency, the politicization and the illegal procedures used for telephone surveillance of journalists and politicians, the abuse of the agencies' exceptional powers (used for vendettas, personal or electoral reasons, rather than national security), the engagement in acts of corruption, bankruptcy and smuggling activities, the involvement in partial or total disappearance of certain "Securitate" files an records or the use of the remaining files for blackmail, along with the population's hostility toward the former "Securitate" officers, shed a bad light on the intelligence agencies during the first years of transition, in the aftermath of the anti-Ceausescu revolution.

With the enactment in 1999 of The Council for Studying Securitate Archives (CNSAS), many politicians, academics, writers, journalists, intellectuals, athletes, clergy members were exposed as former collaborators. The declassification process revealed that even high-school and college students were envolved in spying by informing the "Securitate" when their classmates or families criticized the Communist Party.

Lack of Intelligence Education as a National Security Threat

To end up with the "Securitate" legacy, Romania has been undertaking a major reform of the intelligence system; efforts have been made to professionalize the Intelligence Community (IC) by institutionalizing a new personnel management system. Nevertheless, the unilateral perspective regarding intelligence proposed within the internal education centers and departments of each intelligence agency (such as the Romanian National Intelligence Academy ANI and the National Intelligence College, created by the SRI, National Defense University, Technical Military Academy, National Defense College) is clearly insufficient mainly because their rigid eligibility entrance criteria (medical, psychological and IQ strict testing), but also because their target on training the future intelligence practitioners.

Moreover, the lack of intelligence education can become a national security threat due to the fact that the future public officials, policy makers or political consultants educated at civil universities could bias the intelligence process by not acquiring and not possessing the necessary skills and knowledge of it. It is well known that only an adequate *intelligence* can guarantee the success of *decision and policy making;* governmental policy makers shall be able to make relevant internal political or diplomatic intercessions, only if they assimilate the information regarding the global security and political context and try to adapt it to the strategic situation, risks, threatening or existent opportunities. One way to overcome the public apathy toward intelligence and wipe away the "Securitate" stigma is by cultivating a political culture that supports and trusts intelligence. Thus, contributions to developing an intelligence awareness among IC outsiders must include building an higher educational capacity in intelligence studies that would create an enabling environment for universities to exercise intellectual leadership in addressing societal demand for knowledge about intelligence and national security affairs.

THE INTELLIGENCE COMMUNITY - ACADEMIA PARTNERSHIP

Building partnerships between the scientific and intelligence communities could help our country to better balance relative risks and benefits as viewed from the different perspectives of the university and security communities. Such collaboration will help improve the knowledge of both communities in order to achieve a better understanding of the security issues and the consequences for science, higher education, and the future of the Romanian economy.

Giving the new context of the 21st century (with the heightened role of intelligence in international affairs and in its influence upon political agenda setting, decision making and policy making, the prominence of intelligence and security issues in political discourse as well as at the level of public opinion), we argue in favour of the need to bring non-governmental expertise into the intelligence process, referring to this source of knowledge as "the missing dimension of intelligence"; outside experts with academic background can assist the intelligence community in better understanding the context underpinning unprecedented challenges posed by the age of transnational threats and in creating new knowledge on priority issues driving the political and security agenda.

By reaching out to the academic community and increasing the ties between the IC and the university system, the IC can gain meaningful insights and alternative opinions: the academics could be used to review analytical assumptions and logic, to examine alternative approaches to an issue, to argue the pros and cons to a judgment involving uncertainty, ambiguity, or debate, and to provide technical peer review. The U..S Intelligence Community Directive 205 dated 16 july 2008 defines analytic outreach as „the open, overt, and deliberative act of an intelligence community analyst engaging with an individual outside the IC to explore ideas and alternate perspectives, gain new insights, or generate new knowledge."

According to Gregory F.Treverton, the main approaches to academic outreach for intelligence are: co-production by outsourcing certain analysis task to outsiders with academic background, virtual co-production (e.g. wikis, blogs, U.S.Intellipedia), occasional consultation of academic experts, joint working groups on particular issues, IC publications made available for academic researchers, occasional conferences to enable the dialogue between the intelligence and academic communities, use of intelligence services Web sites for interaction (Treverton, 2009).

Those types of outreach involve relations with academics designed mainly to build long-term relationships or platforms for public discourse on issues related to national security, and not necessarily to produce immediate analysis. For example, the British Defence Academy'Advanced Research and Assessment Group (ARAG) organizes its work in „research clusters" by holding research based thematic seminars with participants from intelligence community and the Academia. The results of the research are discussed by intelligence and academic experts, along with policy makers as intelligence consumers. Similarly, the *SHARP workshop* is but one of a wide array of outreach projects now underway in United States, involving millions of dollars in contracts, fellowships, conferences-even wikis and blogs-directed at scholars and other IC outside experts. Organized under the auspices of The Office of the Deputy Director of National Intelligence for Analysis, the Summer Hard Problem Program (SHARP) brings together annually leading specialists from the social sciences and government analysts with the goal of engaging external (non-government) experts on issues of critical interest to the Intelligence Community, as part of the White House initiative/commitment to create and institutionalize a culture of Open Government

Even tough Robert David Steele talks about "public intelligence", "multilateral information sharing rather than unilateral secrecy" and about the emergence of academia as one of the seven "intelligence tribes" (Steele, 2003), the outreach varies in extent and form across nations. For instance, the German external (*Bundesnachrichtendienst*) and domestic intelligence services (*Bundesamtes fur Verfassungsschutz*) do not cooperate with any NGO or academic consultant. In Spain and the UK outreach activities mostly evolve around the concept of "open source" aiming at promoting an "intelligence culture" as the knowledge base citizens must have about intelligence agencies in order to perceive them as integral part of society itself. To accomplish this, the Spanish and British intelligence seek to make intelligence an academic discipline to be studied at universities and also tend to cooperate with Academia in order to benefit from its knowledge base on topics of interest for the IC.

In general, the European governments are more reluctant to academic outreach for intelligence, and the private-public cooperation is rarer than in United States or Canada. The main instrument to build an IC-Academia relationship in the European context would be through the establishment of an independent open-source research that benefits both IC (by supplementing internal analysis) and Academia (1.by encouraging the inclusion of intelligence content in teaching about international relations, which would help foster greater public interest and understanding of the role of intelligence in statecraft; 2.by creating a culture of openness toward discussing policies and procedures employed by the intelligence organizations; 3.by offering the opportunity to the political scientists, historians, psychologists to test their own theories in a policy-infused setting and to subject them to the scrutiny by fellow scholars, policy makers as well as analytic practitioners (Bowmann, 2008); 4. by developing an intelligence paradigm (Johnson, 2007) in an effort to apply analytic methodologies and insights drawn from the social sciences, to understand the fundamental nature of intelligence, to explain the history of intelligence successes and failures, to understand intelligence organizations and processes, and to assess and improve upon the craft of analysis itself).

Nevertheless, as Kenneth E. Roberts points out, the main obstacles to government outreach toward academic expertise by working from unclassified sources and providing unclassified information on topics related to the security could include: inadequate funding, prejudice in the academic community against the intelligence community, that lack of access for academics to classified reporting that makes their analysis less timely and less informed. In addition, the writing styles of academics are often different from the needs of policymakers and intelligence analysts. (Roberts, 2005)

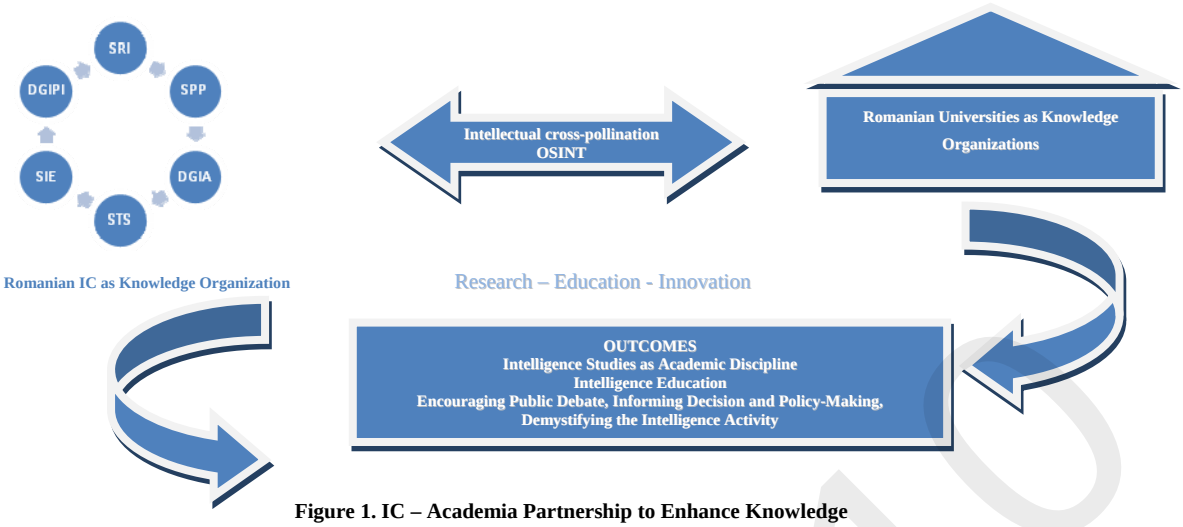


Figure 1. IC – Academia Partnership to Enhance Knowledge

The emergence of the "Clearances Matter Less Than Knowledge" doctrine

The proliferation of the Internet as a tool of open multilingual information dissemination, accompanied by the information "explosion" as the rapid increase in the amount of published information and of knowledge, have legitimized the decline of traditional covert intelligence hypothesis, in favour of the white intelligence based on the doctrine of "Clearances Matter Less Than Knowledge". The traditional model of intelligence, focused on centralized management, hierarchical command structure and formal procedures, failed to manage *information overload* (Liaropoulos, 2006). In counterpart, the new paradigm of OSINT can provide control over the information flow, preventing its biased dissemination. Information from publicly available sources are vital to any process of information gathering upon: historical background and political context, economic and demographic data etc. Due to its indiscriminate addressability, increased accessibility and broad range of topics covered, the media (print, audiovisual or Internet) are the prevalently used publicly available sources.

OSINT's advocates believe it to be the answer to many of today's intelligence challenges. They call for a new intelligence paradigm marked by the open source information and a trans-sector intelligence collaboration that includes a broad network of public and private actors. For example, www.isn.ethz.ch and www.oxan.com are two academic websites that provide a wealth of open source information for researchers and analysts. Based at the Center for Security Studies at the Swiss Federal Institute of Technology, the **International Relations and Security Network** (ISN) collects and manages resources from hundreds of different think-tanks, research institutes, international organizations, and government agencies in its digital library and also publishes a daily news analysis service, Security Watch. **Oxford Analytica** is a premium rate strategic analysis and consulting service drawing on a network of university researchers and faculty members at Oxford and other major universities around the world. OSINT is not limited to the Internet, although it is here that an increasing volume of valuable information is to be found. The public agencies, think-tanks, NGOs, the private sector and universities all constitute open sources of information.

According to Prof.Martin Rudner, university-based research represents a valuable means of building knowledge at the leading edge of historical and policy-oriented intelligence and security studies (Rudner, 2009). The academic research can offer an outside perspective based on open sources that allow new insights, comparative assessments or analytical reviews on intelligence and security policies, organizations and activities. Even if, in the past, intelligence agencies were reluctant to the research inquiries into their secretive domains, today, in most democracies, academic research is recognized as contributing added value to broader governmental and public knowledge of the intelligence community.

INTERNATIONAL CONTEXT: INSTITUTIONALISATION OF INTELLIGENCE STUDIES IN ACADEMIA

Intelligence has become a quasi-intrinsic component of contemporary state structure, based on essential information supplied by important policy makers whose decisions can guarantee the protection of national interest and security. By implication, and mostly after the terrorist attacks on the United States of 11 September 2001, several degree programmes and courses in intelligence studies were established at various universities such as: Mercyhurst College in Pennsylvania and Georgetown University in the

United States; Brunel University and the Universities of Salford and Wales-Aberystwyth in the United Kingdom; Norman Paterson School of International Affairs at Carleton University in Canada. In Spain, Universidad Rey Juan Carlos in Madrid in 2005 set up a Cátedra Servicios de Inteligencia y Sistemas Democráticos offering a dedicated academic programme in intelligence studies. Subsequently, in 2006, the Instituto Juan Valáquez de Velasco de investigacion en Inteligencia para Securidas y la Defensa was established at Universidad Carlos III in Madrid.

Only a few departments of intelligence studies have been established in academia. Most frequently, universities have arranged for the intelligence studies programmes to be included within the framework of their interdisciplinary schools of international studies; other universities have incorporated intelligence studies as part of congenial, discipline-based graduate degree programmes (e.g. University Roma Tre, Faculty of Political Science; University of Salford School of English, Sociology, Politics and Contemporary History; University of Wales, Aberystyth, Department of International Politics). In France, the political studies program at l'Université Montesquieu-Bordeaux IV introduced a *Diplôme de 3e cycle* in Intelligence Studies, jointly with the Centre Français de Recherche sur le Renseignement in Paris. Many other universities in countries as Austria, Germany, Italy, Sweden, the Netherlands have introduced intelligence course content into their undergraduate/postgraduate programmes in international history, political science and security studies, or have adopted a dual academic-professional orientation within joint degree programmes.

As Rudner points out, the study of intelligence incorporates a multitude of governance, policy, institutional, operational parameters and a wide spectrum of conceptual-theoretical perspectives. This syncretism has generated new paradigms, and empirical case studies into the academic repertoire of intelligence studies, making interdisciplinarity the hallmark of Intelligence Studies.

The teaching of intelligence

Intelligence studies is a relatively recent addition to academic study, emerging as an independent discipline in the 1970s. The degree brings together the fields of criminal justice, political science, sociology, with a dose of high tech development in the area of information collection. A relevant definition of the discipline has been advanced by the Chair of the IAFIE (International Association for Intelligence Education) Educational Practices Committee: "*Intelligence studies* is the study of the theory and practice of applying information gathered by both open and clandestine methods for the purpose of strategic planning, criminal investigation, and policy implementation by governments, law enforcement agencies, and business".

The teaching of intelligence had begun within the US higher education system with academics having an intelligence background and after the publishing, in 1960, of an article written by a former practitioner, Peter J.Dorondo, who detailed what he believed ought to have been the way intelligence was taught at universities: the course should begin by identifying what is the meaning of "intelligence," before proceeding to a consideration of how intelligence is the "foundation" for policy planning.

The aim set for intelligence studies can be summarized as promoting multidisciplinary understanding of the concepts, issues and debates regarding intelligence in order for the public to become more aware of issues around the meaning, value, nature and proper use of intelligence. As Michael S.Goodman points out, the study of intelligence can either be predominantly historically case-study-based or it can be primarily abstract in nature. In the United States, the subject has largely been located within political science departments, consequently there is less emphasis on historical case-studies and a greater attention paid to theoretical deliberations. In Europe, the subject has a far more historical grounding, with the major emphasis on empirical case-studies. The courses tend to reflect accurately the departments they are sited within. Thus, courses offered through politics or international relations departments largely consider the role of intelligence in those contexts; whereas history department courses are far more case-study based, centered around institutions, countries, or epochs. Courses within multi-disciplinary faculties do not fall into either category. The undergraduate degree programmes include individual courses on intelligence, and tend to emphasise the basic disciplinary paradigms - most usually political science, international relations or history. At the masters level, curricula are typically designed to reinforce disciplinary training with advanced enhancements, often focusing on theoretical issues in the discipline. Masters programmes in international affairs, in particular, tend to emphasise interdisciplinary curricula that integrate academic and professional approaches. At the doctoral level, the orientation is usually toward preparation for the research initiative that that is expected to contribute to the advancement of knowledge in the given field of study.

In his pioneering academic treatment of the subject, Prof. Stafford Thomas detailed four approaches to studying intelligence: (1) the *historical/biographical approach* —within this category

studies look at specific historical case-studies or chart chronological periods. As part of this, the work can either be memoir-based or archive-based; (2) the *functional approach*— this category studies the intelligence cycle appropriate for the needs of a national security strategy; looks at the development of intelligence activities, processes, and technologies; (3) the *structural approach* — studies the institutional development of the intelligence community; (4) the *political approach*—this concentrates exclusively on the political dimension of intelligence and examines the ethics of intelligence gathering, sharing and public (Thomas, 1988). Going further, the Canadian intelligence scholar Wesley Wark identifies eight methodologies: (1) the *research project* - utilizing primary source archival evidence; (2) the *historical project* - case-study based accounts; (3) the *definitional project* - concerned with the foundation of intelligence studies; (4) the *fourth perspective* - using case studies to test the theoretical deliberations; (5) *memoirs* - can be both the first treatment of a subject, or designed to offer first-hand perspectives; (6) *civil liberties* project- designed to reveal those activities of intelligence agencies that impinge on domestic life; (7) *investigative journalism*, (8) *popular culture project.*

DESIGNING AN INTELLIGENCE STUDIES CURRICULUM. STEPS TO BE MADE

Any preliminary academic initiative in Intelligence Studies should start with conferences, seminars, workshops involving scholars, journalists, business people, think tank experts, representatives of NGOs, scientists, retired senior policy officials, and other specialists from the private sector in order to formulate the prototypal curriculum template for intelligence studies by identifying the core concepts and materials needed for teaching intelligence and also by exploring the already institutionalized methodological and teaching approaches of intelligence studies. At this point, becomes important to distinguish the "Intelligence Studies" (as academic discipline or field of study of the theory and application of intelligence) from "Intelligence Education" (as career oriented interdisciplinary undergraduate or postgraduate education that prepares students for career in intelligence).

Prof. Gregory Moore identifies several questions to be considered when promoting *Intelligence studies* as an academic discipline: Does Intelligence Education require the emergence of a new academic discipline, i.e."Intelligence studies", or can effective intelligence education be created from existing curricula? Is there a specific body of knowledge about intelligence that students have to acquire through undergraduate and postgraduate programs: More specifically, what should an undergraduate and postgraduate curriculum look like? Should Intelligence Studies be a subset of an existing discipline or could it stand on its own? What will it take to win recognition as an academic discipline: a body of literature, an Intelligence theory, applied and theoretical concepts, emergence of recognized scholars, emergence of scholarly organizations devoted to intelligence studies, research, doctorates in the field of intelligence studies? How to coordinate the views of the intelligence community with those of academia: practitioners cannot dictate what an intelligence studies curriculum should look like, but academia should consult practitioners to assure that the discipline reflects the appropriate knowledge base. Who will benefit most from earning a degree in intelligence studies: analysts, scholars, future political consultants or public officials, knowledge workers? What problems must be overcome: faculty reluctance to support a program in intelligence studies for moral or political reasons, the amount of material that remains classified impossible to be used in developing courses and, finally, who is qualified to teach intelligence studies curriculum; where will the first generation of instructors come from?

In Romania, the institutionalisation of *Intelligence Studies* as a new field of intellectual inquiry, scholarly debate and as an academic study program within the fundamental field of study "Political and Social Sciences" needs a sociological research to test the level of intelligence knowledge among students, also institutional efforts&lobby among the Romanian Minister of Education but also among potential beneficiaries, and finally, a curriculum projection**.** Several steps should be made: 1.describing the conceptual framework in which intelligence will be studied, considering that Intelligence Studies can support a considerable number of diverse subject areas, and can be accurately described as interdisciplinary; 2.identifying the beneficiaries and the potential educational bidders *via* a sociological research involving the use of two quantitative instruments: the questionnaire to test students knowledge about intelligence and the standardized-interview among academics and beneficiaries to help designing the intelligence studies curriculum and identifying the competencies and skills to be developed by the given discipline; 3.validating the Intelligence Studies as a new qualification by the ACPART (*National authority for establishing and regularly updating the national framework for higher education qualifications*). A consensus on a prototypal curriculum may be possible by making from multidisciplinary and interdisciplinary approach the norm. Thus, intelligence studies as an academic discipline will most resemble Political Science including three instructional elements: **Core courses** dedicated to interdisciplinary courses on intelligence topics (*Comparative intelligence systems*,

Intelligence and statecraft, Intelligence strategies and operations, National security law); **Cognate courses** meaning specified courses in related academic fields (*Area studies, Conflict analysis, Philosophy of law*), and **Optional courses** meaning recommended courses that deal with particular issue areas, institutions and policy matters of interest and relevance to intelligence studies (*International/national intelligence history, Ethics of intelligence, Financial intelligence and terrorism resourcing , Peacekeeping intelligence, National security accountability and intelligence oversight National security, civil liberties and human rights, International intelligence relations and alliances, Intelligence and the media*).

Conclusion

While it may not have as long a tradition as in the United States, overall in Europe, intelligence studies is one of the fastest growing disciplines in academia, with increasing number of courses and modules offered. Given the secrecy surrounding intelligence organizations, and the sensitivity of political leaders to the use and abuse of intelligence work, progress in implementing intelligence studies in Romanian academia will be slow, and new knowledge will inevitably be based on historical case studies rather than on contemporary events. Moreover, one of the largest challenges facing the institutionalization of intelligence studies will be to demystify a biased view that many students have regarding the national intelligence community.

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INVESTIGATING ELEMENTARY STUDENTS' MISCONCEPTIONS OF AGRICULTURE CULTURE

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Summary
Even though competencies in science are part of agricultural education programs, few national and international sources about them are available. Further, related literature has showed that the number of studies seeking the students' misconceptions of the subject under investigation is rather limited. The aim of this study is to determine 6th grade students' misconceptions of agriculture and basic environmental subjects and to elicit possible reasons engendering these misconceptions. In this research a questionnaire on concepts of agriculture farming culture (i.e. agriculture, organic agriculture, the importance of agriculture in daily life, the effects of science and technology on the development of agriculture, the effects of modern agricultural applications on agriculture, types of soil, forms of soil, relations between agriculture and industry, agricultural sources, erosion, and ecosystem) was developed and administered to forty eight 6th grade students. The results of the analysis show that students have misconceptions about agriculture and basic environmental subjects.
Key words: Misconceptions, Agriculture Culture, Environmental Education

Introduction

One of the courses in which life and course contents are intensively intertwined is the course of agriculture which is suggested to be managed by teachers of science and technology. In 2006 the Ministry of Education determined that the primary aim of the course of agriculture, suggested to be studied as an elective course, was to make students in the sixth, seventh and eighth grades conscious about agriculture and help them make comments about different agricultural applications (MEB, 2006). Although this course is an elective course, we should help to provide a ground on which environmental consciousness can be developed about environmental problems is one of the most significant problems in our rapidly changing, developing and polluted world. Through this course it is aimed to make students perceive agricultural production principles, the role of agriculture in the historical development of civilizations, the maintainable use of agricultural sources, the importance of agricultural raw materials (mainly food) in the formation of daily products and the place of technology in agricultural production (MEB, 2006). Moreover, it is known that the course also makes it easy for students to understand the relation between agricultural and environmental problems, either generally understood very little or often neglected because of the complex structure of the course of agriculture (MEB, 2006; Haşıloğlu, 2009).

The competencies about science have always been part of the programs of agricultural education (Binkley and Tulloch, 1981). The principles and concepts related to medicine, biology, genetics, psychology and zoology can be easily applied to the studies done about plants and animals (Moss, 1985).

Although science is a part of agricultural education, there are very few international sources about teaching these subjects (Martin, Rajasekaran and Void, 1989). Students in primary schools need authentic learning environments to be sensitive about societal matters, to develop their research skills and to relate what they have learned outside classes. One of the best examples to this situation is agriculture. They have identified learning subjects about feeding animals, plants care, ecosystem and natural sources in relation to agriculture in the primary education

The interdisciplinary education has played a key role in providing individuals thinking deeply about food, agricultural system and the roles of these in ecosystem (Lockwood, 1999). The theory of integration forms the essence of integration of agricultural and scientific concepts in the frame of food and environmental systems because the integration of agriculture with curriculum creates an interface surface and it attracts the attention of students and teachers and provides students with many opportunities to realize the concepts conflicting with each other and to transfer them into real life (Balschweid, 2002; NRC, 1998).

The integration of agriculture with curriculum helps students understanding ecologic concepts and increases ways of thinking (Ivanitskaya et al., 2002) and doing research (NRC, 1998) for them, as theories of knowledge and the wideness of concepts about a subject can increase students' perception of a subject (Boix-Mansilla et al., 2000; Knobloch, 2008). As a result of the theory of integration and the experiences they have gained through a suitable curriculum, students discover patterns see the big picture and change their viewpoints and they have much more knowledge about subjects in other fields (Boix-Masilla et al., 2000; Grossman et al., 2000). Primary and secondary school teachers who do not give value to agriculture, have very little knowledge about farming they could not integrate the subject of agriculture into their classes because they did not feel comfortable in teaching agriculture and they were not ready to teach agriculture, they did not have enough time and learning sources, they were very busy, it would take time to teach out of available curriculum and they would need new learning methods and activities to teach agriculture effectively in classes (Ball et al. 2003; Knobloch and Ball 2003; Knobloch et al., 2007).

Primary and secondary school teachers have found out that the integration of teaching with agriculture is useful because it provides both academic education and application. It makes a connection between life and nature, permanent public and ecosystem, it provides a real experimental learning environment for students and it helps to train teachers in some specific subjects such as "consumption and environment, food production, agricultural career, insects, animals, cycle of nature and life, food and nutrition (Knobloch, 2008).

Moreover, there is limited information about the integration of science into education programs locally. In his study Dormody, found out that most of the departments of agriculture and science shared available sources. The teachers of agriculture, who participated in the study, predicted that this tendency would increase more in the future. Besides, participating in the programs such as "Agri Science Institute and Outreach Program" also increases the cooperation and sources share between agriculture and science teachers (Whent, 1994). High school teachers in Illinois indicated their opinion that agriculture curriculum should be focused more on science (Osborne and Dyer, 1998). The teachers believe that the integration of science with agricultural programs helps students to understand scientific concepts better and helps to agricultural applications (Balschweid, Thompson, and Cole, 2000).

Method

This research was carried out in two primary schools in Akçaabat, a province of Trabzon. Twenty nine students participated in this research from 6A and 6B classes in the first school, while 19 students participated it from the 6A class in the primary school. That is, there were 48 students in the research in total. Assistant professors were interviewed to search for the causes of misconceptions.

Data Collection

Researchers tried to develop a means of data collection during classes, depending on misconceptions observed in students. In addition, the misconceptions determined by researchers were taken into consideration, during the pilot applications of guiding materials and relevant literature and in the selection of concepts of the concept test, Later, test samples prepared as outline were also examined by science and technology teachers in the relevant schools and then 20 questions was prepared as a concept test .

The pilot application about the prepared concept test was applied to 90 students in the sixth and seventh grades of a primary school. During this application it was searched whether students had difficulty in understanding the questions in the test or not and whether the duration is enough to answer to the questions in the test was enough or not.

The validity of the prepared concept test was examined by assistant professors, experts in their fields through logical analysis and by science and technology teachers so that validities of context and regression was tried to be provided.

FINDINGS

The findings about misconceptions determined in accordance with the aim of this research under this title are as shown in below. Misconceptions in students were determined in the pilot, pre-test and post-test applications of the concept test

Table… **The misconceptions that students have during the applications**

Organic Agriculture Concept	Item 1 12.5 %	Organic agriculture is not natural. Organic agriculture is not useful. Fertilizers are not used in organic agriculture.
	Item 12 20.83 %	Plants are disinfected. Even if we wash plants, the effect of disinfection does not disappear. Organic plants include more hormones.
Concept of Agriculture	Item 2 56.25 %	Agricultural activities are only to grow up plants. Soil is the main focus point in agricultural activities. Nothing else can be done.
	Item 3 48.75 %	Agriculture and animal breeding are very different from each other. Agriculture is done by plants, whereas animals are raised in animal breeding Agriculture is different from animal breeding because it is done through soil and fruit. Animal breeding is different from agriculture because animals do not grow up in soil.
Importance of Agriculture in Daily Life	Item18 64.58%	Farm products include only food stuffs. Farm products are not used in other things, except for food. As far as farm products are concerned, only food comes to our mind.
The Effect of Science and Technology in the Development of Agriculture	Item 4 56.25%	Scientific and technological developments do not affect agriculture. Scientific and technological developments affect agriculture negatively.
	Item 16 47.91%	Science and technology have not developed agriculture. There is no relation between agriculture, science and technology. There was not technology in the past, but plants still produced fruit and vegetables. Agriculture was present, while technology was absent. Science and technology do not develop agriculture. On the contrary, they give harm to agriculture. Agriculture emerges thanks to soil. However, science and technology pollute environment. Agriculture developed by itself. It has no relation with technology.
The Effect of Modern Agriculture	Item 8 72.91%	Less developed countries grow up more farm products than industrialized countries. Less developed countries grow up more farm products as they deal with agriculture more. Plants are not grown properly as air and soil are polluted in industrialized countries. There is no space for agriculture as there are factories everywhere in industrialized countries. Less developed countries have more farm lands.
	Item 20 72.91%	There is more need to human power in modern agriculture. People work more in modern agriculture because there is a lot of work to do. Modern agriculture is realized by human power.
Types of Soil	Item 5 58.33 %	The best soil type for agriculture is sandy soil. There are a lot of nutrients in sandy soil, which is useful for plants. Plants grow up better in sandy soil. Agriculture is always realized in sandy soil. Sandy soil increases the productivity of plants.
	Item 6 47.91%	There are many rotten remnants of animals and plants within humus soil. There is great number of remnants in humus, so it is impure. Humus soil transforms into remnants in nature and then they harm

		nature. Lots of insects live in humus soil because humus soil is very contaminated.
Forms of Soil	Item 7 52.08 %	There is no air in soil. If there were air in soil, we could breathe air when we enter inside soil. If there were air in soil, plants would not grow up. Air is on the soil, not inside it. There is no air in soil because it is very tight. There is no air in soil because soil is a hard substance. If there were air in soil, soil would explode while we are digging into it. There is no air in soil because soil does not keep air. There is no air in soil because there is air only in the sky.
	Item 14 56.25%	When soil is filled with water, it includes air. When soil is pressed with water, air does not go out. When soil is very wet, it keeps air better. When we irrigate soil a lot, soil draws air into itself more and so plants grow up better. Soil does not contain air whether it is filled with water or not.
Relation between Agriculture and Industry	Item 13 16.66%	Factories do not harm farm lands. Factories affect farm lands negatively.
	Item 17 77.08%	There is no relation between farm products and industrial products. Only plants are grown in agriculture, while a great variety of products are grown up in industry. Processed products are not natural in industry, but farm products are natural.
Agricultural Sources	Item 11	Air and water are not natural substances.
	Item 19 14.58%	Seeds cannot be agricultural sources. Not seeds but young plants are agricultural sources.
Erosion	Item 9 45.8 %	Erosion does not decrease the productivity of soil. Erosion is a landslip. Erosion collapses over soil, vegetables remain under it and so they hardly grow up. Erosion is a contaminated soil. Lands are renewed by erosion and so productivity increases. When erosion happens, all our plants are shattered and broken. When erosion happens, the wastes under soil come up. When erosion happens, only one part of soil decreases and this does not decrease its productivity. Erosion creates poisonous substances, so it decreases productivity.
	Item 10 50 %	Erosion contaminates soil. Erosion cleans soil and takes its contaminated part away.
Ecosystem	Item 15 54.16%	Soil is not an ecosystem. There cannot be a system in soil. When we shout over soil, our voice does not spread around. Soil is soil and it cannot be an ecosystem. Soil cannot be an ecosystem because it is natural. Soil cannot be an ecosystem because it is lifeless.

The test was applied to 48 students and as a result of analyses it was discovered that students had misconceptions about the subjects that the test has included. The conception test was evaluated under two titles which include two-stage questions and in this test students can choose one of the answers “True or False” for each question and they can explain the answer they choose in detail. Students’ misconceptions in two-stage questions in which they can give the explanations of the answer they mark:

Organic Agriculture Concept: The first and twelfth questions in this part were prepared to determine how much students have understood the concept of organic agriculture. The misconceptions obtained about the concept of organic agriculture can be summarized as: “Organic agriculture is not natural. Organic agriculture is not useful. Fertilizers are not used in organic agriculture” (12.5 %). The twelfth questions are related to the concept of organic agriculture. 20, 8 % of students chosen these answers: “plants are disinfected in organic

agriculture. Even if we wash plants, the effect of disinfection does not disappear easily. Organic plants include more hormones".

In addition, in the questions related to the concept of agriculture, the second and third questions were searched and it was seen that in the second question 56,25 % of students had misconceptions, while in the third question 48,75% of students have misconceptions. They used expressions like these: "agricultural activities are only to grow up plants. The focus point in agricultural activities is only soil and nothing else is done. Agriculture and animal breeding are very different from each other. Agriculture is done with plants, whereas animals are raised in animal breeding. Agriculture is different from animal breeding because agriculture is done through soil and fruit. Animal breeding is different from agriculture because animals are not grown up in soil."

As for the importance of agriculture in daily life, the misconceptions obtained in the eighteenth question can be summarized like this: 64.58 % of students used expressions like "Farm products include only food stuffs. Farm products are not used in other things except for food. As far as farm products are concerned, food comes to our mind."

In the questions related to the effects of science and technology on the development of agriculture, the fourth and sixteenth questions were searched and in the fourth question 56, 25 % of students had misconceptions, while 47, 91% of them had misconceptions in the sixteenth question. They used these expressions: "Scientific and technological developments do not affect agriculture. Scientific and agricultural developments affect agricultural production negatively. There is not a relation between science and technology. There was not technology in the past but plants still produced fruit and vegetables. While technology was absent, agriculture was present. Science and technology have not developed agriculture .On the contrary, they have harmed agriculture. Agriculture is realized thanks to soil. Science and technology contaminate environment. Agriculture developed by itself and it has no relation with technology."

Related to the effects of modern agriculture it was determined that 72.91% of students had misconceptions in the sixth question, while 72. 91 % of students had misconceptions in the twentieth question. Their answers are so: "less developed countries grow up more farm products than industrialized countries. Less developed countries produce more products because they deal with agriculture more. Plants do not grow up properly in industrialized countries because air and soil are much polluted in these countries. As there are factories everywhere in industrialized countries, there is no space for agriculture. Less developed countries have more farm lands. There is more need to human power in modern agriculture. As there are lot works to do in modern agriculture, people work more. Modern agriculture is realized by human power."

The fifth and sixth questions were prepared for similar aims as related to the types of soil, According to the situation described in the questions, the answers of students are like this: it was determined that the percentage of the students who answered to the fifth question wrongly is 58. 33%, while 47. 91 % of them answered to the sixth question wrongly. The answers related to misconceptions are like this: the best soil type for agriculture is sandy soil. There are a lot of useful nutrients in sandy soil. Plants grow up better in sandy soil. Agriculture is always done in sandy soil. Sandy soil increases the productivity of plants. There are many rotten remnants of animals and plants in humus soil. There are lots of wastes in humus soil, so it is much polluted. Humus soil transforms into wastes in nature and then it harms nature. Many insects live inside humus soil because it is much polluted."

In relation to the forms of soil, students answered to the fourteenth questions so: while 52.08 % of students had misconceptions in the seventh question, 65 25 % of them had misconceptions in the fourteenth question. Their answers related to misconceptions are so: "There is no air in soil. If there were air in soil, we would breathe air when we enter inside soil. If there were air in soil, plants would not grow up. Air is over the soil, not inside it. As soil is tight, there is no air inside it. Soil is a hard substance, so there is no air inside it. If there were air in soil, soil would explode while we are digging into it. Soil contains air when it is filled with water. When soil is pressed with water, air cannot go outside. Soil keeps air better when it is very wet. If we irrigate soil a lot, soil draws more air into itself and plants grow up well. Soil does not contain air whether it is filled with water or not.

Agriculture-Industry Relation: the misconceptions obtained about the concept of agriculture-industry relation can be summarized like this: 16.66% of students chose these expressions in the thirteenth question: "Factories do not harm farm lands. Factories affect farm lands positively. In the seventh question 77.08 % of

students chose these answers: “there is not a relation between farm products and industrial products. Only plants are grown up in agriculture, but there are a great number of products in industry. Processed products in industry are not natural. Farm products are natural. Air and water are not natural substances. Seeds cannot be agricultural sources.”

Erosion: The ninth and tenth questions are related to erosion. The percent of the students who answered to the ninth question is 45.8 %, while it is 50% for the tenth question. They pointed out some expressions like these: “Erosion does not decrease the productivity of soil. Erosion is a landslip. Erosion collapses over soil, vegetables remain under it, and so they hardly grow up. Erosion is an impure soil. Lands are renewed by erosion and productivity increases. When erosion happens, our plants are shattered and broken. When erosion happens, the garbage under soil come up. When erosion happens, only one part of soil decreases and this does not decrease productivity. Erosion creates poisonous substances, so it decreases productivity. Erosion cleans soil and it takes its contaminated part away.”

Ecosystem: 54.16 % of students chose these answers in the fifteenth question: soil is not an ecosystem. When we shout over soil, our voice does not spread around. Soil is soil and it cannot be an ecosystem. Soil cannot be an ecosystem because it is lifeless.

DISCUSSION AND RESULT

This study is very significant, as there has been very little research about misconceptions in the related concepts in literature so far. This research shows that primary school students do not have enough knowledge about the subjects such as “agriculture, organic agriculture, the importance of agriculture in daily life, the effects of science and technology in the development of agriculture, the effects of modern agricultural applications on agriculture, types of soil, forms of soil, the relation between agriculture and industry, agricultural sources, erosion, ecosystem” and they have various conceptions about these subjects. The results of the research can be summarized like this: Students know the definitions of concepts wrongly. They mix concepts with each other and they have very limited knowledge about the relations between subjects.

To give students information about the subjects related to agriculture and environment, determining students’ foreknowledge and misconceptions about subjects is very important. By considering the misconceptions shown in the table we need to present materials to remove students’ misconceptions. About the six, seven, eight elective courses of agriculture, especially suggested to be taught by science teachers, an in-service education should be presented to teachers. Moreover, the Ministry of Education does not have a course book for the course of agriculture, so it is necessary to develop materials for this course and present them to students.

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İLKOKUL 5. SINIF ÖĞRENCİLERİNİN PROBLEM ÇÖZME BECERİLERİ (KKTC ÖRNEĞİ)

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Özet

Bu araştırmanın amacı ilkokul öğrencilerinin demografik özelliklerine göre problem çözme becerilerini incelemektir.

Girne'deki ilkokullar araştırmanın çalışma evreni olarak seçilmiştir. Seçkisiz ve tabakalı örnekleme yöntemi ile belirlenen ilkokul 5. sınıf öğrencileri örnekleme dahil edilmiştir. Örneklem %45,3'ü (n=68) kız ve %54,7'si (n=82) erkek olmak üzere toplam 150 ilkokul öğrencisinden oluşmuştur.

Veri toplama aracı olarak Serin, Bulut Serin ve Saygılı (2010) tarafından geliştirilen ve Cronbach alpha güvenirlik katsayısı .80 olan "Çocuklar İçin Problem Çözme Envanteri" (ÇPÇE) kullanılmıştır.

Verilerin analizinde araştırmanın amaçları doğrultusunda aritmetik ortalama, t-testi ve tek yönlü varyans analizi (ANOVA) hesaplanmıştır. Bu araştırmada önem düzeyi 0,05 olarak alınmıştır.

Araştırmanın sonucunda öğrencilerin problem çözme becerilerinin cinsiyete göre anlamlı farklılık göstermediği; kolej sınavına hazırlanıp-hazırlanmamasına, akademik başarısına ve ailesinin gelirine göre istatistiksel olarak anlamlı farklılıklar gösterdiği saptanmıştır. Ayrıca öğrencilerin problem çözme becerilerinin genel olarak "iyi" düzeyde olduğu belirlenmiştir.

Anahtar Sözcükler: Problem çözme becerisi, ilkokul öğrencisi, Kıbrıs

Giriş

Problem dendiğinde ilk akla gelen matematik problemleridir. Oysa ki insan hayatta birçok güçlüklerle karşılaşmakta ve bunları çözmek için düşünmeye ihtiyaç duymaktadır (Koray ve Azar, 2008). Problem, insanı rahatsız eden ve bazı engellerle karşılaştığı için baş etmekte güçlük çektiği durumlardır (Yıldırım ve Otrar, 2003).

Problem çözme, mevcut durumla erişilmek istenen amaç arasındaki boşluğun algılandığı ve bunun yol açtığı gerginliği ortadan kaldırmaya yönelik çabaları içeren bilişsel ve davranışsal bir süreçtir (Öğülmüş, 2001). Problem çözme insanın hayatı boyunca ihtiyaç duyduğu bir yetenektir. Hayat bizi çözülmesi gereken özel problemlerle karşı karşıya getirir (Aksoy, 2003). Problem çözme ve çatışma çözme kavramları bir arada kullanıldığı gibi (Gil-de-Gibaja, 2001), problem çözmenin çatışma çözme yollarından biri olarak alındığı çalışmalara da rastlanmaktadır (Cross ve Resenthal, 1999; Davidson ve Versluys, 1999).

Kendisini problem çözmede yeterli olarak algılayanların kişilerarası ilişkilerde daha girişken daha olumlu benlik algısına sahip oldukları ve akademik yönden daha uygun çalışma yöntemleri ve durumları sergiledikleri saptanmıştır (Şahin, Şahin ve Heppner, 1993). Etkili problem çözen bireylerin bağımsız ve yaratıcı düşündükleri, sosyal yeterlilikleri olduğu, kendilerine güvenen, belirsizlikleri tolere edebilen kişiler olduğu belirtilmektedir (Dow ve Mayer, 2004). Problem çözme becerisi zayıf olanların sosyal kaygıları fazla olmakta ve okulla ilgili etkinlikleri azalmaktadır (Holt ve Espelage, 2002).

Eğitimin en önemli amaçlarından biri öğrencilerin problem çözme becerilerini geliştirmek olduğu için bu becerinin ilköğretimden itibaren tüm eğitim programlarının bir parçası olarak öğretilmesi gerekir (Erden, 2008).

Bu araştırmanın sonuçları, ilkokul öğrencilerini problem çözme becerilerinin düzeyini ve sosyo demografik özelliklerine göre benzerlik ve farklılıklarının belirlenmesini sağlayarak bu alanda yapılacak olan geliştirme çalışmalarına kaynaklık edeceği düşünülmektedir.

Araştırmanın Amacı

Bu araştırmanın amacı ilkokul 5. sınıf öğrencilerinin sosyo-demografik özelliklere göre problem çözme becerilerini belirlemektir.

Araştırmanın Problem Cümlesi

Araştırmanın problem cümlesi "İlkokul 5. sınıf öğrencilerinin problem çözme becerileri sosyo demografik özelliklerine göre anlamlı farklılık göstermekte midir?" şeklinde ifade edilmiştir.

Bu temel problem doğrultusunda aşağıdaki alt problemlere yanıtlar aranmıştır:

İlkokul 5. sınıf öğrencilerinin problem çözme becerileri;
1. cinsiyete göre istatistiksel olarak anlamlı farklılık göstermekte midir?
2. kolej sınavına hazırlanıp hazırlanmamasına göre istatistiksel olarak anlamlı farklılık göstermekte midir?
3. akademik başarıya göre istatistiksel olarak anlamlı farklılık göstermekte midir?
4. ailelerinin ekonomik durumuna göre istatistiksel olarak anlamlı farklılık göstermekte midir?
5. İlkokul 5. sınıf öğrencilerinin genel olarak problem çözme becerileri hangi düzeydedir?

Yöntem

Araştırmanın Modeli

Bu araştırma tarama modelle gerçekleştirilmiş betimsel bir çalışmadır. Tarama modelleri, geçmişten ya da şu anda halen mevcut olan bir durumu var olduğu şekliyle betimlemeyi amaçlayan araştırma yaklaşımlarıdır. Araştırmaya konu olan durum, olay, birey ya da nesne, kendi koşulları içerisinde ve olduğu gibi tanımlanmaya çalışılır (Karasar, 2005).

Evren ve Örneklem

Girne'deki ilkokullar araştırmanın çalışma evreni olarak seçilmiştir. Seçkisiz ve tabakalı örnekleme yöntemi ile belirlenen ilkokul 5. sınıf öğrencileri örnekleme dahil edilmiştir. Örneklem %45,3'ü (n=68) kız ve %54,7'si (n=54,7) erkek olmak üzere toplam 150 ilkokul öğrencisinden oluşmuştur.

Veri Toplama Aracı

Veri toplama aracı olarak Serin, Bulut Serin ve Saygılı (2010) tarafından geliştirilen ve Cronbach alpha güvenirlik katsayısı .80 olan "Çocuklar İçin Problem Çözme Envanteri" (ÇPÇE) kullanılmıştır. ÇPÇE, 24 maddelik, 1-5 arası puanlanan 5'li likert tipi, bireyin problem çözme becerileri konusunda kendini algılayışını ölçen kendini değerlendirme ölçeğidir. Puan ranjı 24-120'dir. Problem çözme becerilerinin puan ortalamalarına göre yüksek ($\bar{x}$=101,2-120), iyi ($\bar{x}$=81,9-101,1), orta ($\bar{x}$=62,6-81,8), zayıf ($\bar{x}$=43,3-62,5) ve çok zayıf ($\bar{x}$=24-43,2) şeklinde puan aralıkları belirlenmiştir.

Verilerin Analizi

Verilerin analizinde araştırmanın amaçları doğrultusunda aritmetik ortalama, t-testi ve tek yönlü varyans analizi (ANOVA) hesaplanmıştır. Bu araştırmada önem düzeyi .05 olarak alınmıştır.

Bulgular

Araştırmanın birinci alt problemi "İlkokul 5. sınıf öğrencilerinin problem çözme becerileri cinsiyete göre istatistiksel olarak anlamlı farklılık göstermekte midir?" şeklinde ifade edilmiştir. Cinsiyete göre problem çözme becerileri puan ortalamaları arasında istatistiksel olarak anlamlı bir değişimin olup-olmadığını belirleyebilmek amacıyla t-testi uygulanmıştır. Tablo 1'de görüldüğü gibi yapılan t-testi sonucunda öğrencilerin problem çözme becerileri cinsiyete göre anlamlı olarak farklılaşmadığı saptanmıştır.

Tablo 1: İlkokul Öğrencilerinin Problem Çözme Becerilerinin Cinsiyete ve Kolej Sınavına Hazırlanıp Hazırlanmamasına Göre t-Testi Sonuçları

Demografik Özellikler		n	$\bar{x}$	ss	sd	t	p
Cinsiyet	Kız	68	94,191	13,885	148	0,043	0,966
	Erkek	82	94,280	11,369			
Kolej sınavına hazırlanıp hazırlanmaması	Evet	112	96,598	11,892	148	4,170	0,000
	Hayır	38	87,289	11,891			

Araştırmanın ikinci alt problemi "İlkokul 5. sınıf öğrencilerinin problem çözme becerileri kolej sınavına hazırlanıp hazırlanmamasına göre istatistiksel olarak anlamlı farklılık göstermekte midir?" şeklinde ifade edilmiştir. Kolej sınavına hazırlanıp hazırlanmamaya göre problem çözme becerileri puan ortalamaları arasında istatistiksel olarak anlamlı bir değişimin olup-olmadığını belirleyebilmek amacıyla t-testi uygulanmıştır. Tablo 1'de görüldüğü gibi yapılan t-testi sonucunda öğrencilerin problem çözme becerileri kolej sınavına hazırlanıp hazırlanmamasına göre anlamlı olarak farklılaştığı saptanmıştır [$t_{(148)}$= 4,170 p<0,05]. Kolej sınavına hazırlanan öğrencilerin ($\bar{x}$=96,598), hazırlanmayan öğrencilere göre ($\bar{x}$=87,289) problem çözme becerilerinin daha yüksek olduğu bulunmuştur.

Araştırmanın üçüncü alt problemine göre "İlkokul 5. sınıf öğrencilerinin problem çözme becerileri akademik başarıya göre istatistiksel olarak anlamlı göstermekte midir?" şeklinde ifade edilmiştir. Öğrencilerin akademik başarılarına göre problem çözme becerileri puan ortalamaları arasında istatistiksel olarak anlamlı bir değişimin olup-olmadığını belirleyebilmek amacıyla tek yönlü varyans analizi (ANOVA) uygulanmıştır. Tablo 2'de görüldüğü gibi yapılan (ANOVA) testi sonucunda öğrencilerin problem çözme becerilerinin akademik başarılarına göre anlamlı olarak farklılaştığı saptanmıştır. Öğrencilerin problem çözme becerilerinde istatistiksel olarak anlamlı bir farklılaşmaya neden olan grupları belirleyebilmek amacıyla verilere Scheffe anlamlılık testi

uygulanmıştır. Scheffe anlamlılık testi sonucunda anlamlı farkın akademik başarısı pekiyi ile orta olan öğrenciler arasında olduğu belirlenmiştir. Bu fark pekiyi olan öğrenciler lehinedir.

Tablo 2: Öğrencilerinin Problem Çözme Becerilerinin Akademik Başarı ve Ailenin Ekonomik Durumuna Göre F-testi Sonucu

Başarı ve ekonomik durum		n	$\bar{x}$	ss	sd	F	p	Farkın Kaynağı
Akademik Başarı	Pekiyi (a)	65	98,5692	12,65895	3 146 149	5,965	0,001*	c-a*
	İyi (b)	52	92,5385	11,52059				
	Orta (c)	26	89,0769	11,12087				
	Zayıf (d)	7	85,8571	10,94575				
Ailenin ekonomik durumu	Üst (a)	42	98,1905	10,67305	2 147 149	7,226	0,001	c-a* c-b*
	Orta (b)	78	94,7564	13,14671				
	Alt (c)	30	87,3667	10,69477				

Lehte fark*

Araştırmanın dördüncü alt problemi "İlkokul 5. sınıf öğrencilerinin problem çözme becerileri ailelerinin ekonomik durumuna göre istatistiksel olarak anlamlı farklılık göstermekte midır?" şeklinde ifade edilmiştir. Öğrencilerin ekonomik durumlarına göre problem çözme becerileri puan ortalamaları arasında istatistiksel olarak anlamlı bir değişimin olup-olmadığını belirleyebilmek amacıyla tek yönlü varyans analizi (ANOVA) uygulanmıştır. Tablo 2'de görüldüğü gibi yapılan (ANOVA) testi sonucunda öğrencilerin problem çözme becerilerinin akademik başarılarına göre anlamlı olarak farklılaştığı saptanmıştır. Öğrencilerin problem çözme becerilerinde istatistiksel olarak anlamlı farklılaşmaya neden olan grupları belirleyebilmek amacıyla verilere Scheffe anlamlılık testi uygulanmıştır. Scheffe anlamlılık testi sonucunda anlamlı farkın ailesinin ekonomik geliri üst ile alt ve orta ile alt gruplar arasında olduğu belirlenmiştir. Bu fark ailesinin geliri alt olanlara göre üst ve orta olanlar lehinedir.

Araştırmanın 5. alt problemi "İlkokul öğrencilerinin problem çözme becerileri hangi düzeydedir?" şeklinde ifade edilmiştir. Öğrencilerin problem çözme becerilerinin düzeyini belirlemek için aritmetik ortalama ve standart sapma değerleri hesaplanmıştır.

Tablo 3. Öğrencilerin Problem Çözme Becerilerini Düzeyi

n	$\bar{x}$	ss
150	94,24	12,528

Tablo 3'te görüldüğü gibi 150 ilkokul öğrencisinin problem çözme becerisinin ağırlıklı puan ortalaması 94.24 bulunmuştur. Bu değere göre ilkokul 5. sınıf öğrencilerinin problem çözme becerilerinin iyi düzeyde olduğu söylenebilir.

SONUÇ ve TARTIŞMA

Araştırmanın sonucunda ilkokul 5. sınıf öğrencilerinin problem çözme becerilerinin cinsiyete göre anlamlı farklılık göstermediği belirlenmiştir. Şahin (1999)'in 11-14 yaş grubu 1249 öğrenci ile yaptığı çalışmada çocukların yaşı ve cinsiyetinin psiko-sosyal temelli sorun çözme becerisi üzerinde etkili olmadığını saptamıştır. Bu bulgu araştırmanın sonucunu destekler niteliktedir.

Öğrencilerin problem çözme becerileri kolej sınavına hazırlanıp hazırlanmamasına göre anlamlı farklılık göstermektedir. Kolej sınavına hazırlanan öğrencilerin problem çözme becerileri hazırlanmayanlara göre daha olumludur. Bu duruma kolej sınavına hazırlanan öğrencilerin bilişsel aktiviteleri daha çok kullanmış olması neden olabilir.

Öğrencilerin problem çözme becerilerinin akademik başarılarına göre anlamlı olarak farklılaştığı saptanmıştır. Akademik başarısı pekiyi olan öğrencilerin problem çözme becerileri akademik başarısı orta olan öğrencilere göre daha yüksektir.

Öğrencilerin problem çözme becerilerinin ailesinin ekonomik durumuna göre de anlamlı olarak farklılaştığı saptanmıştır. Bu farkın ailesinin ekonomik geliri üst ile alt ve orta ile alt gruplar arasında olduğu belirlenmiştir. Ailesinin geliri üst ve orta olanların problem çözme becerisi ailesinin geliri alt olanlara göre daha olumlu bulunmuştur. Kasap (1997)'de yaptığı araştırmada ise üst-sosyo ekonomik seviyedeki öğrencilerin problem çözme başarısı ve tutumunu diğer gruplara göre daha olumlu olduğunu bulmuştur. Bu sonuç ta araştırmanın sonucuyla benzerlik göstermektedir.

İlkokul 5. sınıf öğrencilerinin problem çözme becerilerinin genelde iyi düzeyde olduğu saptanmıştır.

Öneriler

Araştırmanın sonucunda şu önerilerde bulunabilir:

Ailesinin geliri alt düzeyde olanların da problem çözme becerilerinin daha olumlu olması için problem çözme basamakları uygulamalı olarak öğretilebilir.

Akademik başarısı pekiyi olan öğrencilerin problem çözme becerilerinin yüksek olmasının nedenleriyle ilgili nitel bir araştırma yapılabilir.

Problem çözme becerilerinde kardeş sayısının ve anne-babanın eğitim düzeyinin etklili olup olmadığını belirleyen araştırmalar yapılabilir.

KKTC'nin diğer ilçelerinde de öğrencilerin problem çözme becerilerini karşılaştıran araştırmalar yapılabilir. Öğrencilerin problem çözme becerilerinin iletişim becerisi ve sosyal becerilerle ilişkisi incelenebilir.

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INTE2010

İLKOKUL ÖĞRENCİLERİNİN ŞİDDET ALGILARI (KKTC ÖRNEĞİ)

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Özet

Bu araştırmanın amacı, ilkokul öğrencilerinin şiddete yönelik algılarının belirlenmesidir.

Araştırma evreni, KKTC'de eğitim gören ilkokul öğrencilerini kapsamaktadır. Araştırma örneklemi uygun örnekleme yöntemiyle belirlenen 200 ilkokul öğrencisinden oluşmaktadır. Araştırmada veri toplama aracı olarak araştırmacı tarafından geliştirilen "Şiddet Tarama Anketi" kullanılmıştır. Bu araştırma, tarama modeline uygundur.

Verilerin analizinde araştırmanın amaçları doğrultusunda yüzdelik dökümleri, ki-kare (X^2) testi kullanmıştır. Bu araştırmada önem düzeyi 0,05 olarak alınmıştır.

Araştırma sonucunda, ilkokul öğrencilerinin şiddete ilişkin algılarının, şiddeti tanımlamalarına, maruz kaldığı şiddet türüne, maruz kaldığı ceza türüne göre istatistiksel olarak anlamlı bir biçimde farklılaştığı, kendisi anne-baba olduğunda çocuğuna vereceği ceza türne göre ise anlamlı bir farklılaşmanın olmadığı saptanmıştır.

Anahtar Kelimeler: Şiddet, şiddet algısı, ilkokul öğrencisi.

GİRİŞ

Etnologların çoğu, şiddetin doğuştan geldiğini ileri sürerken psikologların hemen hepsi de şiddetin yalnız doğuştan gelen faktörlere indirgenmeyeceğini, öğrenmenin şiddet ve saldırganlık davranışının türü ve sıklığı üzerinde önemli bir etkisinin olduğu savunulmaktadır. Psikologların bu görüşü kabul etmelerinin temelinde, bu alanda yapılan araştırmaların sonuçları etkili olmaktadır (Efilti, 2003).

Günümüzde araştırılan ve ilgi duyulan konulardan biri haline gelen şiddet olgusu, diğer sosyal bilim dallarının olduğu kadar sosyologların da ilgisini çekmektedir. Sosyologlar tarafından şiddet olgusunun toplumsal ilişkilerin dinamikleri içinde, bütüncül bir yaklaşımla ele alınabileceği savunulmaktadır. Çünkü çatışmalar birbirleriyle ilşiki içinde olan bireyler ya da guruplar arasında olmaktadır (Kocacık, 2000).

Günümüz toplumlarının temel sorunlarından birini şiddet olgusunun oluşturduğu artık bilinmektedir. Şiddet olgusunun ele alınış biçimine, ele alındığı bilim dalının bakış açısına, toplumsal ve tarihsel koşullara göre farklı tanımları yapılmıştır (Tor ve Sargın, 2005). Aslında insanın doğasında varolan ve bastırılmış bir davranış biçimi olan şiddet, sahip olunan güç ya da kudretin yaralanma ya da kayıp ile sonlanma olasılığı yüksek bir biçimde bir başka insana, kendine, bir başka gruba ya da bir topluma karşı tehdit yoluyla ya da bizzat uygulanmasıdır. Bu bağlamda şiddet, zarar verici bir saldırı olarak tanımlanabilir. Zarar, saldırının amacına bağlı olarak yok etme sınırına kadar varabilir (Ergil, 1980). Zorlamak, bedensel ya da psikolojik acı çektirmek, vurmak, dövmek, yaralamak, işkence yapmak gibi bir dizi davranışlar şiddetin en yaygın biçimlerini oluşturur (Vatandaş, 2003).

Şiddet, çok yönlü bir olgu olduğundan farklı biçimlerde sınıflandırılmaktadır. Bu nedenle psikolojik, ahlâksal, siyasal, ekonomik ve hukuksal yönleriyle değişik açılardan ele alınabilir (Kocacık, 2001).

Bununla birlikte şiddetin arkasında yatan nedenle :
• biyolojik nedenler,
• öğrenme ile ilgili nedenler,
• şiddeti bir eğitim aracı olarak kullanma,
• toplumsal nedenler,
• kişiler arası etkileşimle ilgili ,nedenler olarak sıralanabilir. Bu durumda, şiddetin tek bir nedenden ortaya çıkmadığı, toplumsal bir sorun olduğu ve çevreden kaynaklandığı söylenebilir. Bir okuldaki öğrencilerin şiddet olaylarına yönelmelerinin birçok nedeni olmakla birlikte okuldaki öğrencilerin özellikleri, okulun büyüklüğü, okulun yerleşim yeri gibi etmenler öğrencilerin şiddeti algılamalarında önem taşımaktadır (Angkaw, 2006). Okuldaki şiddet tehdit edici bir ortam oluşturmakta, fiziksel ve duygusal yaralanmalara yol açmakta, bütün bunlar da öğrencinin başarısını engellemektedir. Okullarda uygulanacak etkili eğitim programları ile şiddet olaylarının önüne geçilebilir (NCES, 2007).

Erden'in (tarihsiz) belirttiği gibi, eskiden toplum için önemli olan dürüstlük, çalışkanlık gibi değerlerin yerini kısa zamanda köşeyi dönme arzusu almış, namusu koruma adam öldürmeye dönüşmüş, hoşgörü ise unutulmaya başlanmıştır. Toplumdaki bu değer karmaşıklığı okullara da yansımakta, eğitim sistemindeki yarışmacılık öğrencilere milli, kültürel ve evrensel değerlerin kazandırılmasını, iyi vatandaşlar yetiştirilmesini ikinci plana atmaktadır. Yarışmacı sistem içinde hoşgörü, dürüstlük, merhamet, sorumluluk, nezâket gibi değerleri kazanamayan bireylerin daha kolay şiddet olaylarının içine girdikleri söylenebilir.

Bu şiddet olaylarından en çok etkilenen ve en savunmasız konumda olan hiç kuşkusuz ki çocuklardır. Çocuklara yönelik şiddet ve fiziksel cezalandırmanın kabul edilebilirliği, toplumların sahip olduğu değerler, tutumlar ve algılara göre değişmektedir. Böyle olmakla birlikte, çocuklara yönelik şiddet ve fiziksel cezaların insan hakları temelinde ele alınması önerilmektedir (Gracia ve Herrero, 2008). Nitekim, Türkiye' de 1995 yılında yürürlüğe giren Birleşmiş Milletler Çocuk Hakları Sözleşmesi'ne göre, çocukların, şiddetten arındırılmış güvenli evlerde yaşama hakkı, kendilerine adil ve saygılı bir biçimde davranılması hakkı, kendilerini sevgi ile bakıp büyüten kişilerle büyüme hakkı, eğitim görme hakkı, evde ve okulda güvende olma hakkı, tehlike ve istismardan korunma gibi hakları bulunmaktadır. Oysa ki toplumlarda kadınlar, yaşlılar, özürlüler, göçmenler, evsizler, etnik azınlık gruplar gibi, çocuklar da şiddet açısından en fazla risk altında olan gruplar olarak karşımıza çıkmaktadır (Subaşı ve Akın, 2006). Yapılan araştırmalar göstermektedir ki; şiddet uygulayanların %95'e yakını erkek, şiddete maruz kalanların %90'dan fazlası kadın ve çocuklardır (Güler ve diğerleri, 2002). Özellikle çocuklar hem aile içinde hem de okulda çeşitli biçimlerde şiddetle karşılaşmaktadır. Evde özellikle anneleri tarafından şiddete maruz kalan çocuklar okulda da arkadaşları tarafından şiddete maruz kalmaktadır.

Bu araştırma sonucu elde edilecek verilerle olası çözüm önerileri tartışılarak konu ile ilgili çalışma yapan eğitim bakanlığı müffettişlerine, okul yöneticilerine, öğretmenlere ve öğrenci velilerine katkı sağlanacağı düşünülmektedir.

Araştırmanın Amacı

Bu araştırmanın amacı, ilkokul öğrencilerinin şiddete yönelik algılarının belirlenmesidir.

Bu amaç doğrultusunda şu sorulara yanıt aranmıştır:

İlkokul öğrencilerine göre;

1- Şiddeti nasıl tanımladıkları,

2-Maruz kaldıkları ceza türü,

3- Çevrede karşılaştıkları şiddet olayları,

4-Anne-baba olduklarında çocuklarına verecekleri ceza türürleri nelerdir?

Sınırlılıkları

Bu araştırma 2009-2010 öğretim yılı bahar döneminde Kuzey Kıbrıs Türk Cumhuriyeti genelinde örneklem kapsamındaki beşinci sınıf öğrencilerinin açık uçlü ankete verdikleri yanıtlarla sınırlıdır.

YÖNTEM

Araştırma Modeli*:* Bu araştırma tarama modelinde gerçekleştirilmiştir. Tarama modelleri, geçmişten ya da şu anda halen mevcut olan bir durumu var olduğu şekliyle betimlemeyi amaçlayan araştırma yaklaşımlarıdır. Araştırmaya konu olan durum, olay, birey ya da nesne, kendi koşulları içerisinde ve olduğu gibi tanımlanmaya çalışılır (Karasar 2006).

Evren ve Örneklem: Araştırma evreni, KKTC'de eğitim gören ilkokul öğrencilerini kapsamaktadır. Araştırma örneklemi uygun örnekleme yöntemiyle belirlenen 200 ilkokul öğrencisinden oluşmaktadır.

Verilerin Toplanması: Araştırmada veri toplama aracı olarak araştırmacı tarafından geliştirilen "Şiddet Tarama Anketi" kullanılmıştır. Bilgi toplamak aracı olarak geliştirilen anket formu 26 sorudan oluşmaktadır. Araştırmanın amaçları doğrultusund dört sorunun yanıtı aranmıştır. Anket forumlarının geçerliliğini belirlemk üzere, uzman görüşüne sunulmuş ve alınan eleştiriler doğrultusunda düzenlenerek geliştirilmiştir. Uzman görüşleri ve ön deneme sonuçlarına göre geliştirilerek son biçimi verilen anket uygulamaya hazır duruma getirilmiştir. Anket formundaki sorular, öğrenciler tarfından yazılı olarak yanıtlanmıştır.Uygulanan 200 anketin tamamı değerlendirmeye alınmıştır.

Verilerin İstatistiksel Analizi: İlkokul öğrencilerinin şiddet algılarını belirlemek üzere açık uçlu anket yoluyla toplanan verilerin çözümlenmesinde nitel araştırma tekniklerinden betimsel analiz tekniği kullanılmıştır. Betimsel çözümleme yapılırken elde edilen veriler daha önceden belirlnen temalara göre yorumlanmıştır. Elde edilen veriler, frekanslarla birlikte tablolar biçiminde sunularak ilkokul öğrencilerinin görüşlerinden doğrudan alıntı yapılmıştır. Verilerin analizinde araştırmanın amaçları doğrultusunda yüzdelik dökümleri, ki-kare (X^2) testi kullanmıştır. Bu araştırmada önem düzeyi 0,05 olarak alınmıştır.

BULGULAR ve YORUM

Çalışmanın bu bölümünde ilkokul öğrencilerinin; şiddeti nasıl tanımladıkları, maruz kaldıkları şiddet türü, maruz kaldıkları ceza türü, anne-baba olduklarında çocuklarına verecekleri ceza türürlerinin neler olduğuna dair bulgulara yer verilmiştir.

Şiddeti nasıl tanımladıklarına ilişkin bulgular

İlkokul öğrencilerinin şiddet algılarını belirlemek üzere hazırlanan açık uçlu ankette öğrencilere "Şiddet deyince ne anlıyorsun?"sorusu yöneltilmiştir. Öğrencilerin bu sorulara verdikleri yanıtlar ve frekans dağılımları Tablo 1' de gösterilmiştir.

Tablo 1. İlkokul Öğrencilerinin Şiddet Tanımlamaları ve Oanları

	Öğrenci	
	f	(%)
,00	11	5,5
Eziyet	3	1,5
Kötü Birşeydir	50	25,0
Dayak	37	18,5
Öldürmek	3	1,5

Sinirlenme	6	3,0
Korku	20	10,0
Kavga	35	17,5
Kızmak	15	7,5
İşkence	8	4,0
Öfke	9	4,5
Tehdit	3	1,5

x^2 162.880 P< 0.000

Tablo1'de öğrencilerin "şiddetin ne olduğuna" ilişkin ifadeleri incelendiğinde 11'i bu soruya cevap vermeyenler (%5,5), 50'si Kötü bir şeydir (%25.0), 37'si Dayak (%18.5), 35'i Kavga (%17.5), 20'si Korku (10.0), 15'i Kızmak (%7.5), 9'u Öfke (%4.5), 8'i İşkence (4.0), 3'ü Öldürmek (%1.5) ve Tehdit (%1.5) biçiminde yanıt vermişlerdir.

Bu araştırma bulgularına bakıldığında, ilkokul öğrencilerinin şiddeti çeşitli kavramlarla ve geniş bir çerçevede tanımladıkları görülmektedir. Öğrencilerin şiddete en yüksek sayı ile kötü bir şeydir olarak tanımlamıştır. Dayak ve kavga olayları ile ailede, okulda, sokakta kısacası toplumun her kesiminde sıklıkla karşılaşılması; öğrencilerinde şiddeti yüksek bir sayı ile tanımlamalarına neden olabilir.

Öğrencilerin aileleri tarfından maruz kaldığı ceza türleri

İlkokul beşinci sınıf öğrencilerine sorulan bir diğer soruda "Ailen tarfında maruz kaldığın ceza türü nedir ? " sorusu yöneltilmiş ve alınan yanıtların frekans ve dağılımları tablo 2' de sunulmuştur.

Tablo 2. Öğrencilerin Aileleri Tarafından Maruz Kaldıkları Ceza Türü ve Oranları

	Öğrenci	
	f	(%)
,00	4	2,0
Hiç Ceza Vermezler	64	32,0
Fiziksel Ceza	20	10,0
Oda Cezası	32	16,0
Oyun Oynamama Cezası	13	6,5
Hakaret Cezası	8	4,0
Bilgisayar Kullanmama Cezası	14	7,0
Evden Çıkmama Cezası	22	11,0
Tv İzlememe Cezası	23	11,5

x^2 114.010 p< 0.000

Tablo 2'de görüldüğü gibi öğrencilerin maruz kaldığı ceza türleri; 4'ü bu soruya cevap vermemiştir (%2.0), 64'ü hiç ceza vermezler (%32.0), 32'si oda cezası (%16.0), 23'ü tv izlememe cezası (%11.5), 22'si evden çıkmama cezası (%11.0), 20'si fiziksel ceza (%10.0), 14'ü bilgisayar kullanmama cezası (%7.0), 13'ü oyun oynamama cezası (%6.5), 8'i hakaret cezası (%4.0) biçiminde yanıt verilmiştir.

İlköğretim öğrencilerinin anne ve babası tarafından en çok maruz kaldığı şiddet olaylarına örnek olarak oda cezası, tv izlememe cezası, evden çıkmama cezası, gibi cezalar başta olmak üzere çeşitli ceza türleri sıralanmıştır. İlköğretim öğrencilerinin maruz kaldıkları bu ceza türlerini aileden model alma etkili olduğundan maruz kaldıkları cezalar olumsuz öğrenmelere yol açabileceği söylenebilir.

Öğrencilerin çevrede ençok karşılaştıkları şiddet olayları

İlkokul öğrencilerine " Çevrende en çok hangi şiddet olayları ile karşılaşıyorsun?'' biçiminde bir soru yöneltilmişve öğrencilerin bu soruya verdikleri yanıtlar Tablo 3'te gösterilmiştir.

Tablo 3. Öğrencilerin Çevrelerinde Karşılaştıkları Şiddet Olayları ve Oranları

	Öğrenci	
	f	(%)
,00	31	15,5
Kavga	87	43,5
Sövmek	7	3,5
Bağırmak	31	15,5
Dövmek	40	20,0
Trafik Kazaları	8	4,0
Küfür Etmek	3	1,5

x^2 178.980 p<0.000

Tablo 3'te görüldüğü üzere öğrencilerin çevrede ençok karşılaştıkları şiddet olayları; 31'i bu soruya hiç cevap vermemiştir, 87'si Kavga (%43.5), 40'ı Dövmek (20.0), 31'i Bağırmak (12.0), 8'i Trafik kazaları (%4.0), 7'si Sövmek (%3.5), 3'ü Küfür etmek (1.5), öğrencilerin ifadelerinde çevrelerinde karşılaştıkları şiddetle ilgili en yüksek sayı ile kavga olarak belirtilmiştir.

İlköğretim öğrencileri çevrelerinde en çok karşılaştığı şiddet olaylarına örnek olarak kavga, dövme, bağırma, gibi olaylar başta olmak üzere çeşitli şiddet olaylarını sıralamışlardır. Ayrıca öğrenciler sınıfta ve okulda da dövme ve kavga etme gibi olaylar yaşandığını belirterek, okulda şiddet olaylarının gerçekleştiğine dikkat çekmişlerdir. Araştırma kapsamındaki beşinci sınıf öğrencilerinin içindeki bulundukları çevrede çeşitli şiddet olayları ile karşılaşması istenmedik bir durum olarak değerlendirilebilir. İlköğretim öğrencilerinin toplumsal davranışları öğrenmesinde gözlem ve model alma etkili olduğundan çocukların çevrelerinde çeşitli şiddet olaylarıyla karşılaşmalarının olumsuz öğrenmelere yol açabileceği söylenebilir.

İlkokul öğrencileri anne - baba olduğunda çocuğuna ne tür ceza vereceği

İlkokul öğrencilerine " Anne-baba olduğunda çocuklarına ne tür cezalar vereceksin?'' biçiminde bir soru yöneltilmişve öğrencilerin bu soruya verdikleri yanıtlar Tablo 4'te gösterilmiştir.

Tablo 4. Öğrencilerin Anne - Baba Olduklarında Çocuklarına Ne Tür Ceza Verecekleri ve Oranları

	Öğrenci	
	f	(%)
,00	6	3,0
Ceza Vermem	82	41,0
Fiziksel Ceza	11	5,5
İş Cezası	2	1,0
Sevdiği Bişeyi Elinden Alma Cezası	4	2,0
Kızma Cezası	19	9,5
Oyun Cezası	11	5,5
Oda Cezası	6	3,0
Ev Cezası	13	6,5
Para Cezası	2	1,0
Bilgisayar Cezası	8	4,0
Tv izlememe Cezası	19	9,5

x^2 310.600 $p < 0.000$

Tablo 4'te görüldüğü gibi ilkokul öğrencilerinin anne ve baba olduğunda çocuğuna ne tür ceza vereceği sorusuna ilişkin olarak 82'si Ceza vermem (%41.0), 19'u Kızma cezası (%9.5) ve Tv izlememe cezası (%9.5), 13'ü Ev cezası (%6.5), 11'i Fiziksel ceza (%5.5) ve Oyun cezası (%5.5), 8'i Bilgisayar cezası (% 4.0), 6'sı Oda cezası (%11.5), 4'ü Sevdiği bir şeyi elinden alma (%2.0), 2'si Para cezası (%1.0)

Araştırmanın bulgularına bakıldığında ilkokul öğrencilerinin büyüdükleri zaman kendi çocuklarına anne ve babalarından model alarak öğrendikleri ceza türlerini verecekleri görülmektedir. Örneğin öğrenciler büyüdükleri zaman anne-baba oldularında kendi çocuklarına fiziksel cezalar verirken çocuklarının şiddet karşısında korkması, kendini çok kötü hissetmesi, acı çekmeleri aile ,okul, toplum yaşamları üzerinde ciddi sorunlara yol açabilir.

TARTIŞMA VE ÖNERİLER

Bu araştırma sonucunda elde edilen kavga,dövmek, küfür etmek, bağırmak, kızmak, gibi şiddet tanımlamaları Tor ve Sargın (2005) tarfından yapılan araştırma bulgusuyla örtüşmektedir. Özcebe ve diğerleri (2006) yaptıkları araştırmada da, öğrencilerin şiddet denince ilk olarak dövme gibi fiziksel şiddet içeren davranışları algıladıkları sonucuna ulaşmışlardır.Yılmaz (2007)'da şiddetin kişiye güç ve baskı uygulayarak isteği dışında birşey yapmak ya da yaptırmak, şiddet uygulamasını ise zorlama, saldırı, kaba kuvvet, bedensel veya psikolojik acı çektirme ya da işkence, vurma yaralama olarak tanımladığı belirtilmektedir. Gümüş (2007) son yıl içinde ilköğretim öğrencilerinin %45'inin dayak yediği sonucuna dikkati çekmektedir.Öğrencilerin şiddetle kandi yaşantıları arasında bir bağlantı kurmalaru sonucu olarak şiddete daha çok kötü birşey olduğu, kavga etme, dövme gibi tanımlamalar getirdikleri söylenebilir.

Güler ve diğerleri (2002)'nin yaptığı diğer araştırmalarda aanne ve babaları tarafından çocuklara bağırma, kötü söz söyleme, dövme gibi istismar davranışlarında bulunma bulgusu ile bu araştırmadaki ilkokul öğrencilerinin çevrelerinde karşılaştıkları şiddet türlerinin dövme, bağırma gibi bulgular paralellik göstermektedir.

Toplumda yaşayan bireylere bakıldığında, herkesin ilkokul çağında ilkokul eğtiminden geçmesi bir zorunluluktur. Bu basamakta, bilinçli olarak öğrencilere kazandırılan bilgi, beceri, tutum ve değerler şiddet olaylarına karşı bir güç olarak düşünülebilir. İlkokulllarda şiddeti önlemeye yönelik bilinçli öğrenme etkinliklerinin şu an ilkolku öğrencilerinin gelecekte de yetişkinlerin şiddet olaylarını gerçekleştirme durumlarını azaltacağı söylenebilir.

Görsel medya daha çok çocukluk dönemlerinden başlayarak önemli bir model oluşturmaktadır. Çocuklar daha çok izledikleri dizilerden kendi kahramanlarını örnerk alarak, yaşamına ve oyunlarında model oluşturabilirler. Bu kahramanların davranış ve hareketleri çocuktaki saldırganlık dürtülerini harekete geçirebilmektedir. Bu araştırmada da öğrencilerin bir bölümünün izledikleri dizilerin şiddet içerikli olduğu belirlenmiştir. Durmuş (2006) tarfından yapılan ve şiddetin nedenleri arsında gösterdikleri televiziyon dizilerinden etkilenme bulgusuyla etkilenmektedir.

Sonuç olarak, ilkokul öğrencileri; şidde kötü birşeydir, dayak, kavga etmak, korku, kızmak, dövmek, kötü davranmak gibi değişik biçimlerde tanımlamakta, maruz kaldıkları ceza türleri için oda cezası, fiziksel ceza, evden çıkmamam cezası, TV izlememe cezası, oyun oynamama cezası, bilgisayar kullanmama cezası ve hakaret cezası gibi örnekler vermişlerdir. çevrelerinde karşılaştıkları şiddet olaylarında ise tanımlarına benzer bir biçimde kavga, dövme, bağırma, tarfik kazası, sövme, küfürlü konuşma gibi örnekler vermektedirler.Öğrencilerin ileride kendi çocuklarına ne tür cezalar vercekleri sorusuna kendi anne ve babalarının onlara verdiği cezalara benzer cezalar vereceklerini söylemişlerdir. Bu araştırmada öğrencilerin büyük bir bölümü kendi çocuklarına ceza vermeyeceklerini söylemişlerdir. Bunun yanında verecekleri cezalar arasında kızma, fiziksel ceza, ev cezası verme gibi ifadeler kullanmışlardır.

Bu arştırma bulgularına dayanılarak şu önerilerde bulunulabilir:

1- Okul- aile işbirliği artırılarak öğrencilerin şiddet olaylarıyla karşılaşma durumları en sagari düzeye indirilebilir.

2- Okullarda şiddeti anlatan ve azaltılmasına yönelik olarak ilköğretim proğramlarına çeşitli dersler konulabilir.

3- Okullardaki rehberlik servislerinin daha etkili kullanılması ve şiddet gören öğrencilerin şiddet olayları karşısında yaşadığı olumsuz duyguların azaltılması için çalışılmalıdır.

4- Çocukların okuldaki şiddet eğilimlerinin nereden kaynaklandığını inceleyen araştırmalar yapılabilir.

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İLKÖĞRETİM 4. SINIF MADDEYİ TANIYALIM ÜNİTESİ İÇİN 5E MODELİNE GÖRE ETKİNLİK GELİŞTİRME VE DENEYİMLİ İKİ ÖĞRETMENİN BU ETKİNLİKLER HAKKINDAKİ GÖRÜŞLERİ

DEVELOPING ACTIVITIES RELATED UNIT OF MATTER FOR 4TH GRADE STUDENTS BASED ON 5E MODEL AND TEACHERS IDEAS ABOUT THESE ACTIVITIES

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ÖZET

Bu çalışmanın amacı, ilköğretim 4. sınıf öğrencilerinin maddeyi tanıyalım ünitesini daha iyi anlamalarını sağlamak için 5E modeline uygun etkinlik geliştirilmesi ve iki deneyimli öğretmenin bu etkinlikleri uygulama sonrası görüşlerinin belirlenmesidir. Bu amacın gerçekleşmesi için 2004 yılında geliştirilen fen ve teknoloji dersi 4. sınıf programındaki maddeyi tanıyalım ünitesindeki kazanımlar ve bu kazanımların öğretilmesi için ayrılan 36 saat dikkate alınarak 2 şer saatlik 18 etkinlik hazırlanmıştır. Hatay il merkezinde bulunan bir ilköğretim okulundaki iki sınıf öğretmeni araştırmacılar tarafından hazırlanan 18 etkinliği haftada 2 etkinlik olmak üzere 9 hafta süreyle kendi sınıflarında uygulamışlardır. Uygulama sonrası iki deneyimli sınıf öğretmeni, 5E modelini değerlendirme ölçeğindeki açık uçlu sorulara verdikleri yanıtlarda 5E modelinin (giriş, keşfetme, açıklama, derinleştirme ve değerlendirme) aşamalarını başarılı bir şekilde uyguladıklarını, bu etkinliklerin öğrencilerin aktif bir şekilde derse katılımını sağladığını, motivasyonlarını artırdığını ve bunun sonucunda da başarılı olduklarını belirtmişlerdir.

Anahtar Kelimeler: Yapılandırmacı kuram, 5E modeli,

ABSTRACT

The purpose of this study was to develop activities for 4th grade students' better understanding of unit of matter and identify two experienced teachers' ideas about those activities. For implementation of this purpose has taken into account objectives and time in the new developed curricula 2004. Two experienced elementary school teachers in HATAY used 18 activities in their class during 9 weeks. After teachers used those activities, they responded open ended questions related to 5E Model. Their responses showed that they used successfully steps of 5E Model (Entry, discovery, explain, elaboration, evaluation), and these activities increased students attendance of class, motivation and achievement.

Key Words: Constructivism, 5E model

1. GİRİŞ

Fen öğretimi, doğayı anlama, soru sorma ve sorduğu sorulara cevap arama, düşünme ve düşündüklerini ifade etme, hayata uyum sağlama, sorumluluk alma ve sorumluluğunu en iyi biçimde yerine getirme, işbirliği içinde çalışma gibi bireyin gelişimi açısından önemli olan bazı kazanımları içermektedir. Fen bilimleri ile ilgili temel kavramların ilköğretim döneminde doğru bir biçimde kazanılması önemlidir. 2006 yılında yapılan OECD PISA (Uluslar Arası Öğrenci Değerlendirme Projesi) sonuçlarına göre Türkiye fen bilgisi alanında 57 ülke arasında 44. olmuştur. Bu sonuçlar Türkiye'nin OECD ortalamalarının istatistiksel olarak anlamlı bir biçimde ortalamanın altında kaldığını göstermektedir (Eurybase and Europen Commission, 2008).

Bu durum fen öğretiminin yapılmasında ülkemiz için yeni arayışlara yol açmıştır. Fen öğretiminde kullanılan öğretim modellerinin öğrencilerdeki bireysel farklılıklara hitap edecek şekilde seçilmesinin başarıyı ve öğrencinin derse karşı tutumunu geliştireceği düşünülmektedir. Ayrıca Azar (2006)'a göre fen bilimleri derslerinin yeni vizyonu olan bilimsel okuryazarlığın, öğrencilere kazandırılması konusunda bireysel farklılıkların dikkate alındığı daha geçerli öğretim ve öğrenme yaklaşımlarının kullanılması gerekmektedir. Bu durumda dersi anlatırken kullanılan öğretim yönteminin etkililiği ön plana çıkmaktadır. Son yıllarda eğitimde

önemli bir yere sahip olan yapılandırmacı yaklaşıma dayanan, bireysel farklılıkların dikkate alındığı birçok öğrenme modeli ve yöntemi ortaya konulmuştur. Bu öğrenme modelleri ve yöntemleri öğrenmenin anlamlı olmasını sağlamak amacıyla geliştirilmiştir. Yapılandırmacı kuramın sınıf ortamına uygulama şekli olan 5E modelinin diğer öğrenci merkezli öğretim yaklaşımlarına göre öğrencilerin bilişsel düzeylerini daha yukarılara taşıdığı tespit edilmiştir (Hiçcan, 2008; Erşahan, 2007).

Eğitimdeki değişimlerde öğretmenlerin en etkili faktör olduğu bilinmektedir. Öğretmenlerin farklı görüş açısıyla geliştirilen yeni programlara uyum sağlamaları için önemli bir çaba harcamaları gerekmektedir. Fen öğretmeni eğitiminde program değişikliğini tanıtmaya önem verilmelidir. Çünkü programların geliştirilmesinde çoğunlukla yeniliklerin temel unsurları program geliştiriciler veya politika yapıcılar tarafından tanımlanmakta, öğretmenlerden ise bu yenilikleri uygulamaları beklenmektedir. Öğretmenlerin bilişleri, inanışları, niyetleri ve tutumları dikkate alınmadan hazırlanan programların başarıya ulaşmada yetersiz kaldığı noktasında araştırmacılar arasında bir fikir birliği vardır (Dariel, Beijard ve Verloop, 2001). Ancak öğretmenlerin öğretme ve öğrenme durumlarının kolay ve hızlı bir şekilde değişmediğini gösteren birçok araştırma da vardır (Ball ve Cohen, 1999). Thompson ve Zeuli (1999)'e göre öğretmenler hazırlanan yeni öğretim materyallerini daha önceki bilgileri ile ilişkilendirmeleri durumunda değişime meyilli hale gelirler. Ayrıca, beklenen öğretmen davranışı seri olarak düzenlenen eğitim seminerleri veya planlanan denetim faaliyetleri ile beklenen öğretmen davranışları geliştirilir.

Fen eğitiminde son yılarda öğrenci merkezli araştırma aktiviteleri üzerinde durulmaktadır. Tsai, Lin ve Yuan (2002) e göre öğretmenler etkili açık uçlu araştırma aktiviteleri geliştirebilecek yöntemleri bilmemektedir. Başarılı araştırma aktiviteleri öğrencilerin ön bilgilerini dikkate alan, onların derse karşı konsantrasyonlarını, yapacakları araştırmalarla yeni bilgileri keşfetmelerini ve problemleri çözmelerini sağlamalıdır. Bu nedenle bu çalışmanın amacı ilköğretim 4. sınıf öğrencilerinin maddeyi tanıyalım ünitesini daha iyi anlamalarını sağlamak için 5E modeline uygun etkinlik geliştirilmesi ve iki deneyimli öğretmenin bu etkinlikleri uygulama sonrası görüşlerinin belirlenmesidir.

2. YÖNTEM:

2.1. 5E Modeline Uygun Etkinlik Hazırlama

İlköğretim 4. sınıf fen ve teknoloji dersi maddeyi tanıyalım ünitesi programdaki kazanımlar dikkate alınarak araştırmacı tarafından toplam 36 ders saati için 2'şer saatlik 18 adet ders planı 5 E modeline göre hazırlanmıştır. Hazırlanan 18 etkinlik 2 kimya eğitimcisi öğretim üyesi tarafından 5E modelinin evreleri ve bilimsel içerik açısından incelenmiş ve bu öğretim üyelerinden alınan geri bildirimler doğrultusunda etkinliklere son şekli verilmiştir (2 ders saatlik ilk etkinlik örneği Ek 1'de verilmiştir)

2.2. Uygulama

Uygulama öncesinde 2 öğretmene 5 E öğretim modeli ve hazırlanan etkinlikler konusunda seminer verilmiştir. Daha sonra hazırlanan etkinlikler haftada 4 saat olan fen ve teknoloji dersinde 9 hafta süreyle 2 deneyimli sınıf öğretmeni tarafından uygulanmış ve uygulama sonunda öğretmenlere açık uçlu sorular sorularak 5E modeline göre hazırlanan etkinlikler hakkındaki görüşleri alınmıştır.

2.3. Öğretmenlerin 5E Modeline Karşı Görüşlerini Ölçme Aracı

Bu ölçme aracı üç bölümden oluşmaktadır. Birinci bölümde öğretmenlerin 5E Modelinin (Giriş, Keşfetme, Açıklama, Derinleştirme ve Değerlendirme) uygulama aşamalarında hangi ilkelere dikkat ettikleri, ikinci aşamada "Maddeyi Tanıyalım" ünitesinde 5E Öğretim Modelinin uygulanmasında karşılaştıkları güçlükler, üçüncü aşamasında ise 5E Öğretim Modelinin öğrencilerin dersteki motivasyon ve başarılarına etkisi hakkındaki görüşleri alınmıştır.

2.4. Verilerin Analizi

İki deneyimli öğretmenin açık uçlu sorulara verdikleri yanıtlar içerik analizi yapılarak değerlendirilmiştir.

3. Bulgular

Ölçme aracında bulunan sorulara öğretmenlerin verdiği cevaplar aşağıdaki tabloda özetlenmiştir.

Tablo 3.1: Öğretmenlerin 5 E Modeli ile İlgili Birinci Açık Uçlu Soruya Verdikleri Yanıtlar

1. Lütfen 5 E Öğretim Modeli ile işlediğiniz "Maddeyi Tanıyalım" ünitesinde 5 E Öğretim Modelinin uygulama aşamalarında hangi ilkelere dikkat ettiğinizi ve neler yaptığınızı aşağıdaki boşluklara yazınız	
1.1. GİRİŞ aşamasında Dikkat ettiğim ilkeler şunlardır	**Birinci Öğretmen:** *Giriş aşaması çocukların zihinsel hazırlığı için vazgeçilmez bir çalışmadır. Giriş aşamasındaki soruları titizlikle yaptım. Öğrencinin yaşamından örnekler olması ilgi çekici ve bilgiyi almaya hazırlayıcı oluyor. Soruların hepsini sormaya fazla sayıda öğrencilerin konuşmasına dikkat ettim.* **İkinci Öğretmen:** *İşlenen konu hakkındaki hangi düzeyde bilgi sahibi olduklarını kontrol etmek. Merak uyandıracak bir girişle derse başlamak. Giriş aşamasında verilen sorularla öğrencilerin değişik fikirlerini ortaya çıkarmak. Öğrencilerin hazır bulunuşluk seviyelerine dikkat etmek.*
1.2. GİRİŞ aşamasında Şu çalışmaları yaptık	**Birinci Öğretmen:** *Küçük gruplar oluşturup belirlenmiş sürede ortak bir fikir yazmalarını istedim. Süre sonunda verilen cevaplar sözcü tarafından okundu. Fikirler arası benzerlik ve farklılıklar tartışıldı.* **İkinci Öğretmen:** *Hümeyra hanımın bizlere hazırladığı kitaptaki giriş aşamasındaki resimli sorular okutuldu. Her öğrenciye söz hakkı verilerek cevaplamaları sağlandı. Alınan cevaplar kitaplara yazdırıldı. İşlenen konu ile ilgili sahip oldukları bilgilerin farkında olmaları sağlandı.*
1.3. KEŞFETME Aşamasında dikkat ettiğim ilkeler şunlardır	**Birinci Öğretmen:** *Keşfetme etkinliklerin sınıfta yapılmasına özen gösterdim. Öğrencinin somuttan hareket edip bilgiye ulaşması için dikkat ettim.* **İkinci Öğretmen:** *Derste işlenen konu ile ilgili birlikte çalışma imkanı sağlamak. Var olan bilgilerin kullanılması ve bunlarla yeni fikirler oluşturmak. Sınıf içinde tartışma ortamı hazırlamak. Yaratıcılık (keşfetme) yönlerini geliştirmek.*
1.4. KEŞFETME Aşamasında şu çalışmaları yaptık:	**Birinci Öğretmen:** *Malzemeler imkân dâhilinde sınıfa getirildi. Deneyler, gözlemler plana uygun yapıldı. (Deney yapılmadığında bilgiye ulaşmak zor olduğundan deneyleri yapmaya özen gösterdik)* **İkinci Öğretmen:** *Kitapta verilen etkinlik ve deneyleri yaptık. Öğrenciler deney ve gözlemlerin sonuçlarını anlattıktan sonra kitaba not ettiler. Yapılan etkinlikler karşılaştırıldı. Düşünme yetenekleri, düşüncelerini ifade etme becerileri geliştirildi.*
1.5. AÇIKLAMA aşamasında dikkat ettiğim ilkeler şunlardır	**Birinci Öğretmen:** *Bu aşamada terimler kavramlar açıklanıp yazdırıldı. Deney ve gözlem sonuçları not ettirildi. Bu notlardan bilgiye ulaşıp kitapçıklara yazdırıldı.* **İkinci Öğretmen:** *Öğrencilerin keşfetme aşamasında buldukları sonuçların sınıfla paylaşması. Diğer açıklamaların dikkatli dinlenmesi. Kavram yanılgılarını giderme.*
1.6. AÇIKLAMA Aşamasında şu çalışmaları yaptık	Birinci Öğretmen: *Öğrencilerin bulgularından hareket edip bilgi açıklandı. Kitapçığa yazdırıldı. Konular ilerledikçe ilişkilendirmelerin yapılmasına dikkat ettik. Öğrencilerin günlük yaşamlarına indirgenmesine özen gösterildi.* **İkinci Öğretmen:** *Açıklama aşamasında sorulan sorular okutuldu. Konu ile ilgili binenler öğrencilere açıklatıldı. Eksik bilgiler tamamlandı. Öğrencilerin önceki bilgileri ve giriş ve keşfetme aşamasındaki etkinliklerle bilgiye kendilerinin ulaşması sağlandı.*
1.7 DERİNLEŞTİRME aşamasında dikkat ettiğim ilkeler şunlardır	**Birinci Öğretmen:** *Yapılan çalışmayı uygulamaya dikkat ettim. Öğrencilerin fikirlerini söylerken daha bilinçli amaca uygun konuşmalarına dikkat edildi. Eleştirel düşünmelerine, günlük yaşamla ilişkilendirmelerine dikkat ettim.* **İkinci Öğretmen:** *Elde edilen bilgilerin paylaşımı öğrendiği bilgilerin yeni durumlarda uygulanması.*
1.7. DERİNLEŞTİRME aşamasında şu çalışmaları yaptık	**Birinci Öğretmen:** *Sorular sırayla soruldu. Öğrenciler soruların cevabını yazdı. Verilen cevaplar arasından doğru olanlar belirlendi. Yanlışlar düzeltildi.* **İkinci Öğretmen:** *Kitapçıkta verilen sorular okutuldu. Verilen cevaplar sınıfta paylaşıldı. Cevaplar kitapçığa yazıldı. Yapılan etkinliklerle bilgilerin farklı durumlara uygulanması sağlandı.*
1.8. DEĞERLENDİRME Aşamasında dikkat ettiğim ilkeler şunlardır:	**Birinci Öğretmen:** *Çalışmaya tüm öğrencilerin katılması sorulara net cevap verilmesine dikkat ediyorum.* **İkinci Öğretmen:** *Kazanılan bilgi ve becerileri değerlendirmek, bilgi düzeylerini kontrol etmek.*
1.9. DEĞERLENDİRME aşamasında şu çalışmaları yaptık:	**Birinci Öğretmen:** *Hazırlanmış sorular verilen sürede cevaplandırıldı. Öğrencilere verdikleri cevapları arkadaşlarına sundu. Yanlışlar düzeltildi. Anlaşılamayan konular üzerinde duruldu.* **İkinci Öğretmen:** *Kitapçıktaki değerlendirme aşaması yapıldı. Verilen sorular cevaplandırıldı. Alınan cevaplara göre öğrencileri değerlendirme fırsatı bulundu. Yapılan hatalar düzeltildi.*

Tablo 3.2: Öğretmenlerin 5 E Modeli ile İlgili İkinci Açık Uçlu Soruya Verdikleri Yanıtlar

2. 5 E Öğretim Modeli ile işlediğiniz "Maddeyi Tanıyalım" ünitesinde 5 E Öğretim Modelinin uygulanmasında karşılaştığınız güçlükleri açıklar mısınız?	
2.1. GİRİŞ aşamasında şu güçlüklerle karşılaştım:	**Birinci Öğretmen:** *Giriş aşaması gayet güzel planlanmış ve hazırlanmış. Resimler, sorular zihinsel hazırlığı oluşturdu. Fakat siyah-beyaz olması olumsuz durumdu. Renkler ilgi çekici oluyor.* **İkinci Öğretmen:** *Güçlükle karşılaşmadım*
2.2. KEŞFETME aşamasında şu güçlüklerle karşılaştım:	**Birinci Öğretmen:** *Bu aşamadaki etkinlikler doğru seçilmiş. Yapılan etkinliklerde bilgiye kolay varıldı. Etkinliksiz yapılan çalışmalarda bilgiyi vermede zorlandığım için yapmaya dikkat ettim.* **İkinci Öğretmen:** *Güçlükle karşılaşmadım*
2.3. AÇIKLAMA aşamasında şu güçlüklerle karşılaştım:	**Birinci Öğretmen:** *Matematiksel işlemlerde ondalıklı sayılar verilmediği için biraz sıkıntı yaşandı. Günlük hayatla yaşanan kavram kargaşasını düzeltmek zor oldu. (eşya, cisim, alet, malzeme, ısı-sıcaklık, ağırlık-kütle vs)* **İkinci Öğretmen:** *Güçlükle karşılaşmadım*
2.4. DERİNLEŞTİRME aşamasında şu güçlüklerle karşılaştım:	**Birinci Öğretmen:** *Her şey çok iyiydi. Bir problem olmadı.* **İkinci Öğretmen:** *Bazı konularda süre sıkıntısı yaşadım*
2.5. DEĞERLENDİRME aşamasında şu güçlüklerle karşılaştım:	**Birinci Öğretmen:** *konuları kapsayıcı, kazanımları destekliyor. Herhangi bir sorun olmadı.* **İkinci Öğretmen:** *Değerlendirme aşamasında süre sıkıntısı yaşadım. Değerlendirme aşamasındaki etkinlikleri ev ödevi olarak verdim. Sonraki derste kontrol ettim.*

Tablo 3.3: Öğretmenlerin 5 E Modeli ile İlgili Üçüncü Açık Uçlu Soruya Verdikleri Yanıtlar

3. 5 E Öğretim Modeli ile işlediğiniz "Maddeyi Tanıyalım" ünitesinde 5 E Öğretim Modelinin öğrencinin dersteki motivasyonuna ve başarısına etkisi hakkındaki düşüncelerinizi açıklar mısınız?	
3.1.5E Öğretim Modelinin öğrencinin dersteki motivasyonuna etkisi	**Birinci Öğretmen:** *Öğrenci zihinsel olarak hazırlandı. Grup çalışması yaptı. Deney-gözlem için hazırlık yapma gereği duydu. Ön bilgiler oluşunca öğrenmeye istek arttı.* **İkinci Öğretmen:** *5E öğretim modeli ''öğrencinin dersteki motivasyonunu arttırmıştır. Öğrenciler konuları severek, zevkle işlemişlerdir.*
3.2.5E Öğretim Modelinin öğrencinin dersteki başarısına etkisi	**Birinci Öğretmen:** *katılımcı oldular. Dersler zevkli, aktif geçti. Gözlem sonucuna vardılar. Bilgiye ulaşmaları kolay oldu. Bilgileri günlük yaşamda kullanma isteği oluştu.* **İkinci Öğretmen:** *''5E öğretim modeli'' öğrencinin dersteki başarısını arttırmıştır. Öğrenciler derste daha aktif yer aldılar. Bilgiyi kendileri keşfederek, bilgiyi keşfetmenin mutluluğunu yaşadılar.*
3.3. 5EÖğretim Modelinin uygulanmasına ilişkin genel değerlendirmenizi ve önerilerinizi yazınız.	**Birinci Öğretmen:** *Mevcut müfredatı destekleyen, aktif öğrenme ve çoklu zeka kuramına uygundu. Öğrencileri harekete geçirdi. Bilgiye kolay ulaşıldı.* **İkinci Öğretmen:** *'' 5E Öğretim Modeli'' Maddeyi Tanıyalım '' ünitesinde uygulandığında benim ve öğrencilerim için başarılı bir şekilde sonuçlandığını söyleyebilirim. Öğrencilerin önceki bilgilerinin üzerine yeni bilgiler keşfederek, kavramları daha iyi öğrenmelerine fırsat veren bir yöntem oldu.*

4. Sonuç ve Öneriler

Bu çalışma sonunda ilköğretim birinci kademe 4. sınıf fen ve teknoloji dersi maddeyi tanıyalım ünitesi için 5E modeline göre 18 etkinlik geliştirilmiştir. Her etkinlik için belirlenen uygulama süresi 2 saat ve tüm etkinlikler için ise 36 saattir. Geliştirilen etkinlikler deneyimli 2 sınıf öğretmeni tarafından 9 hafta süreyle sınıf ortamında uygulanmıştır. Uygulama sonrasında öğretmenlerin 5E modeline karşı görüşlerini ölçme aracındaki açık uçlu sorulara verdikleri cevaplardan hareketle belirlenmiştir. Buna göre öğretmenlerin 5E modelinin giriş, keşfetme, açıklama, derinleştirme ve değerlendirme aşamalarını genel olarak başarılı bir şekilde uyguladıkları, bu etkinliklerin öğrencilerin aktif bir şekilde derse katılımlarını, önceki bilgilerini harekete geçirerek yeni bilgiler keşfetmelerini, kavramları daha iyi öğrenmelerini sağladığı ve öğrencilerin motivasyonlarını arttırdığı yönünde olumlu görüşlere sahip oldukları, bunun yanında bazı etkinliklerin, özellikle değerlendirme aşamasının uygulanmasında süre sıkıntısı yaşadıklarını belirtmişlerdir.

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Ek: 1: 5 E Öğretim Modeline Göre Hazırlanmış 2 Saatlik Etkinlik Örneği

Ders Saati: 2
Konu : Gazlar

Giriş Aşaması:

Şimdi düşünelim, sıcak bir yaz günündeyiz, serinlemek istiyoruz. Defterimizi yelpaze gibi kullanarak serinlemeye çalışıyoruz. Hep beraber yapalım. Sizce işe yaradı mı? Peki, serinlememizi sağlayan şey neydi?

……



Bu gün sizin doğum gününüz olsun, önünüze kocaman bir pasta geldi. Acele edin mumlar hala yanıyor, ne yapalım? Mumlar neyden etkilendi?

……

Bisiklete binmeyi sever misiniz? Ya bisikletinizin tekerleği patlarsa ne yaparsınız? Tekerleğin patlaması ne demek? Tekerleğin içinde ne var?

……

Keşfetme Aşaması:

Etkinlik B.4 : *Hangisi daha hızlı?*

Başlamak için:

Her grupta iki balon, 1 toplu iğne, balonun büyüklüğüne uygun miktarda su, saat, kova veya leğen

Birlikte yapalım:

- Birinci balonu toplu iğne ile delelim ve deliği elimizle kapatıp üfleyerek şişirelim.
- İkinci balonu da aynı toplu iğne ile delelim, deliği elimizle kapatıp, birinci balonun büyüklüğüne ulaşıncaya kadar su ile dolduralım.
- Önce birinci balondan elimizi çekip havanın balondan ne kadar zamanda çıktığını not edelim.
- Sonra ikinci balondan elimizi çekip suyun balondan ne kadar zamanda çıktığını not edelim.

Ne Oldu?

- Balondan hava mı yoksa su mu daha hızlı çıktı?

……

- Havanın ve suyun çıkış hızının farklı olması gazlar ve sıvıların hangi özelliklerinden kaynaklanır?

……

- Aynı şekilde delinmiş olan balonu kum ile doldursaydınız ne gözlerdiniz?

……

- Aynı şekilde delinmiş olan balonu taş parçaları ile doldursaydınız ne gözlemlerdiniz?

……

- Katı olan taş parçalarının, küçük taneli katı olan kumun, sıvı olan suyun ve gaz olan havanın balonu boşaltma hızlarını en hızlı olandan en yavaş olana doğru sıralayınız.

……

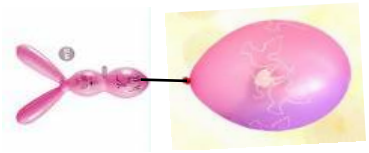
Etkinlik B.5 : *Havanın şekli var mı?*

Başlamak için:

Her grup için farklı şekillerde iki balon, pipet (Balonlardan biri yuvarlak diğeri tavşan şeklinde olabilir.)

Birlikte yapalım:

- Balonlardan birini iyice şişirelim, balonun ucuna havasını kaçırmayacak şekilde bir pipet takarak pipeti balona bağlayalım. (Pipetin ucunu kapatarak hava çıkışını önleyelim.)
- Farklı şekildeki İkinci balonu şişirmeden birinci balondaki pipetin diğer ucuna bağlayalım, durumu gözlemleyelim.



Ne Oldu?

- İki balon arasında bağlantı kurduğumuzda ne gözlemlediniz?

……

- Havanın geçişi ile ikinci balon şekil değiştirdi mi?

……

- Hava ikinci balonun sadece bir ucunda mı birikti yoksa her yerine dağıldı mı?

……

- Tavşan şeklindeki balona hava değil de su doldursaydık su da hava gibi balonun her yerine dağılır mıydı?

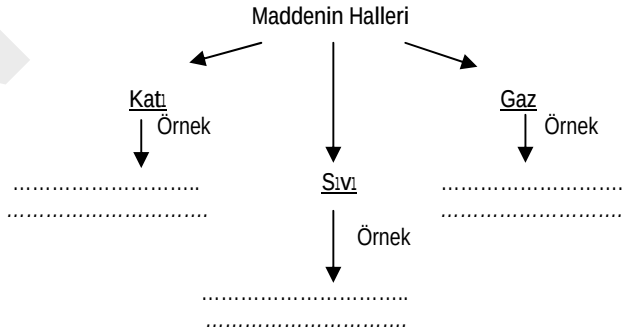
……

Açıklama Aşaması:

Gaz halinde bulunan maddeleri her zaman görmek mümkün müdür? Gazların var olduğunu nasıl anlarız?
Örnek vererek açıklayınız.

……
……
……
……

.Aşağıda verilen tabloda boşluk bırakılan yerlere örnekler yazınız.



Gazlar halinde bulunan maddelerin genel olarak özellikleri şöyledir:

……
……



Derinleştirme Aşaması:

Biliyor muydunuz!

"Egzoz dumanında gazın yanında toz parçacıkları ve su buharı da bulunmaktadır. Ayrıca bulutta suyun gaz haline geçmiş olan su buharı yanında su damlacıkları da bulunur. "

- "Balonu şişirdiğimizde içine giren hava balonun hacminin ve şeklinin değişmesine neden olur."

  Bu durumda gaz halindeki maddeler girdikleri her kabın şeklini değiştirirler mi?

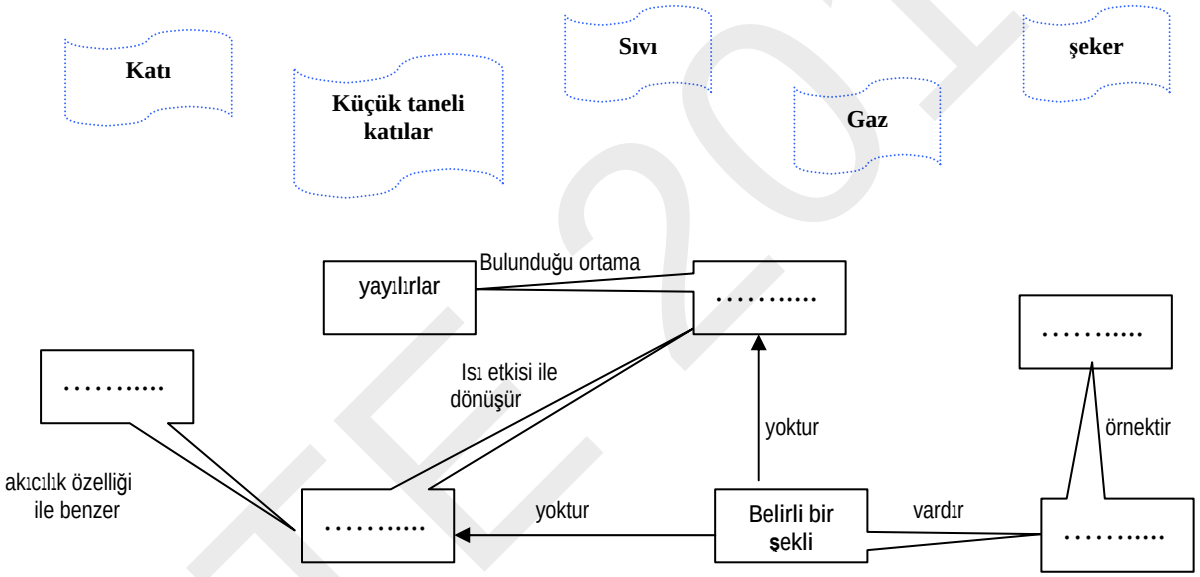
……

- Katı ve sıvıların kütleleri ölçülebilir. Peki, gaz halindeki maddeler bulundukları kaba tamamen yayıldıklarına göre kütleleri nasıl ölçülür?

……

Değerlendirme Aşaması:

A. *Aşağıdaki kavram haritasını inceleyiniz. Boş yerleri doğru kavramlarla tamamlayınız.*



B. *Tanımlar ile tanıma uygun kavramların harflerini eşleştiriniz.*

(Bir tanım birden fazla kavram ile eşleşebilir)

a) Sıvı *b) Küçük taneli* *c) Gaz* *d) Katı*

1. Belirli bir şekli vardır ve dışarıdan bir etki olmadıkça şekil değiştirmezler.
2. Bulundukları kaptan küçük bir delik bulduklarında hemen dışarı sızarlar.
3. Bulunduğu kabın doldurduğu kadar olan kısmının şeklini alırlar.
4. Tuz, pirinç, un, gibi akıcılığı olan maddelerdir.
5. Bulundukları kaba tamamen yayılırlar.

İLKÖĞRETİM 4. SINIF SOSYAL BİLGİLER DERS PROGRAMI'NDA ÖNERİLEN ETKİNLİKLERİN YAPILANDIRMACI ANLAYIŞ AÇISINDAN İNCELENMESİ

THE INVESTIGATION OF SUGGESTED ACTIVITIES IN ELEMENTARY 4th GRADE SOCIAL KNOWLEDGE COURSE PROGRAM IN TERMS OF THE CONSTRUCTIVIST APPROACH

Okay IŞLAK*

Özet

Temel amacı 21. yüzyılın çağdaş, Atatürk ilkeleri ve inkılâplarını benimsemiş, temel demokratik değerlerle donanmış, bilgiyi deneyimlerine göre yorumlayıp sosyal ve kültürel bağlam içinde oluşturan ve kullanan bireyler yetiştirmek olan ilköğretim sosyal bilgiler programı 2005 yılında yapılandırmacı anlayışa göre yeniden geliştirilmiştir. Yapılandırmacı anlayışa göre, belirtilen bu becerilerin öğrencilere kazandırılması sürecinde, öğrencilerin sürece etkin bir biçimde katılmaları ve ihtiyaç duydukları bilgi, beceri ve tutumları kendi yaşantıları yoluyla kendilerinin oluşturması beklenmektedir. Bu noktadan hareketle ilköğretim 4. sınıf sosyal bilgiler ders programında ilgili dersin öğretmenlerine önerilen örnek etkinliklerin yapılandırmacı anlayışa ne ölçüde uygun olduğunu tespit etmek bu çalışmanın temel amacıdır. Bu çalışmada ihtiyaç duyulan veriler nitel araştırma yöntemlerinden olan doküman analizi ve görüşme tekniği ile elde edilmiştir. Görüşme için Türkiye'deki farklı devlet üniversitelerinden program geliştirme alanından 10 öğretim üyesinden konu ile ilgili görüş alınmıştır. Çalışmanın bulguları açıkça göstermektedir ki ilköğretim 4. Sınıf Sosyal Bilgiler Ders Programı'nda öğretmenlere önerilen örnek etkinlerle yapılandırmacı anlayış arasında yüksek düzeyde bir ilişki mevcuttur. Sınıf dışı etkinliklerinin toplam etkinlik sayısının yaklaşık ¼'ünü oluşturması ise öğrencilerin öğretim sürecinde zengin yaşantılar geçirmesi ilkesine paralellik göstermektedir. Sonuç olarak sözü edilen programın etkinliklerinin yapılandırmacı anlayışı destekler nitelikte olması Türkiye'deki ilköğretim sosyal bilgiler öğretimi için istendik bir durum olarak değerlendirilebilir.

Anahtar Kelimeler: Yapılandırmacı Anlayış, 4. Sınıf Sosyal Bilgiler Ders Programı, Etkinlikler

Abstract

Elementary social knowledge course, which aims at educating individuals who adopt Atatürk's basic principles and revolutions of the 21th century, who is equipped with basic democratic values and who interpret knowledge according to experiences and structure as well as use it in social and cultural context, has been redeveloped in terms of the constructivist approach in 2005. According to the approach, in the process of bringing in the discussed abilities to the students, it is expected that the students participate in the process actively and that they construct the needed knowledge, abilities and the attitudes through their experiences themselves. From this point of view, this study aims at investigating the appropriateness of the sample of the activities-suggested for the teachers- to the constructivist approach. In the study, the results are obtained by document analysis and interview which are forms of qualitative research methods. For the interviews, expert opinions are taken from 10 faculty members who specialize in the field of program development and who work in different state universities in Turkey. The results of the study show that, there is a remarkable relationship between the sample of activities suggested for teachers by the elemantary 4th grade social knowledge course program and the constructivist approach. In the program, outdoor activities accounts for ¼ of all acitivities and this situation is parallel to the principle of the importance of having a variety of rich experiences during education by the students. As a result, the activities being supportive for the constructivist approach is a desirable condition in elementary social knowledge education in Turkey.

Key Words: Constructivist Approach, Primary 4th grade Social Knowledge Course Program, Activities

GİRİŞ

Hızlı bir değişimin ve dönüşümün yaşandığı günümüzde toplumlar, sosyal, siyasal, kültürel, ekonomik vb. yönlerden çeşitli gelişmelere tanıklık etmektedirler. Şüphesiz, bu değişimden ve dönüşümden en çok etkilenen alanların başında eğitim gelmektedir. Genel olarak bireylerde istenilen yönde davranış değişikliği meydana getirme süreci olarak tanımlanan eğitim, hangi boyutuyla gerçekleştirilirse gerçekleştirilsin (formal ya da informal), insanlık tarihi ile paralel uzun bir geçmişe sahiptir.

İnsanlar bilginin üretilmesi, geliştirilmesi ve yarınlara aktarılması için yoğun çaba göstermişler ve hala da göstermektedirler. Bilginin üretilmesinde, dağıtılmasında ve öğretilmesinde uzun yıllar geçerliliğini koruyan geleneksel yaklaşım (Nesnelci Görüş) son yıllarda yerini değişen eğitim paradigmasıyla birlikte çağdaş yaklaşımlara bırakmaktadır. Bunlardan da en önemlisi bilginin öğrenci tarafından yapılandırıldığı yapılandırmacı (Yapıcı Görüş) yaklaşımdır.

Yapılandırmacı yaklaşım öğrenmeyi, kendi içindeki türlerinde farklı olarak açıklamasına rağmen, genel görüş öğrenmenin zihinsel ve sosyal süreçler yardımıyla gerçekleştiği yönündedir. Bilginin bireyden tamamen bağımsız bir şekilde bulunamayacağını savunan bu yaklaşıma göre bilgi, birey tarafından ön bilgileri ve anlamaları üzerine yapılandırılmaktadır. Bir başka deyişle yapılandırmacılık, bireylerin sonradan ortaya çıkan davranış ve düşüncelerinin daha önceden yapılandırılmış düşüncelerine ve önbilgilerine dayandığını savunmaktadır (Tsai, 2002). Bu yaklaşıma göre bireyin zihni sürekli olarak çevresinde gerçekleşen olaylara ve karşılaştığı durumlara anlam vermeye çalışmaktadır. Yapılandırmacılık, bireylerin dünyaya ilişkin algılamalarını ve bilgilerini aktif olarak yapılandırdığını ve bu yapılandırma sürecinin hayat boyunca devam ettiğini savunmaktadır (Rezaei ve Katz, 2002; Edmonds, 1999; Matson ve Parsons, 2006). Bu nedenle öğretmenin bilgi aktarıcısı rolünü üstlendiği, öğrencilerin ise pasif konumda yer aldığı öğrenme yaklaşımları, bu yaklaşım karşısında anlamını yitirmiştir (Jerkins, 2000). Özetle yapılandırmacı yaklaşım, öğrencinin sürece aktif katıldığı, öğretmenin ise öğrencilerin bilgilerini yapılandırmalarında onlara yardımcı olduğu bir rolü üstlenmesini öngörmektedir. Eğitim alanındaki literatür incelendiğinde yapılandırmacı yaklaşımın mevcut uygulanan ve geliştirilmesi planlanan eğitim programları üzerindeki etkisine bakıldığında geliştirilen programlarda değişiklikler gözlenmektedir.

Yapılandırmacı anlayışa göre geliştirilen yeni eğitim programları dayandığı felsefe itibariyle davranışçı yaklaşımının ötesine geçip bilişsel ve post-bilişsel özellikler göstermektedir. Geliştirilen programın amaçları, içeriği, eğitim durumları ve ölçme değerlendirme bölümlerinin bu değişimden etkilendiği görülmektedir. Yeni paradigmayı temel alarak geliştirilen programların amaçlarına bakıldığında, bilişsel alanın yanında duyuşsal ve psikomotor alan hedeflerin de programa eklendiği görülmekte, sadece bilgilerin değil; tutum, değer ve beceri öğretimine de yer verildiği görülmektedir. İçeriklerine bakıldığında ikincil veri kaynaklarından daha çok birincil veri kaynakları üzerinde durulduğu ve programlara yüklenen konuların sabit ve değişmez olmadığı düşüncesinin öğrencilere kazandırılması ve gerçek yaşam problemlerinin sınıf ortamına taşınması gibi değişimler göze çarpmaktadır. Eğitim durumlarında ise programlar tarafından ilgili dersin öğretmenlerine önerilen strateji yöntem ve tekniklerin daha çok öğrenci merkezli uygulamalar olduğu gözlenmektedir. Bireysel çalışmalardan daha çok grupla çalışma, öğrencilerin üst düzey düşünme becerilerini geliştirmesine yönelik etkinliklerin düzenlenmesi, araştırma ve inceleme yolu öğretim stratejisine bağlı olarak öğrencilere verilen proje konuları ve probleme dayalı öğrenme etkinlikleri ilk göze çarpan değişikliklerdir. Programın ölçme ve değerlendirme kısmında ise ürünle birlikte sürecin değerlendirildiği uzun yıllar geçerliliğini koruyan geleneksel ölçme ve değerlendirme yaklaşımlarının alternatif ölçme ve değerlendirme yaklaşımlarıyla desteklenmesi ve birlikte ele alınması gibi hem amaçlara, hem içeriğe hem de eğitim durumlarına uygun ölçme değerlendirme işlemlerinin yapıldığı görülmektedir.

Bilgideki hızlı çoğalma, teknolojik değişmeler ve toplumun çözüm bekleyen sorunlarına bir cevap olması amacıyla 2005 yılında uygulamaya konulan ve yapılandırmacı anlayışa dayalı olarak yeniden geliştirilen ilköğretim sosyal bilgiler öğretim programına bakıldığında; programın 8 üniteden oluştuğu ve toplam 8 üniteye ilişkin 46 kazanımın olduğu görülmektedir. Belirtilen bu kazanımlara yönelik herhangi bir konu sıralaması yapılmamış ancak kazanımların öngördüğü bir içerik sınırlamasının mevcut olduğu görülmektedir. Sosyal Bilgiler öğretim programında dikkati çeken bir diğer husus da programın

öğretmenlere üç türlü ilişkilendirme yapma görevini yüklemesidir. Bunlar; üniteler arası ilişkilendirme, dersler arası ilişkilendirme ve ara disiplinlerle ilişkilendirmedir. Sözü edilen bu ilişkilendirmelerin yapılma nedeni olarak bilginin bir bütün olarak görülmesi ve bunun için de diğer disiplerle ve gerçek yaşamla bir bağ içinde olması gerektiğinin düşünülmesi öne sürülmektedir. Sözü edilen bu ilişkilendirmelerin hayata geçirilebilmesi için sosyal bilgiler programında yer alan tematik alanlar oldukça işlevsel bir yapıya sahiptirler. Amerika Birleşik Devletleri'nde uygulanmakta olan "Social Studies" programının üzerine inşa edildiği dokuz tematik alan Türkiye'nin ihtiyaçları göz önünde bulundurularak sekize tematik alanda toplanmış ve yeni program belirtilen bu tematik alanlar üzerine kurulmuştur. Öğrenme alanları programlardaki amaçlara ve içeriğe yön veren genel çerçevelerdir. Bu çerçeveler kapsamında öğrenciler ilerleyen yıllarda benzer konuları kapsamların genişleyerek ve derinleşerek görürler. Bu durum da Bruner'in sarmal programlama yaklaşımının dayandığı, konuların öğretilmesinde doğrusal bir sıra izlemek yerine, ihtiyaç duyulduğu durumlarda tekrar ele alınabilir düşüncesiyle paralellik göstermektedir. Sarmal programlama yaklaşımının en önemli özelliği, ön öğrenmelerin daha sonraki öğrenilecek konulara bir temel oluşturmasıdır. **Benzer şekilde yapılandırmacı anlayışta da yeni öğrenilecek bilgiler daha önceki öğrenilmiş bilgilerin öğrenci zihninde oluşturmuş olduğu şemalara uyum süreci olarak nitelendirilebilir.**

Yapılandırmacı anlayışa göre geliştirilen ilköğretim 4. sınıf sosyal bilgiler ders programının öğretim süreçleri incelendiğinde programın ilgili ders öğretmenlerine önerdiği etkinlik örnekleri ve açıklamaları olduğu göze çarpmaktadır (Aşci, 2009). Öğretmenler bu etkinlik örneklerini sınıf içinde uygulamak zorunda olmamakla birlikte programda belirtilen kazanımlara öğrencilerin ulaşmasını sağlamak için bu etkinlik örneklerinden hareket ederek yeni etkinlikler üretmeleri beklenmektedir. Sözü edilen bu etkinliklerin sosyal bilgiler 4. Sınıf ders programının temel felsefesi olan yapılandırmacı anlayışa ne kadar uygun olup olmadığı çalışmanın temel amacıdır.

YÖNTEM

4. sınıf sosyal bilgiler ders programında öğretmenlere önerilen etkinlik örneklerinin programın temele aldığı yapılandırmacı anlayışa uygunluğunu belirlemeye yönelik bu çalışma nitel bir çalışma olup çalışmada ihtiyaç duyulan verilere doküman analizi yoluyla ulaşılmıştır…… ()

VERİLERİN TOPLANMASI

Bu çalışmada ihtiyaç duyulan veriler 2009\2010 eğitim-öğretim yılında uygulanan 4. Sınıf Sosyal Bilgiler Ders Programı'ndan ve eğitim literatüründen elde edilmiştir. Ayrıca sosyal bilgiler öğretimi ve yapılandırmacılıkla ilgili tez ve makale gibi bilimsel çalışmalar da analiz edilmiştir.

VERİLERİN ANALİZİ

2009\2010 yılında uygulanmakta olan 4. Sınıf sosyal bilgiler öğretim programı etkinlik örnekler açısından çalışmanın amacına uygun olarak analiz edilmiştir. Bu analiz sonucunda sözü edilen etkinliklerin yapılandırmacı anlayış ilkelerine uygunluğu hazırlanan tabloda sunulmuştur ve etkinliklerin yapılandırmacı anlayışa uygunluğu hem nitel hem de nicel olarak ortaya konmuştur. Nicelik olarak ortaya konması aşamasında yüzde ve frekans hesaplamalarından yararlanılmıştır.

BULGULAR VE YORUM

Bu bölümde 2009\2010 eğitim-öğretim yılında uygulanan 4. Sınıf sosyal bilgiler öğretim programında sunulan örnek etkinliklerin yapılandırmacı anlayışa uygunluğu aşağıda sunulan tabloda ele alınmış ve yorumlanmıştır.

ÖĞRENME ALANI/ÜNİTE	ETKİNLİK ÖRNEĞİ	UYGUNLUK
BİREY VE TOPLUM/ KENDİMİ TANIYORUM	“Küçük Farklar” (Kişisel eşyalar kullanılarak insanlardaki farklılıklara örnekler gösterilir.)	-
	“Farklı ve Özel” (İnsanların farklılıklarının bir zenginlik olduğuna örnekler gösterilir.)	-
	“Duygularım, Düşüncelerim El Ele” (Örnek durumlar oluşturularak duygu ve düşüncelerin kişilere göre değişebileceği fark edilir.)	+
	“Günlük Tutma” (Duygu ve düşüncelerin ifade edildiği günlük tutulur.)	+
	“Duygularım ve Düşüncelerim” (Fotoğraflar yoluyla öğrencilerin duygu ve düşünceleri arasındaki farkı kavramaları sağlanır.)	+
	“Atatürk’ün Kimlik Belgesi” (Atatürk’ün Hayatı ile ilgili metinden çıkarılan bilgilerle bir kimlik belgesi düzenlenir.)	+
	“Duygularım, Düşüncelerim El Ele” (Örnek durumlar oluşturularak duygu ve düşüncelerin kişilere göre değişebileceği fark edilir.)	+
	“Mevlana’dan Hoşgörü Hikâyeleri” (Mevlana’nın hoşgörü anlayışını içeren metinler incelenir.)	-
	“Yaşamımdan Kesitler” (Yaşamı etkileyen olayları esas alan bir zaman şeridi oluşturulur.)	+
	“Bu Benim Kimliğim” (Nüfus cüzdanı, okul kimliği, spor kulübü kimliği v.b. kimlik belgelerindeki bilgiler incelenerek kimliği oluşturan ana öğeler fark edilir.)	+
	“Aile Soy Ağacım” (Basit bir aile soy ağacı çıkarılır.)	+
KÜLTÜR VE MİRAS/ GEÇMİŞİMİ ÖĞRENİYORUM	“Aile Tarihi Çalışması” (Aileye ait nesneler ile değişik yollardan edinilen bilgiler kullanılarak aile tarihine ait metin yazılır.)	+
	“Onlar da çocuktu” (Büyüklerinin, çocukluk dönemine ait oyunları ve oyuncakları ile ilgili sözlü tarih çalışması yapılır.)	+
	“Kahve Fincanı” (Barış Manço’nun kahve fincanı adlı şarkısı, içerdiği kültürel özellikler açısından incelenir.)	+
	“Geçmişin İpuçları” (Gelenekler konulu yaratıcı drama çalışması yapılır.)	+
	“Film İzliyoruz” (Atatürk ve Milli Mücadele temasını işleyen eğitsel film izlenir.)	-
	“Bir Zamanlar” (Büyüklerinin, çocukluk dönemlerinde Cumhuriyet Bayramı konulu sözlü tarih çalışması yapılır.)	+

Tabloda açıkça görüldüğü üzere 4. Sınıf Sosyal Bilgiler Ders Programı’nın öğretmenlere önerdiği örnek etkinliklerle yapılandırmacı anlayış arasında yüksek düzeyde bir ilişki tespit edilmiştir. 4. Sınıf Sosyal Bilgiler Ders Programı’nda öğretmenlere önerilen 72 farklı etkinlikten 56 tanesi yapılandırmacı anlayışla ilişkilendirilebilecek özellikler göstermektedir. Bu da program tarafından öğretmenlere önerilen etkinliklerin %78’ini oluşturmaktadır. Bu durumda yapılandırmacı anlayışa dayalı olarak hazırlandığı ileri

sürülen ilköğretim sosyal bilgiler dersi öğretim programı için olumlu bir durumdur. Diğer taraftan da programda önerilen 16 etkinlik örneğinin yapılandırmacı anlayışla ilişkilendirilebilecek özellikler taşımadığı bulgusuna ulaşılmıştır. Bu durum da sözü edilen programın az da olsa gelenekselci özellikte olduğunun göstergesidir. Etkinlikler incelendiğinde sınıf dışı etkinliklere tüm etkinlikler içinde %25'lik bir pay ayrıldığı görülmektedir. Bu durumda öğrencilerin gerçek yaşamda zengin yaşantılar geçirmeleri ve bilgileri bu yaşantılar yoluyla yapılandırmaları istendik bir durum olarak değerlendirilebilir.

SONUÇ VE TARTIŞMA

Bu bölümde çalışmanın bulgularına dayalı olarak ulaşılan sonuçlar ve bu sonuçlar paralelinde ilgili literatürdeki diğer çalışmaların da ele alındığı kısa bir tartışma bölümü ve son olarak da çalışılan konu hakkında öneriler sunulmuştur. Yapılandırmacı anlayışa göre geliştirildiği öne sürülen İlköğretim 4. Sınıf Sosyal Bilgiler Ders Programı'nın etkinlikleri analiz edildiğinde tüm etkinliklerin %78 'inin yapılandırmacı anlayış ile ilişkilendirilebilecek nitelikte özellikler taşıdığı; %22'sinin de daha çok geleneksel yaklaşıma dayandırıldığı sonucuna ulaşılmıştır. Sınıf içi etkinliklerin yanı sıra programdaki etkinliklerin yaklaşık %25'inin sınıf dışı etkinliklerden oluşması da öğrencilerin yaparak-yaşayarak öğrenmelerine ve dolayısıyla birincil veri kaynaklarının öneminin artmasına yol açtığı sonucuna ulaşılmıştır.

2005 yılında uygulamaya konulan ilköğretim programında ağırlıklı olarak önem taşıyan sosyal bilgiler dersinin öğretiminde ve programlarında ABD'den alınan dokuz tematik alanın programdaki etkinliklerin içeriğine yön verdiği ve son yıllarda önem kazanan yapılandırmacı anlayışın ise bu etkinliklerin uygulamaya konuş biçimine etkisi görülmektedir. Kavram, ilke ve genellemelere dayalı sosyal bilgiler öğretiminde belirtilen bu öğelere ulaşmak için izlenen yolda öğrencilerin önceki yıllara göre daha çok merkeze alındığı ve kendi öğrenme sorumluluklarını üstlenmeleri önem kazanmıştır. Hiç şüphesiz programın amaçları ve ölçme değerlendirme işlemleri bu yeni anlayıştan etkilenmiştir. Programdaki etkinlikler düşünüldüğünde yaklaşık %20'lik bir orana sahip yapılandırmacı anlayış özellikleri taşımayan etkinlikler ise 1998 programının izlerini taşıdığı düşünülmektedir.

Çalışmanın amacı doğrultusunda incelenen ilköğretim 4. sınıf sosyal bilgiler ders programı üzerine inşa edilen temeller açısından ele alındığında ise beceri, kavram, değer ve tutumlar, öğrenme alanlarından oluştuğu görülmektedir. Programın etkinliklerinde 1998 programından farklı olarak sıklıkla değer ve tutum öğretimine önem verilmesi ve bunların belirlenen öğrenme alanları çerçevesinde hayata geçirilmesi Türkiye'deki ilköğretim sosyal bilgiler öğretimi için olumlu bir durum olarak nitelendirilebilir.

Bütün bu sonuçlar ışığında ilköğretim 4. sınıf sosyal bilgiler ders programına ilişkin aşağıda sıralanan öneriler önem arz etmektedir.

1. 4. sınıf sosyal bilgiler ders programında yapılandırmacı anlayışla ilişkilendirilmesinde sorunlar görülen bazı etkinlik örneklerinin yeniden gözden geçirilmesi,

2. İlköğretim sosyal bilgiler öğretim programında yer alan diğer ders programlarının etkinliklerinin de yapılacak çalışmalarla yapılandırmacı anlayışa uygunluğu incelenmelidir.

3. 2005 yılında programların geliştirilmesinde temele alınan çağdaş paradigma ve bunun uygulamalarının sadece programlarla sınırlı tutulmayıp eğitim-öğretim sürecinin tüm bileşenlerine yansıtılması önemli görülmektedir.

4. Her ne kadar çalışma bulgularına dayalı olmasa da yapılandırmacı anlayışa göre hazırlanan etkinliklerin sınıf içi uygulamaları için ilgili dersin öğretmenleri/öğretmen adayları hizmet içi ve öncesi eğitimlerinde bilgilendirilmelidir.

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İLKÖĞRETİM 6. 7. VE 8. SINIF ÖĞRENCİLERİNİN FOTOSENTEZ-SOLUNUM KONUSUNDAKİ KAVRAM YANILGILARININ KAVRAM KARİKATÜRLERİYLE BELİRLENMESİ

DETERMINING 6TH, 7TH, AND 8TH-GRADE ELEMENTARY SCHOOL STUDENTS' MISCONCEPTIONS ABOUT PHOTOSYNTHESIS-RESPIRATION USING CONCEPT CARTOONS

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Özet

Bu çalışmada, ilköğretim 6., 7. ve 8. sınıf öğrencilerinin fotosentez-solunum konusundaki kavram yanılgılarının kavram karikatürleri yardımıyla belirlenmesi amaçlanmıştır. Bu amaçla çalışmada, nicel araştırma modellerinden biri olan tarama modeli kullanılmıştır. Araştırmanın örneklemini; Türkiye'nin Ege bölgesinde yer alan Manisa ilinin Demirci ilçesinde bulunan Atatürk ve Fatih İlköğretim Okulları'nda öğrenim görmekte olan 191 ilköğretim 6., 7. ve 8. sınıf öğrencisi oluşturmaktadır. Veri toplama aracı olarak ise, 9 soruluk kavram karikatürü testi (FSKK testi) kullanılmıştır. Kavram karikatürü testi, fotosentez-solunum konusuyla ilgili yapılan araştırmalarda tespit edilen kavram yanılgılarından yararlanılarak hazırlanmıştır. Yapılan çalışmada, elde edilen veriler analiz edilmiş yüzde ve frekans değerleriyle öğrencilerin fotosentez-solunum konusunda sahip oldukları kavram yanılgıları ortaya konmuştur. Araştırma sonucunda öğrencilerin en fazla bitkinin beslenmesi, fotosentez yapabilen canlılar ve fotosentez-solunum ilişkisi gibi konularda kavram yanılgıları olduğu görülmüştür. Ayrıca ilköğretim öğrencilerinde, bitkilerin besinlerini topraktan aldığı, klorofilleri olduğu için sadece yeşil bitkilerin fotosentez yaptığı ve fotosentez-solunum olaylarının birbirlerinin tersi işlemler olduğu gibi kavram yanılgılarına rastlanmıştır. Bu bağlamda öğrencilerin, fotosentez-solunum konusunda birçok kavram yanılgısına sahip oldukları sonucuna ulaşılmıştır. Bu durumun, fotosentez-solunum konusuna ilköğretim programında sadece 8. sınıfta yer verilmesinden ve konunun çok fazla soyut kavram içermesinden kaynaklandığı düşünülmektedir. Bu sonuçlardan yola çıkılarak, eğitim-öğretim programında fotosentez-solunum konusuna kademeli olarak her sınıf düzeyinde daha fazla yer verilmesi gerektiği önerilebilir. Ayrıca çalışmanın sonuçlarına dayalı olarak kavram karikatürlerinin öğrencilerin kavram yanılgılarının belirlenmesinde etkili olduğu sonucuna varılmıştır ve bu nedenle öğrencilerin herhangi bir fen konusuna yönelik kavram yanılgılarının belirlenmesinde kavram karikatürlerinden yararlanılabileceği önerisinde bulunulabilir.

Anahtar kelimeler: Kavram karikatürü, kavram yanılgıları, fotosentez-solunum, ilköğretim.

Abstract

The present study aimed to determine 6th, 7th, and 8th-grade elementary school students' misconceptions about photosynthesis-respiration using concept cartoons. For this purpose, the study employed the survey model, which is a quantitative research model. The study sample includes 191 6th, 7th, and 8th-grade students studying at Ataturk and Fatih Elementary Schools in Demirci district of Manisa, a city in the Aegean region in Turkey. A nine-question concept cartoon test (PRCCT) was used as the data collection instrument. The concept cartoon test was based on the misconceptions identified by studies on photosynthesis-respiration. The obtained data were analyzed in the study to reveal the students' misconceptions about photosynthesis-respiration using percentage and frequency values. The results of the study demonstrated that the students had the greatest number of misconceptions about subjects including plant nutrition, living things with photosynthetic ability, and the relationship between photosynthesis and respiration. In addition, the elementary school students were also found to have the misconceptions that plants receive their food from soil, only green plants perform photosynthesis since

they have chlorophylls, and photosynthesis and respiration are inverse phenomena. In this context, it was concluded that the students had numerous misconceptions about photosynthesis-respiration. This is attributed to the fact that the subject of photosynthesis-respiration was only taught during the 8th grade according to the elementary curriculum and that the subject involves so many abstract concepts. On the basis of these results, it is suggested that the subject of photosynthesis-respiration should receive greater coverage in the curriculum gradually increasing at each grade level. Furthermore, from the study results, it was also concluded that concept cartoons are effective in determining students' misconceptions. So, on the basis of this result, it is suggested that to benefit by concept cartoons can be used the determining students' misconceptions on any science subject.

Keywords: Concept cartoons, misconceptions, photosynthesis-respiration, elementary education.

GİRİŞ

Günümüzde değişen eğitim anlayışına ve öğrenme üzerinde yapılan çalışmalara paralel olarak, öğrenmenin nasıl gerçekleştiği konusunda önemli değişiklikler meydana gelmiştir. Klasik eğitim anlayışında öğrenmenin, aktarılan bilginin öğrenciler tarafından direk alınması ve ezberlenmesi sürecinden oluştuğu söylenebilir. Fakat değişen anlayışta ise, öğrencilerin aktif, üretken ve araştıran olmaları beklenmektedir. İnel, Balım & Evrekli (2009)'ye göre öğrenme, öğrencilerin aktif katılımlarını ve bu süreçte yaparak yaşayarak uygulama yapmalarını içermektedir. Buna bağlı olarak son yıllarda birey, kendisine aktarılan bilgileri aynen kabul etmek yerine bilgiyi yorumlayarak, sorgulayarak ve araştırarak anlamın oluşturulması sürecine etkin olarak katılmalıdır (Aydın & Balım, 2005). Bireyin bilgiyi kendi deneyim ve yaşantısı sonucu oluşturması, yapılandırmacılığın temelini oluşturmaktadır. Türkiye'de 2005-2006 eğitim-öğretim yılından itibaren kademeli olarak uygulanmaya başlanan programla birlikte yapılandırmacılık anlayışı daha fazla önem kazanmıştır. Buna paralel olarak fen eğitiminde yapılandırmacılık yaklaşımına dayalı uygulamalarla birlikte farklı yöntem-teknikler ve görsel araçlar daha fazla kullanılmaya başlamıştır. Bu görsel araçlardan biri de Brenda Keogh ve Stuart Naylor (1992) tarafından geliştirilen kavram karikatürleridir.

Kavram karikatürleri; öğrenciler arasındaki çeşitli görüş ve iddiaları karikatürler üzerinde göstermek için kullanılan görsel araçlardır (Morris, Merritt, Fairclough, Birrell ve Howitt, 2007). Keogh ve Naylor (1999)'a göre kavram karikatürlerinin temel amacı karikatürlerde olduğu gibi mizah ve hiciv değildir. Kavram karikatürleri görsel uyarıcılar ile diyalog şeklinde yazılan metinleri birleştiren bir özelliktedir. Ekici, Ekici ve Aydın (2007)'a göre ise kavram karikatürleri üç ya da daha fazla karakter içeren diyalogların resimleştirilmesi şeklinde tanımlamakta ve kavram karikatürlerindeki her karakter farklı görüş ve ifadeler belirten diyalog kutuları içermektedir. Şaşmaz-Ören (2009), kavram karikatürlerini; bilimsel kavramların günlük olaylarla ilişkilendirilmesini sağlayan, olaylar üzerinde konuşan, düşünen ya da tartışan üç ya da daha fazla karakterin bulunduğu bir strateji olarak tanımlamaktadır. Anlaşılacağı üzere kavram karikatürleri, üç veya daha fazla karakterlerin günlük yaşamdan bir konu üzerinde tartışma/konuşmalarından oluşan görsel araçlardır.

Kavram karikatürleri eğitimde; problem çözme, düşünme yeteneğini geliştirme, kavram yanılgılarını belirleme ve motivasyonu arttırma gibi alanlarda kullanılmaktadır. (İngeç, Güzel ve Karakaya, 2008). Buna benzer olarak kavram karikatürleri öğrencilerin konuya ilgisini çekmek, tartışmaya başlatmak, onları soru sormaya teşvik etmek ve bilimsel düşünceyi ortaya çıkarmak amacıyla kullanılabilir (Long ve Marson, 2003; Morris ve ark., 2007). Akamca, Ellez ve Hamurcu (2009) ve Balım, İnel, Evrekli ve Kesercioğlu (2008)'na göre kavram karikatürleri, kavram yanılgılarının belirlenmesi ve giderilmesinde etkili bir teknik olarak bilinmektedir. Ayrıca kavram karikatürleri, öğrencilerin konuyu ne kadar anladıklarını kontrol etmek için (yani değerlendirme amacıyla) veya grup çalışmaları sırasında grup tartışmalarını sağlamak amacıyla kullanılabilirler (Şaşmaz-Ören, 2009).

Öğrencilerin zihinlerindeki herhangi bir kavramla ilgili bilimsel olarak doğru kabul edilen düşünceden farklı olan düşünceler kavram yanılgısı olarak adlandırılmakta ve bu düşünceler değişime oldukça dirençli olmaktadırlar (Sinan, Yıldırım, Kocakülah ve Aydın, 2006). Morgil, Erdem ve Yılmaz (2003) öğrencilerin daha önceden öğrenmiş oldukları kavramları yeni öğrendikleri kavramlarla birleştirirken kavram yanılgılarının ortaya çıkabileceğini ifade etmektedirler. Anlaşılacağı üzere kavram yanılgılarının oluşmasında öğrencilerin sahip oldukları ön bilgileri etkilidir. Fen öğretiminde de öğrencilerde var olan kavramlar, ön bilgiler onların fen konularını öğrenmeleri üzerinde etkili olmaktadır. Buna bağlı olarak, temel fen kavramları daha ileri düzeydeki fen konularının temelini oluşturacağından bu kavramların doğru ve anlamlı bir şekilde öğretilmesi büyük önem taşımaktadır (Demir, 2008). Bazı fen konularının soyut kavramlar içermesi, öğrencilerin bu kavramları zihinlerinde yapılandırmalarını zorlaştırmaktadır. Bacanak, Küçük ve Çepni (2004) fizik, kimya ve biyoloji gibi fen derslerinin birçok soyut kavram içerdiğini belirtmektedir. Bu bağlamda, bu dersler üzerinde öğrencilerde kavram

yanılgılarına daha çok rastlandığı söylenebilir. Son 15-20 yıldır biyoloji eğitimi alanında yapılan çalışmalar, öğrencilerin birçok konuda kavram yanılgılarına sahip olduğunu göstermiştir (Tekkaya, Çapa ve Yılmaz, 2000). Bu konulardan biri de fotosentez-solunum konusudur. Birçok araştırmacı öğrencilerin bu konudaki kavram yanılgılarını tespit etme çalışmaları yapmıştır (Treagust ve Haslam, 1986; Amir ve Tamir, 1990; Griffard ve Wandersee, 2001; Köse ve ark., 2003; Kuech, Zogg, Zeeman ve Johnson, 2003; Özay ve Öztaş, 2003; Tekkaya ve Balcı, 2003; Bacanak ve ark., 2004; Köse, Gezer, Durkan ve Erol, 2005; Şensoy, Aydoğdu, Yıldırım, Uşak ve Hançer, 2005; Köse, Bağ, Sürücü ve Uçak, 2006b; Marmaroti ve Galanopoulou 2006; Ekici ve ark., 2007; Köse 2008). Fotosentez-solunum konusundaki kavram yanılgılarının tespit edilmesine yönelik yapılan çalışmalarda farklı yöntem ve teknikler (iki aşamalı teşhis testi, çizimler, tahmin-gözlem-açıklama vb.) kullanılmıştır. Ancak literatürde kavram yanılgılarının belirlenmesi ve giderilmesine yönelik olarak kavram karikatürlerinin kullanılabileceği belirtilmiş olmasına rağmen bu yöntem kullanılarak yapılan çalışma sayısı oldukça azdır. Bu bağlamda çalışmada ilgili konuda öğrencilerin kavram yanılgılarının belirlenmesinde kavram karikatürleri kullanılmıştır.

Kavram karikatürlerinin kavram yanılgılarının tespitinde önemli/yeni bir yöntem olduğu düşünüldüğünde bu konuda literatürde yeterli çalışmanın olmadığı söylenebilir. Bundan dolayı çalışmada ilköğretim 6., 7. ve 8. sınıf öğrencilerinin fotosentez-solunum konusunda kavram yanılgılarının belirlenmesinde kavram karikatürlerinin etkisinin incelenmesi amaçlanmıştır.

YÖNTEM

İlköğretim 6., 7. ve 8. sınıf öğrencilerinin fotosentez ve solunum konusundaki kavram yanılgılarının tespit edilmesi amacıyla yapılan bu çalışma nicel bir araştırmadır. Bu çalışmada, nicel araştırma yöntemlerinden tarama modeli kullanılmıştır. Tarama modeli, çok sayıda elemandan oluşan bir evrende, evren hakkında genel bir yargıya varmak amacıyla, evrenin tümü ya da ondan alınacak bir grup, örnek ya da örneklem üzerinde yapılan tarama düzenlemeleridir (Karasar, 2009:79). Kısaca tarama modellerinde genellikle ölçülen değişkenler arasındaki ilişkiler incelenmektedir (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz & Demirel, 2008: 178).

Çalışma, 2009–2010 eğitim-öğretim yılı birinci döneminde Türkiye'nin Ege Bölgesinde yer alan Manisa ilinin Demirci ilçesinde bulunan Atatürk ve Fatih İlköğretim Okullarında gerçekleştirilmiştir. Bu bağlamda, çalışmanın evrenini Demirci ilçesinde bulunan ilköğretim okulları, örneklemini ise bu okullar arasından tesadüfi olarak seçilen iki ilköğretim okulu oluşturmaktadır. Örneklemde, ilköğretim 6. sınıf öğrencilerinden 58, 7. sınıf öğrencilerinden 55 ve 8. sınıf öğrencilerinden 78 kişi, toplamda 191 ilköğretim öğrencisi bulunmaktadır. Bu öğrencilerin 102'si erkek, 89'u kızdır.

Çalışmada ilköğretim ikinci kademe öğrencilerinin fotosentez-solunum konusunda kavram yanılgılarının olup olmadığını belirlemek amacıyla 'Fotosentez-Solunum Kavram Karikatürü Testi' geliştirilmiştir. Araştırmada kullanılan FSKK testinden bir örnek **EK 1**'de verilmiştir. Veri toplama aracı geliştirilirken, araştırmacılar tarafından bu konuda yapılan çalışmalar incelenmiş ve testte yer alması düşünülen soruların ilk hali oluşturulmuştur. Hazırlanan soruların geçerliliğinin sağlanması için uzman görüşüne başvurulmuştur. Uzman görüşleri doğrultusunda bazı sorular testten çıkarılmış, bazıları ise düzeltilerek veri toplama aracında yer almıştır. İlköğretim 6., 7. ve 8. sınıf öğrencilerinden beş kişiye (çalışma grubu dışında kalan) test uygulanarak soruların anlaşılıp anlaşılmadığı tespit edilmiştir. Öğrencilerden gelen dönütlere göre gerekli düzeltmeler yapılmış ve kavram karikatürü testinin son hali olan 9 sorudan oluşmuştur. Oluşturulan FSKK testinde yer alan kavram karikatürlerinin; karikatürün ve buna dayalı sorunun yer aldığı bir aşama ve öğrencinin cevabının nedenini yazdığı bir aşama olmak üzere iki temel aşamadan oluştuğu söylenebilir. FSKK testinin ilk aşamasında bulunan yani öğrencilerin hangi karakter ya da karakterlere katıldıklarına yönelik cevapları kavram yanılgılarının tespit edilmesi amacıyla kullanılmıştır. Ayrıca öğrencilerin cevaplarının nedenlerini yazdıkları ikinci aşama da betimsel olarak analiz edilmiş ve analiz sonucunda öğrencilerin sahip oldukları kavram yanılgıları belirlenmiştir. Elde edilen bu kavram yanılgıları sınıf düzeylerine göre yüzde/frekans değerleri şeklinde tablolaştırılmıştır.

BULGULAR

Bu bölümde FSKK testinden yararlanılarak belirlenen, ilköğretim 6., 7. ve 8. sınıf öğrencilerinin kavram yanılgılarına yer verilmiştir. Elde edilen veriler analiz edilmiş ve tespit edilen kavram yanılgıları sınıf düzeyine göre tablolaştırılmıştır.

Toprak ile bitkinin beslenmesi (bu karikatürde besin olarak kastedilen basit şekerdir) arasındaki ilişki konusunda ilköğretim 6, 7 ve 8. sınıf öğrencilerinden 159'unda kavram yanılgısı tespit edilmiş ve bu yanılgılar Tablo 1'de verilmiştir.

Tablo 1: Öğrencilerin toprak ile bitkinin beslenmesi arasındaki ilişki konusunda sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Bitkiler besinlerini kökleriyle topraktan alır.	6	15	9.4	63	39.6
	7	22	13.8		
	8	26	16.4		
Bitkiler besinlerini topraktan su, mineral ve vitamin şeklinde alır.	6	12	7.6	32	20.1
	7	3	1.9		
	8	17	10.7		
Toprak sadece, bitkinin kökleriyle tutunmasını sağlar.	6	7	4.4	26	16.4
	7	10	6.3		
	8	9	5.7		
Bitki besinini topraktan kökleriyle (su ve mineraller yardımıyla) alır aynı zamanda fotosentez sayesinde kendisi de besin yapar.	6	9	5.7	22	13.8
	7	5	3.1		
	8	8	5.0		
Bitki büyüyene kadar topraktan su ve mineral alır, büyüdükten sonra kendi besinini kendi üretir.	6	4	2.5	9	5.7
	8	5	3.1		
Bitki sadece toprak kaymasını önler ve toprağı tutar.	6	1	0.6	5	3.1
	8	4	2.5		
Bitkiler topraktaki mineralleri alarak beslenirler.	7	2	1.3	2	1.3

Kavram karikatürü testinin toprak ile bitkinin beslenmesi konusundaki birinci sorusu, çalışma grubundan sadece 32 öğrenci tarafından doğru şekilde yani bitkilerin besinlerini topraktan almayıp kendilerinin yaptığı şeklinde cevaplandırılmıştır. Öğrenciler bunun nedenini de bitkilerin fotosentez sonucu kendi besinlerini kendilerinin üretmesi olarak ifade etmişlerdir. Bu konudaki en genel kavram yanılgısı öğrencilerin bitkilerin besinlerini kökleriyle topraktan aldığı düşüncesidir. Çalışmadaki 6., 7. ve 8. sınıf öğrencilerinden 63 tanesi bu kavram yanılgısına sahiptir. Kavram yanılgısına sahip öğrencilerin %20.1'i (f=32) bitkilerin topraktan su, mineral ve vitamin şeklinde besinlerini aldıklarını ve %16.4'ü (f=26) toprağın sadece bitkinin kökleriyle tutunmasını sağladığını ifade etmişlerdir. Bu öğrencilerin %13.8'i (f=22) ise, bitkinin besinini topraktan kökleriyle aldığını aynı zamanda fotosentez sayesinde kendisinin de besin yaptığı görüşüne sahiptir. Çalışmaya katılan 9 öğrenci ise, bitkilerin büyüyene kadar topraktan su ve mineral alarak besin elde ettiğini, büyüdükten sonra ise kendi besinlerini ürettikleri kavram yanılgısına sahiptir.

Yapılan çalışmada 143 ilköğretim 6, 7 ve 8. sınıf öğrencisinin bitkilerin enerji kaynağının ne olduğu konusundaki kavram yanılgıları tespit edilmiş ve Tablo 2'de bu kavram yanılgılarına yer verilmiştir.

Tablo 2: Öğrencilerin bitkilerin enerji kaynağı konusunda sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Bitkiler enerjilerini toprak, su, gübre ve güneşten sağlar.	6	10	7.0	46	32.2
	8	36	25.2		
Bitkiler enerjilerini su ve güneşten sağlar.	6	12	8.4	30	21.0
	7	5	3.5		
	8	13	9.1		
Bitkiler enerjilerini toprak ve gübreden sağlar.	6	9	6.3	18	12.6
	7	4	2.8		
	8	5	3.5		
Bitkiler enerjilerini toprak, su ve gübreden sağlar.	6	3	2.0	16	11.2
	7	11	7.7		
	8	2	1.4		
Bitkiler enerjilerini sudan sağlar. Su olmazsa bitkiler kurur/ölür.	6	6	4.2	15	10.5
	7	4	2.8		
	8	5	3.5		
Bitkiler enerjilerini su, toprak ve güneşten sağlar.	6	6	4.2	13	9.1
	7	7	4.9		
Bitkiler enerjilerini güneş ve topraktan sağlar.	6	1	0.7	3	2.0
	7	1	0.7		
	8	1	0.7		
Bitkiler enerjilerini su ve topraktan sağlar.	6	1	0.7	2	1.4
	7	1	0.7		

Yapılan çalışmada, sadece 48 öğrenci bitkilerin enerjilerini Güneş'ten sağladığı doğru cevabını vermişlerdir. Bunun sebebini de Güneş'in enerji kaynağı olması ve bitkilerin de enerjilerini Güneş'ten sağlaması şeklinde açıklamışlardır. İlköğretim 6. sınıf öğrencilerinden 10 (%7.0) ve 8. sınıf öğrencilerinden 36 (%25.2) kişi bitkilerin enerjilerini toprak, su, gübre ve güneşten sağladığı kavram yanılgısına sahiptirler. Bitkilerin enerjilerini nereden elde ettikleri sorusuna, bu konuda kavram

yanılgısına sahip öğrencilerin %21.0'i (f=30) su ve güneş; %12.6'sı (f=18) toprak ve gübre %11.2'si (f=16) ise toprak, su ve gübre cevabını vermişlerdir. Çalışmaya katılan öğrencilerden 15'i (%10.5) bitkilerin enerjilerini sudan sağladığını ve su olmazsa bitkilerin kuruyacağını veya öleceğini ifade etmişlerdir.

"Fotosentez nedir?" sorusuna yönelik olarak ilköğretim 6, 7 ve 8. sınıf öğrencilerinden 113'ünde kavram yanılgısı olduğu tespit edilmiş ve bu kavram yanılgıları Tablo 3'te verilmiştir.

Tablo 3: Öğrencilerin fotosentez konusundaki kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Fotosentez yeşil bitkilerin solunumudur.	6	11	9.7	33	29.3
	7	13	11.5		
	8	9	7.9		
Fotosentez bitkilerin besin üretimi, solunum ve gaz değişimidir.	6	3	2.7	14	12.4
	8	11	9.7		
Fotosentez, besin üretimi, besin transferi, solunum ve gaz alışverişidir.	6	3	2.7	13	11.5
	7	3	2.7		
	8	7	6.2		
Fotosentez sadece bir gaz değişimidir.	6	2	1.8	11	9.7
	7	5	4.4		
	8	4	3.5		
Fotosentez besin üretimi ve solunumudur.	8	7	6.2	7	6.2
Fotosentez besin üretimi ve gaz değişimidir.	8	7	6.2	7	6.2
Fotosentez bitkilerin gaz değişimi ve solunumudur.	6	6	5.3	6	5.3
Fotosentez besin transferidir.	6	4	3.5	6	5.3
	8	2	1.8		
Fotosentez besin transferi ve bir gaz değişimidir.	8	5	4.4	5	4.4
Fotosentez, bitkilerin oksijen oluşturması ve solunumu olayıdır.	7	4	3.5	5	4.4
	8	1	0.9		
Fotosentez besin üretimi ve besin transferidir.	6	3	2.7	4	3.5
	8	1	0.9		
Fotosentez bitkilerin yaprağıyla yaptığı solunumdur.	7	2	1.8	2	1.8

Yapılan çalışmada, 78 öğrenci "Fotosentez nedir?" sorusuna bitkilerin besinlerini üretip oksijen oluşmasını sağlayan olay olduğu doğru cevabını vermişlerdir. Öğrencilerin bu konudaki en genel kavram yanılgısı, fotosentezin yeşil bitkilerin solunumu olduğu düşüncesidir. Çalışmadaki 6., 7. ve 8. sınıf öğrencilerinin 33 (%29.3)'ü bu kavram yanılgısına sahiptir. İlköğretim 6. sınıf öğrencilerinden 3 kişi ve 8. sınıf öğrencilerinden 11 kişi fotosentezin bitkilerin besin üretimi, solunumu ve gaz değişimi olayı olduğu görüşündedirler. Çalışma grubunda yer alan ve bu konuda kavram yanılgısına sahip öğrencilerin %11.5'i (f=13) fotosentezi; besin üretimi, besin transferi, solunumu, gaz alış-verişi ve %9.7'si (f=11) ise sadece bir gaz değişimi olayı olarak görmektedirler. Ayrıca sekizinci sınıf öğrencilerinden 7 tanesi fotosentezin besin üretimi-solunumu, diğer 7 tanesi besin üretimi-gaz değişimi ve 5'i de besin transferi-gaz değişimi olduğu kavram yanılgısına sahiptir.

İlköğretim 6, 7 ve 8. sınıf öğrencilerinin 152'sinde fotosentez yapabilen canlılar konusunda kavram yanılgıları olduğu tespit edilmiş ve Tablo 4'te bu kavram yanılgıları verilmiştir.

Tablo 4: Öğrencilerin fotosentez yapabilen canlılar konusunda sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Kloroplast/Klorofilleri olduğu için sadece yeşil bitkiler fotosentez yapar.	6	16	10.5	56	36.9
	7	17	11.2		
	8	23	15.1		
Sadece yeşil bitkiler fotosentez yapar.	6	7	4.6	33	21.7
	7	16	10.5		
	8	10	6.6		
Bütün canlılar fotosentez yapar.	6	9	5.9	27	17.7
	7	5	3.3		
	8	13	8.7		
Sadece çiçekli bitkiler fotosentez yapar.	6	11	7.2	20	13.2
	7	4	2.6		
	8	5	3.3		
Sadece yeşil ve çiçekli bitkiler fotosentez yapar.	6	7	4.6	16	10.5
	7	4	2.6		
	8	5	3.3		

FSKK testinin fotosentez yapabilen canlılar ile ilgili olan 4. sorusu, sadece 39 öğrenci tarafından doğru olarak yani bitkilerin fotosentez yaptığı, bununla birlikte bazı canlıların da fotosentez yaptığı şeklinde cevaplandırılmıştır. Öğrenciler, bitkilerin dışında mavi-yeşil algler gibi bazı canlıların da fotosentez yapmasından dolayı bu cevabı işaretlemişlerdir. İlköğretim 6., 7. ve 8. sınıf öğrencilerinde,

fotosentez yapan canlılarla ilgili benzer kavram yanılgıları görülmektedir. Öğrencilerin 89'u (%58.6) sadece yeşil bitkilerin fotosentez yaptığını belirtmekte bunların içinden 56'sı (%36.9) ise bunun nedeni olarak klorofil maddesinin ya da kloroplastların sadece yeşil bitkilerde bulunduğunu ifade etmektedir. Bunun yanında kavram yanılgısına sahip öğrencilerin %17.7'si (f=27) bütün canlıların fotosentez yaptığı kavram yanılgısına sahiptir. Tüm sınıf düzeylerinden 20 öğrenci fotosentezin sadece çiçekli bitkiler tarafından yapıldığını, 16 öğrenci ise çiçekli bitkilerin yanında yeşil bitkiler tarafından yapıldığını belirtmektedir.

Çalışma grubunda yer alan öğrencilerden sadece 78'inde bitkilerin gece gerçekleştirdiği olaylar (fotosentez-solunum) konusunda kavram yanılgısı belirlenmiş ve ortaya çıkan kavram yanılgıları Tablo 5'te verilmiştir.

Tablo 5: Öğrencilerin bitkilerin gece gerçekleştirdiği olaylar (fotosentez-solunum) konusundaki kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Bitkiler geceleri solunum yaparlar, bu yüzden hayatsal faaliyetleri yavaşlar.	6	11	14.1	34	43.6
	7	8	10.2		
	8	15	19.2		
Fotosentez olayı geceleri daha hızlı gerçekleşir.	6	5	6.4	21	27
	7	9	11.5		
	8	7	8.9		
Bitkiler geceleri solunum yapmaz, sadece fotosentez yaparlar. Gündüzleri ise sadece solunum yaparlar.	6	5	6.4	13	16.7
	7	1	1.2		
	8	7	8.9		
Bitkiler gündüzleri sadece fotosentez, geceleri sadece solunum yapar.	7	7	8.9	7	8.9
Bitkiler geceleri sadece oksijen alıp karbondioksit verirler. Gündüzleri ise sadece karbondioksit alıp oksijen verirler.	8	3	3.8	3	3.8

Yapılan çalışmada, 113 öğrenci bitkilerin geceleri fotosentez yapmayıp sadece solunum yaptıklarını ifade etmişlerdir. Bunun sebebinin gündüzleri bitkilerin solunum yapmalarının yanı sıra, Güneş ışığını kullanarak fotosentez yapmaları olduğu doğru cevabını vermişlerdir. Bunun yanı sıra, bitkilerin geceleri Güneş ışığı olmadığından dolayı sadece solunum yaptıklarını da belirtmişlerdir. Ancak bu konuda kavram yanılgısına sahip ilköğretim öğrencilerinin %43.6'sı (f=34) bitkilerin geceleri solunum yaptıkları ve bu yüzden hayatsal faaliyetlerinin yavaşladığı düşüncesindedirler ve bundan dolayı geceleri odada bitki bulundurulmaması gerektiği görüşündedirler. Öğrencilerin 21'i (%27) fotosentez olayının geceleri daha hızlı gerçekleştiği, 13'ü (%16.7) bitkilerin geceleri solunum yapmayıp sadece fotosentez yaptıkları ve gündüzleri ise sadece solunum olayını gerçekleştirdikleri kavram yanılgısına sahiptirler. İlköğretim 7. sınıf öğrencilerinden 7 kişi bitkilerin gündüzleri sadece fotosentez, geceleri ise sadece solunum yaptığını düşünmektedirler. Ayrıca çalışma grubundaki 8. sınıf öğrencilerinden 3'ü bitkilerin geceleri sadece oksijen alıp karbondioksit verdiğini, gündüzleri ise sadece karbondioksit alıp oksijen verdiğini ifade etmektedir. Yani bu öğrenciler diğer kavram yanılgılarına benzer şekilde bitkilerin geceleri sadece solunum yaptığı gündüzleri ise sadece fotosentez yaptığı kavram yanılgısına sahiptirler.

İlköğretim 6, 7 ve 8. sınıf öğrencilerinden 102'sinde fotosentez-solunum ilişkisi konusunda kavram yanılgısı olduğu tespit edilmiş ve Tablo 6'da tespit edilen bu kavram yanılgıları gösterilmiştir.

Tablo 6: Öğrencilerin fotosentez-solunum ilişkisi konusunda sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Fotosentez ve solunum birbirinin tersi işlemlerdir.	6	13	12.8	53	52
	7	14	13.8		
	8	26	25.5		
Fotosentez ve solunum sadece bir gaz değişimidir.	6	11	10.8	39	38.3
	7	8	7.8		
	8	20	19.6		
Fotosentez bitkinin solunumudur.	6	4	3.9	4	3.9
Solunum olayı sadece bir gaz değişimidir, fotosentez olayında ise besin de üretilir.	6	2	1.9	2	1.9
Fotosentez bir solunum olayıdır.	8	2	1.9	2	1.9
Solunum ve fotosentez aynı olaylardır.	7	1	1	1	1
Fotosentez bitkilerin nefes alması, solunum ise insan ve hayvanların nefes almasıdır.	7	1	1	1	1

Yapılan çalışmada, 89 öğrenci solunumun, fotosentez sonucu oluşan besinin oksijenle yakılarak enerji elde edilmesi olayı olduğunu belirtmiştir. Ancak bu konuda kavram yanılgısına sahip olan öğrencilerin yaklaşık yarısı (%52) fotosentez ve solunum olaylarının birbirinin tersi işlemler olduğunu düşünmektedir. Bununla birlikte söz konusu öğrencilerin %38.3'ü (f=39) fotosentez ve solunum

olaylarının sadece bir gaz değişimi olduğu kavram yanılgısına sahiptir. Tabloda görüldüğü üzere, ilköğretim 6. sınıf öğrencilerden 4'ü fotosentezin bitkinin solunumu olduğunu ifade etmiştir. Yine 6. sınıf öğrencilerinden 2'si solunum olayının sadece bir gaz değişimi olduğunu, fotosentez olayında ise gaz değişiminin gerçekleşmesinin yanında besin de üretildiğini belirtmiştir. İlköğretim 8. sınıf öğrencilerinin 2'sinden (%1.9), fotosentezin bir solunum olayı olduğu cevabı gelmiştir. Bununla birlikte yedinci sınıf öğrencilerinden biri solunum ve fotosentezin aynı olaylar olduğu, bir diğeri ise fotosentezin bitkilerin nefes alması, solunumun ise insan ve hayvanların nefes alması olduğu görüşündedir.

İlköğretim 6, 7 ve 8. sınıf öğrencilerinden 151'inde bitkilerde solunum ve fotosentez-solunum ilişkisi konularında kavram yanılgıları tespit edilmiş ve Tablo 7'de bu kavram yanılgılarına yer verilmiştir.

Tablo 7: Öğrencilerin bitkilerde solunum ve fotosentez-solunum ilişkisi konusunda sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Bitkiler gündüzleri solunum yaparken karbondioksit alır, oksijen verir.	6	16	10.6	51	33.8
	7	5	3.3		
	8	30	19.9		
Bitkiler gündüzleri fotosentez yaparken oksijen alıp karbondioksit verirler.	6	15	9.9	41	27.2
	7	7	4.6		
	8	19	12.6		
Bitkiler gündüzleri sadece karbondioksit alıp oksijen verirken, geceleri ışık enerjisi olmayınca solunum yaparlar.	6	8	5.3	29	19.3
	7	5	3.3		
	8	16	10.6		
Bitkiler sadece güneş ışığı varlığında/gündüzleri solunum yaparlar.	7	2	1.3	15	9.9
	8	13	8.6		
Bitkiler sadece geceleri solunum yaparlar.	7	9	6.0	9	6.0
Bitkiler sadece güneş ışığında solunum yaparlar ve karbondioksit alıp oksijen verirler.	6	3	2.0	3	1.9
Bitkiler hem gece hem gündüz fotosentez yaparlar.	7	3	2.0	3	1.9

Kavram karikatürü testinin bitkilerde solunum olayıyla ilgili olan yedinci sorusu, sadece 32 öğrenci tarafından doğru biçimde yani bitkilerin hem gece hem de gündüz solunum yaptıkları şeklinde cevaplandırılmıştır. Öğrenciler bunun nedeni de, bitkilerin hem gece hem de gündüz solunum yapmaları ve gündüzleri solunumun yanında fotosentez olayını da gerçekleştirmeleri şeklinde ifade etmişlerdir. Öğrencilerin bu konudaki en genel kavram yanılgısı, bitkilerin gündüzleri solunum yaparken karbondioksit alıp oksijen verdiği düşüncesidir. Çalışmadaki 6., 7. ve 8. sınıf öğrencilerinden 51 tanesi bu kavram yanılgısına sahiptir. Kavram yanılgısına sahip olan öğrencilerin %27.2'si (f=41) bitkilerin gündüzleri fotosentez yaparken oksijen alıp karbondioksit verdiğini ifade etmişlerdir. Bu öğrencilerin %19.3'ü (f=29) ise bitkilerin gündüzleri sadece karbondioksit alıp oksijen verdiğini, geceleri ışık enerjisi olmayınca solunum yaptıklarını belirtmişlerdir. İlköğretim 7. ve 8. sınıf öğrencilerinden 15 kişi ise, bitkilerin sadece güneş ışığı varlığında solunum yaptığı kavram yanılgısına sahiptir. Bununla birlikte ilköğretim 7. sınıf öğrencilerinin 9'u bitkilerin sadece geceleri solunum yaptıklarını düşünmektedir.

İlköğretim 6, 7 ve 8. sınıf öğrencilerinin 83'ünde ışık almayan kapalı cam fanus içindeki iki canlının (fare ve bitki) solunum ve fotosentez ilişkisine yönelik olarak kavram yanılgıları olduğu belirlenmiş ve ortaya çıkan kavram yanılgıları Tablo 8'de verilmiştir.

Tablo 8: Öğrencilerin ışık almayan kapalı cam fanus içindeki iki canlının (fare ve bitki) solunum ve fotosentez ilişkisine yönelik olarak sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Bitki fotosentez yapamadığı için yaşayamaz, fare ise solunum yaptığı için yaşar.	6	13	15.7	38	45.8
	7	8	9.6		
	8	17	20.5		
Bitki ve fare solunum yaptığı için yaşar.	6	13	15.7	21	25.3
	7	8	9.6		
Bitki oksijen üretir, fare ise karbondioksit verir. Böylece bitki fareden yararlanır. İki canlı da yaşar.	8	13	15.7	13	15.7
Fare bitkiyle beslendiği için yaşar.	6	4	4.8	8	9.6
	8	4	4.8		
Fare solunum yapamadığından dolayı ölür, bitki ise yaşamına devam eder.	7	3	3.6	3	3.6

Çalışmada, ilköğretim 6., 7. ve 8. sınıf öğrencilerinden 108'i, ışık almayan cam fanus içine konulan fare ve bitkinin aradan belli bir zaman geçtikten sonra öleceği doğru cevabını vermiştir. Bunun

sebebini ise, cam fanusun ışık alamamasından dolayı bitkinin fotosentez yapamayacağı ve fanus içindeki oksijen miktarının bir müddet sonra biteceğinden iki canlının da öleceği şeklinde açıklamışlardır. Ancak Tablo 9'da görüldüğü üzere, ilköğretim 6., 7. ve 8. sınıf öğrencilerinden 38'i (%45.8) bitkinin fotosentez yapamadığından dolayı öleceği, farenin ise solunum yaptığından dolayı yaşayacağı kavram yanılgısına sahiptir. Bunun yanında bu konuda kavram yanılgısına sahip ilköğretim 6. ve 7. sınıf öğrencilerinin %25.3'ü (f=21), bitki ve farenin solunum yaptığı için yaşayacağı düşüncesindedirler. Ayrıca 8. sınıf öğrencilerinden 13 kişi bitkinin oksijen ürettiğini, farenin ise karbondioksit verdiğini ifade ederek bu sebepten dolayı bitkinin fareden yararlanacağını yani her iki canlının da yaşayacağını düşünmektedir.

Çalışma grubunda yer alan 6, 7 ve 8. sınıf öğrencilerinden 87'sinde bitkilerde gerçekleşen solunum olayına yönelik kavram yanılgıları olduğu tespit edilmiş ve Tablo 9'da tespit edilen bu kavram yanılgıları gösterilmiştir.

Tablo 9: Öğrencilerin bitkilerde gerçekleşen solunum olayına yönelik sahip oldukları kavram yanılgıları

Kavram Yanılgıları	Sınıf Düzeyi	f	%	Toplam	%
Bitkiler sadece geceleri solunum yaparlar.	6	13	14.8	36	41.4
	7	11	12.6		
	8	12	13.8		
Bitkiler geceleri solunum, gündüzleri fotosentez yapar.	7	8	9.2	22	25.3
	8	14	16.1		
Bitkiler sadece gündüzleri solunum yaparlar.	6	7	8.1	15	17.3
	7	1	1.2		
	8	7	8.1		
Bitkiler birbirinin tersi işlemlerle hem gece hem gündüz solunum yaparlar.	7	7	8.1	7	8.1
Fotosentez sayesinde hem gece hem gündüz solunum yaparlar.	7	1	1.2	4	4.5
	8	3	3.4		
Bitkiler geceleri besin kaynağı olmadığı için fotosentez yapar, gündüzleri ise solunum yaparlar.	8	2	2.2	2	2.2
Bitkiler gece ve gündüz fotosentez yaparlar.	7	1	1.2	1	1.2

Yapılan çalışmada, 104 öğrenci bitkilerin hem gece hem de gündüz solunum yaptığı doğru cevabını vermişlerdir. Bu cevaplarını; bitkilerin sadece gündüzleri fotosentez yaptıkları, bununla birlikte hem gece hem de gündüz solunum yaptıkları şeklinde açıklamışlardır. Ancak bu konuda kavram yanılgısına sahip olan 6., 7. ve 8. sınıf öğrencilerinin %41.4'ü (f=36) bitkilerin sadece geceleri solunum yaptıkları düşüncesindedir. Çalışma grubundaki ilköğretim 7. ve 8. sınıf öğrencilerinden 22'sinde, bitkilerin geceleri solunum, gündüzleri ise sadece fotosentez yaptıkları kavram yanılgısı görülmektedir. Bitkilerin sadece gündüzleri solunum yaptıkları kavram yanılgısı ise, solunum olayına yönelik kavram yanılgısına sahip ilköğretim 6., 7. ve 8. sınıf öğrencilerinin %17.3'ünde bulunmaktadır. 7. sınıf öğrencilerinin 7'si ise bitkilerin hem gündüz hem de gece solunum yaptığını ancak bunların birbirinin tersi işlemlerle gerçekleştiğini belirtmektedirler.

SONUÇ VE TARTIŞMA

Fen ve Teknoloji derslerinde, öğrencilerin konuyu anlamasını zorlaştıran pek çok soyut kavram bulunduğu ve öğrencilerin bu soyut kavramları zihinlerinde anlamlandırmakta zorlandıkları görülmektedir. Bundan dolayı öğrencilerin konuyu tam olarak öğrenemedikleri ve konuya ilişkin birçok kavram yanılgısına sahip oldukları kabul edilmektedir. Öğrencilerin sahip oldukları bu kavram yanılgıları, sarmal bir yapıya sahip olan programdaki diğer konuların öğrenilmesini de güçleştirmekte ve anlamlı öğrenmeyi engellemektedir. Dolayısıyla öğrencilerin sahip oldukları kavram yanılgılarının tespit edilmesi büyük önem kazanmaktadır. Günümüzde kavram yanılgılarının tespit edilmesinde yapılandırmacı yaklaşımı esas alan birçok alternatif yöntemler/teknikler kullanılmaktadır. Bunlardan biri de kavram karikatürleridir. Bu bağlamda çalışmada, ilköğretim 6., 7. ve 8. sınıf öğrencilerinin fotosentez-solunum konusundaki kavram yanılgılarının kavram karikatürleri yardımıyla belirlenmesi gerçekleştirilmiştir.

Kavram karikatürü testinin ilk sorusunu oluşturan toprak ile bitkinin beslenmesi konusunda, öğrencilerde en fazla "bitkiler besinlerini kökleriyle topraktan alır" kavram yanılgısının olduğu görülmektedir. Fotosentez-solunum konusunda yapılan birçok çalışmada benzer yanılgılara rastlanmıştır (Tekkaya, Özkan ve Balcı, 2002; Köse ve ark., 2003). Çalışmanın sonuçlarına paralel olarak Mutlu ve Özel (2008)'in çalışmalarında, öğrencilerde 'çiçekli bitkinin köklerinin topraktan besin almak amacıyla aşağı doğru büyüdüğü' kavram yanılgısının yer aldığı görülmektedir. FSKK testinde öğrencilerin sahip olduğu diğer bir kavram yanılgısı bitkilerin besinlerini topraktan su, mineral ve vitamin şeklinde aldığıdır. Tekkaya ve Balcı (2003)'nın yaptıkları çalışmada yer alan öğrencilerin bitkinin besininin toprak olduğunu, bunun sebebinin ise bitkinin suyu ve mineralleri topraktan almasından kaynaklandığını ifade

ettikleri görülmektedir. Ayrıca Köse, Ayas ve Uşak (2006a) ise, araştırmalarında öğrencilerin bitkinin besininin "su", "mineral" ve "Güneş ışığı" olduğu kavram yanılgısına sahip oldukları sonucuna ulaşmışlardır. Bununla birlikte yapılan bazı çalışmalarda öğrencilerin; 'bitkilerin besininin su, güneş ışığı, hava, gübre ve inorganik maddeler olduğunu' (Köse ve ark., 2003), 'su, mineral ve havanın bitkilerin besini olduğu' (Bacanak ve ark., 2004), 'bitkinin besininin tuz, mineral, hava ve güneş ışığı olduğu' ve 'bitkinin besininin gübre olduğu' (Köse, 2008), 'bitkilerin besin kaynağının Güneş ve su olduğunu' (Ekici ve ark., 2007) gibi kavram yanılgılarına sahip oldukları anlaşılmaktadır. Bu bağlamda öğrencilerin bitkilerin fotosentez yaptığını bildikleri ancak amacının ve besin kaynağının ne olduğunu anlayamadıkları söylenebilir. Öğrencilerin bitkilerin de bazı canlılar gibi besinlerini dış ortamdan aldıklarını düşündükleri görülmektedir. Bu durum öğrencilerin fotosentez-solunum konusunu anlamadan ezberleyerek öğrendiğinin de bir göstergesi olabilir.

Yapılan çalışmada ilköğretim öğrencilerinin bitkilerin enerji kaynağının ne olduğu konusundaki kavram yanılgıları incelendiğinde, öğrencilerde en fazla bitkilerin enerjilerini toprak, su, gübre ve güneşten sağladıkları kavram yanılgısına sahip oldukları görülmüştür. Bacanak ve ark. (2004)'nin fotosentezle ilgili olarak öğrencilerin sahip oldukları kavram yanılgılarını belirledikleri çalışmalarında benzer bir şekilde "Bitkiler enerjilerini sudan, havadan, güneşten ve topraktan sağlarlar" kavram yanılgısına ulaşmışlardır. FSKK testine göre ilköğretim öğrencilerinin sahip olduğu diğer kavram yanılgıları; bitkilerin enerjilerini su ile güneşten sağladığı ve toprak ile gübreden aldığı şeklindedir. Köse ve ark. (2003) tarafından yapılan çalışmada, öğrencilerde bitkilerin enerjilerini su, hava, toprak, böcekler-kurtçuklar ve gübreden aldıkları kavram yanılgıları tespit edilmiştir. Köse ve ark. (2006b), yaptıkları çalışmada öğrencilerden bitkilerin enerjilerini "sudan", "havadan", "topraktan" ve "gübreden" sağladığı şeklinde cevaplar almışlardır. Bitkilerin enerji kaynağına yönelik kavram yanılgıları incelendiğinde ise öğrencilerde birçok kavram yanılgısına rastlanmıştır. Bu durum bitkilerin enerji kaynağı konusunun çok soyut olmasından ve öğrencilerin bu durumu zihinlerinde kolayca yapılandıramamalarından kaynaklanabilir.

"Fotosentez nedir?" sorusuna yönelik olarak öğrencilerin bu konudaki en genel kavram yanılgısı, 'fotosentezin yeşil bitkilerin solunumu' olduğu düşüncesidir. Amir ve Tamir (1990), Tekkaya ve Balcı (2003), Köse ve ark. (2003), Marmaroti ve Galanopoulou (2006), Köse ve ark. (2006a), Ekici ve ark., (2007) ile Köse (2008) yaptıkları çalışmalarda benzer kavram yanılgısına yani fotosentezin bitkinin solunumu olduğu sonucuna ulaşmışlardır. Fotosentezin tanımı konusunda örneklemde yer alan öğrencilerin sahip olduğu diğer bir kavram yanılgısı 'fotosentez bitkilerin besin üretimi, solunumu ve gaz değişimidir' görüşüdür. Besin üretimi konusuyla ilişkili olarak, Tekkaya ve Balcı (2003) yaptıkları çalışmada öğrencilerde, "fotosentez bitkilerin; glikozu, güneş ışığını, klorofili ve karbondioksiti kullanarak bunları besine çevirmesidir" ve "fotosentez bitkilerin; güneş ışığını besine çevirmesidir." şeklinde kavram yanılgıları bulunduğu sonucuna ulaşmışlardır. Bulgular incelendiğinde FSKK testine göre öğrencilerin 'fotosentez besin üretimi, besin transferi, solunumu ve gaz alış-verişidir' gibi farklı şeklilerde görüşlere sahip oldukları görülmektedir. Tekkaya ve Balcı (2003), lise öğrencilerinin fotosentez ve bitkilerin solunumu konularındaki kavram yanılgılarının tespitine yönelik çalışmalarında, "fotosentez, besin transferidir" ve "fotosentez bir gaz değişimi işlemidir" yanılgılarına ulaşmışlardır. Araştırmanın bu sorusuyla ilgili ilköğretim öğrencilerinin sahip olduğu diğer bir kavram yanılgısı ise, fotosentezin sadece bir gaz değişimi olayı olduğudur. Köse ve ark. (2003) ile Tekkaya ve ark. (2002) çalışmalarında, fotosentezin sadece bir gaz değişimi olayı olduğu kavram yanılgısına ulaşmışlardır. Benzer şekilde Özay ve Öztaş (2003) fotosentez ve bitkinin beslenmesi konusunda yaptıkları çalışmada, fotosentezin sadece bir gaz değişimi olduğu yanlış ifadesini ortaya koymuşlardır. Fotosentezin ve solunumun bir gaz değişimi olayı olduğu sonucuna aynı zamanda kavram karikatürü testinin 6. sorusunda da (fotosentez-solunum ilişkisi) rastlanmaktadır. Köse ve ark. (2005) yaptıkları çalışmada, fotosentez-solunum konusunda üniversite öğrencilerinin kavram yanılgılarını çizimler yardımıyla tespit etmişlerdir. Araştırmacılar bu çalışmalarında "Solunum, bir gaz değişimi sürecidir" yanılgısına ulaşmışlardır. Tekkaya ve Balcı (2003) yaptıkları çalışmada aynı kavram yanılgısına ulaşmışlardır. Ayrıca Köse ve ark. (2003) ile Köse (2008) yaptıkları çalışmada, fotosentezin ve bitkinin solunumunun yalnızca bir gaz değişimi olayı olduğu kavram yanılgısını saptamışlardır. Fotosentez-solunum ilişkisi konusuna yönelik FSKK testinin 7. sorusu incelendiğinde, öğrencilerin en fazla 'fotosentez-solunum birbirinin tersi işlemlerdir' kavram yanılgısına sahip oldukları görülmektedir. Benzer bir sonuç Köse ve ark. (2003) tarafından yapılan çalışma ile de ortaya konmuştur.

Kavram karikatürü testinde fotosentez yapabilen canlılar konusundaki kavram yanılgıları incelendiğinde, öğrencilerde en fazla 'kloroplastları olduğu için sadece yeşil bitkilerin' ve 'sadece yeşil bitkilerin' fotosentez yaptığı kavram yanılgısı tespit edilmiştir. Tekkaya ve Balcı (2003) ile Ekici ve ark. (2007), fotosentez ve bitkilerde solunum konularında yaptıkları çalışmalarda, 'sadece yeşil bitkilerin

fotosentez yaptıkları' kavram yanılgısına ulaşmışlardır. Ayrıca Griffard ve Wandersee (2001)'in fotosentez-solunum konusunda yaptıkları çalışmada, öğrencilerin bazılarının 'fotosentezin tüm bitkilerde gerçekleştirildiği ancak solunumun sadece tüm hayvanlar tarafından gerçekleştirildiği' kavram yanılgılarına sahip oldukları görülmektedir. İlköğretim öğrencileri fotosentez için kloroplastın gerekli olduğunu düşünmekte, bu bağlamda kloroplast olduğu için sadece yeşil bitkilerin fotosentez yaptığını düşünmektedirler. Marmaroti ve Galanopoulou (2006)'nun fotosentezin anlaşılma düzeyinin iki aşamalı teşhis testleriyle değerlendirilmesine ilişkin yaptıkları çalışmada ise öğrencilerin 'bitkinin yeşil kısımlarında fotosentezin gerçekleştiği ve bitkinin yeşil kısımlarında klorofil bulunduğu' ifadesine yer verilmiştir. FSKK testinin bu sorusuna göre öğrenciler, aynı zamanda "bütün canlılar fotosentez yaparlar" ve "sadece çiçekli bitkiler fotosentez yaparlar" kavram yanılgılarına sahiptirler. Köse ve ark. (2006a) yaptıkları çalışmada öğrencilerde, "canlılar aleminin her biri fotosentez yapabilen bazı üyelere sahiptir" kavram yanılgısını tespit etmişlerdir. Yürük ve Çakır (2000) ise yaptıkları çalışmada öğrencilerde ışıklı ortamda mantarların fotosentez yaptığı kavram yanılgısını ortaya koymuşlardır. Bu bağlamda öğrencilerin fotosentez yapabilen canlıların neler olduğu konusunda bazı kavram yanılgılarına sahip oldukları bununla ilişkili bilimsel doğruları birbiriyle ilişkilendiremedikleri söylenebilir. Fotosentez yapabilen canlılar konusuna ilişkin kavram yanılgıları incelendiğinde en az kavram yanılgısının 6. sınıf düzeyindeki öğrencilerde olduğu görülmektedir. Bunun nedeninin 6. sınıf birinci döneminde canlılarda üreme, büyüme ve gelişme ünitesinde bu konuya değinilmiş olmasından kaynaklandığı düşünülebilir.

İlköğretim öğrencilerinin kavram karikatürü testinin 5. sorusuna verdikleri cevaplar incelendiğinde, birçok kavram yanılgısına sahip oldukları görülmektedir. Bu kavram yanılgılarından en belirginleri; bitkilerin geceleri solunum yaptıkları bu yüzden hayatsal faaliyetlerinin yavaşladığı, fotosentez olayının geceleri daha hızlı gerçekleştiği ve bitkilerin geceleri solunum yapmayıp sadece fotosentez yaptıkları, gündüzleri ise sadece solunum yaptıkları şeklindedir. Köse ve ark. (2006a), yaptıkları çalışmada benzer olarak 'yeşil bitkilerde ışık enerjisi olmadığı zamanlarda fotosentezin meydana geldiği' ve 'fotosentezin yeşil bitkilerde her zaman meydana geldiği' kavram yanılgılarına ulaşmışlardır. Köse (2008)'nin yaptığı çalışmada ise öğrencilerde bitkilerin gündüzleri fotosentez yaptığı ve enerji sağladığı, aynı zamanda bitkilerin geceleri solunum ile fotosentez yapmaya devam ettikleri kavram yanılgılarının bulunduğu görülmektedir. Testin 6. sorusuna benzer olarak bitkilerde solunum ve fotosentez-solunum konusuna yönelik olarak hazırlanan 8. sorusunda da öğrencilerde en fazla, bitkilerin gündüzleri solunum yaparken CO_2 alıp O_2 verdikleri kavram yanılgısının olduğu tespit edilmiştir. Köse ve ark. (2005) fotosentez-solunum konusuna yönelik yaptıkları çalışmada benzer sonuçlara ulaşmışlar ve öğrencilerde "solunumda gündüz CO_2 alınıp O_2 verilir" şeklinde kavram yanılgısı olduğunu belirlemişlerdir. Tekkaya ve Balcı (2003) ise, bitkilerin gündüzleri solunum yaparken karbon dioksit alıp oksijen verdiği; geceleri ise oksijen alıp karbondioksit verdiği kavram yanılgısına ulaşmışlardır. Anlaşılacağı üzere öğrenciler solunum reaksiyonunda giren-çıkan gazları ayırt edememektedirler. Bu durumun öğrencilerin konuları anlayarak, özümseyerek yapılandırmak yerine ezberlemelerinden kaynaklandığı söylenebilir. FSKK testinin bu sorusunda öğrencilerde ayrıca bitkilerin gündüzleri fotosentez yaparken oksijen alıp karbondioksit verdikleri yanılgısına da ulaşılmıştır. Köse ve ark. (2005) fotosentez-solunum konusunda yaptıkları çalışmada benzer bir kavram yanılgısı olan bitkilerin geceleri fotosentez yaparken O_2 alıp CO_2 verdikleri bulgusuna ulaşmışlardır. Bununla birlikte karikatür testinin bu sorusunda öğrencilerde, bitkilerin gündüzleri CO_2 alıp O_2 verirken, geceleri ışık enerjisi olmayınca solunum yaptıkları şeklinde kavram yanılgıları olduğu sonucuna varılmıştır. Tekkaya ve Balcı (2003) ile Köse ve ark. (2006a) yaptıkları çalışmalarda, bitkilerin geceleri/ışık enerjisi olmadığı zamanlarda solunum yaptıkları kavram yanılgısına yer vermişlerdir. Treagust ve Haslam (1986)'a göre ise öğrencilerin sahip oldukları benzer bir kavram yanılgısı, solunumun tüm bitkilerde ışık enerjisi olmadığı zaman, bunun yanında hayvanlarda her zaman gerçekleştiği görüşüdür. Bu konularda tüm sınıf düzeylerinde kavram yanılgıları görülmesine rağmen; genel olarak 7. sınıf öğrencilerinde daha az rastlanmıştır. Bu durumun, 6. sınıf ikinci döneminde solunum sistemi konusunun fen ve teknoloji öğretim programında yer alması ve FSKK testinin uygulamalarının 7. sınıf öğrencilerinin birinci döneminde gerçekleştirilmiş olmasından kaynaklandığı söylenebilir.

İlköğretim öğrencilerinin bitkilerde gerçekleşen solunum olayına yönelik sahip oldukları kavram yanılgıları incelendiğinde; öğrencilerde en fazla 'bitkilerin sadece geceleri solunum yaptıkları' kavram yanılgısının bulunduğu görülmektedir. Benzer sonuçlar daha önce yapılan birçok araştırma ile de ortaya konmuştur (Treagust ve Haslam, 1986; Tekkaya ve ark., 2002; Tekkaya ve Balcı, 2003; Köse ve ark., 2005; Köse, 2008). Ayrıca ilköğretim öğrencilerinde, bitkilerin geceleri solunum, gündüzleri fotosentez yaptıkları kavram yanılgısına rastlanmıştır. Benzer olarak Köse ve ark. (2006a) üniversite öğrencilerinde, yeşil bitkilerin gündüzleri fotosentez yapıp, geceleri- hiç ışık enerjisi olmadığı zaman- solunum yaptıkları kavram yanılgısını belirlemişlerdir. Karikatür testinin bu sorusunda ayrıca bitkilerin sadece gündüzleri

solunum yaptıkları yanılgısına da rastlanmıştır. Benzer şekilde Köse ve ark. (2005) ile Köse (2008)'nin yaptıkları çalışmalarda da fotosentez ve bitkilerde solunum konularında kavram yanılgıları tespit edilmiştir. Yazarların belirledikleri bu kavram yanılgılarına 'bitkilerde/yeşil bitkilerde solunumun sadece gündüzleri gerçekleştiği' ifadesi örnek olarak verilebilir. Tekkaya ve Balcı (2003) ise çalışmalarında öğrencilerin 'bitkilerin güneş ışığı olduğu zaman solunum yaptıkları' kavram yanılgısına sahip olduklarını belirtmişlerdir. Bir başka çalışmada 'bitkilerde fotosentez meydana geldiğinde solunum gerçekleşmez' yanılgısı tespit edilmiştir (Köse, 2008). Öğrencilerin bu düşüncelere sahip olmaları onların fotosentez-solunum kavramlarını birbirinden doğru bir şekilde ayırt edemediklerini göstermektedir. Yapılan çalışmada, ilköğretim 6., 7. ve 8. sınıf öğrencilerinde bitkilerde gerçekleşen solunum olaylarına yönelik kavram yanılgılarına rastlanmış, ancak 6. ve 7. sınıf öğrencilerinde daha az sayıda olduğu görülmüştür. Bunun sebebinin, ilköğretim 6. sınıf ders programında yer alan "canlılarda üreme, büyüme ve gelişme" ünitesinin fotosentez-solunum konusu için ön hazırlık niteliğinde olmasından kaynaklandığı söylenebilir.

İlköğretim 6., 7. ve 8. sınıf öğrencilerinin ışık almayan kapalı cam fanus içindeki iki canlının (fare ve bitki) solunum-fotosentez ilişkisine yönelik kavram yanılgıları incelendiğinde en belirgin kavram yanılgısının "bitki fotosentez yapamadığı için yaşayamaz, fare ise solunum yaptığı için yaşar" şeklinde olduğu görülmektedir. Bu kavram yanılgısı 7. sınıf öğrencilerinde daha az bulunmaktadır. Bitki ve farenin her ikisinin de solunum yaptıkları için yaşayacakları kavram yanılgısının ise 8. sınıf öğrencilerinde bulunmadığı görülmektedir. Bu durumun sebebinin 7. ve 8. sınıf öğrencilerinin soyut işlemlere geçiş döneminde olmalarından ve sorunun mantıksal düşünme becerilerini kullanmayı gerektirmesinden kaynaklandığı düşünülmektedir. Şensoy ve ark. (2005) ilköğretim öğrencilerinin fotosentez konusundaki yanlış kavramlarının tespiti üzerine yaptıkları çalışmada, öğrencilere bu konuyla ilgili bir kavram testi uygulamışlardır. Kavram testindeki soruların birinde benzer şekilde hazırlanan düzenekte kap, fare ve bitki bulunmaktadır; fakat kap ışıklı bir ortama konulmuştur. Bunun üzerine öğrencilere, fare ve bitkiye ne olmasını bekledikleri sorulmuş ve öğrencilerden iki canlının da yaşayacağı cevabını vermeleri beklenmiştir. Ancak öğrencilerin büyük bir çoğunluğu yanlış olan 'canlıların ikisinin de öleceği' ve 'farenin ölüp bitkinin yaşayacağı' seçeneklerini işaretlemişlerdir.

Çalışmadan elde edilen sonuçlar doğrultusunda şu önerilerde bulunulabilir:

- İlköğretim öğrencilerinde fotosentez-solunum konusunda birçok kavram yanılgısının bulunduğu anlaşılmaktadır. Bu nedenle ilköğretim 6. sınıftan itibaren kademeli olarak fen ve teknoloji öğretim programında fotosentez-solunum konusuna yer verilmesi gerektiği önerilmektedir.
- Fotosentez-solunum konusunun ders kitaplarında genellikle formüllerle anlatıldığı görülmektedir. Bundan dolayı öğrencilerin konunun mantığını kavramaktan ziyade formülleri ezberlemeyi tercih ettikleri düşünülebilir. Bu nedenle öğrenme-öğretme sürecinde öğrencilerin daha aktif oldukları öğretim yöntemlerine/tekniklerine özellikle konuyla ilgili deneylere ve gözlem çalışmalarına yer verilmesi önerilmektedir.
- Konuların uygulayıcısı konumunda olan öğretmenlerin, öğrencilerin sınıf içinde aktifliğini arttıracak, bilgilerinin yapılandırılmasını kolaylaştıracak, araştırmaya dayalı öğrenme, proje tabanlı öğrenme ve probleme dayalı öğrenme gibi farklı yöntemler hakkında hizmet içi eğitim kurları düzenlenmesi yoluyla bilgilendirilmeleri önerisinde bulunulabilir.
- Fotosentez-solunum konusunda farklı eğitim kademelerinden öğrencilerle kavram karikatürleri kullanılarak kavram yanılgılarını belirleme çalışmaları yapılması ve sonuçlarının karşılaştırılması önerisinde bulunulabilir.
- Fen ve teknoloji dersinin farklı konularına (özellikle madde, ısı, sıcaklık vb.) yönelik olarak da kavram yanılgısını belirmeme amaçlı kavram karikatürü testleri oluşturulması önerisinde bulunulabilir.

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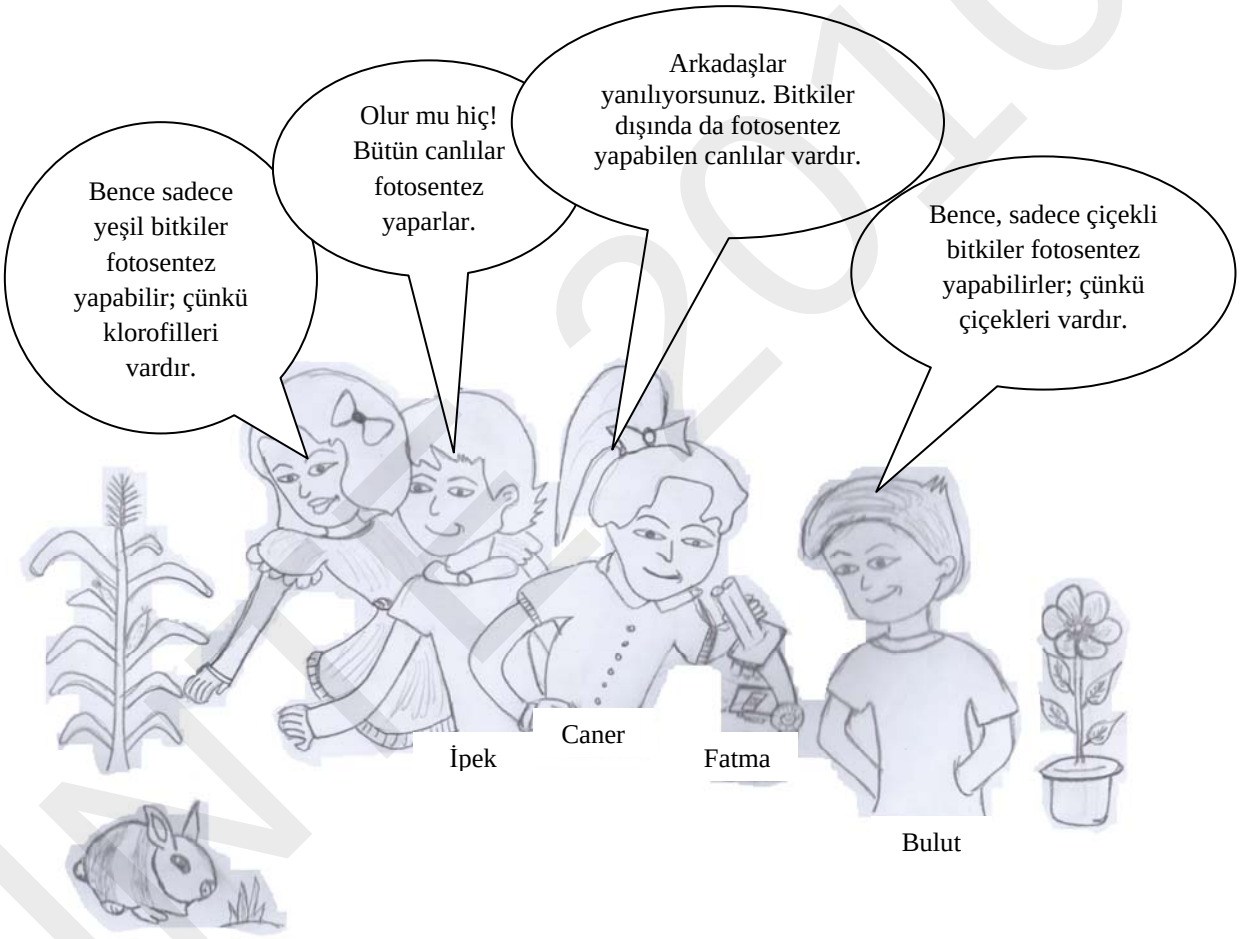
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EK 1: Çalışmada Kullanılan Kavram Karikatürü Testi Sorularından Bir Örnek

Aşağıdaki öğrenciler "fotosentez yapabilen canlılar" hakkında tartışmaktadırlar.



Siz yukarıdaki öğrencilerden hangisine/hangilerine katılıyorsunuz?

İpek ☐ Caner ☐ Fatma ☐ Bulut ☐

Nedenini açıklayınız

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İLKÖĞRETİM 7. SINIF ÖĞRENCİLERİNE YÖNELİK "MADDENİN YAPISI VE ÖZELLİKLERİ" ÜNİTESİ İLE İLGİLİ BİLGİSAYAR TABANLI MATERYAL GELİŞTİRİLMESİ

DEVELOPING COMPUTER BASED MATERIAL ABOUT "STRUCTURE AND PROPERTIES OF MATTER" ON PRIMARY 7th GRADE SCHOOL STUDENTS

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ÖZET

Fen bilimlerinin amacı; yapıcı, yaratıcı, eleştirici düşünme yeteneğine sahip, edindiği bilgi ve becerileri günlük hayatında kullanabilen, bilim ve teknoloji arasındaki ilişkiyi kurabilen bireyler yetiştirmektir. Bu tür becerilerin kazandırılabilmesi için öğrencinin derse etkin katılımı ve buna uygun eğitim materyallerinin hazırlanması gerekmektedir. Materyal kullanımı, etkili bir eğitim-öğretim ortamı hazırlayarak, öğrencilerin öngörülen hedeflere daha kolay varmalarını ve yürütülen programın başarıya ulaşmasını sağlar.

Bu çalışmada ilköğretim 7. sınıf Fen ve Teknoloji dersi programında yer alan "Maddenin Yapısı ve Özellikleri" ünitesi ile ilgili bilgisayar tabanlı materyal geliştirilmesi amaçlanmıştır. Bu amaçla "Maddenin Yapısı ve Özellikleri" ile ilgili interaktif 11 oyun, 1 bulmaca, 18 etkinlik, 6 tane 4 seçenekli çoktan seçmeli test ve flash programı yardımıyla animasyonlar geliştirilmiştir. Geliştirilen tüm bu materyaller konu anlatımları ile desteklenerek www.fenegitimi.org internet sitesinde öğrencilerin hizmetine sunulmuştur.

Anahtar Kelimeler: Fen ve Teknoloji, Bilgisayar tabanlı Materyal, Etkinlik, Oyun

ABSTRACT

The purpose of science is to grow up individuals who have got constructive, creative, critically thinking ability and can be used these acquired knowledge and skills in daily life and can established relationships between science and technology. To gain these types of skills, students must be participated to the lessons actively and training materials should be prepared accordingly. Using materials create an effective educational environment and can provide the current curriculum successfully so that students can reach their targets very easily.

The aim of this study is to develop the computer-based materials about "Structure and Properties of Matter" unit in Science and Technology primary 7th grade classes. For these purpose 11 interactive games, puzzles, 18 activities, 6 multiple-choice test and flash animations were developed about "Structure and Properties of Matter". All these materials were supported by lecturing and offered to the students on www.fenegitimi.org website.

Keywords: Science and Technology, Computer-based Materials, Activities, Games

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GİRİŞ

Birey; yaşamını sağlıklı bir şekilde devam ettirebilmesi için çevreye uyum sağlamak zorundadır. Çevreye uyum sağlama ancak öğrenme ile mümkündür. Her öğrencinin psikolojik yapısı, sosyal çevresi, öğrenmeye karşı hazır bulunuşluluk düzeyleri, algıları farklı olduğu için öğrenme şekilleri de farklıdır. Tüm öğrencilere uygun bir öğrenme şekli yoktur. Farklı öğrenme yöntemleri farklı öğrenciler için uygun olabilir. Bu nedenle öğrenmenin bireyselleştirilmesi öğrenme için en etkili yöntemdir. Günümüz eğitim yaklaşımlarında öğrencilerin bireysel öğrenme stilleri ön plana çıkmış ve öğrenci merkezli eğitim yaklaşımları önem kazanmıştır.(Odabaşı, 2008).

Öğrenci merkezli eğitim yaklaşımlarının ön plana çıkması ile birlikte daha etkili eğitim-öğretim faaliyetlerinin yürütülebilmesi amacıyla farklı araç-gereçler kullanılmaya başlanmıştır. Bu araçlardan bir tanesi de bilgisayardır.

Bilgisayarlar icat edildiğinden beri birçok alanda kullanılmaktadır. Eğitim – öğretim de bu alanlardan biridir. Bilgisayarların kullanımında özellikle zaman ve mekân sınırlamasının olmaması eğitim için önemini artırmaktadır. Bunun yanında bilgisayar ağları sayesinde tüm kullanıcılar sanal ortamda bir araya gelebilmekte, birbirleri ile iletişim kurabilmekte ve doküman paylaşabilmektedirler. Yani bir çeşit sanal sınıflar oluşturulabilmektedir. Bu yöntem öğrencilere hem eğlenceli gelmekte hem de eğitim – öğretim sürecini hızlı, etkili ve zevkli kılmaktadır

Eğitimde bilgisayar kullanılarak geliştirilen materyal, etkili bir eğitim-öğretim ortamı hazırlayarak, öğrencilerin öngörülen hedeflere daha kolay ulaşmalarını sağlamada ve yürütülen programın başarıya ulaşmasında önemli bir rol oynar. Bu durum, etkin bir eğitim öğretim için çok önemlidir. Çünkü eğitim sürecinde öğrencilere asıl nitelik kazandıran öğe, öğretim programlarıdır. Özellikle fen ve teknoloji öğretim programlarının başarısı için eğitim sürecinde materyal kullanımı yaşamsal önem arz eder (Karamustafaoğlu, 2006).

Günümüzün hızla değişen ve gelişen dünyasında, bireylerin bilgiyi tek bir kaynaktan almaları ve ezberlemeleri beklenmemekte, aksine bilgiye ulaşma yollarını bilen, bunları kullanabilen ve karşılaştığı sorunlar karşısında, bilgiyi kullanarak çözüm yöntemlerini oluşturabilen bireylerin yetiştirilmesi amaçlanmaktadır. Bireylerin bu özellikleri kazanmalarında, öğretmenlerin etkin ve etkileşimli öğrenme ortamlarını tasarlamalarında, öğretim teknolojileri ilkelerine uygun olarak hazırlanmış öğretim materyallerinin kullanımı büyük önem taşımaktadır (Şahin ve Yıldırım, 1999).

Bu çalışmada ilköğretim 7. sınıf Fen ve Teknoloji dersi programında yer alan “Maddenin Yapısı ve Özellikleri” ünitesi ile ilgili bilgisayar tabanlı materyal geliştirilmesi amaçlanmıştır.

MATERYAL VE YÖNTEM

Bu çalışmada ilköğretim 7. sınıf Fen ve Teknoloji dersi programında yer alan “Maddenin Yapısı ve Özellikleri” ünitesi ile ilgili Bilgisayar tabanlı interaktif oyunlar, bulmacalar, etkinlikler, çoktan seçmeli testler ve animasyonlar geliştirilmiştir. Geliştirilen tüm bu materyaller konu anlatımları ile desteklenerek www.fenegitimi.org internet sitesinde öğrencilerin hizmetine sunulmuştur. Sayfada Konu anlatımları, Etkinlikler, Oyunlar, Konu Testleri ve Genel Tarama Testi linkleri yer almaktadır(Şekil–1).

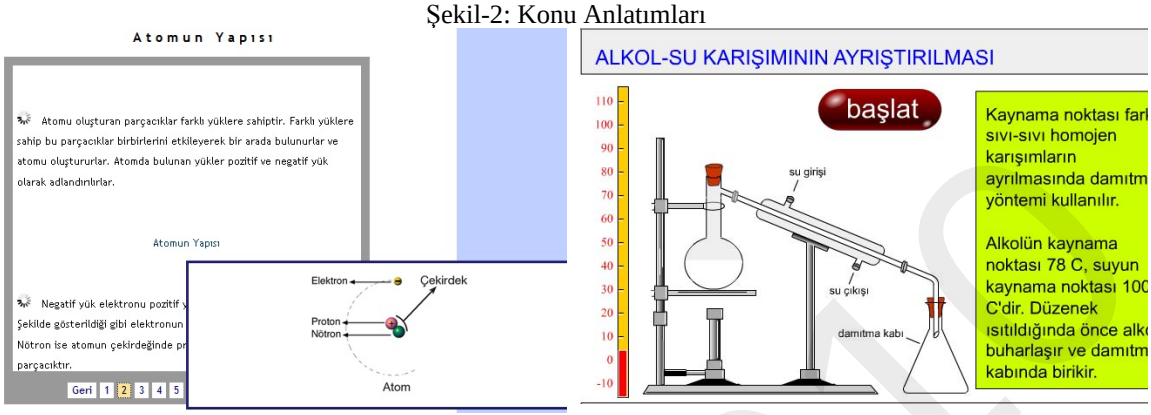
Şekil–1: www.fenegitimi.org sitesinin Giriş sayfası



Konu Anlatımları

Konu anlatımlarında "Elementler ve Sembolleri", "Atomun Yapısı", "Elektronların Dizilimi ve Kimyasal Özellikleri", "Kimyasal Bağ", "Bileşikler ve Formülleri" ve "Karışımlar" konu başlıkları ile ilgili konu anlatımları yer almıştır. Konu anlatımları resim ve animasyonlarla desteklenişir.

Şekil-2: Konu Anlatımları



Etkinlikler

Çalışmada konunun daha iyi anlaşılması ve somutlaştırılmasının sağlanması amacıyla Flash programı desteğiyle etkinlikler geliştirilmiştir. Bu etkinliklerden bazıları aşağıda verilmiştir;

Elementlerin Kullanım Alanları Etkinliği:

Bu etkinlik elementlerin günlük hayattaki kullanım alanlarının kavratılması amacıyla hazırlanmıştır(Şekil-3).

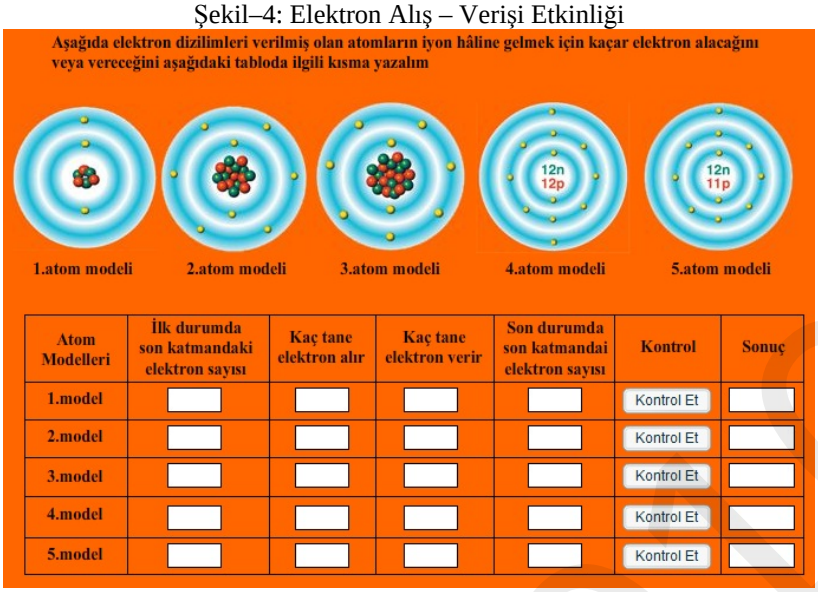
Şekil-3: Elementlerin Kullanım Alanları Etkinliği



Elektron Alış – Verişi:

Atomların kararlı hale geçebilmeleri için elektron alma – verme durumlarının kavratılması amacıyla geliştirilmiştir(Şekil–4).

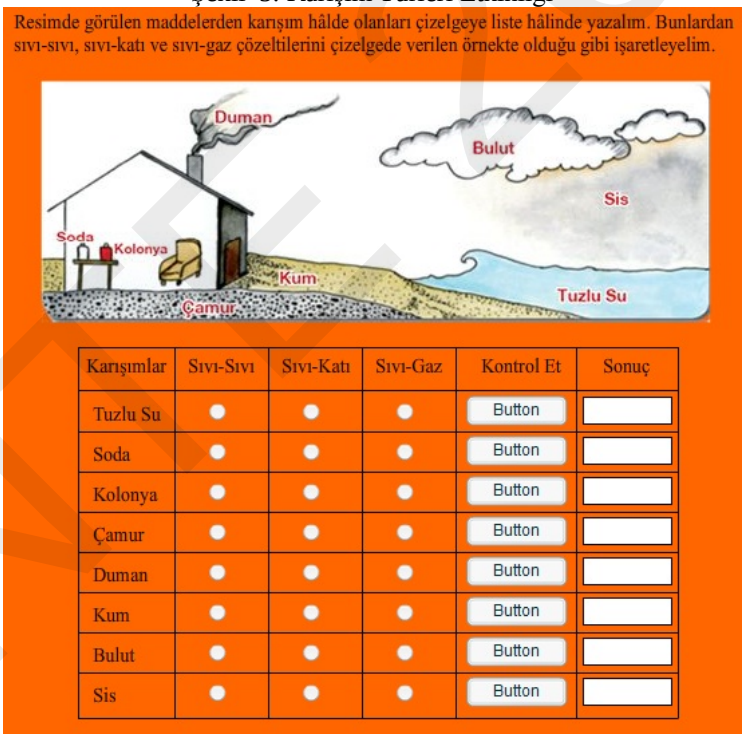
Şekil–4: Elektron Alış – Verişi Etkinliği



Karışım Türleri:

Günlük hayatta karşılaştığımız karışımların hangi tür maddelerden oluştuğunun kavratılması amacıyla geliştirilmiştir(Şekil–5).

Şekil–5: Karışım Türleri Etkinliği



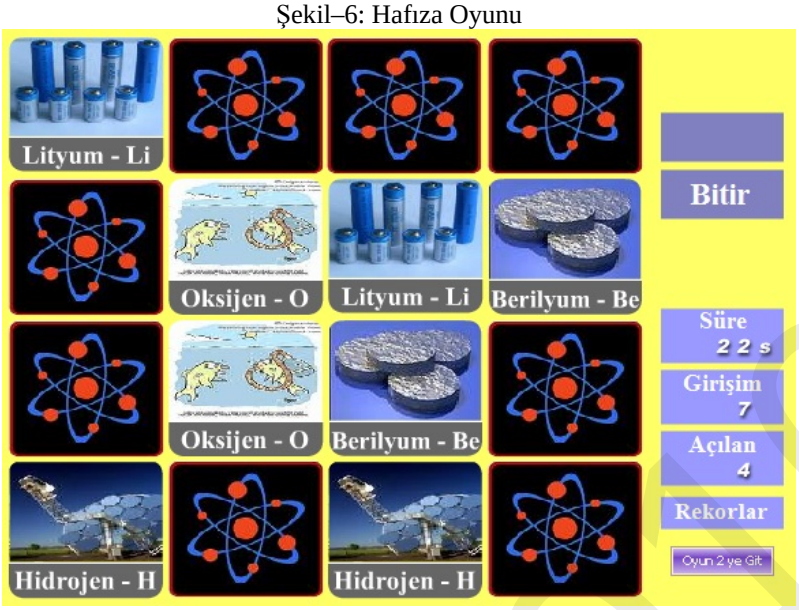
Oyunlar

Konu anlatımından sonra öğrenilen bilgilerin pekiştirilmesi, kalıcılığının artırılması ve ölçme ve değerlendirme yapmak amacıyla oyunlar geliştirilmiştir. Bu oyunlardan bazıları şunlardır;

Hafıza Oyunu:

Elementlerin kullanım alanlarının kavratılması amacıyla geliştirilmiştir. Bu amaçla her elementten 2 şer tane verilmiştir. Üst üste aynı element tıklanırsa tıklanan aynı element açılmakta, üst üste farklı element tıklanırsa iki şekilde geri kapanmaktadır. Bu oyunda kaç kez girişimde bulunulduğu, süre, kaç şekil açıldığı, rekorlar gibi bilgiler de bulunmaktadır(Şekil–6).

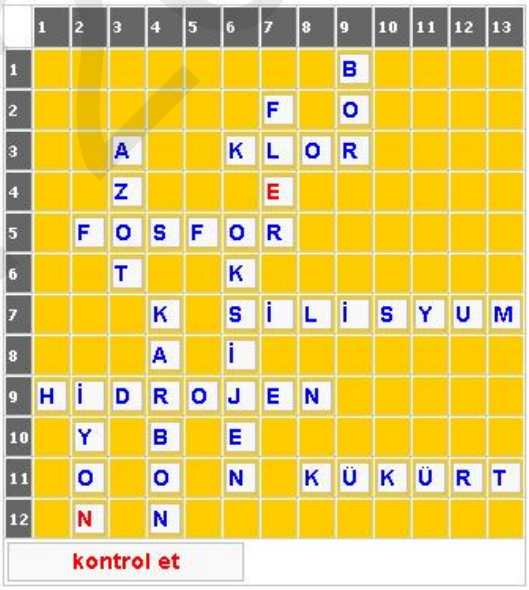
Şekil–6: Hafıza Oyunu



Bulmaca Oyunu:

Konu ile ilgili kavramların ve element sembollerinin öğretilmesi amacıyla bulmacalar geliştirilmiştir. Bulmacalarda ilgili cevaplar verildikten sonra kontrol edildiğinde doğru cevaplar maviye dönerken yanlış cevaplar kırmızıya dönmektedir(Şekil–7).

Şekil–7: Bulmaca



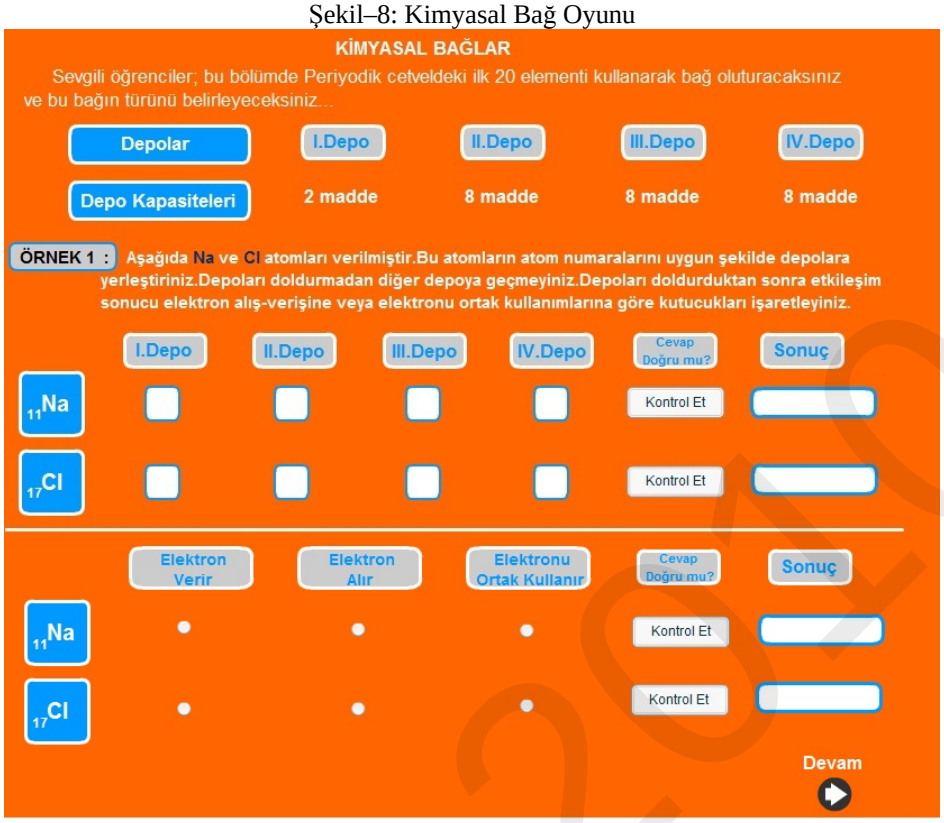
Kimyasal Bağ Oyunu:

Bileşik oluşturacak atomların elektron dağılımları, bileşik oluşumunda hangi atomun elektron aldığı, hangisinin elektron verdiği, elektron kullanımına bağlı olarak oluşan bağ türünün kavratılması amacıyla geliştirilmiştir(Şekil–8).

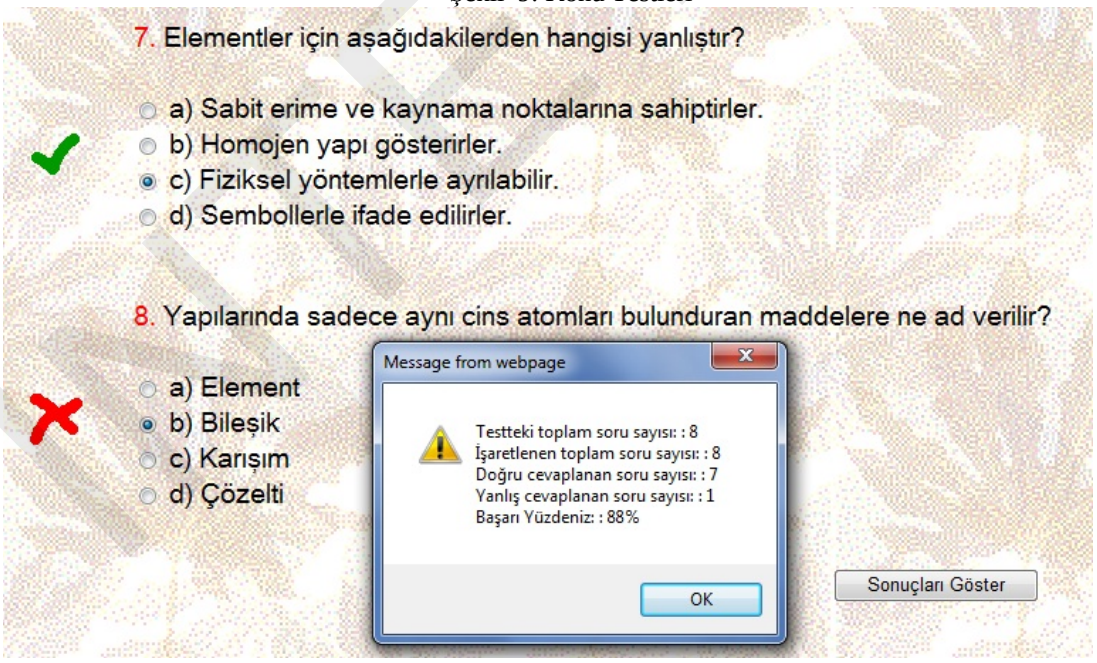
Testler:

Her konu için 8 ve genel tarama testinde tüm üniteyi kapsayacak şekilde 40 sorudan oluşan 4 seçenekli çoktan seçmeli test hazırlanmıştır. Soru cevaplandığında yanıt yanlış ise sorunun sol tarafında kırmızı X işareti gelir ve ayrıca bir diyalog penceresi ekrana gelerek doğru cevabı gösterir. Yanıt doğru ise sorunun sol tarafında onay işareti yer alır. Testin sonunda; ekranın alt kısmında yer alan "Sonuçları Göster" butonu ile de test ile ilgili istatistikler görülebilmektedir(Şekil–9).

Şekil–8: Kimyasal Bağ Oyunu



Şekil–9: Konu Testleri



SONUÇ VE TARTIŞMA

Teknoloji alanındaki hızlı gelişmeler, bütün toplumları bilgi yoğunluklu bir yaşama doğru sürüklemekte, eğitim programları bu yönde düzenlenmekte, eğitime yapılan yatırımlar arttırılmakta, eğitim politikaları bu yönde oluşturulmaktadır(Tüysüz, 2005). Çağımızda hızla gelişmekte olan iletişim teknolojileri, eğitim sisteminin yapısını ve eğitim ortamlarında uygulanan öğrenme-öğretme faaliyetlerini,

eğitim öğretim faaliyetleri sırasında kullanılan materyali etkilemektedir(İşman, 1998). Öğrencilere, soyut kavramların öğretim materyalleri kullanılmadan öğretilmesi, kavramlar ve kavramlar arası bağlantıların anlaşılmasını zorlaştırmaktadır. Fen bilimleri birçok soyut kavram içermektedir.

Fen bilimleri öğrenimi, öğrencilerin yapacakları etkinliklerle bilgiye kendilerinin ulaşmalarını, edindikleri bilgileri analiz edebilmeleri, bu bilgilerden yaratıcı yönlerini geliştirerek, yararlanabilmelerini ve doğru kararlar verebilmelerini sağlamalıdır. Öğretmenlerin konular ve kavramlar arası bütünlüğü sağlayabilmesi için, öncelikle vereceği kavramı bütün boyutları ile ele alması gerekmektedir (Gürdal, Bayram ve Şahin, 1999). Bu nedenle fen bilimleri öğretiminde kavram öğretilmesi için kullanılan materyal çok önemlidir. Doğru materyal kullanımı dersin daha verimli geçmesini sağlamaktadır. Derste doğru materyallerin kullanımı, öğrettiklerimizin %50 fazla hatırlanmasını sağlamaktadır(Silbermen, 1996).

Yapılan araştırmalar bilgisayar destekli öğretim etkinliklerinin öğrencilerin fen bilimlerindeki başarılarını geleneksel yöntemlere göre daha fazla artırdığını ortaya çıkarmaktadır(Akçay, Feyzioğlu ve Tüysüz, 2003). Sonuç olarak bilgisayar destekli öğretim etkinliklerinin öğrenmeyi daha da etkili hale getirdiği saptanmıştır. Öğrencinin bilgiyi kendi beyninde daha kolay anlamlandırdığı dolayısı ile öğrenmenin daha etkili ve kalıcı olduğu söylenebilir. Doğal olarak böyle bir öğrencinin öğrendiği bilgiyi günlük hayatının içine alabilmesi ve bunu kullanabilmesi mümkün olmaktadır (Akçay vd., 2007).

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İLKÖĞRETİMİN I. KADEMESİNDE SINIFLARA GÖRE UZMANLAŞMA KONUSUNDAKİ ÖĞRETMEN GÖRÜŞLERİ

TEACHERS' OPINONS ABOUT SPECIALIZATION RELATED TO CLASSES AT THE FIRST GRADE OF PRIMARY EDUCATION

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ÖZET

Bu araştırmanın amacı, ilköğretimin I. kademesinde sınıflara göre uzmanlaşma konusunda öğretmenlerin görüşlerini değerlendirmektir. Mevcut sistemde bir öğretmen birinci sınıftan aldığı bir sınıfı genellikle I. kademeyi bitirene kadar okutmaktadır. Bu çalışmada, mevcut sistemden farklı olarak sınıflara göre uzmanlaşmanın öğrencilere, öğretmenlere ve sisteme etkisi öğretmen görüşlerine göre değerlendirilmeye çalışılmıştır. Öğretmenlerin, sınıflara göre uzmanlaşma hakkındaki görüşlerini belirlemek için 5'li likert tipinde 24 maddeden ve cinsiyet ve kıdem bağımsız değişkenlerinden oluşan anket hazırlanmıştır.

Araştırma, tarama modelinde betimsel bir çalışmadır. Araştırmanın örneklemini, Hatay ili Antakya ilçesindeki 10 ilköğretim okulunda bulunan 152 ilköğretim I. kademe öğretmeni oluşturmaktadır. Anket maddeleri frekansları verilerek değerlendirilmiştir. Bağımsız değişkenlerin analizinde bağımsız gruplar t testi yapılmıştır.

Araştırmanın sonuçlarına göre öğretmenlerin yarısından fazlası, sınıf düzeylerine göre uzmanlaşmanın öğrenciler açısından yararlı olacağını ve uzmanlaşma olduğunda öğretmenlerin kendi kişisel gelişimlerine daha fazla zaman harcayacağını düşünmektedirler. Ayrıca, öğretmenlerin % 75'i, sınıf düzeyinde uzmanlaşma olduğu takdirde öğretmenlerin okuttukları sınıfların eğitim materyallerini daha etkili kullanabilecekleri konusunda hemfikirdir. Bunun yanında öğretmenlerin 5 yıl boyunca aynı sınıfı okutmanın öğretmenlik mesleğini monotonlaştırdığı görüşüne katılmadıkları ortaya çıkmıştır.

Anahtar kelimeler: Sınıf Öğretmenliği, Uzmanlaşma, Öğretmen Eğitimi

ABSTRACT

The aim of this research, is to evaluate teachers' opinions about specialization related to classes at the first grade of primary education. In current system a teacher teaches his own class until they accomplish the first grade. This study, tried to evaluate according to the teachers' opinions , different from the

current system the affects of specialization according to the classes ,on students', teachers' and system. To determine teachers' opinions about specialization according to classes, a poll which has 24 item with 5 likert type and sex and seniority variables, is developed.

The research is a descriptive study on scan type. The sample of the study is the 152 first grade teachers in 10 primary school in Antakya, HATAY. The inquary items are evaluated with frequency analysis. In the analysis of independent variables, independent groups' t test is applied.

According to the results of the research, more then the half of the teachers say "specialization according to classes' level, will be useful and when the specialization is occurred, the teachers will spend time on their personal development. " Also %75 of them say "If there is specialization, teachers could use the materials they used in their lessons more effectively. Besides this it is refused that teaching the same class in 5 years time, makes teachers monotone.
Key words: Class Teachers, Specialization, Teacher Education.

GİRİŞ

Bir ülkenin kalkınmasında, nitelikli insan gücünün yetiştirilmesinde, toplumdaki huzur ve sosyal barışın sağlanmasında, bireylerinin sosyalleşmesi ve toplumsal hayata hazırlanmasında, toplumun kültür ve değerlerinin gelecek kuşaklara aktarılmasında öğretmenler başrol oynamaktadırlar (Özden, 1999, 114). Yeni nesillerin niteliği hiç kuşkusuz onu yetiştiren öğretmenlerinin niteliği ile özdeş olacaktır. Bilimsel araştırmalarla kalkınmada önem taşıyan nitelikli insan gücünün ve meslek elemanlarının başında öğretmenlerin yer aldığı ve toplumların gelişmesinde öğretmenlerin önemli rolünün bulunduğu ortaya konulmuştur (Alkan ve Kavcar, 1998, 9).

Toplumlarda öğretmenlerinin bu derece önemli olduğu bir ortamda öğretmen eğitimi de oldukça önemli ve üzerinde durulması gereken bir konudur. İlköğretim kademesine öğretmen yetiştirme konusu, Osmanlı Devleti ve Cumhuriyet dönemlerinde üzerinde önemle durulan başlıca eğitim konularından birisi olmuştur (Erbey, 2005). Oğuzkan'a (1993, 133) göre sınıf öğretmeni, "İlköğretim okullarında; bilişsel, duyuşsal ve psikomotor yönden bireylerin eğitimine ve gelişmelerine yardımcı olan, öğretmenlik için mesleğin gerektirdiği sınıf öğretmenliği bölümü programını başarıyla tamamlayarak öğretmenlik yapma yetkisine sahip kişidir. Livatyalı da sınıf öğretmenini şöyle tanımlamaktadır (2004, 183): Sınıf öğretmeni çocuğun gelişimini tamamlamasına, yeteneklerini geliştirmesine, toplumsallaşmasına, toplumsal kurallara, normlara uymasına, üretici olmayı öğrenmesine, kültürel yapıya uyum sağlamasına yardım eden; bilgi yaymanın yanı sıra bilgi öğrenmenin aracılığını yapan kişidir. İlkokul öğretmeni, gelecek nesillerin yaşama biçimini büyük ölçüde etkileyen iletişim, araştırma ve yaratıcılık becerilerinin gelişmesini hızlandıran kişidir (Senemoğlu, 1992).

Bir ilkokul öğretmeni; alan bilgisine, öğretmenlik meslek bilgisine ve genel kültür bilgisine sahip olmalıdır (Yılmaz ve diğ., 2004). İyi eğitim almış ilkokul öğretmeni gerek kendi alanında gerekse genel kültür ve öğretmenlik bilgisi yönlerinden iyi yetişmiş, nitelikli bir öğretmen demektir. Ayrıca

öğretmenlerin çağın gereklerine uygun, toplum beklentilerine ve ihtiyaçlarına cevap verebilecek biçimde yetiştirilmesi gerekmektedir. Bu beklentiler çerçevesinde, öğretmen yetiştiren kurumların öğretim programlarının çok iyi hazırlanmasına, toplumun gereksinimleri doğrultusunda ve çağın gereksinimlerine uygun olarak yeniden düzenlenmesine ihtiyaç vardır (Işık ve Soran, 2005). Değişen sosyal şartlarla birlikte öğretmen rolleri de değişmektedir. Öğretmen rollerindeki değişim öğretmen eğitiminde de değişimi gerekli kılmaktadır. Öğretmen yeterliliklerinin öğretmen yetiştirme programı sürecinde öğrenciye sunulan teorik ve uygulamalı çalışmalar aracılığı ile kazandırılması ve beklenen düzeylere eriştirilmesi gereklidir (YÖK, 1998).

Bu çalışmanın amacı öğretmenlerin, ilköğretimin 1. kademesinde sınıflara göre uzmanlaşma hakkındaki düşüncelerinin belirlenmesidir. Sınıflara göre uzmanlaşma, sınıf öğretmenlerinin, ilköğretim 1. kademesinde 1. sınıftan 5. sınıfa kadar, belirli bir sınıf seviyesinde yetiştirilmesi ve öğretmenlik hayatında sürekli olarak sadece uzmanlaştığı bir sınıfı okutmasıdır. Diğer bir deyişle bir öğretmenin her zaman 1. sınıfı, başka bir öğretmen ise her zaman 2. sınıfı okutması gibi düşünülebilir.

YÖNTEM

Araştırmanın Modeli

Bu araştırma genel tarama türlerinden, betimsel bir araştırmadır.

Evren ve Örneklem

Araştırmanın çalışma evrenini, Hatay ili Antakya merkez ilçesinde 2009–2010 öğretim yılında eğitim-öğretim yapan ilköğretim okulu öğretmenleri oluşturmaktadır. Çalışma evreninin büyük olmasından dolayı örneklem alma yöntemine gidilmiştir. Evreni temsil edecek okullar, seçkisiz örnekleme yöntemlerinden küme örnekleme yöntemi ile belirlenmiştir. Bu şekilde örnekleme alınan 10 ilköğretim okulunda 152 öğretmen üzerinde araştırma yapılmıştır.

Veri Toplama Aracı

Veri toplama aracı olarak 2 bölümden oluşan anket kullanılmıştır. Birinci bölümde katılımcının kişisel bilgileri yer almaktadır. İkinci bölüm ise uzmanlaşma konusunu öğretmen görüşlerine göre değerlendirmek için 5'li likert tipi sorulardan oluşmaktadır. Ankette bulanan sorular ilgili literatür taranarak elde edilen kuramsal bilgiler ve konuyla ilgili araştırmalarda kullanılan veri toplama araçları esas alınarak oluşturulmuştur. Oluşturulan anketin açıklık, anlaşırlılık ve kapsam açısından değerlendirilmesinde Eğitim Bilimleri, İlköğretim ve Türkçe Eğitimi uzmanlarının görüşleri alınarak gerekli düzenlemeler yapılmıştır. Bu aşamadan sonra anket, 65 öğretmenden oluşan ön uygulamaya tabii tutulmuş ve buradan gelen sonuçlara göre faktör analizi yapılmıştır. Yapılan analizden sonra faktör yükü 0.35 altında olan maddeler anketten çıkarılmıştır. Anketin ilk halinde 31 soru yer alırken son halinde 24 madde yer almıştır. 24 maddelik anketin Cronbach-Alpha değeri ise 0.93 olarak hesaplanmıştır.

Verilerin Analizi

Çalışmada verilerin analizi, bağımsız değişkenler için bağımsız gruplar t testi, anket maddelerinin her biri için frekans değerleri verilerek yapılmıştır.

BULGULAR ve YORUM

Bu bölümde araştırma sonucunda elde edilen bulgular verilmiştir. Elde edilen bulgulara dayalı olarak açıklama ve yorum yapılmıştır.

Tablo 1: Anket Maddeleri Frekans Değerleri

	Anket Maddeleri	f (5)	f (4)	f (3)	f (2)	f (1)
1	Sınıf öğretmenliğinde sınıf düzeylerine göre uzmanlaşma öğrenciler açısından yararlı olacaktır.	27	58	13	39	15
2	Öğretmen, öğrenci gelişimi konusunda uzmanlaşacağı için rehberlik faaliyeti daha iyi yapılır.	28	68	11	37	8
3	Uzmanlaşma olduğunda öğretmen açısından sınıf yönetimi kolaylaşır.	25	56	22	41	8
4	Mevcut sistemde bir öğrencinin öğretmeniyle yaşadığı bir problem öğrenciyi uzun süreli izleme açısından olumsuz etki yapar.	18	43	30	51	10
5	Mevcut sistemde 5. Sınıftan sonra yeni sınıf alan öğretmen, öğrencilere alışmakta zorluk yaşar.	15	42	10	68	17
6	İlköğretimin ilk kademesinde tek bir öğretmenin tüm derslerine girmesinden dolayı, öğrenci ilköğretimin ikinci kademesinde alışma güçlüğü yaşar.	14	58	21	49	10
7	Uzmanlaşma olduğu zaman öğrenci farklı öğretmenlerle iletişim kuracağı için sosyal becerilerde gelişmeler gösterir.	16	77	22	29	8
8	Öğretmenlerin 5 yıl boyunca aynı sınıfa girmesi ve çocukları çok iyi tanıması sonucu öğretmenlik mesleğini monotonlaştırır.	14	23	15	83	17
9	1–5 sınıf öğretmenliği sisteminde her sene başka bir sınıf düzeyini okutması gereken öğretmen o yıl ki yeni derslere alışmakta zorlanır.	6	46	10	72	18
10	Sınıflarda uzmanlaşma olduğunda öğretmenin ders yükü azalır.	22	71	8	42	9
11	Uzmanlaşma olduğunda öğretmen kendi kişisel gelişimi için daha fazla zaman harcar.	25	63	16	39	9
12	5. sınıf ve 1. sınıf arasında derslerin içeriğinde çok büyük farklılıklar olduğundan, öğretmen uyum sorunu yaşayabilir.	16	40	11	70	15
13	5. sınıf ve 1. sınıf arasında derslerin işlenişinde çok büyük farklılıklar olduğundan, öğretmen uyum sorunu yaşayabilir.	12	42	12	70	16
14	Uzmanlaşma olduğunda öğretmen okuttuğu sınıf düzeyinin ders kaynakları daha iyi kullanır.	28	82	5	29	8
15	Öğretmenler, ilkokul düzeyindeki öğrencilerde hızla gelişen bilişsel farklılaşmaya ayak uydurmada güçlük yaşar.	8	32	16	85	11
16	Uzmanlaşma olduğunda öğretmen uzman olduğu döneme ait dersleri daha iyi öğretir.	25	85	10	26	6
17	4. ve 5. Sınıflarda öğrencilerin ergenlik çağına girmeye başlaması nedeniyle farklı bir uzmanlık alanına ihtiyaç duyulur.	16	79	18	33	6
18	Mevcut sistemde öğretmen ölçme ve değerlendirmeyi objektif olarak yapmada zorlanabilir.	10	45	9	78	10
19	Öğretmen, sınıf düzeyi artıkça sınıf içi problemleri çözerken öğrencilerin daha önceki davranışları göz önüne alınır ve duygusal davranır.	10	59	11	67	5
20	Sınıf öğretmenliği programlarının, sınıf düzeylerine göre branşlaşması gerekir.	20	65	20	38	9
21	Uzmanlaşma olduğunda öğrenciler her yıl bir süre uyum problemi yaşar.	5	33	20	74	20
22	Uzmanlaşma çocukların bilişsel gelişimi için uygundur.	14	62	28	38	10
23	Uzmanlaşma çocukların psikoseksüel gelişimi için uygundur.	11	58	30	45	8
24	Uzmanlaşma olduğunda öğretmen okuttuğu sınıf düzeyinin materyallerini daha iyi kullanır.	28	87	5	26	6

Kesinlikle Katılıyorum:5, Katılıyorum:4, Karasızım:3, Katılmıyorum:2, Kesinlikle Katılmıyorum:1

Elde edilen bulgularda, *"Sınıf öğretmenliğinde sınıf düzeylerine göre uzmanlaşma öğrenciler açısından yararlı olacaktır."* ve *"Öğretmen, öğrenci gelişimi konusunda uzmanlaşacağı için rehberlik faaliyeti daha iyi yapılır."* anket maddelerine öğretmenlerin çoğunluğunun katıldığı görülmektedir. Burada uzmanlaşma konusunun öğrenciler için yararlı olacağı konusunda öğretmenler aynı görüşte birleşmişlerdir. Çünkü öğretmen, bir sınıf bazında uzmanlaşacağı için o yaş grubu öğrencilerin her türlü gelişim özellikleri hakkında daha ayrıntılı bilgiye sahip olacaktır ve sahip olduğu birikimlerini öğrencilerine daha faydalı şekilde aktararak öğrencilerin rehberliği konusunda sıkıntı yaşayamayacaktır. Yine benzer şekilde *"Uzmanlaşma olduğunda öğretmen açısından sınıf yönetimi kolaylaşır."* anket maddesine öğretmenlerin çoğunun katıldığı görülmektedir. Öğretmenlerin öğrencilerle olan kişisel iletişiminin niteliği ve niceliği öğrenci davranışları üzerinde etkilidir (Gordon, 1974). Yani öğrencilerle sağlıklı ve etkili bir iletişim kurmanın en iyi yolu, onları her yönüyle tanımaktan geçer. Sınıflara göre uzmanlaşma olduğu takdirde öğretmen öğrenci özelliklerini ayrıntılı olarak

kavrayacağı için onların davranışlarını daha rahat kontrol edebilir ve sınıf yönetimi konusunda sıkıntı yaşamayabilir.

"Uzmanlaşma olduğunda öğretmen okuttuğu sınıf düzeyinin ders kaynakları daha iyi kullanır.", "Uzmanlaşma olduğunda öğretmen uzman olduğu döneme ait dersleri daha iyi öğretir." ve *"Uzmanlaşma olduğunda öğretmen okuttuğu sınıf düzeyinin materyallerini daha iyi kullanır."* anket maddelerine öğretmenlerin büyük çoğunluğu katıldıklarını belirtmişlerdir. Burada öğretmenlerin sınıflara göre uzmanlaşma konusuna olumlu yaklaştığı söylenebilir. Öğretmenler, mevcut sistemde her yıl farklı bir sınıfı okuttukları için her yıl yeni materyaller ve farklı müfredat programı için ders planı ve yıllık plan hazırlamak zorunda kalmaktadırlar. Dolayısıyla da öğretmenler için her yıl için yeni bir hazırlık aşaması ve buna alışma süresi ortaya çıkmaktadır. Anket maddelerinde öğretmenlerinde belirttiği gibi uzmanlaşma olduğu takdirde, öğretmenlerin her yıl aynı sınıfı okutacağı için materyal hazırlamada ve plan oluşturmada mevcut sistemdeki kadar zaman ve emek harcamayacaktır. Bu zaman ve emeğini öğrencilerin daha iyi bir eğitim almaları için harcamasına ve kendi kişisel gelişimine zaman ayırmasına olanak sağlayabilir. Bazı öğretmenler bu konuda verilen anket maddesine yani *"Sınıflarda uzmanlaşma olduğunda öğretmenin ders yükü azalır."* ve *"Uzmanlaşma olduğunda öğretmen kendi kişisel gelişimi için daha fazla zaman harcar."* maddelerine katıldıkları ortaya çıkmıştır.

Bireylerin içinde bulundukları topluma uyum sağlamasına yardım etmek eğitimin önemli amaçlarından biridir. Bireyin içinde bulunduğu topluma istenilen bir biçimde uyum sağlaması diğer bir deyişle, toplumun etkin bir üyesi olabilmesi için sosyal gelişimini sağlıklı bir biçimde tamamlaması gerekir. Bireyin içinde yaşadığı toplumun kendisinden beklediği ve yapmasını istediği davranışları gösterecek biçimde yetişmesi onun sosyal gelişimi ile ilgilidir. Çünkü çocuğun ilk yıllardaki sosyal gelişimi onun daha sonraki sosyal davranışlarının temelini oluşturur. Bu konuda bazı öğretmenler, sınıflara göre uzmanlaşma olduğu zaman öğrencilerin farklı öğretmenlerle iletişim kuracağı için sosyal becerilerinde gelişmeler olacağını belirtmişlerdir. Dolayısıyla sosyal becerileri gelişmiş bir öğrenci içinde yaşadığı toplumun beklentilerine uygun davranışlar gösterir ve kendi istekleri ile toplumun istekleri arasında denge sağlayabilir. Yine, çevresindeki insanlarla yardımlaşmayı, paylaşmayı, işbirliği içinde olmayı başarır ve duygu ve düşüncelerini yaşadığı toplumun kültürüne uygun bir şekilde ifade edebilir (Çağdaş ve Seçer, 2002; 35-36).

Öğretmenlerin büyük çoğunluğu, 4 ve 5. sınıflarda öğrencilerin ergenlik çağına girmeye başlaması nedeniyle farklı bir uzmanlık alanına ihtiyaç duyulduğunu belirtmektedirler. Öğrencilerin bu dönemde hızla farklılaşan zihinsel ve duygusal özellikleri, anlaşılması güç tutum ve davranışları oluşmaya başlamaktadır. Bu dönemin sağlıklı bir şekilde atlatılması bireyin ileriki yaşamını olumlu yönde etkilemektedir.

Uzmanlaşma ile Piaget'in gelişim kuramına göre, 1. sınıfın bilişsel düzeyi ile 5. sınıfın bilişsel düzeyi arasında fark bulunmaktadır. Eğer öğretmen belirli bir sınıfta uzmanlaşırsa o döneme ait bilişsel düzeyine hâkim olacak ve o döneme ait sorunları çözmede daha başarılı olacaktır. Uzmanlaşmanın başka bir

avantajı ise 1. sınıf ile 5. sınıf programları arasında içerik ve öğrenme durumları farklıdır. Öğretmen bu sistem sayesinde programa daha fazla hâkim olacaktır.

Araştırma sonuçlarına göre öğretmenlerin bazıları ise mevcut sistemin olumlu yanlarını vurgulamaktadır. Örneğin, *"Mevcut sistemde 5. sınıftan sonra yeni sınıf alan öğretmen, öğrencilere alışmakta zorluk yaşar."*, *"İlköğretimin ilk kademesinde tek bir öğretmenin tüm derslerine girmesinden dolayı, öğrenci ilköğretimin ikinci kademesinde alışma güçlüğü yaşar."* ve *"Öğretmenlerin 5 yıl boyunca aynı sınıfa girmesi ve çocukları çok iyi tanıması sonucu öğretmenlik mesleğini monotonlaştırır."* anket maddelerine öğretmenler katılmamaktadır. Bazı konularda ise öğretmenler zıt görüşlere sahiptir. Mesela bazı öğretmenler mevcut sınıf öğretmenliği sisteminin her yıl başka bir sınıf düzeyini okutması gereken öğretmen o yılki derslere alışmakta zorlanacağını düşünürken, bazı öğretmenler ise 5. sınıf ve 1. sınıf dersleri arasında derslerin işleniş arasında büyük farklılıklar olduğundan öğretmenin uyum sorunu yaşamayacağını belirtmektedirler.

Tablo 2: Öğretmenlerin, Sınıflara Göre Uzmanlaşma Konusundaki Görüşlerinin Cinsiyetlerine Göre t Testi Sonuçları

Cinsiyet	N	$\overline{X}$	ss	t	P
Erkek (1)	56	76,18	18,44	0,62	0.53
Bayan (2)	96	74,33	17,12		

Tablo 2'ye göre erkek öğretmenlerin aritmetik ortalaması 76,18, bayan öğretmenlerinki 74,33'dür. Her iki ortalamaya göre öğretmenlerin, sınıflara göre uzmanlaşma konusunda kararsız oldukları ortaya çıkmıştır. Uzmanlaşma konusunda erkek ve bayan öğretmenlerin görüşleri arasında 0,05 düzeyinde anlamlı bir fark yoktur ($p>0.05$).

Tablo 3: Öğretmenlerin, Sınıflara Göre Uzmanlaşma Konusundaki Görüşlerinin kıdemlerine Göre t Testi Sonuçları

Kıdem	N	$\overline{X}$	ss	t	P
1-10 yıl (1)	60	76,92	17,38	1,08	0.28
11 ve üzeri (2)	92	73,76	17,69		

Tablo 3 incelendiğinde, uzmanlaşma konusunda öğretmen görüşlerinde kıdeme göre anlamlı bir farkın olmadığı görülmektedir ($p>0.05$).

TARTIŞMA ve ÖNERİLER

Bu araştırmanın sonuçlarına göre sınıf öğretmenleri ilköğretim birinci kademede uzmanlaşma konusunda olumlu düşüncelere sahiptir. Bu yaklaşım bu konuda atılacak adımlar için cesaret vericidir. MEB'in yetkili organlarınca öğrencinin bilişsel, duyuşsal ve psikomotor davranışlarını olumlu yönde etkileyebileceği ve sosyal becerilerini geliştirebileceği, öğretmenlerin; materyal hazırlama, ders kaynaklarını etkili kullanma, döneme ait dersleri daha verimli işleme, kişisel gelişimi için vakit kazanma, daha iyi bir rehberlik faaliyeti yapma, sınıf yönetimini sağlama, ders yükünün azalması gibi yararları dikkate alınarak mevcut sistemden sınıflara göre uzmanlaşma sistemine geçiş için pilot uygulamalar yapılmalıdır. Pilot uygulamaların sonuçları değerlendirilerek gerekirse ülke çapında bu uygulamaya geçilmelidir. Bu durumda öğretmen yetiştirme sisteminin de bu açıdan değerlendirilmesi gerekir.

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İNFORMAL ÖĞRENME ORTAMLARI: BİLİM MERKEZLERİ

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ÖZET

Günümüzde bilim ve teknolojideki hızlı gelişmeler düşünüldüğünde, sadece formal öğrenme ortamlarının bu değişimi toplumdaki tüm bireylere aktarması çok kolay olmamaktadır. Kısaca sınıf dışındaki öğrenme ortamları olarak tanımlanan informal öğrenme ortamlarının, formal öğrenme ortamlarını desteklemesi gerekmektedir. Bilim merkezleri her yaştan, her kültürden, her eğitim seviyesinden insanın kendi hızlarında ilerlerken yanlış ya da eksik yapma korkusu yaşamadan, yaratıcılıklarını kullanacakları ve eğlenecekleri informal öğrenme ortamları olarak tanımlanabilir. Bu merkezler bireylerin doğal dünya ve işleyişi hakkındaki sorularına cevap bulabilecekleri ve yeni kavramları keşfedebilecekleri ortamlar sunmaktadır. Bu çalışmada; informal öğrenme ortamları ve bilim merkezleri ile ilgili mevcut literatür taraması yapılmış, dünya üzerindeki bilim merkezi uygulamaları ve Türkiye'de var olan üç bilim merkezinin yapısı ve işleyişi hakkında kısa bilgilere yer verilmiş ve bu konuda mevcut eksiklikleri ortaya koymak amaçlanmıştır.

Anahtar Kelimeler: *Fen Öğretimi, İnformal Fen Öğretimi, Bilim Merkezi*

GİRİŞ

Bilim ve teknolojideki hızlı gelişmeler ile elde edilen yeni bilgilerin, sayısı gün geçtikçe artan insan nüfusuna kolay, anlaşılır ve zevkli bir biçimde kazandırılmasında okullardaki formal eğitimin informal eğitim çevreleriyle desteklenmesine ihtiyaç duyulmaktadır.[1] Bilim merkezleri, bilim müzeleri, hayvanat bahçeleri, botanik bahçeleri ve akvaryumlar belli başlı informal öğrenme ortamları arasında yer almaktadır. Bilim merkezleri eğlence ve öğrenmenin iç içe olduğu informal öğrenme ortamlarıdır. Bilim merkezleri bilimsel olguları okul dışında keşfetmeleri için gençlere bir şans verir. Deneme, deney yapma ve deneyim kazanma bilim merkezi felsefesinin temel karakteristik kavramlarıdır.[2]

BİLİM MERKEZİ NEDİR?

Bilim ve teknoloji merkezleri her yaştan farklı birikime sahip insanları bilimle buluşturmak, bilgiyi kaynağından öğrenmelerini sağlamak ve bilime olan merakı tetiklemek üzere tasarlanmış deneysel ve uygulamalı merkezlerdir.[3]

Bilim merkezleri için tek bir tanım vermek çok kolay olmamaktadır. Çünkü bilim merkezleri hakkında bahsedilmesi gereken çok sayıda amaç, konu, hedef grubu, sunum şekli, organizasyon ve finansman çeşitliliği vardır.[4]

Geçmişteki bilim müzeleri bugün bilim merkezlerine dönüşmüştür. Klasik bir bilim müzesiyle modern bir bilim merkezi arasındaki temel fark; klasik müzelerde "Lütfen dokunmayınız!" anlayışı hakimken modern bilim merkezlerinde "Haydi deneyin!" anlayışının hakim olmasıdır.[5] Uygulamalı ve etkileşimli olması bilim merkezinde yaşanılan deneyimlerin iki önemli özelliğidir. Bilim merkezleri ziyaretçilere soru sorma, tartışma ve keşfetme şansı verir.

Bilim merkezleri ziyaretçilerin tüm duyularına hitap eder.Ziyaretçiler bilim merkezlerinde görerek, işiterek ve dokunarak öğrenme fırsatı bulurlar. Bilim merkezleri bilgiyi klasik yöntemlerle aktarmak yerine görsel, işitsel ve duyulara hitap eden etkileşimli düzeneklerle aktaran sergiler, kimi zaman bilgisayar programları, mekanik ve elektronik düzenekler, kimi zaman da basit ahşap oyuncaklarla bilimsel gerçekleri ziyaretçileri ile buluşturmaktadır. Bilim merkezleri, etkileşimli sergileriyle, ziyaretçilerini bilimsel olguları deneyerek tecrübe etmelerini, keşfederek anlamalarını sağlamaktadır.[6]

Ziyaretçiler hangi etkinliklere katılacakları konusunda tamamen özgürdürler ve katılacakları etkinlikleri kendileri seçerler. Ziyaretçiler eksik ya da yanlış yapma, gülünç duruma düşme korkusu yaşamadan bu etkinliklere dahil olurlar. Ziyaretçiler isterlerse tek başlarına, isterlerse öneri ve ipuçları alabilecekleri bir yardımcının eşliğinde deneyleri gerçekleştirebilirler.

Bilim merkezlerinin amacı tüm bilimsel bilgiyi olduğu gibi vermek değildir. Bilim merkezleri ziyaretçilerin etraflarındaki dünyaya karşı meraklarını harekete geçirmeyi amaçlamaktadır. "Niçin gökyüzü mavidir?", "Isıyı görebilir miyiz?", "Bir uçak düşmeden nasıl havada kalabilir?" gibi yüzlerce soruya bilim merkezlerinde yanıt aranır.

Bilim merkezlerinin bir işlevi daha öğrencilerin bilime karşı olumlu tutum geliştirmelerine yardımcı olmaktır. Öğrenmeyi eğlenceli bir hale getirmek bilim merkezlerinin en öncelikli amaçlarında biridir.

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[2] Science Centers-Places for Informal Education, Gramelsberger, Gabrielle. Free University Berlin/ scro Berlin
[3] http://www.tubitak.gov.tr/home.do?ot=5&rt=1&sid=934&pid=461&cid=9420
[4] Marc-Denis Weitze, Science Centers: examples from the U.S. and from Germany
[5] By Remo Besio, former Director of Technorama/Semtember 6, 2001 (http://www.swiss-sciencecenter.com/fileadmin/user_upload/ueberuns/pdf/e/science_center_e.pdf)
[6] http://www.tubitak.gov.tr/home.do?ot=5&rt=1&sid=934&pid=461&cid=9421

Bilim merkezleri her yaştan insanın kullanımına açıktır. Ziyaretçiler aileleriyle, arkadaşlarıyla ya da tek başlarına merkezden yararlanabilirler. Ayrıca bu yönüyle bilim merkezleri hayat boyu bilim öğrenimini desteklemektedir.

Bilim merkezleri bilimi halk diline tercüme eder ve herkes tarafından anlaşılmasını sağlar. Büyük projeleri ve altlarında yatan bilimsel kuramları halka tanıtır. Bilim ve halk arasındaki bağlantıyı sağlar.

Bilim merkezlerinde bilim ve sanat iç içedir. Çünkü bilimsel bilginin sunulması yaratıcılık ve sanatsal bir bakış açısını da gerektirmektedir. Bilim merkezleri ziyaretçilerin yaratıcılıklarını harekete geçirmeyi ve geliştirmeyi amaçlamaktadır. Ayrıca bilim merkezlerinin mimarisi de sanatsal bir yön teşkil etmektedir. Mimaride yüksek tavanlı geniş ve ferah mekan tercihinin nedeni ziyaretçilerin rahat ettirilmeye çalışılması ve daha fazla insanın merkezden yararlanabilmesini sağlamaktır.

2001 yılında Robin Garnett'in koordinatörlüğünde 13 bilim merkezinizin desteklediği uluslararası bir proje yürütülmüş ve bilim merkezlerinin içinde bulundukları toplumlara etkileri sınıflandırılmaya çalışılmıştır.[7] Çalışma sonunda bilim merkezlerinin topluma etkilerinin dört grupta toplanmasının uygun olacağı belirtilmiştir. Çalışmada bu dört grup; bilim merkezlerinin, *kişisel etkileri*, *sosyal etkileri*, *politik etkileri* ve *ekonomik etkileri* olarak ifade edilmiştir.

Ayrıca çalışmada bilim merkezlerinin kişisel etkileri;

- Bilim öğrenimi
- Bilime karşı tutumların değişmesi
- Sosyal deneyim
- Meslek tercihlerinin şekillenmesi
- Artan profesyonel uzmanlık
- Kişisel eğlence

Sosyal etkileri;

- Yerel/Bölgesel/ Uluslar arası turizm
- Toplumsal boş zaman etkinlikleri
- Genç istihdam
- Toplum ortaklıkları
- Gönüllü projeleri
- Bölgesel kulüp ve topluluklar
- Kentsel iyileştirme
- Çevresel düzenleme
- Altyapı: yollar, park yerleri, nakliyat

Politik etkileri;

- Devlet politikalarına ve önceliklerine etkisi

Ekonomik etkileri;

- Bilim merkezinin ziyaretçilerden elde ettiği gelir
- Toplumun ziyaretçilerden elde ettiği gelir
- Bilim merkezlerinin giderleri
- Çalışanlar ve dışarıdan destekleyenler için iş yaratma

olarak sıralanmıştır.

BİLİM MERKEZLERİNİN TARİHSEL GELİŞİMİ

İnsanların bilimi gösteri ve deneylerle öğrendiği bir eğitim ortamı yaratma fikri 17. Yüzyılın başlarına kadar dayanmaktadır. Bir filozof ve aynı zamanda bir devlet adamı olan Francis Bacon "Solomon's House" adını verdiği bu imkanları sağlayabilecek bir kurum önerisinde bulunmuştur. Ama bu fikrin uygulamaya konması çok sonraları Berlin'de olmuştur. 1888 yılında kurulan ve 1928'e kadar orijinal şeklinde ayakta kalmayı başaran Urania, oldukça hassas bilimsel aletlerden oluşan bir koleksiyonu, bir gözlemevini, bilimsel bir tiyatroyu ve bir deney salonunu halkın kullanımına sunmuştur. Burada ilgilenen herkes 100'e yakın deneyi deneme imkanına sahipti. O günlerde bu deneylerin çoğu bir düğmeye basarak gerçekleştirilebilecek "push-button experiments" şeklinde düzenlenmişti. Ama dünyanın ilk modern bilim merkezi "Frank Oppenheimer's Exploratorium" 1969 yılında San Francisco'da açılmıştır.[8]

Genelde bilim merkezlerinin çoğu 60'lı yıllar ve sonlarında kurulmuştur.

Bilim merkezlerinin gelişiminde bir çok faktörün etkili olduğunu söyleyebiliriz. Endüstri devriminden sonra insanlar kullandıkları araçların mantığını kavramak istemişler; bu sebeple bilimsel gelişmeleri, deneyleri insanlara ulaştırmak ve sevdirmek için sergiler açılmaya başlanmıştır. Bilim merkezlerinin gelişiminde bu sergilerin büyük rolü olmuştur.

Bilim merkezlerinin hızla yayılmasında SSCB'nin Sputnik'i uzaya göndermesiyle ile ABD ile aralarında başlayan uzay yarışının da büyük payı olmuştur. ABD bu süreçte bilimsel kalkınma projesi çerçevesinde, ülkesinde bilim adamı ve mühendis yetişmesi amacıyla, bilim merkezleri kurulumunu teşvik etmiş ve desteklemiştir.

İngiltere'de bilim merkezlerinin çoğu 2000 yılından sonra Milenyum Projesi olarak ve Ulusal Piyango fonu tarafından finanse edilerek kurulmuştur.

[7] http://www.astc.org/resource/case/Impact_Study02.pdf
[8] http://www.lswn.it/en/museums/sciences/country/germany/science_center_spectrum

DÜNYADA BİLİM MERKEZLERİ

Dünyada yaklaşık 2400 bilim merkezi bulunmaktadır. Her yıl 290 milyon kişi bu bilim merkezlerini ziyaret etmekte ya da bir bilim merkezi etkinliğine katılmaktadır.[9] Avrupa'da 250, Çin'de ise 330 civarı bilim merkezi faaliyet göstermektedir. Ayrıca bu sayılar her geçen yıl daha da artmaktadır. Gelişmiş ülkeler bilim merkezinin önemini özellikle son 10 yıl içinde biraz daha kavramış, bu yüzden bu alanda yapılan çalışmalara ağırlık vermiştir.

ABD'nin ilk bilim merkezi Pinellas County Bilim Merkezi 1959 yılında Florida'da kurulmuştur. Merkez insanların ilgilerini bilime çekmeyi ve her türlü bilimin anlaşılmasını sağlamayı amaçlıyordu. Merkez hala faaliyetini sürdürmektedir.

İngiltere'de ilk bilim merkezi 1980'li yıllarda faaliyete girmiştir. Milenyum projesi kapsamında son 10 yılda İngiltere'de bilim merkezlerine çok büyük paralar harcanmış ve çok sayıda bilim merkezi açılmıştır. Bugün İngiliz halkının yüzde 90'ı bir bilim merkezine en geç bir saat içinde ulaşabilmektedir.[10] İngiltere'de bilim merkezlerini her yıl 17 milyonun üstünde insan ziyaret etmektedir.[11]

İsveç'teki bilim merkezi hareketinin başlangıcı hükümet ve hükümet kurumlarının faaliyetleri ile desteklenmiştir. Bilim ve teknolojideki bu hükümet desteği bilim merkezlerinin rolünü değiştirmiş ve güçlendirmiştir. Bilim ve teknoloji merkezlerini desteklemek İsveç hükümetinin gelecekle ilgili stratejik planlarında önemli bir yer teşkil etmektedir.[12]

Dünyada bilim merkezlerini ortak bir ağ altında toplamak için faaliyet gösteren çok sayıda birlik vardır. Bunların bazıları aşağıda verilmiştir.

Association of Science-Technology Centers (**ASTC**) Bilim ve Teknoloji Merkezleri Birliği, bilim merkezleri ve bilim müzelerinin katılabileceği uluslararası bir kuruluştur. 1973 yılında kurulan kuruluşun merkezi Washington/Amerika'dadır ve 40'tan fazla ülkede üyesi bulunmaktadır. ASTC bu alanla ilgili kitap ve raporları yayımlamakta ve her yıl bu alanla ilgili bir konferansı tekrarlamaktadır.

European Network of Science Centres and Museums (ECSITE) Avrupa bilim merkezi ve bilim müzeleri ağıdır. 50 ülkede 400'den fazla merkezin iletişimini sağlamaktadır. 1989 yılında 23 müzenin isteğiyle kurulması kararlaştırılmış, ilk toplantısını Haziran 1990'da yapmıştır. ECSITE üye kuruluşlar arasındaki bağı projeler, etkinlikler ve fikir alışverişleri sayesinde sağlamaktadır. Kuruluşlar mevcut sorun ve gelişmeler hakkında fikir alışverişleri yaparak birbirlerinin işlerini kolaylaştırmaktadır.

Asia Pasific Network of Science & Technology Centers (ASPAC) Asya ve Pasifik ülkelerinde, Avrupa'da ve Kuzey Amerika'da 17 ülkeden toplam 48 üyesi vardır. Üyelerini bilim merkezleri, bilim müzeleri, çocuk müzeleri, sergi dizayn ve üretim firmaları oluşturmaktadır. Üyeler arasında düzenlenen etkinliklerin paylaşılmasını, üye kuruluşlar için konferans, seminer ve workshoplar yapmayı amaçlamaktadır.

UK Association for Science and Discovery Centres (ASDC) Birleşik Krallık'ta 50'de fazla bilim merkezini ve aynı sayıda keşif merkezini (müze, botanik bahçesi, akvaryum ve hayvanat bahçesi) temsil eden bir kuruluştur. Kuruluş bilim merkezleriyle ilgili bazı projeler yürütmektedir.

TÜRKİYEDE BİLİM MERKEZLERİ

Türkiye'de şu an faaliyet gösteren bilim merkezi sayısı 3'tür. Ayrıca TÜBİTAK 2008 yılında büyükşehir belediyeleri arasında 12.000.000 TL bütçeli bir Bilim Merkezi Kurulması projesi destek çağrısı yapmış, yapılan değerlendirme sonunda Konya Büyük Şehir Belediyesinin projesinin desteklenmesine karar verilmiştir. Türkiye'nin en büyük Bilim Merkezi olacak bu merkez henüz yapım aşamasındadır.

Türkiye'nin ilk bilim merkezi ***Feza Gürsey Bilim Merkezi (FGBM)*** 23 Nisan 1993 yılında Ankara'da kurulmuştur. Merkez ANFA Ankara AltınPark İşletmeleri bünyesinde faaliyet göstermektedir. FGBM Ankara Büyükşehir Belediyesi tarafından 2.300.000 USD ücret ödenerek Kanada'da bulunan Ontario Science Centre'dan satın alınarak kurulmuştur. Merkez ismini ünlü Türk fizikçi ve matematikçi Feza Gürsey'den almıştır. Merkezde 50 deney ve sergi birimi bulunmakta olup bunlardan ikisi rehberler tarafından gösteri şeklinde yapılmakta, geri kalan etkinlikler ise ziyaretçiler tarafından uygulanmaktadır. Deney ve sergi birimlerinin seçiminde Türkiye'deki ders programı göz önünde tutulmuştur. Merkezi yıllık yaklaşık 100.000 kişi ziyaret etmektedir.

Şişli Belediyesi Bilim Merkezi; Türkiye Bilim Merkezleri Vakfı ve Şişli Belediyesi tarafından İstanbul'da kurulmuştur. Merkez Eylül 2004'de faaliyete başlamıştır. Şişli Belediyesi Bilim Merkezi'nde 100'e yakın deney ünitesi sergilenmektedir. Fizik, kimya, matematik, geometri, biyoloji, mekanik, beyin, elektronik, uzay ve yanılsamalar ile ilgili bu deney üniteleri aracılığıyla ziyaretçiler bilimin ana dalları hakkında temel bilgilere sahip olabilmektedir. Merkez 7-13 yaş arası öğrencilere yönelik yaz ve kış okulları, hafta sonu atölyeleri düzenlemektedir.

İstanbul Teknik Üniversitesi'nin 6-16 yaş grubu ziyaretçiler için kurduğu ***İTÜ Bilim Merkezi*** 2007 yılında İstanbul'da faaliyete girmiştir. Merkez 3.500 m^2'lik bir alan üzerinde kurulmuştur. Merkezde optik yanılsama, mekanik, enerji, matematik, DNA, uzay, uçak, titreşim, dalga, ses ve fizik ile ilgili birçok teoriyi uygulama yoluyla öğreten yüzden fazla eğitici birim bulunmaktadır.

Ayrıca bu üç bilim merkezinin dışında ülkemizde sınırlı sayıda bilim müzesi farklı sayılarda sergi ve deney birimiyle ziyaretçilere hizmet vermektedir. ODTÜ Bilim ve Teknoloji Müzesi, Bahçeşehir Koloji Bilim Müzesi, BJK Bilim Müzesi bunlardan bazılarıdır.

Türkiye Bilim Merkezleri Vakfı vizyonunu Türkiye'de bilgi toplumu yaratmak, Türk toplumunun; bilime, bilimsel düşünceye, gelişen teknolojilere, Türk ve dünya ekonomisinin lokomotif endüstrilerine ilgisini arttırmak; özellikle genç neslin, bilgi, beceri ve üretim yeteneklerinin gelişmesine aktif eğitim ve öğretim ile katkıda bulunmak olarak ifade etmektedir.[13] Vakıf 1995 yılında kurulmuş, 1997 yılında örgütlenebilmiştir. Vakfın kurucuları arasında; Milli Eğitim Bakanlığı, TÜBİTAK, TÜBA, İstanbul Teknik Üniversitesi, Boğaziçi Üniversitesi, Yıldız Teknik Üniversitesi, Marmara Üniversitesi; İnşaat Mühendisleri Odası, İstanbul Sanayi Odası, İTÜ Vakfı, Boğaziçi Üniversitesi Mezunları Derneği; özel şirketler; toplum liderleri, akademisyenler, eğitimciler, iş adamları, sanatkarlar ve yöneticiler bulunmaktadır. Vakıf 1998 yılında Deneme Bilim Merkezi'ni kurmuştur. Merkezi 2004 yılına kapanıncaya kadar 500.000'in üzerinde insan gezmiştir.

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[9] http://www.tubitak.gov.tr/home.do?ot=5&rt=1&sid=934&pid=461&cid=9424
[10] Marc-Denis Weitze, Science Centers: examples from the U.S. and from Germany
[11] http://sciencecentres.org.uk/about/
[12] Science Centers in Sweden-Development and New Roles, Israelsson, AnnMarie
http://www.cirst.uqam.ca/pcst3/PDF/Communications/ISRAELSSON.pdf
[13] http://www.bilimmerkezi.org.tr/kurumsal.html

SONUÇ VE ÖNERİLER

Türkiye diğer gelişmiş ülkelerle karşılaştırıldığında gerek bilim merkezleriyle ilgili olarak yürütülen bilimsel çalışmalarıyla gerekse de mevcut bilim merkezi sayısıyla henüz informal öğrenme ortamlarına gereken önemi vermeyen ve gelişmeleri uygulama konusunda eksiklikleri olan bir ülke görüntüsü çizmektedir. Ülkemizin bilim merkezleri konusunda gelişmiş ülkelerdeki standartlara ulaşabilmesi için önünde uzun bir yol olduğu söylenebilir.

- Yeni bilim merkezlerinin açılması için şahıslar ve üniversiteler devlet tarafından desteklenebilir. Bilim merkezlerine vergi muafiyeti, vergi indirimi veya teşvik yardımı uygulanabilir. Alan temini konusunda da bilim merkezlerine kamuya ait araziler ve bilim merkezi olarak kullanılmaya müsait binalar cazip fiyatlarla kiralanabilir ya da ücretsiz olarak temin edilebilir.

- Üniversiteler kendi bünyelerinde üniversite-halk işbirliği kapsamında bağımsız bilim merkezleri açabilirler. Açmış oldukları bu merkezlerde kendi öğrencilerinden yararlanabilirler.

- Milli Eğitim Bakanlığı tarafından ilk aşamada merkezi konumda bir ile ulusal bir bilim merkezi açılabilir. Randevu sistemiyle çalışan bu merkeze başvuran okullara özel gezi programları hazırlanabilir. Başvuru yapan bu okulların ulaşım, barınma, yiyecek gibi giderleri MEB'in sağlayacağı bütçe tarafından karşılanarak farklı gelir grubuna dahil öğrencilerin bu merkezlerden yararlanması sağlanabilir. Türkiye'nin farklı illerinden seçilecek belli sayıda öğrencinin tatil dönemlerinde (yarıyıl tatili, yaz tatili) bu merkezde gerçekleştirilecek özel eğitim programlarından yararlanması sağlanabilir.

- Okullarda yapılan bilim şenlikleriyle bilim merkezleri arasında bağlantılar kurulabilir. Bilim merkezleri kendi bünyelerinde oluşturacakları bir danışma birimiyle bu şenliklere katılacak öğrencilere yönlendirme hizmeti yapabilirler. Bilim şenliklerine jüri konusunda yardımcı olabilirler. Ayrıca okullarda düzenlenen bilim şenliklerinde birinci olan projeleri kendi merkezlerinde belli dönemlerde sergileyebilirler.

- Bilim merkezleri kendi bünyelerinde Müze Eğitimcisi Yetiştirme Programları açabilirler. Böylelikle son derece yetenekli, yaratıcı gençlere yeni bir iş sahası daha açılmış olabilir.

- Bilim merkezleri öğretmenler için de ayrı programlar açabilirler. Okullarda fen öğretimin daha etkili, daha eğlenceli hale getirilmesi için öğretmenlerin bu programlardan yararlanması sağlanabilir.

- Ayrıca bilim merkezleri bünyelerine katacakları yeni deney ve sergi birimleri için proje yarışmaları ve çalıştaylar düzenleyebilirler.

Bu tarz düzenlemeler yeni bilim merkezlerinin açılması için girişimcileri ve üniversiteleri teşvik edecektir.

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İNSAN HAKLARI EĞİTİMİ İÇİN ALTERNATİF BİR YOL: DERS KİTAPLARINI İNSAN HAKLARI AÇISINDAN GÖZDEN GEÇİRMEK

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Özet:
Tarih Vakfı tarafından Mayıs 2002'de başlatılan Ders Kitaplarında İnsan Hakları Projesi, ilk ve ortaöğretim düzeyinde okullarda kullanılmakta olan tüm ders kitaplarının insan hakları açısından taranmasını amaçlamıştır. Bu çerçevede 190'dan fazla ders kitabı taranmış ve insan haklarıyla uyumsuzluk gösteren her türlü yazılı ve görsel içerik tesbit edilmiştir. Bu projede ders kitaplarının insan haklarına uygunluk yönünde geliştirilmesi için birçok öneri de ortaya konmuştur. 2005 yılında Milli Eğitim Bakanlığı'nın müfredata ilişkin paradigması "Yapılandırmacı Yaklaşım" yönünde değiştirildikten sonra, ders kitaplarında da bir yenilemeye gidildi. 2007 yılında Tarih Vakfı, yeni çıkan ders kitaplarının değerlendirilmesi için yeni bir proje (Ders Kitaplarında İnsan Hakları Projesi_II) başlattı. Yapılan işlem, temelde ilk Ders Kitaplarında İnsan Hakları Projesi'nin kapsamı ile aynıydı. Ders kitapları, yine insan hakları perspektifinden tarandı. İlk projede olduğu gibi, bu projede de gönüllü tarayıcılar ders kitaplarını inceleyerek değerlendirdiler. İlk projede elde edilen kimi enformel geribildirimler, tarayıcıların insan hakları duyarlılığının projedeki görevleri doğrultusunda yükseldiğini göstermişti. İkinci projenin ardından, projedeki tarayıcılık görevinin tarayıcılarda böyle bir bilinç oluşturup oluşturmadığını belirlemek üzere, tarayıcılarla yarı-yapılandırılmış görüşmelere dayalı bir araştırma yapılması planlandı. Araştırmanın bulguları, tarayıcıların proje çerçevesindeki tarayıcılık görevleri dolayısıyla insan hakları konusunda daha bilgili, daha duyarlı ve daha bilinçli hale geldiklerini göstermektedir.

İSTATİSTİKİ VERİLERDEN YARARLANILARAK ALINAN VERİTABANI BİLGİLERİNİN ÖZET TABLO İLE ANALİZ EDİLMESİ, GRAFİK İLE SENTEZİ

ANALYSING STATISTICAL DATA OBTAINED DATABASE WITH PIVOT TABLE, SYNTHESIZING WITH GRAPHICS

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ÖZET

Bilimsel gelişmeler sonucunda teknoloji üretimi toplumsal yaşama aktif olarak etki etmektedir. Üretimdeki yenileşmeye ve gelişmeye paralel olarak teknolojik alandaki yenilikler eğitim alanına doğrudan katılabilmektedir. “Eğitim Teknolojileri” kavramı, teknolojinin eğitim açısından bir araç olarak kullanılabilmesini sağlamaktadır. Eğitimdeki yenileşme ve iyileşme teknolojik materyallerle, üretim alanında da kaliteyi artırmakta ve uygulamaları kolaylaştırmaktadır. Bu çalışmada**, “Bitirilen eğitim düzeyi, cinsiyet ve yaş grubuna göre belde/köyler nüfusu–2009”** istatistik sonuçlarından yararlanılarak; program bilgisi gerektirmeden verilerin işlenmesi ve grafiklerinin çıkartılarak analiz edilmesi uygulaması, Microsoft Access veritabanı dosyasından alınan tablonun Microsoft Excel kullanılarak, özet tablo ve grafik oluşturulması gösterilmiştir.

ABSTRACT

As a result of scientific advances in production technology influence the social life actively. Technological innovations can participate directly in the field of education in parallel innovation and development in production. The concept of "Educational Technology” provides using technology as a tool in education. Technological innovation and improvement in educational materials improve quality and make practices easier. In this study, it’s shown to analyze graphics and data by using the Statistical results according to "Educational level, gender and age group, the towns / villages, a population-2009," not requiring program information, to create Pivot Tables and graphs the table from Microsoft Access database file by using Microsoft Excel.

GİRİŞ

Son yıllarda eğitimde teknoloji kullanımı oldukça yaygın hale gelmiştir (Connor & Wong 2004, Bartsch ve Cobern 2003, Acıkalın ve Duru 2005). Teknolojinin eğitim ortamına girmesi, öğrenme materyallerinin geliştirilerek, etkin öğrenme ortamının sağlanmasını olası kılmıştır (Akkoyunlu ve Yilmaz 2005). Günümüzde ise eğitim teknolojilerinin gereklilik haline geldiği yönünde görüşler vardır (Thomas 2002). Eğitimde bilgisayar kullanılması (internet, benzetim, canlandırma, görsel ve sesli sunumlar vs.), bazı geleneksel ve etkin olmayan eğitim yöntemlerini değiştirerek, bilgi iletme ve sunma araçlarında yeni bir çağ başlatmıştır (Asan 2003). Teknoloji, öğrencilerin öğrenme süreçlerinin geliştirilmesinde önemli bir destek elemanıdır. Bilgisayarlar, etkin öğrenme ve eğitim süreçlerinin geliştirilmesinde teknolojik destek sağlayan araçlardır (Acikalın ve Duru 2005).

Bilgi sunulmasında öğreticiyi desteklemesi, dersteki başarıyı ve bilgi kalıcılığını artırması, dersteki öğrencilerin ilgi ve güdülenmesini geliştirmesi nedeniyle eğitim teknolojileri kullanılabilir (Sen 2001).

Son yıllarda çeşitli uygulamalardaki büyük veri tabanları yaygın hale gelmeye başlamıştır. Şirketler, işlemlerinde kullanacakları geriye dönük büyük veri tabanları oluşturmaktadırlar. İnsan Gen Projesi (Human Genome Project) ve Sayısal Gök İncelemesi (Digital Sky Survey) gibi uluslar arası araştırma projeleri çok miktarda bilimsel veri içeren veri tabanları üretmektedirler.

Bu veritabanlarındaki en büyük sorun, bunların içerdikleri verilerden, yapısını belirlemek, kalıp bulmak ve nedensel ilişki elde etmek için anlam çıkarmaktır. Bu gizli bilgiyi ortaya çıkarabilecek analiz ve araştırma, önemli bir insan-bilgisayar arayüzü gerektirmektedir (Stolte v.d., 2002).

Bir Özet Tablo, çok miktardaki verinin hızlı bir biçimde özetlenmesinde kullanılabilecek etkileşimli bir tablodur. Kaynak verinin farklı kombinasyonlarını raporlayabilmek için satır ve sütunlar değiştirilebilir ya da veriler süzülerek farklı sayfalar elde edilebilir. Kullanıcı aynı veriyi, yalnızca Özet Tabloyu değiştirerek farklı şekillerde gösterebilir (Biat v.d., 2002).

UYGULAMA ÖRNEĞİ

Özet tablolar veri yığınlarından özet bilgi elde etmek için kullanılırlar. Özet tablolar çok boyutlu verilerin incelenmesinde büyük kolaylık sağlar. Bu çalışmada Türkiye İstatistik Kurumu tarafından gerçekleştirilen "Bitirilen eğitim düzeyi, cinsiyet ve yaş grubuna göre belde/köyler nüfusu – 2009" (TÜİK, 2010)anket çalışmasında elde edilen veriler kullanılmıştır. Türkiye İstatistik Kurumu web sayfasından alınan bilgiler düzenlenerek veritabanına aktarılmış ve veri tabanındaki veriler Excel formatına dönüştürülerek özet tablo oluşturma ve özet grafik çiziminde kullanılmıştır.

Özet Tablo

Özet tablolar, listeler şeklinde olan bilgilerin özetini çıkarmak amacıyla kullanılır. Özet tablo aracı kullanılarak, otomatik olarak veri sıralama, hesaplama, birleştirme ve toplam alma; çıkan özet bilgilerle başka bir sayfada raporlama yapılabilir. Bu işlem sırasında gerekirse, Microsoft Excel'in diğer işlevleri ve görsel özellikler, kullanabilir, büyük miktardaki veriden özet raporlar ve tablolar oluşturulabilir. Özet tablo ile satırlar halindeki veriler isteğe göre sütunlara çevrilebilir. Büyük miktardaki verilerden rapor hazırlarken, verilerin özetlenerek daha anlaşılır ve düzenli hale getirilmesini sağlar. Özet tablo sihirbazı yardımıyla oluşturulan raporlar kaynak listeye bağlantılı olduğu için, listede yapılan bir değişiklik, veriler güncellediğinde otomatik olarak özet tabloya yansır.

Veritabanı Dosyasından Yararlanarak Özet Tablo Oluşturmak

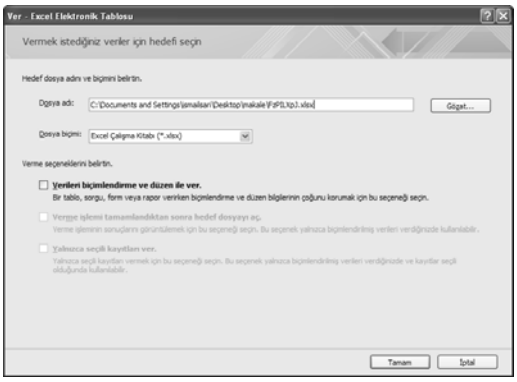
Özet tablo oluşturmak için verilerin düzenli ve toplanabilir alanlarının olması gerekir. Özet Tablo konusunun anlaşılabilmesi için istatistiki verilerden elde edilen araştırma sonuçları üzerindeki bir örnek hem bilgi teknolojilerinin kullanılabilirliğini ve hem de bilginin kalıcılığını sağlaması açısından önemlidir. Örnekte, Türkiye İstatistik Kurumu tarafından gerçekleştirilen "**Bitirilen eğitim düzeyi, cinsiyet ve yaş grubuna göre belde/köyler nüfusu – 2009**" anket çalışmasında elde edilen veriler üzerinde, Microsoft Access veritabanı dosyasının (Şekil 1) Microsoft Excel programına aktarılarak, oluşturulan Microsoft Excel tablosunda görünen salt verilerin, özet tablo uygulaması ile genişletilmesi ve grafik verileri ile analizi gerçekleştirilmiştir.

FzPILXpJ

Yaş grubu	Cinsiyet	Okuma yazn	Okuma yazn	İlkokul mezı	İlköğretim n	Ortaokul ve	Lise veya de	Yüksekokul	Yüksek lisar	Doktora me	Bilinmeyen
06-13	Kadın	8,647	1252139	0	37,208	0	0	0	0	0	12,085
06-13	Erkek	2,017	1326123	0	36,176	0	0	0	0	0	9,519
14-17	Erkek	5,445	103,276	0	550,701	0	6,326	0	0	0	12,11
14-17	Kadın	23,604	131,519	0	471,777	0	5,435	0	0	0	17,629
18-21	Erkek	9,496	41,246	0	238,14	0	176,547	6,85	0	0	35,993
18-21	Kadın	39,304	76,377	0	264,817	0	141,968	6,084	0	0	42,925
22-24	Erkek	7,067	19,853	66,227	103,069	0	125,525	23,413	66	2	94,14
22-24	Kadın	31,472	31,904	132,441	77,746	0	72,107	17,999	82	0	28,413
25-29	Kadın	59,679	39,354	326,169	27,294	23,541	68,148	27,869	1,278	44	47,168
25-29	Erkek	13,933	26,327	245,384	54,408	53,899	151,267	45,8	1,661	67	105,592
30-34	Kadın	60,77	31,416	344,702	4,695	18,347	40,105	15,322	900	128	36,162
30-34	Erkek	15,421	19,454	302,164	9,344	48,573	109,592	31,644	1,685	223	47,733
35-39	Kadın	78,545	35,245	365,083	1,354	16,908	22,458	8,3	431	219	34,821
35-39	Erkek	18,01	20,975	355,498	3,186	48,089	63,984	20,341	903	319	36,536
40-44	Kadın	83,339	35,106	311,159	465	13,377	14,622	4,994	309	194	27,155
40-44	Erkek	19,804	20,659	341,761	1,484	44,221	43,779	15,933	737	341	27,478
45-49	Kadın	106,102	44,45	311,512	148	9,42	12,962	3,744	208	133	26,871
45-49	Erkek	23,195	23,155	349,569	798	36,579	41,362	11,914	521	278	24,635
50-54	Erkek	25,685	25,345	317,538	339	24,934	26,513	12,045	483	214	20,375
50-54	Kadın	121,618	51,094	244,812	77	5,79	7,432	3,816	160	123	24,93
55-59	Erkek	28,973	32,382	268,521	172	15,981	14,442	9,741	403	193	15,89
55-59	Kadın	142,991	57,04	180,482	29	3,516	4,024	2,699	122	82	21,82
60-64	Kadın	170,639	59,377	133,249	7	2,105	2,314	1,585	85	70	21,528
60-64	Erkek	38,247	45,561	217,111	66	10,394	7,648	6,806	323	157	14,414
65 +	Erkek	212,745	187,494	383,948	10	9,587	7,956	6,213	353	206	36,344
65+	Kadın	633,036	133,235	191,936	3	2,409	2,595	1,225	81	140	68,676

Şekil 1. Access veritabanı tablosu

Microsoft Access veritabanını Excel'e aktarmak için, **Dış Veri** Menüsünden **Excel** seçilir ve Şekil 2'deki menü yardımı ile veritabanı dosyası Microsoft Excel tablosuna dönüştürülür.



Şekil 2. Access tablosunun Excel'e aktarılması

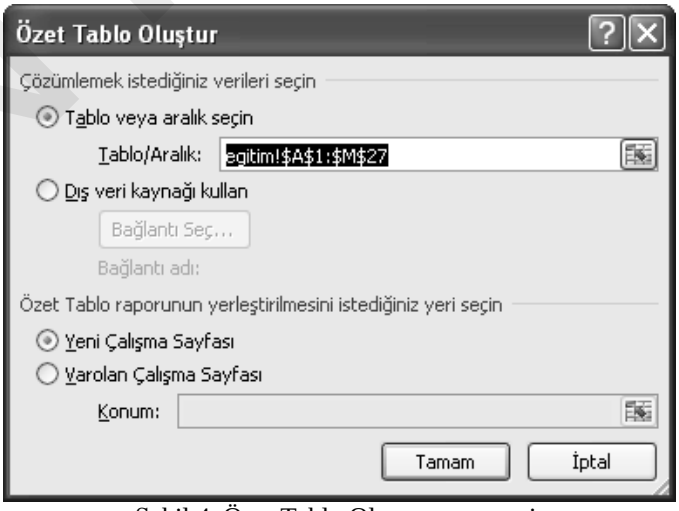
Aktarma işleminden sonra, belirtilen isimde Şekil 3'te gösterilen Microsoft Excel tablosu oluşur. Tablo incelendiğinde, yaş grubu ve cinsiyet durumuna göre eğitim düzeyi verileri listelenir. Bu tabloya bakılarak, lise mezunu erkek va kadınların sayılarının kolayca elde edilemediği görülür.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Yaş grubu	Cinsiyet	Okuma yazma bilmeyen	Okuma yazma bilen fakat bir okul bitirmeyen	İlkokul mezunu	İlköğretim mezunu	Ortaokul veya dengi okul mezunu	Lise veya dengi okul mezunu	Yüksekokul veya fakülte mezunu	Yüksek lisans mezunu	Doktora mezunu	Bilinmeyen	Sonuç
2	06-13	Erkek	2,017	1326123	0	36,176	0	0	0	0	0	9,519	1326171
3	06-13	Kadın	8,647	1252139	0	37,208	0	0	0	0	0	12,085	1252197
4	14-17	Erkek	5,445	103,276	0	550,701	0	6,326	0	0	0	12,11	677,858
5	14-17	Kadın	23,604	131,519	0	471,777	0	5,435	0	0	0	17,629	649,964
6	18-21	Erkek	9,496	41,246	0	238,14	0	176,547	6,85	0	0	35,993	508,272
7	18-21	Kadın	39,304	76,377	0	264,817	0	141,968	6,084	0	0	42,925	571,475
8	22-24	Erkek	7,067	19,853	66,227	103,069	0	125,525	23,413	66	2	94,14	507,294
9	22-24	Kadın	31,472	31,904	132,441	77,746	0	72,107	17,999	82	0	28,413	474,082
10	25-29	Erkek	13,933	26,327	245,384	54,408	53,899	151,267	45,8	1,661	67	105,592	765,271
11	25-29	Kadın	59,679	39,354	326,169	27,294	23,541	68,148	27,869	1,278	44	47,168	664,5
12	30-34	Erkek	15,421	19,454	302,164	9,344	48,573	109,592	31,644	1,685	223	47,733	808,61
13	30-34	Kadın	60,77	31,416	344,702	4,695	18,347	40,105	15,322	900	128	36,162	1579,519
14	35-39	Erkek	18,01	20,975	355,498	3,186	48,089	63,984	20,341	903	319	36,536	1788,619
15	35-39	Kadın	78,545	35,245	365,083	1,354	16,908	22,458	8,3	431	219	34,821	1212,714
16	40-44	Erkek	19,804	20,659	341,761	1,484	44,221	43,779	15,933	737	341	27,478	1593,119
17	40-44	Kadın	83,339	35,106	311,159	465	13,377	14,622	4,994	309	194	27,155	1457,752
18	45-49	Erkek	23,195	23,155	349,569	798	36,579	41,362	11,914	521	278	24,635	2107,409
19	45-49	Kadın	106,102	44,45	311,512	148	9,42	12,962	3,744	208	133	26,871	1004,061
20	50-54	Erkek	25,685	25,345	317,538	339	24,934	26,513	12,045	483	214	20,375	1488,435
21	50-54	Kadın	121,618	51,094	244,812	77	5,79	7,432	3,816	160	123	24,93	819,492
22	55-59	Erkek	28,973	32,382	268,521	172	15,981	14,442	9,741	403	193	15,89	1153,93
23	55-59	Kadın	142,991	57,04	180,482	29	3,516	4,024	2,699	122	82	21,82	645,572
24	60-64	Erkek	38,247	45,561	217,111	66	10,394	7,648	6,806	323	157	14,414	886,181
25	60-64	Kadın	170,639	59,377	133,249	7	2,105	2,314	1,585	85	70	21,528	552,797
26	65 +	Erkek	212,745	187,494	383,948	10	9,587	7,956	6,213	353	206	36,344	1413,287
27	65+	Kadın	633,036	133,235	191,936	3	2,409	2,595	1,225	81	140	68,676	1257,112

Şekil 3. Access veritabanı tablosundan oluşturulan Microsoft Excel Tablosu

Özet Tablo Oluşturulması

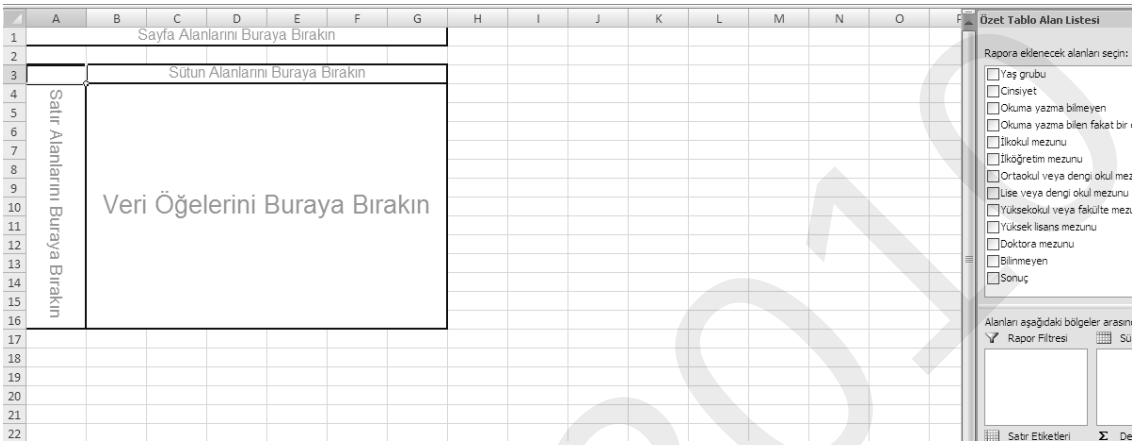
Özet Tablo oluşturmak için, **Ekle** menüsünden **Özet Tablo** komutu seçilir (Sarı&Bağcı 2008). Ekranda Şekil 4'te gösterilen Özet Tablo Oluştur penceresi açılacaktır. İlk adımda özet tabloda kullanılacak verilerin bulunduğu aralık ve raporun nerede oluşturulacağı belirlenir.



Şekil 4. Özet Tablo Oluştur penceresi.

Veri aralığı olarak A1:M27 hücreleri seçilmiştir. Eğer tabloya veri eklenecekse ek verilerin bulunacağı aralık el ile girilebilir. Böylece yeni giren verilerin otomatik olarak özet tabloya aktarılması sağlanabilir. Uygulamanın genişletilebilirliği açısından önemli bir özelliktir. **Tamam** düğmesine tıklandığında Şekil 5'teki ekran görüntüsü elde edilir.

Verileri özetleyen tabloyu oluşturmak için **Özet Tablo Alan Listesi**'nden **Yaş Grubu** seçeneği sürüklenerek, Satır Alanlarını Buraya Bırakın yazan yere bırakılır. Benzer şekilde Cinsiyet seçeneği de Sütun Alanlarını Buraya Bırakın yazan yere sürüklenip bırakılır. Son olarak listedeki Sonuç seçeneği sürüklenerek **Veri Öğelerini Buraya Bırakın** alanına bırakılır (Sarı&Bağcı, 2008).

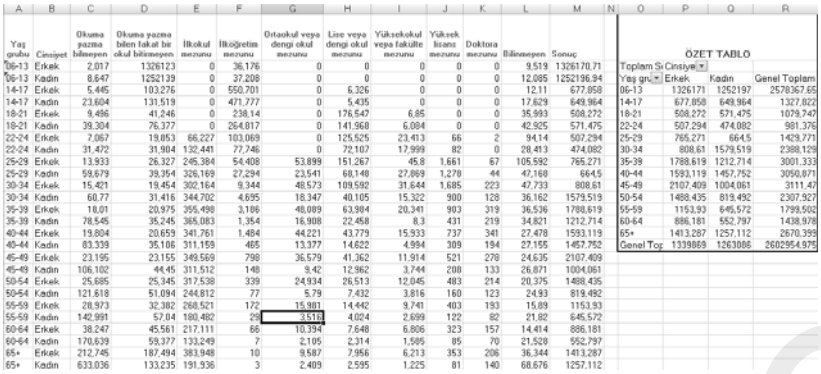


Şekil 5. Özet Tablo Oluşturulma Alanları

Bu işlemden sonra Şekil 6'daki ekran görüntüsü elde edilir. Şekil 3'teki tabloda dağınık bir şekilde görülen yaş gruplarına ait cinsiyet toplamları özet tablo ile kolay okunur duruma getirilmiştir. Satırların ve sütunların toplamları alt toplamlar komutundan farklı olarak satır sonuna ve sütun sonuna genel toplam olarak verilmektedir. Access tablosundan (Şekil 1) alınan veriler özet tablo uygulaması ile anlamlı birden fazla tabloya dönüştürülebilir.

	A	B	C	D
1				
2				
3	Toplam Sonuç	Cinsiyet		
4	Yaş grubu	Erkek	Kadın	Genel Toplam
5	06-13	1326170,71	1252196,94	2578367,65
6	14-17	677,858	649,964	1327,822
7	18-21	508,272	571,475	1079,747
8	22-24	507,294	474,082	981,376
9	25-29	765,271	664,5	1429,771
10	30-34	808,61	1579,519	2388,129
11	35-39	1788,619	1212,714	3001,333
12	40-44	1593,119	1457,752	3050,871
13	45-49	2107,409	1004,061	3111,47
14	50-54	1488,435	819,492	2307,927
15	55-59	1153,93	645,572	1799,502
16	60-64	886,181	552,797	1438,978
17	65+	1413,287	1257,112	2670,399
18	Genel Toplam	1339868,995	1263085,98	2602954,975

Şekil 6. Cinsiyet toplamları için oluşturulmuş özet tablo.



Yaş grubu	Cinsiyet	Okuma yazma bilmeyen	Okuma yazma bilen fakat bir okul bitirmeyen	İlkokul mezunu	İlköğretim mezunu	Ortaokul veya dengi okul mezunu	Lise veya dengi okul mezunu	Yüksekokul veya fakülte mezunu	Yüksek lisans mezunu	Doktora mezunu	Bilinmeyen	Sonuç
06-13	Erkek	2,017	1326123	0	36,176	0	0	0	0	0	9,519	1326170,71
06-13	Kadın	8,647	1252139	0	37,208	0	0	0	0	0	12,085	1252196,94
14-17	Erkek	5,445	103,276	0	550,701	0	6,326	0	0	0	12,11	677,858
14-17	Kadın	23,604	131,519	0	471,777	0	5,435	0	0	0	17,629	649,964
18-21	Erkek	9,486	41,246	0	238,14	0	176,547	6,85	0	0	35,993	508,272
18-21	Kadın	39,304	76,377	0	264,817	0	141,968	6,884	0	0	42,925	571,475
22-24	Erkek	7,067	19,853	66,227	103,069	0	125,525	23,413	66	2	94,14	507,294
22-24	Kadın	31,472	31,904	132,441	77,746	0	72,107	17,999	82	0	28,413	474,082
25-29	Erkek	13,933	26,327	245,384	54,408	53,899	151,267	45,8	1,661	67	105,592	765,271
25-29	Kadın	59,679	39,354	326,169	27,294	23,541	68,148	27,869	1,278	44	47,168	664,5
30-34	Erkek	15,421	19,454	302,164	9,344	48,573	109,592	31,644	1,685	223	47,733	808,61
30-34	Kadın	60,77	31,416	344,702	4,695	18,347	40,105	15,322	900	128	36,162	1579,519
35-39	Erkek	18,01	20,975	355,498	3,186	48,089	63,984	20,341	903	319	36,536	1788,619
35-39	Kadın	78,545	35,245	365,083	1,354	16,908	22,458	8,3	431	219	34,821	1212,714
40-44	Erkek	19,804	20,659	341,761	1,484	44,221	43,779	15,933	737	341	27,478	1593,119
40-44	Kadın	83,339	35,106	311,159	465	13,377	14,622	4,994	309	194	27,155	1457,752
45-49	Erkek	23,195	23,155	349,569	798	36,579	41,362	11,914	521	278	24,635	2107,409
45-49	Kadın	106,102	44,45	311,512	148	9,42	12,962	3,744	208	133	26,871	1004,061
50-54	Erkek	25,685	25,345	317,538	339	24,934	26,513	12,045	483	214	20,375	1488,435
50-54	Kadın	121,618	51,094	244,812	77	5,79	7,432	3,816	160	123	24,93	819,482
55-59	Erkek	28,973	32,382	268,521	172	15,981	14,442	9,741	403	193	15,89	1153,93
55-59	Kadın	142,991	57,04	180,482	29	3,518	4,024	2,699	122	82	21,82	645,572
60-64	Erkek	38,247	45,561	217,111	66	10,394	7,648	6,806	323	157	14,414	886,181
60-64	Kadın	170,639	59,377	133,249	7	2,105	2,314	1,585	85	70	21,528	552,797
65+	Erkek	212,745	187,494	383,948	10	9,587	7,956	6,213	353	206	36,344	1413,287
65+	Kadın	633,036	133,235	191,936	3	2,409	2,595	1,225	81	140	68,676	1257,112

ÖZET TABLO

Toplam Sı	Cinsiyet		
Yaş gru	Erkek	Kadın	Genel Toplam
06-13	1326171	1252197	2578367,65
14-17	677,858	649,964	1327,822
18-21	508,272	571,475	1079,747
22-24	507,294	474,082	981,376
25-29	765,271	664,5	1429,771
30-34	808,61	1579,519	2388,129
35-39	1788,619	1212,714	3001,333
40-44	1593,119	1457,752	3050,871
45-49	2107,409	1004,061	3111,47
50-54	1488,435	819,492	2307,927
55-59	1153,93	645,572	1799,502
60-64	886,181	552,797	1438,978
65+	1413,287	1257,112	2670,399
Genel Toç	1339869	1263086	2602954,975

Şekil 7. Veri alanları ile özet tablonun sonuçlarının gösterimi.

Şekil 7'de Microsoft Excel tablosu ile, bu tablodan oluşturulan örnek özet tablo yan yana getirilmiştir. Burada tabloda dağınık bir şekilde gösterilen erkek ve kadın eğitim durumları, özet tablo yardımıyla gruplandırılarak toplamların gösterilmesi sadeleştirilmiştir.

Özet Tablolardaki Alanları Düzenlemek

Özet tablo yardımı ile toplu verilerden amaca göre farklı tablolar oluşturulabilir. Şekil 8'de Düzen Güncelleştirme alanı seçili iken oluşturulan, İlkokul mezunu erkek ve kadınların toplamlarını içeren yeni bir özet tablo gösterilmiştir.

Toplam İlkokul mezunu	
Cinsiyet	Toplam
Erkek	2847,721
Kadın	2541,545
Genel Toplam	5389,266

Şekil 8. İlkokul mezunu erkek ve kadınların toplamı.

Alanların Yerlerinin Değiştirilmesi

Alanların yerlerini değiştirerek özet tablolarda farklı görünümler elde edilebilir. Bu özellik verilere farklı alanlardan bakmayı da sağlar. Alanların yerlerini değiştirmek için alan başlıklarının üzerinde sol buton basılı tutularak, getirilmek istenen alanın üzerine bırakılması yeterlidir. Çeşitli eğitim düzeyleri toplamlarını gösteren özet tablo Şekil 9'da verilmiştir.

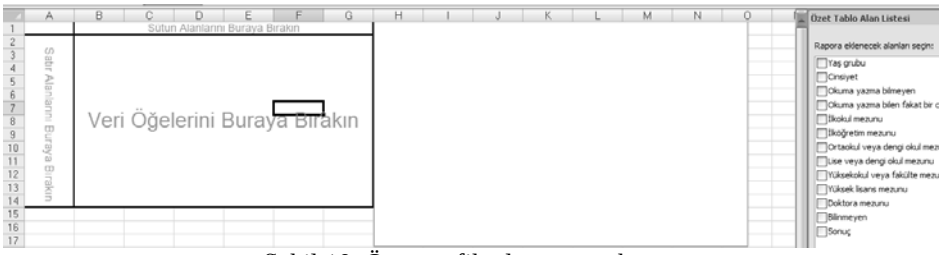
Sayfa Alanlarını Buraya Bırakın

	Veri		
Cinsiyet	Toplam İlkokul mezunu	Toplam Yüksek lisans mezunu	Toplam Lise veya dengi okul mezunu
Erkek	2847,721	3792,346	774,941
Kadın	2541,545	2379,278	394,17
Genel Toplam	5389,266	6171,624	1169,111

Şekil 9. Birden fazla veriye ait sonuç özet tablosu.

Özet Grafik

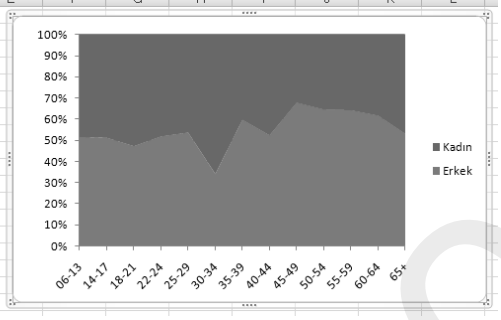
Özet tablo verileri grafik olarak ta sunulabilir. Özet grafik oluşturabilmek için Özet tablo oluşturulmasına benzer bir yöntem izlenebileceği gibi, oluşturulan özet tablodan yararlanarak doğrudan özet grafik oluşturulabilir. Özet Grafik ilk kez oluşturulacaksa Veri seçeneğinden Özet Grafik seçilir.



Şekil 10. Özet grafik oluşturma ekranı.

Şekil 10'dan yararlanarak, sütun alanlarına cinsiyet, satır alanlarına yaş grubu ve veri alanlarına sonuç eklendikten sonra grafik türü belirlenir. Yaş gruplarına ait erkek ve kadın toplamları Şekil 10.'daki grafikte görüntülenmiştir. Grafikten yararlanarak tablonun analizi ve sentezi işlemi gerçekleştirilir.

	A	B	C	D
1	Toplam Sonuç	Cinsiyet		
2	Yaş grubu	Erkek	Kadın	Genel Toplam
3	06-13	1326170,71	1252196,94	2578367,65
4	14-17	677,858	649,964	1327,822
5	18-21	508,272	571,475	1079,747
6	22-24	507,294	474,082	981,376
7	25-29	765,271	664,5	1429,771
8	30-34	808,61	1579,519	2388,129
9	35-39	1788,619	1212,714	3001,333
10	40-44	1593,119	1457,752	3050,871
11	45-49	2107,409	1004,061	3111,47
12	50-54	1488,435	819,492	2307,927
13	55-59	1153,93	645,572	1799,502
14	60-64	886,181	552,797	1438,978
15	65+	1413,287	1257,112	2670,399
16	Genel Toplam	1339868,995	1263085,98	2602954,975
17				
18				



Şekil 10. Yaş gruplarına göre toplam grafiği.

SONUÇ

Microsoft Access veritabanı tablosundan yola çıkılarak oluşturulan "özet tablo" uygulaması ile programlama bilgisi gerektirmeden, bilgi teknolojilerinin kullanımı ile günlük yaşama ilişkin işlemler örnekte görüldüğü gibi kolaylaştırılabilir, çabuklaştırılabilir. Özet tablolar çok boyutlu tablolardaki verilerin özetlenerek gösterilmesinde kolaylık sağlar. Özet tablo verileri grafik olarak gösterilerek sunulabilir. Verilerin güncellendiği uygulamalar için bir şablon hazırlanıp, girilen verilere göre özet tablo ve grafik yenilenen verilere göre kolaylıkla güncellenebilir.

Bilimsel araştırma sonuçları, istatistiki veriler gibi çok boyutlu verileri içeren veritabanı ve tabloların incelenmesinde, eğitim teknolojilerinin etkin kullanımı, değerlendirme sürecinin hızlandırılmasında ve verilerin grafiksel gösteriminde kolaylık sağlamaktadır.

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KAVRAM KARİKATÜRLERİ, ÇİZİM, KELİME İLİŞKİLENDİRME TESTİ VE KAVRAM HARİTALARININ ÖLÇME-DEĞERLENDİRME AMAÇLI KULLANIMINA YÖNELİK BİR PUANLAMA ÇALIŞMASI

A SCORING STUDY ON THE USE OF CONCEPT CARTOONS, DRAWINGS, WORD ASSOCIATION TEST AND CONCEPT MAPS FOR ASSESSMENT-EVALUATION PURPOSES

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Özet

Bu çalışmada kavram karikatürleri, çizim, kelime ilişkilendirme testi ve kavram haritalarının ölçme-değerlendirme amaçlı kullanımına yönelik puanlama anahtarlarının oluşturulması ve buna yönelik bir çalışma örneğinin sunulması amaçlanmıştır. Bu amaç doğrultusunda Fen ve Teknoloji dersi "Madde ve Değişim" öğrenme alanına yönelik farklı ölçme-değerlendirme araçlarının kullanıldığı sorular geliştirilmiştir. İlköğretim 6. sınıflara yönelik olarak kavram karikatürleri, çizim ve kelime ilişkilendirme testinden oluşan 4 soru ve 7. sınıflara yönelik olarak çizim ve kavram haritasından oluşan 2 soru hazırlanmıştır. Çalışmada 6. ve 7. sınıflardan 30'ar öğrenci olmak üzere toplam 60 ilköğretim öğrencisi yer almıştır. Araştırmada nicel ve nitel verilerden yararlanılmıştır. Öğrencilerin değerlendirme araçlarına verdikleri cevapların geliştirilen puanlama anahtarlarıyla değerlendirilmesi sonucu elde edilen veriler nicel verileri, geliştirilen puanlama anahtarları ile bu değerlendirme araçlarından yararlanılarak belirlenen kavram yanılgıları ise nitel verileri oluşturmaktadır. Elde edilen bulgulara göre; kavram karikatürleri, çizim, kelime ilişkilendirme ve kavram haritası gibi farklı değerlendirme araçları için, araştırmacılar tarafından geliştirilen puanlama anahtarlarının kullanılabilir olduğu görülmektedir. Ayrıca bu araçların kavram yanılgılarının tespitinde kullanılabileceği ve diğer değerlendirme araçlarına göre çizimlerin kavram yanılgılarının tespitinde önemli bir yere sahip olduğu söylenebilir. Sonuç olarak, değerlendirme araçlarına ilişkin puanlama anahtarlarının oluşturulması hem değerlendirme araçlarının kullanılabilirliği hem de öğrenciler hakkında daha net bilgi alınabilmesi açısından önemlidir. Bu bağlamda değerlendirme araçlarının puanlandırılmasına ilişkin çalışmaların arttırılması önerilmektedir.

Anahtar Kelimeler: Kavram karikatürü, çizim, kelime ilişkilendirme testi, kavram haritaları, ölçme-değerlendirme, puanlama anahtarı.

Abstract

The present study aimed to develop a scoring key on the use of concept cartoons, drawings, word association test and concept maps for assessment-evaluation purposes and to present an example of a study on the subject. For this purpose, questions were developed that employ different assessment-evaluation instruments for the learning area of "Matter and Change" in Science and Technology course. The questions prepared included 4 questions for elementary 6th graders including concept cartoons, drawings and word association test and 2 questions for 7th graders including a drawing and concept map. The participants were a total of 60 elementary students, 30 from 6th and another 30 from 7th grade. The study used quantitative and qualitative data. Quantitative data are composed of the data obtained as a result of an assessment of the students' responses to the assessment instruments using the scoring key developed, while qualitative data consists of the misconceptions identified using the scoring keys developed and these assessment instruments. The results obtained demonstrate that the scoring keys developed by the researchers can be used for various assessment instruments such as concept cartoons, drawings, word association and concept maps. It could also be argued that these instruments can be employed to identify misconceptions and drawings have a significant role in identifying misconceptions when compared to other assessment instruments. As a conclusion, development of scoring keys for assessment instruments is important both for the usability of assessment instruments and to obtain clearer information about students. In this context, it is suggested to increase the volume of studies on the scoring of assessment instruments.

Keywords: Concept cartoon, drawing, word association test, concept maps, assessment-evaluation, scoring key.

GİRİŞ

Son yıllarda yapılandırmacı öğrenme anlayışı ve bunu temel alan öğrenme-öğretme yöntem ve teknikleriyle birlikte, öğrencilerin önbilgilerinin tespit edilmesi konusu ve öğrenciler arası sosyal etkileşim daha fazla önem kazanmaya başlamıştır. Öğrencilerin kavramları/bilgileri zihinlerinde anlamlandırabilmeleri için konuya ilişkin önceki bilgilerinin bilimsel olarak doğru bir şekilde yapılandırılması gerekliliği ve yeni bilgileri öğrenirken de ön bilgilerini kullanarak sosyal etkileşim içinde yapılandırdıkları anlayışı kabul görmektedir. Bu bağlamda yapılandırmacı anlayışta, öğrencilerin öğrenme-öğretme sürecinde aktif ve öğrenmenin merkezinde olduğu görülmektedir. Kılıç, Karadeniz ve Karataş (2003)'ın belirttiği gibi yapılandırmacı yaklaşım; tüm öğrenmelerin zihinde yapılandırma sonucu oluşmasını, bireylerin öğrenme sürecinde daha fazla sorumluluk almalarını ve etkin olmalarını gerektirmektedir. Anlaşılacağı üzere yapılandırmacı yaklaşımla birlikte öğrenme ürününün yanı sıra, sürecin de önemi vurgulanmaya başlanmıştır. Sürecin önem kazanmasıyla, ürünle birlikte sürecin de değerlendirildiği alternatif ölçme-değerlendirme yaklaşımlarının kullanımı konusundaki araştırmalar hız kazanmıştır.

Klasik ölçme-değerlendirme anlayışında öğrencilerin öğrenmelerinin bütüncül ve sürece dayalı olarak değerlendirilebilmesi oldukça zordur. Alternatif ölçme değerlendirme anlayışında ise süreç değerlendirilirken aynı zamanda öğrencilerin kazanmış oldukları bilgilere yönelik farklı alanlardaki davranışları ölçülebilmektedir. Konuyla ilişkili olarak Zessoules ve Gardner (1991), klasik testlerin öğrencilerin gelişimi hakkında ayrıntılı bilgi vermediğini ve öğrenci çalışmalarının anlaşılmasında yetersiz olduğunu ifade etmektedirler. Buna karşın alternatif ölçme-değerlendirme yaklaşımları, öğrenme sürecinde öğrencinin gelişiminin izlenmesine olanak tanımakta ve değerlendirmeyi öğrenmenin bir parçası olarak görmektedir (Acar ve Anıl, 2009). Ayrıca Birgin ve Baki (2009)'nin belirttiği gibi yapılandırmacı yaklaşımla birlikte; sunu, günlük, kontrol listeleri, grup çalışmaları, gözlem, akran-öz değerlendirme, rubrik, performans değerlendirme, projeler ve portfolyo gibi farklı alternatif değerlendirme araç ve teknolojilerinin kullanılması daha uygundur. Bunların yanı sıra kavram karikatürleri, kelime ilişkilendirme, çizimler ve kavram haritası da alternatif ölçme-değerlendirme araçları arasında yer almaktadır.

Kavram karikatürleri, öğrencilerin bilim insanı gibi düşünmelerini ve bilginin yapılandırılmasında öğrencinin sürece aktif olarak katılmasını sağlayan görsel araçlardan biridir (Balım, İnel ve Evrekli, 2008). Kavram karikatürlerinde, iki ya da daha fazla karakterin günlük yaşamla ilişkili herhangi bir olay hakkındaki karşılıklı soruları ya da fikirleri, konuşma baloncukları biçiminde sunulmaktadır (İnel, Balım ve Evrekli, 2009). Yapılandırmacı yaklaşımla birlikte kavram karikatürleri dersin farklı aşamalarında ve farklı amaçlarla kullanılmaya başlanmıştır. Kavram karikatürleri; ders sürecinde öğrenme-öğretme aracı olarak (Keogh ve Naylor, 1999; Kabapınar, 2005), öğrencileri soru sormaya teşvik etmek ve merak uyandırmak amacıyla (Morris, Merritt, Fairclough, Birrell ve Howitt, 2007) veya kavram yanılgılarının tespit edilmesinde ve giderilmesinde (Uğurel ve Morali, 2000; Ekici, Ekici ve Aydın, 2007; Akamca, Ellez ve Hamurcu, 2009) kullanılabilir. Ayrıca öğrencilerin, ön bilgilerini ortaya çıkarma ve tartışma ortamı sağlama (İnel ve ark., 2009), tartışmanın başlamasını teşvik etme (Naylor, Downing ve Keogh, 2001), tartışmayı başlatma ve bilimsel düşünce üretme (Long ve Marson, 2003), öğrencilerin öğrenme ilgisini/motivasyonu destekleme ve tartışmaya teşvik etme (Keogh, Naylor, de Boo ve Feasey, 2001) aracı olarak kullanılabilirler. Kavram karikatürleri bu kullanım alanları dışında, alternatif değerlendirme aracı olarak da kullanılabilmektedir (Keogh, Naylor, de Boo ve Feasey, 1999; Naylor ve Keogh, 2007; İngeç, 2008; Song, Heo, Krumenaker ve Tippins, 2008; Şaşmaz-Ören, 2009). Chin ve Teou (2009)'nun formative değerlendirme ile Huang, Liu, Lin ve Istanda (2006)'nın çoklu ortamda kavram karikatürleriyle birleştirilmiş iki aşamalı teşhis testleri ile ilgili çalışmalarında, kavram karikatürlerinin alternatif değerlendirme aracı olarak kullanıldığı görülmektedir.

Çizimler, öğrencide gizli kalmış bilgi ve inanışların kelimelerle sınırlı kalmadan ortaya çıkarılmasını amaçlamaktadır (Ayas, 2006, s.103). Dove, Everett ve Preece (1999) çizimlerin, yazılardan daha kolay anlatmayı sağladığını ifade etmektedirler. Çizimlere ilişkin yapılan çalışmalar incelendiğinde; Kara, Erduran-Avcı ve Çekbaş (2009) kavramların anlaşılma düzeyini ve yanlış anlamaları tespit etmede, Dove ve ark. (1999), Köse, Gezer, Durkan ve Erol (2005), Köse (2008), Canbulat ve Şaşmaz-Ören (2009) ve Uzunkavak (2009) ise öğrencilerin kavram yanılgısına sahip olup olmadığını belirlemede çizimlerin önemli katkı sağladığını ifade etmektedirler. Ayrıca öğrencilerin bilgilerinini/anlamalarını değerlendirmede veya ortaya çıkarmada çizimler kullanılabilmektedir (Reiss ve Tunnicliffe, 2001; Yörek, 2007; Acar ve Tarhan, 2008; Kara ve ark., 2009).

Kelime ilişkilendirme testi, belli bir süre içerisinde (çoğunlukla 30 saniye) herhangi bir konu ile ilgili verilen bir anahtar kavramın öğrencinin aklına getirdiği kavramları yazması sürecinden oluşmaktadır (Bahar ve Özatlı, 2003). Özmen (2005), kişinin cevaplarda verdiği kelime sayısı ne kadar fazla ve bu kelimeler anahtar kelimeyle ne kadar ilişkili ise, kişinin anlamasının o derece iyi olduğunu gösterdiğini belirtmektedir. Kelime ilişkilendirme testleri, öğrencilerin anlama düzeylerini belirlemede (Baki ve Pırasa, 2007; Sezen ve Çimer, 2009) ve bilişsel yapılarını araştırmada (Nakipoğlu, Benlikaya ve Bahar, 2002; Bahar ve Özatlı, 2003) kullanılabilir.

Kavram haritaları, anlamlı öğrenmeyi temel alan ve öğrencilerin kavramlar arası ilişkileri zihinlerinde nasıl yapılandırdıklarını ortaya koyan araçlardan biridir. Uyangör ve Üzel (2005), kavram haritalarını kavramların ve bu kavramlar arasındaki ilişkilerin grafik olarak gösterilmesinin bir yolu olduğunu ifade etmektedirler. Bu araç, öğrenme-öğretme sürecinde kullanılabildiği gibi aynı zamanda değerlendirme amacıyla da kullanılabilir (Şaşmaz-Ören ve Tatar, 2009). Kavram haritaları, öğrencilerin derse başlamadan önce hazır bulunuşluk düzeylerini (Kaya, 2003a) ve ön bilgilerini belirlemede, öğrenme-öğretme sürecinde üst düzey düşünme yeteneklerini geliştirmede (Kaya, 2003b), var olan bilişsel yapılarıyla yeni materyallerin etkileşimini anlamalarına yardımcı olmada (Kinchin ve Hay, 2000) ve bilginin yeniden yapılandırılmasıyla kavramsal değişimleri araştırmada (Şahin, 2002) kullanılabilir. Ayrıca, yapılan bazı çalışmalara göre kavram haritaları kavram yanılgılarının tespitinde (Karamustafaoğlu, 2003; Kaya, 2003/a; Ata, 2004; Çıldır, 2005; Türkmen, Çardak ve Dikmenli, 2005) ve kavram yanılgılarının giderilmesinde (Taştan, 2005; Türkmen, Çardak ve Dikmenli, 2005; Aydın, 2007) kullanıma uygun araçlardır. Bununla birlikte kavram haritaları değerlendirme aracı olarak da kullanılabilmektedir (Ruiz-Primo ve Shavelson, 1996; Rice, Ryan ve Samson, 1998; Williams, 1998; Ruiz-Primo, Schultz, Li ve Shavelson, 1998; Roberts, 1999; Nicoll, Francisco ve Nakhleh, 2001; Jacobs-Lawson ve Hershey, 2002; Freeman ve Urbaczewski, 2002; Kaya, 2003/a; Kaya, 2003/b, Francis, 2006).

Kavram karikatürleri, kavram haritaları, çizimler ve kelime ilişkilendirme testlerinin ölçme-değerlendirme amacıyla kullanılabilmesine ilişkin pek çok araştırma bulunmasına rağmen bu araçların puanlandırma anahtarları oluşturularak değerlendirme amacıyla kullanımına yönelik az sayıda çalışma bulunmaktadır. İngeç ve Sever (2008) fizik eğitiminde kavram karikatürlerinin değerlendirme amacıyla kullanımına ilişkin yaptıkları çalışmada, kavram karikatürlerinin puanlandırılmasına ilişkin bir anahtar geliştirmişlerdir. Benzer şekilde bir başka çalışmada kavram karikatürlerinin değerlendirme amaçlı kullanımına ilişkin üçlü (0-1-2) puanlandırma anahtarı oluşturulduğu görülmektedir (İngeç, 2008). Ayrıca Şaşmaz-Ören (2009) yaptığı çalışmada, öğrencilerin hazırlamış oldukları kavram karikatürlerinin değerlendirilmesi amacıyla dereceli puanlama anahtarı geliştirmiştir. Bu bağlamda kavram karikatürlerinin ölçme-değerlendirme aracı olarak puanlandırılmasına yönelik çalışmaların yetersiz olduğu söylenebilir. Çizimlere ilişkin yapılan çalışmalarda ise Kara ve ark., (2009)'nın, Köse (2008)'nin ve Uzunkavak (2009)'ın çizimlerin değerlendirilmesi amacıyla 5 seviyeden oluşan bir puanlama anahtarı kullandıkları görülmektedir. Kavak (2007)'ın ise çalışmasında çizimleri içerik analizine göre gruplandırdığı görülmektedir.

Kelime ilişkilendirme testleri incelendiğinde; Bahar ve Özatlı (2003)'nın yaptıkları çalışmada KİT'lerine ilişkin frekans tablosu oluşturdukları ve buna yönelik kavram haritası hazırladıkları görülmektedir. Bu kavram haritalarının hazırlanmasında Bahar, Johnstone ve Sutcliffe (2005) tarafından ortaya konan kesme noktası (KN) tekniği kullanılmıştır. Çizimler ve KİT'e ilişkin çalışmalar incelendiğinde değerlendirme ölçütlerine yönelik çalışmaların yetersiz olduğu görülmektedir. Kavram haritaları incelendiğinde; Novak ve Gowin (1984) kavram haritalarının içerik açısından değerlendirilmesinde dört kritere dayalı puanlama anahtarı (önerme, hiyerarşi, çapraz bağlantı ve örnekler) oluşturmuşlardır. Şaşmaz-Ören ve Tatar (2009) ise yaptıkları çalışmada kavram haritalarının değerlendirilmesinde rubrikleri kullanmışlar ve 'önemli eksikleri olan-sınırlı-geliştirilmesi gereken-başarılı-mükemmel performans' şeklinde öğretmen adaylarının başarı performanslarını gösteren beşli puanlama kriteri oluşturmuşlardır. Ayrıca Ugwu ve Soyibo (2004) ile Allen (2006) tarafından kavram haritaları değerlendirme aracı olarak kullanılmış ve puanlandırılmıştır. Kavram haritaların puanlandırılmasına ilişkin literatürdeki çalışmalarda genellikle öğrencilerin çizdikleri kavram haritalarının belirlenen bazı puanlama kriterlerine göre değerlendirildiği görülmektedir. Buna karşın, öğrencilere hazır olarak verilip, içindeki bazı kavram/örnek/bağlantıların eksik olduğu yani bazı bölümleri boş bırakılarak verilen kavram haritalarının değerlendirilmesi üzerine çalışmaya rastlanmamıştır.

Ayrıca literatürde, öğrencilerin anlama düzeylerinin tespiti üzerine birçok çalışma bulunmakta ve bu çalışmalarda farklı değerlendirme kriterleri kullanılmaktadır. Ünal, Özmen, Demircioğlu ve Ayas (2002), Çalık ve Ayas (2005) ile Çalık, Ayas ve Ünal (2006) yaptıkları çalışmalarda, açık uçlu soruların analizinde "anlamama/boş", "spesifik kavram yanılgıları", "bir spesifik kavram yanılgısıyla kısmî

anlama", "kısmî anlama" ve "tam anlama" kategorilerinden oluşan puanlama anahtarı kullanmışlardır. Ayrıca Coştu (2002) ile Demircioğlu, Özmen ve Ayas (2002), öğrencilerin verdikleri cevapları beş kategori yani "cevapsız", "anlamama", "yanlış anlama", "kısmen anlama" ve "anlama" şeklinde ayırmış ve analiz etmişlerdir. Benzer olarak yapılan bazı çalışmalarda "anlamama/boş/cevapsız", "yanlış anlama/kavram yanılgısı", "kısmen anlama" ve "anlama" şeklinde dört kategorili puanlama kriteri kullanmıştır (Karamustafaoğlu ve Ayas, 2002; Özmen, Karamustafaoğlu, Sevim ve Ayas, 2002; Coştu, Ünal ve Ayas, 2007; Birinci-Konur ve Ayas, 2008; Demircioğlu, Ayas ve Demircioğlu, 2008). Dane (2008) ise, öğrencilerin ankette yer alan sorulara verdikleri cevapları "hiç yanıt vermeyenler", " anlamama", " sınırlı anlama", " yanlış yanıtlama" ve "doğru yanıtlayanlar" kategorilerinde analiz etmiştir.

Çalışmanın Önemi: Kavram karikatürü, çizim, kelime ilişkilendirme testi, kavram haritaları gibi araçlar genellikle bir öğrenme-öğretme stratejisi ya da kavram yanılgılarının belirlenmesinde bir araç olarak kullanılmaktadır. Ancak bu araçların ölçme-değerlendirme amacıyla kullanılmasına yönelik literatürde yeterli düzeyde çalışma yer almamaktadır. Bu bağlamda çalışmanın amacı; kavram karikatürleri, çizim, kelime ilişkilendirme testi ve kavram haritalarının ölçme-değerlendirme amaçlı kullanımına yönelik bir puanlama anahtarının oluşturulması ve buna yönelik bir çalışma örneğinin sunulmasıdır. Ayrıca çalışmanın bir başka amacı ise bu araçlar yardımıyla öğrencilerin konuyla ilgili kavram yanılgılarının belirlenmesidir.

YÖNTEM

Bu çalışmada, kavram karikatürleri, çizim, kelime ilişkilendirme ve kavram haritalarının ölçme-değerlendirme amacıyla kullanımına yönelik puanlama anahtarları geliştirilmiştir.

Kavram karikatürlerine ilişkin puanlama anahtarı; temelde Karataş, Köse ve Coştu (2003)'nun geliştirdiği iki aşamalı teşhis testi puanlamasından ve literatürde farklı yapıdaki soruların değerlendirilmesine ilişkin oluşturulan puanlama çalışmalarından yararlanılarak geliştirilmiştir. Kavram karikatürünün analizinde kullanılan puanlama anahtarı Tablo1'de verilmiştir.

Tablo1. Kavram Karikatürlerinin Analizi İçin Geliştirilen ve Çalışmada Kullanılan Puanlama Anahtarı

Değerlendirme Kriteri	Puan	%'lük Puan	Puanlama Kriteri
Doğru Cevap – Doğru Açıklama	3	100	*Doğru Açıklama: Cevabın bilimsel olarak tüm yönleriyle ifade edilemediği açıklama *Kısmen Doğru Açıklama: Cevabın bilimsel olarak tüm yönleriyle ifade edilemediği ya da kavram yanılgısı içeren açıklama *Yanlış Açıklama: (1) Cevabın bilimsel olarak tamamen yanlış olduğu, (2) ilgisiz olduğu, (3) cevabın aynen tekrarlandığı, (4) tamamen kavram yanılgısından oluşan açıklamalar, (5) boş bırakma
Doğru Cevap – Kısmen Doğru Açıklama	2	67	
Yanlış Cevap – Doğru Açıklama	2	67	
Doğru Cevap – Yanlış Açıklama	1	34	
Yanlış Cevap – Kısmen Doğru Açıklama	1	34	
Yanlış Cevap – Yanlış Açıklama	0	0	

Tablo1'de görüldüğü üzere, değerlendirme kriterinde doğru cevap ve doğru açıklama kısmı yer almaktadır. Kavram karikatürlerinin; karikatürün ve buna dayalı sorunun yer aldığı bir aşama ve öğrencinin cevabının nedenini yazdığı bir aşama olmak üzere iki temel aşamadan oluştuğu söylenebilir. Bu bağlamda kavram karikatürlerinin ilk aşaması cevap kısmını, ikinci aşaması ise açıklama kısmını oluşturmaktadır. Puanlama anahtarı oluşturulurken, cevap kısmını öğrencilerin tesadüfe/tahmine dayalı olarak işaretleyebileceğinden dolayı açıklama kısmına daha fazla önem verilmiştir. Kavram karikatürü sorularından bir örnek **Ek1**'de verilmiştir. Kavram karikatürlerine ilişkin puanlama anahtarı, 0-1-2-3 puanlarından oluşmakta ve bu puanlar 100'lük sisteme dönüştürülebilmektedir.

Çizimlere ilişkin geliştirilen ve çalışmada kullanılan puanlama anahtarına ise Tablo 2'de yer verilmiştir.

Tablo 2. Çizimlerin Analizi İçin Geliştirilen ve Çalışmada Kullanılan Puanlama Anahtarı

Değerlendirme Kriteri	Puan	%'lük Puan	Puanlama Kriteri
Tam Anlama – Tam Anlama	5	100	*Tam Anlama: Bilimsel olarak tam doğru olan çizimler *Kısmen Anlama: Bilimsel olarak cevabın bir yönünü içeren çizimler ya da doğru cevapla birlikte kavram yanılgısı da içeren çizimler *Anlamama: (1) Tamamen kavram yanılgısı içeren, (2) bilimsel olarak yanlış olan, (3) ilgisiz veya anlaşılamayan çizimler, (4) boş bırakma
Tam Anlama – Kısmen Anlama	4	80	
Kısmen Anlama – Tam Anlama	4	80	
Kısmen Anlama – Kısmen Anlama	3	60	
Tam Anlama – Anlamama	2	40	
Anlamama – Tam Anlama	2	40	
Kısmen Anlama – Anlamama	1	20	
Anlamama – Kısmen Anlama	1	20	
Anlamama – Anlamama	0	0	

Yapılan çalışmada çizim sorularına yönelik olarak oluşturulan puanlama anahtarı, tek değerlendirme kriteri (örneğin; sadece 'tam anlama') şeklinde değil iki değerlendirme kriteri (örneğin; 'tam anlama-tam anlama') şeklinde düzenlenmiştir. Çünkü çizim soruları öğrencilerin ikili kombinasyon şeklinde cevap vermelerini gerektirmektedir. Çizim sorularından bir örnek **Ek1**'de verilmiştir. Çizimlere ilişkin puanlama anahtarı 5-4-3-2-1-0 puanlarından oluşmakta ve bu puanlar 100'lük sisteme çevrilerek tabloda verilmektedir.

Kelime ilişkilendirme testinin analizine ilişkin geliştirilen ve çalışmada kullanılan puanlama anahtarı Tablo 3'te verildiği gibidir.

Tablo 3. Kelime İlişkilendirme Testinin Analizinde Kullanılan Puanlama Anahtarı

Değerlendirme Kriteri	Puan
Direk İlişkili Kavram/Kelime	5
Dolaylı İlişkili Kavram/Kelime	4
Örnek	3
Tekrarlı Örnek/Kavram/Kelime	2
İlişkisiz Kavram	1
Boş bırakma	0

Araştırmada kullanılan kelime ilişkilendirme testi, öğrencilerin her kavramı en fazla 10 kez yazılabileceği şekilde boşluk bırakılarak verilmiştir. Öğrenciler verilen kavramla direk ilişkili 10 kavram yazdığında 100 tam puan alacaklardır. Bundan dolayı öğrencilerin puanlarının 100'lük sisteme çevrilmesine gerek kalmamıştır. Kelime ilişkilendirme testi cevaplarından bir örnek **Ek1**'de verilmiştir.

Kavram haritasının değerlendirilmesinde ise, kavramın çapraz bağlantı içermesi/örnek olması/ ana kavram olması gibi zorluk derecelerine bağlı olarak her kavram için belirli puanlar oluşturulmuştur. Çalışmada yer alan kavram haritasında 'atom' ve 'elektron' kavramları ana kavram ve çapraz bağlantıda yer almasından dolayı 4'er puanla; 'Güneş sistemi' ve 'üzümlü kek' benzetme içeren örnekler olmasından dolayı 3'er puanla; 'Dalton Atom Modeli' ve 'Rutherford Atom modeli' sadece atom modeli çeşitlerini bilmeyi gerektirdiğinden 2'şer puanla ve çekirdeğin içinde yer alan nötronun verilip sadece diğer kavramın istenmesinden dolayı 'proton' 1 puanla değerlendirilmiştir. Kavram haritası cevaplarından bir örnek **Ek1**'de verilmiştir.

Geliştirilen puanlama kriterlerinin yer aldığı değerlendirme araçlarının, Fen ve Teknoloji dersi "Madde ve Değişim" öğrenme alanına yönelik örnek bir uygulaması yapılmıştır. Çalışma; 2008–2009 eğitim-öğretim yılında Kütahya ilinin Simav ilçesine bağlı bir ilköğretim okulunda gerçekleştirilmiştir. Çalışmada 6. sınıflardan 30 ve 7. sınıflardan 30 olmak üzere toplam 60 ilköğretim öğrencisi yer almıştır. Veri toplama aracı olarak; 6. sınıflar için iki kavram karikatürü, bir çizim ve bir kelime ilişkilendirme testinden oluşan 4 soru, 7. sınıflar için ise bir çizimle bir kavram haritasından oluşan 2 soru hazırlanmıştır. Sorular hazırlanırken hem içerik açısından hem de kullanılan değerlendirme aracına uygunluk açısından uzman görüşü alınmıştır. Ayrıca soruların anlaşılırlığının kontrolü uygulama öncesinde çalışma grubunda yer almayan üç ilköğretim öğrencine uygulanmıştır. Uzman görüşleri ve öğrencilerden gelen dönütlere göre düzeltmeler yapılmış ve testin son hali oluşturulmuştur. Öğrencilerin değerlendirme araçlarına verdikleri cevapların geliştirilen puanlama anahtarlarıyla değerlendirilmesi sonucu elde edilen veriler nicel verileri, geliştirilen farklı puanlama araçları ile bunlardan yararlanılarak belirlenen kavram yanılgıları ise nitel verileri oluşturmaktadır. Nicel verilerin analizinde SPSS 17.0 programı kullanılmış ve betimsel analiz yapılmıştır. Analiz sonuçları her bir değerlendirme aracına göre sınıf düzeyi göz önüne alınarak frekans ve yüzde şeklinde tablolaştırılmıştır. Nitel verilerin analizinde ise, öğrencilerin değerlendirme araçlarına verdikleri cevaplar soru bazında tek tek analiz edilmiş ve belirlenen kavram yanılgıları kullanılan araçlara göre tablolaştırılarak verilmiştir.

BULGULAR

Bu bölümde ilköğretim öğrencilerin kavram karikatürleri, çizim, kelime ilişkilendirme testi ve kavram haritalarına verdikleri cevapların araştırmacılar tarafından geliştirilen puanlama anahtarıyla analizi sonucu elde edilen betimsel verilere yer verilmiştir Ayrıca bu değerlendirme araçlarından yararlanılarak öğrencilerin sahip oldukları kavram yanılgıları belirlenmiş ve tablolaştırılmıştır.

İlköğretim öğrencilerinin farklı soru alanlarına verdikleri cevapların puan dağılımı, frekansı ve yüzdesi Tablo 4'te verilmiştir.

Tablo 4. Öğrencilerin Farklı Soru Alanlarına Göre Cevaplarının Dağılımı, Frekans ve Yüzde Değerleri

Alan	Dağılım	f	%	Sınıf düzeyi
Kavram karikatürü 'ısı'	0,00	5	16,7	6
	34,00	4	13,3	6
	67,00	17	56,7	6
	100,00	4	13,3	6
	Toplam	30	100,0	6
Çizim 'madde'	20,00	5	16,7	6
	60,00	9	30,0	6
	80,00	6	20,0	6
	100,00	10	33,3	6
	Toplam	30	100,0	6
Kavram karikatürü 'madde'	0,00	22	73,3	6
	34,00	3	10,0	6
	67,00	3	10,0	6
	100,00	2	6,7	6
	Toplam	30	100,0	6
Çizim 'atom'	0,00	11	36,7	7
	20,00	2	6,7	7
	60,00	14	46,7	7
	80,00	3	10,0	7
	Toplam	30	100,0	7
Kavram haritası	11,00	1	3,3	7
	16,00	1	3,3	7
	26,00	3	10,0	7
	47,00	4	13,3	7
	53,00	1	3,3	7
	63,00	4	13,3	7
	68,00	3	10,0	7
	95,00	1	3,3	7
	100,00	12	40,0	7
	Toplam	30	100,0	7

Kelime ilişkilendirme testine (6. sınıf) ait dağılım farklı puanlar açısından sadece birer ya da ikişer öğrenci içerdiğinden tablolaştırılmamıştır. Kelime ilişkilendirme testi sonucunda öğrencilerin aldıkları puanların dağılımı şöyledir; birer öğrenci 7, 8, 10, 15, 16, 19, 23, 28, 30, 33, 35, 37, 39, 41, 48, 49, 51, 61, 67 ve 70 puan alırken, ikişer öğrenci 26, 36, 38, 50 ve 57 puan almıştır.

Tablo 4 incelendiğinde ilköğretim 6. sınıf öğrencilerinin çoğunun (f=17) kavram karikatürü 'ısı' sorusundan 67 puan aldıkları görülmektedir. Ayrıca madde konusuna ilişkin çizim sorusunda 6. sınıf öğrencilerinin %33.3'ünün 100 puan aldıkları ve %30'unun 60 puan aldıkları anlaşılmaktadır. 6. sınıflara yöneltilen madde konusuna ilişkin kavram karikatürü sorusunda ise, öğrencilerin büyük çoğunluğunun (f=22) yanlış cevap verdikleri görülmektedir. İlköğretim 7. sınıflara yöneltilen sorular incelendiğinde; çizim sorusundan 14 öğrencinin 60 puan ve 11 öğrencinin 0 puan aldığı anlaşılmaktadır. Ayrıca 7. sınıf öğrencilerinin %40'ı kavram haritasından 100 tam puan almışlardır.

İlköğretim öğrencilerinin farklı soru alanlarına göre cevaplarının betimsel analizlerine Tablo 5'te yer verilmiştir.

Tablo 5. Öğrencilerin Farklı Soru Alanlarına Göre Cevaplarının Betimsel Özellikleri

Alan	Sınıf düzeyi	Minimum	Maksimum	$\overline{X}$	SS
Kavram karikatürü 'ısı'	6	0,00	100,00	55,83	30,75
Çizim 'madde'	6	20,00	100,00	70,66	28,15
Kavram karikatürü 'madde'	6	0,00	100,00	16,76	31,35
Kelime ilişkilendirme testi	6	7,00	70,00	36,70	17,11
Toplam puan	6	61,00	337,00	179,96	70,19
Çizim 'atom'	7	0,00	80,00	37,33	31,40
Kavram haritası	7	11,00	100,00	69,90	30,08
Toplam puan	7	26,00	180,00	107,23	53,14

Tablo 5'te öğrencilerin sorulardan aldıkları minimum ve maksimum puanlara, ayrıca puanların aritmetik ortalaması ve standart sapmasına yer verilmiştir. Öğrencilerin aldıkları puanların aritmetik ortalamaları incelendiğinde; en fazla puanı madde konusuna yönelik çizim sorusundan ve kavram haritası sorusundan aldıkları görülmektedir. Öğrencilerin en düşük aritmetik ortalamalarının ise kelime ilişkilendirme testi ve madde konusuna ilişkin kavram karikatürü sorularından aldıkları puanlar olduğu anlaşılmaktadır.

Tablo 6'da ilköğretim öğrencilerin "Madde ve Değişim" öğrenme alanına yönelik olarak çizimlerden yararlanılarak belirlenen kavram yanılgılarına yer verilmiştir.

Tablo 6. Öğrencilerin Çizimlerden Yararlanılarak Belirlenen Kavram Yanılgıları

Değerlendirme Aracı	Kavram Yanılgıları
Çizim (Atom Modelleri)	*Thomson atom modeli sadece negatif yüklerden oluşur. *Bohr atom modeli küreye benzemektedir. *Bohr atom modelinde çekirdek bulunmaz. *Bohr atom modeli elemente benzemektedir. *Thomson atom modeli topa benzemektedir. *Bohr atom modeli güneş sistemine benzemektedir. *Bohr atom modelinin katmanları güneş sistemi gibidir. *Bohr, atom modelini negatif yüke benzetir. *Bohr atom modeline göre katmanlardaki elektronların sayısı belirsizdir. *Thomson atom modelinde pozitif veya negatif yük bulunmaz. *Bohr atom modeli gerçek atom modelidir. *Bohr atom modelinde çekirdekte pozitif yükler bulunmaz. *Bohr ve Thomson atom modelleri arasındaki fark birinin küçük birinin büyük olmasıdır. *Bohr ve Thomson atom modelleri arasındaki fark elektronlarının eşit olmamasıdır.
Çizim (Maddenin Halleri)	*Madde sıvı halden katı hale geçerken tanecik sayısı artar. *Madde sıvı halden gaz hale geçerken tanecik sayısı azalır. *Madde hal değiştirirken tanecik sayısı da değişir. *Maddenin taneciklerinin katı, sıvı veya gaz halleri arasında fark yoktur. *Maddenin gaz halinde tanecikleri çiftler halinde bulunur.

Tablo 6'ya göre öğrencilerin atom modelleriyle ilgili birçok kavram yanılgısının olduğu görülmektedir. Öğrencilerin çizimlerinden yararlanılarak konuyla ilgili kavram yanılgıları incelendiğinde en sık tekrarlanan yanılgılarının; 'Thomson atom modeli topa benzemektedir', 'Bohr atom modeline göre katmanlardaki elektronların sayısı belirsizdir', 'Bohr ve Thomson atom modelleri arasındaki fark birinin küçük birinin büyük olmasıdır' ile 'Madde hal değiştirirken tanecik sayısı da değişir' ve 'Madde sıvı halden gaz hale geçerken tanecik sayısı azalır' şeklinde olduğu anlaşılmıştır.

Öğrencilerin Kelime ilişkilendirme testi (1 soru), kavram karikatürleri (2 soru) ve kavram haritasından (1 soru) yararlanılarak belirlenen kavram yanılgıları Tablo 7'de verildiği gibidir.

Tablo 7. Öğrencilerin KİT, Kavram Karikatürleri, Kavram Haritasından Yararlanılarak Belirlenen Kavram Yanılgıları

Değerlendirme Aracı	Kavram Yanılgıları
Kelime İlişkilendirme Testi (Madde ve Isı)	*Cam ısı iletkenidir. *Isı iletkeni ısıyı çeker, ısı yalıtkanı ısıyı çekmez. *Isı iletkenleri kışın kullanılır. *Isı yalıtkanı yazın evlerde kullanılır. *Strafor ısı iletkenidir. *Cam yünü ve tahta ısı iletkenidir. *Bakır ve alüminyum ısı yalıtkanıdır. *Cam ve hava ısı iletkenidir.
Kavram Karikatürü (Maddenin Halleri)	*Sıvı maddelerin tanecikleri katılara göre daha yumuşaktır. *Sıvılar donunca tanecikleri sertleşir. *Sıvılar donunca kütlesi artar. *Katı bir madde ısıtılınca kütlesi azalır. *Katıların kütlesi fazladır ve ısıtılınca azalır. *Katı maddelerin tanecikleri daha serttir. *Katı maddeler ısıtılınca yumuşar. *Katıların arasında boşluk olmadığından daha serttir. *Madde ısı aldığında tanecikler arası boşluk arttığından tanecikler yumuşar. *Sıvılar donduğunda tanecikler arası boşluk azaldığından sertleşir ve sertleştiğinde kütlesi artar.
Kavram Karikatürü (Madde ve Isı)	*Tahta ısı yalıtkanı olduğundan dolayı ısınmaz. *Metal ve cam ısı iletkeni olduğundan eşit zamanlarda ısınırlar. *Tüm metaller demir olduklarından diğerlerine göre önce ısınırlar. * Tahta cam ve metal arasında ilk yanacak olan metaldir.
Kavram Haritası (Atom Modelleri)	*Çekirdekte elektron bulunur. *Dalton atom modeli güneş sistemine benzer. *Dalton atom modeli üzümlü keke benzer. *Rutherford atom modeli bilyeye benzer. * Rutherford atom modeli üzümlü keke benzer. *Thomson atom modeli güneş sistemine benzer. *Thomson atom modeli topa benzer. *Thomson atom modeli küreye benzer.

Tablo 7 incelendiğinde öğrencilerin madde konusuna ilişkin kavram karikatüründe kavram yanılgılarının en fazla olduğu görülmektedir. Ayrıca tablo 6 ve 7 bir arada ele alındığında çizimlerden belirlenen yanılgılarının çoğunun kavram haritalarından da elde edilebildiği görülmektedir. Bununla birlikte KİT'lerinin de öğrencilerin yanılgılarının belirlenmesinde kullanılabileceği sonucu çıkarılabilir.

SONUÇ VE TARTIŞMA

Eğitim-öğretim sisteminde yapılandırmacı yaklaşımın yer almasıyla birlikte alternatif ölçme-değerlendirme yaklaşımları da önem kazanmıştır. Alternatif ölçme-değerlendirme yaklaşımlarının içeriğini; performans değerlendirme, portfolyo değerlendirme, öz-akran-grup değerlendirme, projeler, gözlem ve görüşmeler, tanılayıcı dallanmış ağaç, yapılandırılmış grid, kelime ilişkilendirme testleri, kavram haritaları, kavram karikatürleri ve çizimler gibi yöntem, teknik ve araçları doldurmaktadır. Bu yöntem, teknik ve araçların kullanılmaya başlanmasıyla, sonuçla birlikte süreç de değerlendirilebilmektedir. Alternatif ölçme-değerlendirme yaklaşımlarının eğitim-öğretim programlarında yer almaya başlamasına rağmen bu yöntem, teknik ve araçların puanlandırılmasına ilişkin yeterli sayıda çalışma bulunmamaktadır. Bundan dolayı çalışmada kavram karikatürleri, çizimler, kelime ilişkilendirme testi ve kavram haritasının ölçme-değerlendirme amaçlı kullanımına ilişkin bir puanlama anahtarının oluşturulması ve buna yönelik bir çalışma örneğinin sunulması amaçlanmıştır.

Yapılan çalışmada kavram karikatürlerine yönelik puanlama anahtarı, öğrencilerin verebileceği tüm cevaplar göz önüne alınarak 3-2-1-0 puanlarından oluşturulmuştur. Çalışmada kavram karikatürlerinin değerlendirilmesine yönelik puanlama anahtarı geliştirilirken temelde Karataş, Köse ve Coştu (2003)'nun geliştirdiği iki aşamalı teşhis testi puanlamasından yararlanılmıştır. Benzer şekilde İngeç (2008) çalışmasında, kavram karikatürlerini değerlendirirken 3'lü puanlama anahtarı kullanmıştır. Araştırmacı çalışmasında doğru cevabı işaretleyen ve doğru açıklama yapanlara 2 puan, doğru cevap verip yanlış açıklama yapanlara 1 puan ve yanlış karaktere katılan ve boş bırakanlara 0 puan vererek değerlendirmiştir. İngeç'in kavram karikatürlerinin değerlendirilmesine yönelik geliştirdiği puanlama anahtarı, bu çalışma ile benzemektedir. Ancak bu çalışmada öğrencilerin verebileceği farklı cevaplar da göz önüne alınarak daha kapsamlı bir puanlama anahtarı oluşturulmaya çalışılmıştır. Çizimlere yönelik değerlendirme amaçlı puanlandırma anahtarı ise 5-4-3-2-1-0 puanlarından oluşmaktadır. Benzer şekilde Uzunkavak (2009) ile Kara ve ark. (2009) yaptıkları çalışmalarda öğrencilerin çizimlerini beş seviyede değerlendirmişlerdir. Araştırmacılar beşinci seviyeyi; tamamen doğru ve eksiksiz ifade/çizimler, dördüncü seviyeyi; bazı eksiklikleri olan ifade/çizimler, üçüncü seviyeyi; kısmen doğru ifade/çizimler, ikinci seviyeyi; yanlış ya da soruyla ilgisiz ifade /çizimler, birinci seviyeyi ise hiçbir ifade/çizim olmayanlar şeklinde oluşturmuşlardır. Bununla birlikte Köse (2008) de, çizimleri beş seviyede değerlendirmiş ve puanlama anahtarını, hiç çizim yoksa birinci seviye, temsili olarak bir çizim içeriyorsa ikinci seviye, kavram yanılgısı içeren bir çizimse üçüncü seviye, belli bir kısmı içeriyorsa dördüncü seviye ve kapsamlı bir çizimse beşinci seviye şeklinde gruplandırmıştır. Çizimlerle yapılan çalışmalar incelendiğinde genellikle tek bir çizime ilişkin puanlama anahtarı yer almaktadır. Ancak iki çizimin karşılaştırılması olarak istendiği bir çizim sorusuna ilişkin puanlama anahtarı literatürde yer almamaktadır. Bu bağlamda yapılan çalışmada, bu durum göz önüne alınarak puanlama anahtarı oluşturulmuştur.

Çalışmada kelime ilişkilendirme testine ilişkin puanlama anahtarı, direk ilişkili kavramlara/kelimelere 5, dolaylı ilişkili kavramlara/kelimelere 4, örneklere 3, tekrarlı örneklere/kavramlara/kelimelere 2 ve ilişkisiz kavramlara/kelimelere 1 puan verilerek hesaplanmıştır. Literatürde bu puanlama anahtarına benzer bir çalışmaya rastlanmamıştır. Bahar ve Özatlı (2003) yaptıkları çalışmada kelime ilişkilendirme testlerine ilişkin frekans tablosu oluşturarak kavram haritası hazırlamışlardır. Çalışmada kullanılan diğer bir değerlendirme aracı olan kavram haritalarının puanlandırması, kavramın çapraz bağlantı içermesi/örnek olması/ ana kavram olması gibi zorluk derecelerine bağlı olarak her kavram için belirli puanlar oluşturularak hazırlanmıştır. Yapılan çalışmalar incelendiğinde, Novak ve Gowin (1984)'in kavram haritalarının içerik açısından değerlendirilmesinde dört kritere dayalı puanlama anahtarı oluşturdukları görülmektedir. Bu kriterler; önerme, hiyararşi, çapraz bağlantı ve örneklerden meydana gelmektedir. Şaşmaz-Ören ve Tatar (2009) ise, yaptıkları çalışmada öğretmen adayları tarafından oluşturulan kavram haritalarının değerlendirilmesine yönelik bir rubrik geliştirmişlerdir. Araştırmacıların geliştirdikleri rubrik 'önemli eksikleri olan-sınırlı-geliştirilmesi gereken-başarılı-mükemmel performans' şeklinde beşli puanlama kriterinden oluşmaktadır. Kavram haritaların puanlandırılmasına ilişkin literatürde yer alan çalışmalarda genellikle öğrencilerin çizdikleri kavram haritalarının değerlendirilmesine ilişkin kriterlerin belirlendiği görülmektedir. Buna karşın, öğrencilere hazır olarak verilip, içindeki bazı kavram/örnek/bağlantıların eksik olduğu kavram haritalarının değerlendirilmesine yönelik puanlama anahtarı üzerine bir çalışmaya rastlanmamıştır. Bu bağlamda çalışmada geliştirilen, öğrencilere hazır olarak verilen ve belirli kısımlarının onlar tarafından

doldurulmasının istendiği kavram haritalarının değerlendirilmesinde kullanılabilecek puanlama anahtarı modelinin, diğer araştırmacılar için bir örnek teşkil edeceği düşünülmektedir.

Yapılan çalışmaya göre kavram karikatürü, çizim, kelime ilişkilendirme testi ve kavram haritalarının öğrencilerin değerlendirmesinde kullanılabileceği görülmektedir. Literatür incelendiğinde kavram karikatürlerinin (İngeç ve Sever, 2008; Keogh ve ark., 1999; Keogh ve ark., 2001; İngeç, 2008), çizimlerin (Reiss ve Tunnicliffe, 2001; Yörek, 2007; Acar ve Tarhan, 2008; Kara ve ark., 2009), kelime ilişkilendirme testlerinin (Baki ve Pırasa, 2007; Sezen ve Çimer, 2009) ve kavram haritalarının (Ruiz-Primo ve Shavelson, 1996; Rice ve ark., 1998; Williams, 1998; Roberts, 1999; Jacobs-Lawson ve Hershey, 2002, Francis, 2006; İngeç ve Sever, 2008) değerlendirme amacıyla kullanıldığı görülmektedir. Öğrencilerin bu ölçme-değerlendirme araçlarından aldıkları puanların aritmetik ortalamaları incelendiğinde; en fazla puanı madde konusuna yönelik çizim sorusundan, en düşük puanı ise madde konusuna ilişkin kavram karikatürü sorusundan aldıkları anlaşılmaktadır. Öğrencilerin çizim sorusundan yüksek puan almaları durumunu, soruyu cevaplarken kendilerini özgürce ifade edebilmelerinden ve konunun içeriğini (katı-sıvı-gaz) iyi bilmelerinden kaynaklanabileceği düşünülmektedir. Kara ve ark. (2009) yaptığı çalışmada, öğrencilerin bilgisinin olmadığı kavramları çizmekte zorlandıklarını gözlemlemişlerdir. Bu bağlamda öğrencilerin bu konudaki bilgi düzeylerinin yüksek olduğu ve bilgilerini çizimle açıkça ifade edebildikleri söylenebilir. Yapılan çalışmada öğrenci puanlarının en düşük olduğu madde konusuna ilişkin kavram karikatürü sorusunda, karakterlerin konuyla ilgili belirttiği kavram yanılgılarının öğrenciler için büyük bir çeldirici olduğu düşünülmektedir. Bundan dolayı kavram karikatüründe öğrenciler genellikle kavram yanılgısının olduğu karakterleri seçmişler ve yanlış seçeneği işaretlemişlerdir. Ayrıca, bu soruya yönelik olarak kavram karikatürünün kavram yanılgılarının tespit edilmesinde de etkili olduğu sonucuna ulaşılabilir. Bununla birlikte çalışmanın bulgularına göre kavram yanılgılarının tespitinde en fazla çizimlerin etkili olduğu söylenebilir. Öğrencilere yazarak cevaplamaları istenen bir soru sorulduğunda, onların ezberlemiş oldukları bilgiye dayalı olarak cevap verme ihtimalleri bulunmaktadır. Ancak çizim yapmaları istendiğinde, öğrencilerin doğru çizim yapabilmeleri için bilgilerinin tam olması gerekmektedir. Kavram yanılgıların tespitinde iki aşamalı teşhis testleri, kavram karikatürleri, görüşme gibi birçok yöntem kullanılabilmektedir. Ancak tüm bu yöntemler içinde çizimlerin kavram yanılgılarının belirlenmesine yönelik daha fazla avantajının olduğu söylenebilir. Konuyla ilgili olarak Köse ve ark. (2005) çizim yöntemi kullanılırken, az bir zamana ihtiyaç olmasına rağmen bu yöntemle birçok bilgi elde edilebildiğini ifade etmektedirler. Bununla birlikte çizimlerde öğrenciler herhangi bir sınırlama olmaksızın daha rahat bir şekilde düşüncelerini ifade etme şansına sahiptirler. Bu bağlamda çizimler, kavram yanılgılarının tespitinde önem kazanmaktadır. Literatürde Dove ve ark. (1999)'nın ırmak/su, Köse ve ark. (2005) ile Köse (2008)'nin fotosentez ve bitkilerde solunum, Canbulat ve Şaşmaz-Ören (2009)'in Güneş Sistemi ve Ötesi: Uzay Bilmecesi, Uzunkavak (2009)'ın Newton kanunları konularında, çizimlerin kavram yanılgılarının tespitinde etkisini araştırmaya yönelik çalışmalar yaptıkları görülmektedir

Çalışmadan elde edilen sonuçlar doğrultusunda; kavram karikatürleri, çizim, KİT, kavram haritaları gibi değerlendirme araçlarının puanlandırılmasına ilişkin çalışmaların arttırılması önerisinde bulunulabilir. Bununla birlikte alternatif ölçme-değerlendirme araçları içinde yer alıp kullanımının kolay olmasına rağmen çok fazla uygulaması yapılmayan diğer araçlara (örn; günlükler, bilgi-istek-öğrenme kartları, şimşek ve yorum kartları gibi) yönelik olarak da puanlama ve uygulama çalışmalarının yapılması önerilebilir. Ayrıca çalışmada geliştirilen puanlama anahtarlarının farklı fen ve teknoloji öğrenme alanlarına ya da öğrenim kademelerine yönelik uygulamalarının yapılması önerisinde bulunulabilir. Son olarak öğretmen ve öğretmen adaylarının alternatif ölçme-değerlendirme yaklaşımlarının puanlandırılması konusunda bilgilendirilmesi ve kullanımına yönelik etkinlik örneklerinin sunulması önerisinde bulunulabilir.

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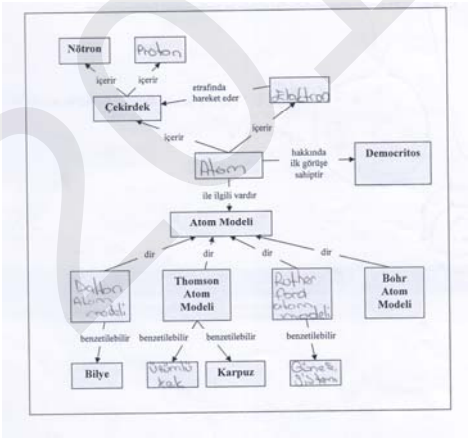
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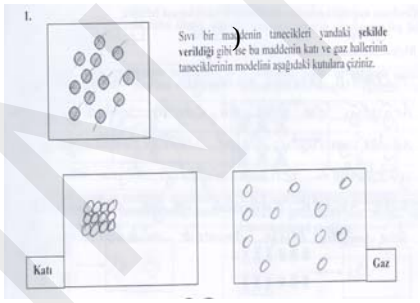
EK 1. Çalışmada Kullanılan Farklı Sorulara İlişkin Öğrenci Cevap Örnekleri



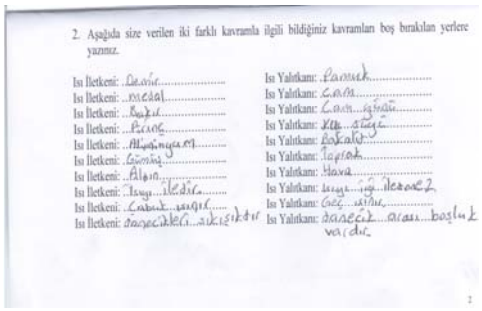
Kavram Karikatürü Örneği (Madde)
(http://www.conceptcartoons.com/science/the_shop.html#1)



Kavram Haritası Örneği



Çizim Örneği (Madde)



Kelime İlişkilendirme Testi Örneği

KİMYA EĞİTİMİ ARAŞTIRMALARINDAKİ YENİ EĞİLİMLER

NEW TRENDS IN CHEMISTRY EDUCATION RESEARCHES

Erdal TATAR

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ÖZET

Bu çalışmanın amacı, kimya eğitimi araştırmalarında son on yıldaki eğilimi ortaya çıkarmaktır. Çalışmada, International Journal of Science Education ve Journal of Research in Science Teaching dergilerinde 2001-2010 yılları arasında yayınlanan kimya eğitimi makaleleri bir içerik analizine tabi tutulmuştur. Çalışmada toplam 87 makale, araştırma deseni, araştırma konusu ve kullanılan veri toplama tekniklerine göre kategorize edilmiştir. Çalışmadan elde edilen bulgular, araştırmacıların büyük bir kısmının deneysel olmayan araştırma desenlerini tercih ettiklerini ortaya koymuştur. Bununla beraber, Bağlama dayalı öğrenme, Araştırmaya dayalı öğrenme, Problem çözme yöntemi, Kavram yanılgıları, Pedagojik alan bilgisi, Bilimin doğası, Tutum, Motivasyon ve İşbirlikli öğrenme konuları incelenen makalelerde en çok ele alınan konular olarak öne çıkmaktadır. Ayrıca veri toplama tekniklerinin kullanımına dayalı olarak yapılan analizler, nitel veri toplama tekniklerinin nicel veri toplama tekniklerinden daha büyük oranda kullanıldığını göstermiştir. Çalışmanın özellikle kimya eğitimi araştırmacıları için alanlarındaki yeni eğilimler hakkında fikir sahibi olmaları adına faydalı olacağı düşünülmektedir.

Anahtar Kelimeler: Kimya eğitimi, yeni eğilimler, araştırma desenleri

ABSTRACT

The purpose of the study was to investigate the new trends in researches in chemistry education in last ten years. In the study was conducted a content analyses of the articles published by International Journal of Science Education, and Journal of Research in Science Teaching from 2001 to 2010. A total of 87 research papers were categorized in terms of research design, research topics and data collection techniques. The results showed that most of the published articles were categorized as non-experimental studies. In addition to this, Context based learning, Inquiry based learning, Problem solving, Misconceptions, Pedagogical content knowledge, Nature of science, Attitude Motivation and Cooperative learning were the most investigated as research topic by researchers in recent ten years. Also qualitative data collection techniques were more used by researchers than quantitative data collection techniques. This study was intended to show new trends in the chemistry education researches in recent ten years. Therefore, this study would be beneficial for the researchers.

Key words: Chemistry education, new trends, research methods

1. GİRİŞ

Bilim insanları "literatürde önceki çalışmaların neler olduğu" ve "hangi konu ve problemler üzerinde yapılacak çalışmalara ihtiyaç duyulacağı" gibi sorularla sürekli olarak cevap arama ihtiyacı hissederler (Tatar ve Tatar, 2008). Kendi alanıyla ilgili olarak yürütülen araştırmalardan haberdar olmak, mevcut çalışmalarının teorik alt yapılarını düzenleyerek, planlayıp araştırma desenine karar vermek ve elde ettiği bulguları karşılaştırmak için önceki araştırmalara göz atmak bilim insanlarının araştırma süreçlerindeki vazgeçilmez çalışmalarındandır.

Fen eğitimi araştırmacıları, akademik dergilerdeki araştırma bulgularını incelemeyi, genellikle kendi mesleklerinin önemli bir parçası olarak görürler. Özellikle yeni araştırmacılar için bazı önemli akademik dergilerdeki yayınların farkında olmak, onlara alanlarını daha iyi bir şekilde tanımada yardımcı olur. Bu yüzden akademik dergilerde yayınlanan makalelerin sistematik bir analizini yapmak fen eğitimcilerine araştırmaların şuan ki ve gelecekteki gidişatını anlamada fayda sağlar (Tsai ve Wen, 2006)

Sayıca azda olsa literatürde bu konu ile ilgili benzer araştırmalara rastlamak mümkündür. Tsai ve Wen (2006), yapmış olduğu araştırmasında, International Journal of Science Education, Science Education ve Journal of Research in Science Teaching dergilerinde 1998-2002 yılları arasında yayınlanan fen eğitimi makalelerini araştırma türü, araştırma konusu ve araştırmacıların milliyetleri açısından bir içerik analizine tabi tutmuştur bir içerik analizine tabi tutulmuştur. Araştırma sonucunda deneysel araştırma türüne ve öğrenme-kavrama araştırma alanına ait çalışmaların en fazla tercih edilen çalışmalar olduğu bulunmuştur.

Eybe ve Schmidt (2001)'de 1991-1997 yılları arasında International Journal of Science Education ve Journal of Research in Science Teaching dergilerinde yayınlanmış olan 81 kimya eğitimi araştırma makalesi üzerinde inceleme yapmış ve bu yayınlardan hareketle ideal bir kimya eğitimi araştırması için belli bazı kriterleri ortaya koymuşlardır.

Tatar ve Tatar (2009), Türkiye'de basılan 26 hakemli akademik dergide 2000-2006 yılları arasında fen ve matematik eğitimi alanlarındaki toplam 680 araştırma makalesi üzerinde araştırma yapmışlardır. Makalelerin anahtar kelimeleri üzerinde analiz yapılan çalışma sonucunda fen ve matematik eğitimi alanlarındaki araştırma konularının genel eğilimlerini ortaya koymuşlardır. Araştırma sonucunda fen bilimleri alanında yapılan çalışmalar arasında en çok çalışılan konuların kavram yanılgıları, tutum ve bilgisayar destekli öğretim olduğu rapor edilmiştir.

Duit (2006), dünyada fen eğitimi alanında yapılan toplam 6984 yayın üzerinde kapsamlı bir çalışma yapmıştır. İncelenen yayınlar çeşitli araştırma alanlarına göre sınıflandırılmıştır. Buna göre yayınların yaklaşık olarak yarısının kavramsal öğrenme ile ilgili olduğu ve bu alanın en fazla çalışılan araştırma alanı olduğu tespit edilmiştir.

Sözbilir ve Canpolat (2006), Türkiye'de yayınlanmış olan toplam 1638 makale ve bildiri çalışmaları üzerinde araştırma alanlarına göre bir analiz yapmışlardır. Bu çalışmaya göre incelenen yayınlarda en fazla öğretim alanındaki araştırmalar bulunmaktadır. Bunun yanında metodoloji ile ilgili yayınların da yok denecek kadar az olduğu kaydedilmiştir.

Bu çalışmamızda kimya eğitimi araştırmalarında son on yıldaki eğilimi ortaya çıkarmak amaçlanmıştır. International Journal of Science Education ve Journal of Research in Science Teaching dergilerinde 2001-2010 yılları arasında yayınlanan kimya eğitimi makaleleri bir içerik analizine tabi tutulmuş ve incelenen 87 makale, araştırma deseni, araştırma konusu ve kullanılan veri toplama tekniklerine göre kategorize edilmiştir. Dolayısıyla bu çalışmada aşağıdaki araştırma sorularına cevap aranmıştır:

1. Kimya eğitimi alanında 2001-2010 yılları arasındaki son on yıllık süreçte araştırmalarda kullanılan araştırma desenleri nasıl bir dağılım göstermektedir?
2. Son on yılda kimya eğitimi alanında yapılmış araştırmalarda ele alınan araştırma konuları nasıl bir dağılım göstermektedir?
3. Son on yılda kimya eğitimi alanında yapılmış araştırmalarda kullanılan veri toplama teknikleri nasıl bir dağılım göstermektedir?

2. YÖNTEM

Araştırma Desenleri

Makalelerde kullanılan araştırma desenleri aşağıdaki şekilde 5 ana başlık halinde kategorize edilmiştir:

1. Teorik: Kimya eğitimi alanında yeni teori ortaya atan veya bir teori hakkında değerlendirmelerde bulunan çalışmalar
2. Deneysel: Farklı örneklem grupları arasında, bu gruplardan bazılarında manüplasyona gidilerek bağımlı değişken üzerindeki etkilerini karşılaştırma esasında dayalı olarak yapılan çalışmalar.
3. Deneysel olmayan: Herhangi bir manüplasyona gidilmeden örneklemin mevcut durumu hakkında yapılan değerlendirmeler (korelasyonel, karşılaştırmalı, tarama, etnoğrafik vb. çalışmalar).
4. Literatür taraması (review): Literatürdeki araştırmalar üzeride yapılan genelleme veya özetleme amaçlı çalışmalar.
5. Diğer: Bunların dışında kalan çalışmalar (müfredat değerlendirme vb.).

Araştırma Konuları

Makalelerde genel olarak esas alınan konulara göre kategoriler belirlenmiştir. (Öğretim yaklaşımları, öğretim yöntem ve tekniklerinin uygulamaları, öğretmen eğitimi, kavramsal öğrenme, motivasyon, tutum vb.)

Veri Toplama Teknikleri

Makalelerde nicel verilen toplamak amaçlı teknikler kullanan çalışmalar *Nicel*, nitel veriler toplamak amaçlı teknikler kullanan çalışmalar *Nitel* ve hem nicel hem de nicel veriler toplamak amaçlı olarak buna göre teknik kullanan çalışmalar ise *Karma* başlıkları altında kategorize edilmiştir.

3. BULGULAR

2001-2010 yılları arasında kimya eğitimi alanında International Journal of Science Education ve Journal of Research in Science Teaching dergilerinde toplam 87 makale yayınlanmıştır (Tablo 3.1.)

Tablo 3.1: Dergilere göre makale sayısı (f)

Dergiler	IJSE	JRST	Toplam
Makale Sayısı	48	39	87

Tablo 3.2'de görüldüğü gibi yayınlanmış makalelerin büyük bir çoğunluğu (%70) deneysel olmayan araştırma desenleri kullanılarak yürütülmüştür. Bunu deneysel araştırma desenleri (%19) takip etmektedir. Teorik ve literatür taraması (review) türünde araştırma desenleri de dahi olmak üzere diğer araştırma desenlerinin ise çok az bir kullanıma sahip oldukları görülmektedir.

Tablo 3.2.: Araştırma desenlerine göre makalelerin dağılımı (f,%)

Araştırma desenleri	IJSE	JRST	Toplam
Teorik	2, %4,2	-	2, %2,3
Deneysel	4, %8,3	13, %33,3	17, %19,5
Deneysel olmayan	35, %72,9	26, %66,6	61, %70,1
Literatür taraması	4, %8,3	-	4, %4,6
Diğer	3, %6,3	-	3, %3,4

Son 10 yıllık zaman diliminde IJSE ve JRST dergilerinde yayınlanan makalelerin araştırma konuları kategorize edilirken eğilimin daha net bir şekilde ortaya çıkması için sadece, frekansı 3 ve 3'ün üstünde olan araştırma konularına yer verilmiştir. Ayrıca ilk beş yıl ve son beş yıllık zaman dilimleri altında kategorize yapılarak araştırma konularının bu on yıllık süreçte zamanla değişimi hakkında bir fikir edinilmeye çalışılmıştır. Tablo 3.3'te özellikle dokuz araştırma konusunun diğer konulara nazaran daha çok çalışıldığı görülmektedir. Bunlar içerisinde, Bağlama dayalı öğrenme, Araştırmaya dayalı öğrenme, Problem çözme, Kavram yanılgıları, Bilimin doğası ve Motivasyon konularının frekansında birinci beş yıllık süreç ile ikinci beş yıl arasında çalışılma sayısında bir artışın olduğu görülmektedir.

Tablo 3.3. Araştırma konularının yıllara göre dağılımı (f)

Araştırma Konusu	2001-2005	2006-2010	Yayın sayısı

Bağlama dayalı öğrenme	2	4	6
Araştırmaya dayalı öğrenme	1	4	5
Problem çözme	1	4	5
Kavram yanılgıları	1	3	4
Pedagojik alan bilgisi	2	2	4
Bilimin doğası	1	3	4
Tutum	3	1	4
Motivasyon	1	2	3
İşbirlikli öğrenme	2	1	3

*Tabloda sadece frekansı 3 ve 3'ten büyük olan araştırma konuları yer almaktadır.

Tablo 3.4'te ise makale çalışmaları için yürütülen araştırmalarda kullanılan veri toplama tekniklerine göre bir sınıflandırma verilmektedir. Bu sonuçlara göre araştırmacılar daha çok nitel veri toplama tekniklerini tercih etmişlerdir. Nitel araştırmaların ardından onu hem nicel hem de nitel yani karma veri toplama tekniklerinin kullanıldığı araştırmalar takip etmektedir.

Tablo 3.4. Araştırmalarda kullanılan veri toplama tekniklerinin dağılımı (f,%)

Veri toplama teknikleri	Makale sayısı (f,%)
Nicel	16, %21
Nitel	42, %54
Karma	20, %25

4. TARTIŞMA

Kimya eğitimi alanında IJSE ve JRST derilerinde yayınlanmış makaleler üzerinde yapılan incelemeler araştırmacıların teorik çalışmalar ile literatür taraması çalışmalarına çok az yer verdiklerini ortaya koymuştur. Bu sonuç Eybe ve Schmidt (2001)'nin yapmış oldukları çalışma sonuçları ile de örtüşmektedir. Bunun sebebi teorik ve literatür taraması çalışmalarının diğer araştırma türlerine nazaran daha çok zaman ve gayret gerektirmesi olabilir. Araştırmacılar uzun vadede kazanabilecekleri böylesi araştırmalardansa ürünü daha çabuk alabilecekleri araştırma türlerini kullanmaktadırlar. Diğer taraftan çalışmanın bulguları araştırmacıların en çok kullandıkları araştırma türünün deneysel olmayan ve fakat veri toplamaya ve toplanan veriler üzerinden değerlendirme yapmaya dayalı araştırmalara daha çok yer vermişlerdir. Bununla beraber bir uygulama basamağı gerektiren ve araştırmacı tarafından yapılan manüplasyonlara gelen tepkileri ölçmeye dayalı deneysel çalışmalar da bir diğer çok tercih edilen araştırma desenlerine yer verilmiştir. Burada da yine deneysel çalışmaların uygulama gerektirmeyen deneysel olmayan çalışmalara nispeten daha az çalışıldığı görülmektedir. Bu sonuçta deneysel çalışmaların deneysel olmayan çalışmalara göre zaman ve gayret açısından dezavantajlı yapısından kaynaklıyor olabilir.

Araştırma konularına göre yapılan sınıflandırma çalışması sonucunda frekansı 3 ve 3'ün üstünde olan toplam dokuz konu belirlenmiştir. Bu konulardan özellikle bağlama dayalı öğrenme, araştırtmaya dayalı öğrenme, problem çözme, kavram yanılgıları, bilimin doğası ve motivasyon konuları ikinci beş yıllık dilimde daha çok ele alınmış olan konular olarak karşımıza çıkmaktadır. Bunların dışında pedagojik alan bilgisi, tutum ve işbirlikli öğrenmede ele alınan zaman diliminin çalışma konuları alanında yer almaktadır.

Nicel veri toplama tekniklerinin beşte bir oranında tercih edilmesi de kayda değer bir bulgudur. Bu bulgunun son yıllarda nitel veri toplama tekniklerine verilen ağırlığın bir göstergesi olduğu söylenebilir. Karma veri toplama teknikleri yani nicel verilerle nitel verilerin beraber toplanabildiği uygulamalar güvenirliği artırma gayretinin bir sonu olarak değerlendirilebilir. Ayrıca nitel tekniklere olan bu kayış, istatistiki veriler üzerinde konuşmak veya büyük örneklem sayıları ile genelmeler yapabilme endişesinin yerini, azda olsa araştırma için önemli olan sınırlı sayıdaki örneklemden derinlemesine bilgiler alma gayretine bıraktığı şeklinde özetlenerek yorumlanabilir.

Kimya eğitimi araştırmalarının son on yılına ışık tutan böylesi bir araştırmanın, başta alana yeni dahil olan araştırmacılar olmak üzere tüm kimya araştırmacıları için gelecekteki araştırmalarını seçmede ve yürütmede faydalanabilecekleri önemli bir kaynak olacağı düşünülmektedir.

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INTE 2010

KLASİK MÜZİK EĞİTİMİNDE ZAYIF NOKTA: DOĞAÇLAMA

THE WEAK POINT IN CLASSICAL MUSIC EDUCATION: IMPROVISATION

Doç.Ömür BÜTEV DOLĞUN*

ÖZET

Anlaşılması en zor sanatlardan biri olan müzik sanatının eğitim sürecinde, Usta-Çırak ilişkisi önemli bir yer tutmaktadır. Bunun yanında, bir sanatçı adayı olan öğrencinin kendi özgünlüğünü kazanması ve yansıtması da oldukça önemlidir. Çünkü müzisyen olmak, salt notaları çalmak değil, kişinin müziğine kendi özgünlüğünü de yansıtması demektir. Bunun gerçekleştirilmesi ise ,öğrenciye doğaçlama çalışma yöntemleri öğretmek ve bu konuda çalıştırmak ile mümkündür.
Bu çalışmada ; doğaçlama olgusunun Klasik Müzik çerçevesinde ne denli önemli olduğu vurgulanacak ve söz konusu yöntemler incelenecektir.

Anahtar Kelimeler: Müzik Eğitimi, Doğaçlama, Konservatuvar.

ABSTRACT

Master-apprentice relationship has an important place in the education process of music art which is considered as one of the most difficult arts to be understood. Besides, it is also very important for a student who is a candidate artist to achieve and reflect his own genuineness. To be a musician is not just to play musical notes but it is to reflect his own genuineness into his music as well. To realize this, one should teach the student improvisational study methods and tutor him in this way.
In this study, it will be emphasized how important improvisation in the classical music frame is and forementioned methods will be examined.

Key words : Music Education, Improvisation, Conservatory.

GİRİŞ

Bilim özgür düşünmeyi, sanat özgür yaratmayı hedefler. Bilim alanında akılcı düşünerek ve gözlemler yaparak buluşlar, icatlar yapmak önemli iken sanat insanı, çevresindeki ve toplumdaki birtakım olgulardan etkilenerek, bir anlamda rahatsızlık içinde sanat yapıtını ortaya koyar. Yani bir sanat yapıtı ortaya koymak; sanatçının içinde duyduğu birtakım olumsuz duygu ve itkilerden kurtulma çabasıdır. Sanatçı; çevresinde olup biten olay ve olgulara karşı belirli bir duyarlılık içinde kalarak tepkisini, özlemlerini bazen ise kendince çözüm yollarını kendine özgü bir biçemde ortaya koyar. Bu bağlamda sanat insanının yetişmesinde bir dereceye kadar bilgi ve deneyim aktarımının önemi ne denli fazla olursa olsun onu kendi içselliğinde bırakmak; sanatın bir gereği olarak karşımıza çıkmaktadır. Sanatçının gelişiminde, bilim alanında olduğu gibi fazla müdahaleci olmadan davranış şarttır.

MÜZİK SANATI VE KONSERVATUVAR EĞİTİMİ

Güzel sanatların içinde en soyut ve anlaşılması zor olan branşın müzik sanatı olduğu söylenebilir. Müzikte her ne kadar notalardan söz edilse de bu durum, resim, mimari ya da heykelden oldukça farklıdır. Resimde, mimaride ya da heykelde ortada somut bir nesne var iken müzikte notalar vardır -ki salt bu

nedenle bile müziğin dolaylı yönünden söz edilebilir. Şöyle ki; ancak notalar okunduğu ya da çalındığı, yani ses haline getirilip kulak tarafından algılandığı zaman bir sanat ortaya çıkmaktadır. Dolayısıyla

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müzik eğitiminin oldukça yoğun ve uzun soluklu bir eğitim olduğu gerçeği karşımıza çıkmaktadır. Bu eğitim, aynı zamanda pek çok yan dalları da içinde barındırmaktadır. Müzik eğitimini çağdaş yöntemler ile yapabilmek için Cumhuriyetimizin en önemli kazanımlarından biri olan Müzik Devrimi gerçekleştirilmiş ve ulusallığı da içinde barındıran Batı kaynaklı bir müzik eğitimini ilke edinmiş olan sanatçılar yetiştirmek üzere konservatuvarlar kurulmuştur. Avrupa'daki Konservatuvarlar'da olduğu gibi enstrüman ağırlıklı olan bu eğitim; solfej, armoni, müzik tarihi, müzik nazariyatı v.b. gibi diğer dersler ile desteklenmektedir. Öğrenciler bu derslerde öğretilen kuramsal bilgilerle erken yaşlarda tanışmakta ve bu kuramsal bilgiler onların ileriki yıllarda meslekleri olacak müzisyenlikte daha fazla donanımlı olmalarını sağlamaktadır. Eğitimleri; kulak eğitiminin gerçekleştirildiği solfej, armoni, analiz gibi derslerin yanında, bestecilerin hayatlarını ve yapıtlarını tarihsel, biçemsel, dönemsel gibi çeşitli yönlerden incelemeyi öğreten müzik tarihi ve form bilgisi benzeri derslerle gerçekleşen bu öğrenciler, daha iyi birer müzisyen olmak için gerekli donanımlara sahip olabilmektedir. Hatta özellikle Yaylı çalgılar ve Piyano dallarında öğrenim sürelerinin daha fazla olmasının, bu dallarda öğrenim gören öğrencilere avantaj sağladığı söylenebilir.Çünkü bu öğrenciler, sözü edilen dersleri daha uzun yıllar almaktadır.

DOĞAÇLAMA OLGUSU

Klasik Batı Müziği'nin gerek teknik donanımı gerekse çalgılara alışma sürecinde yaşanan çeşitli sorunlar; öğrencilerin uzun yıllar bir uyum (adaptation) sorunu yaşamasına neden olmaktadır. Kuramsal ve pratik olarak pek çok ders görmekte olan öğrencilerin tüm bu olguların sonucunda; kendi özgünlüklerini yansıtmaları zaman almakta, hatta çoğunlukla da mümkün olmamaktadır. Tüm sanat eğitimlerinde olduğu gibi Klasik Müzik Eğitimi'nin de en önemli ayağının Usta-Çırak ilişkisi olmasına karşın, salt derslerle sınırlı kalmayıp öğrencinin kendi çalışmalarını yapmak zorunda olduğu sürenin çok fazla olması sonucunda bu olgunun önemi yeterince değerlendirilememektedir.

Usta-Çırak merkezinde gerçekleştirilen müzik eğitiminde böylece yaratıcılıktan ziyade yalnızca el ustalığına dayanan zanaatkarlık ile yaratıcılığa dayanan sanatkarlık arasındaki ayırım ortadan kalkmaktadır. Müzisyen adayları, ancak uzun yıllar ve çabalar sonucunda belirli teknik donanım, bilgi ve deneyim sahibi olabilmektedir. Sancılı geçen bu eğitim sırasında ise ne yazık ki çoğu zaman taklide dayanan yorumlar ortaya çıkabilmektedir. Oysa ki, belirli notalara bağlı kalmadan, yalnızca o an için, içinden geldiği gibi söyleyerek ya da çalarak yani doğaçlama yaparak hiç olmazsa bu şekilde bir özgünlük katma çabasıyla bu taklit yorumlardan biraz olsun kurtulmak ve bir nebze de olsa farklılık yaratmak mümkündür.

SONUÇ VE ÖNERİLER

Müzisyen adaylarına, yeni yapıtların ortaya çıkarılmasına yönelik bir eğitim olan Kompozisyon eğitiminden bağımsız olarak, kendilerini ifade edebilecekleri bir yöntem bulunabilir. Doğaçlama, zaten her sanatçıda doğal olarak varolan bir olgudur. Bu olgunun tarih boyunca izlediği evreler incelenerek, öğrenciye kendi biçemini bulma yolu öğretilebilir. Bütün bu nedenlerle günümüzde sıkça rastlanan bir yanılgı ile caz müziğine maledilen bu olgu, rahatlıkla Klasik Batı Müziği Eğitimi'nde de kullanılabilir. Bu yolla müzisyen adaylarının kendilerini daha özgür hissetmesi sağlanacak ve onların yaratma keyfine varmaları, böylece de farklılık sunmaları mümkün olabilecektir.

Pekçok çağdaş eğitim sisteminde olduğu gibi, bu konuda da her öğreticinin kendine özgü bir yöntem geliştirmesi mümkündür. Bu yöntem; öğrencinin, öğreticisinin gösterdiği yolda ilerleyerek ve zamanla edinmiş olduğu bilgi, deneyim ile gözlemlerini ortaya koyarak geliştirdiği bir yol üzerinde oluşturulacaktır. Bu çalışmalar sonucunda ise, her öğrencinin doğal olarak farklı yönlere gittiği bir sistem ortaya çıkacaktır. Böylece, öğrenci ile öğreticinin el ele vererek kendi yöntemlerini bulmaları mümkün olabilecektir.

Bu yöntemi belirleme aşamasında doğaçlama olgusu; örneğin bir bestecinin yazdığı ve bizzat öğrenci tarafından seslendirilen bir Konçerto'ya, bir kadans yazılması biçiminde gerçekleşebilir. Öğrenci böylelikle hem Klasik Batı müziğine ait bir bestecinin yapıtını seslendirecek hem de kendi özgünlüğünü gerçekleştirecektir. Bunu yaparken de, bestecinin ait olduğu tarihsel dönemin gereklerine ve geleneklerine bağlı kalabileceği gibi, tamamiyle bambaşka bir biçem de geliştirebilir. Bu biçem ise, tonal, modal, ritmik ya da tartımsal olabilir. Burada öğrencinin kendini gerçekleştirmesi açısından, daha önce sözü edilen şekilde özgür bırakılmasında yarar vardır.

Bunun yanında, kompozisyon, yani bir müzik yapıtını besteleme çalışması da, o zamana değin bunu başarabilmek için gerekli olan teknik donanımı kazanmış olan öğrenciye yaptırılabilir. Bu tür bir çalışma için ise prelüd ya da etüt gibi küçük biçemlerde o zamana değin bestelenmiş olan belli başlı yapıtların incelenmesinin ardından, öğrenciden bunlara biçemsel olarak benzeyen küçük çalışmalar yapması istenebilir. Bu türden bir çalışma ile, bir müzisyen adayı olan öğrencinin kendini daha kolay ve rahat bir biçimde ifade edebileceği görülebilir.

Doğaçlama eğitimi, Avrupa'daki bazı müzik okullarında (örneğin Avusturya' daki ünlü Mozarteum Müzik Akademisi'nde) Lisans düzeyinde verilmesine karşın, ülkemizdeki kimi eğitim kurumlarında Yüksek Lisans düzeyinde verilmektedir. Yukarıda da sözü edilen nedenlerle, bu yöntemin ülke genelindeki Klasik müzik eğitimi veren kurumlar tarafından kullanılması; müzisyen adaylarının kendilerini ifade edebilecekleri özgür bir ortam sunması açısından önemli olacaktır.Ayrıca bu tür bir eğitim, öğrencinin müziğe daha farklı bir bakış açısı ile yaklaşarak sıkı ve disiplinel bir eğitim olan klasik müzik eğitimine de yeni bir soluk getirebilir.

INTE 2010

LANGUAGE LEARNING - A TOOL TO PROMOTE EUROPEAN AWARENESS AND CO-OPERATION

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ABSTRACT

The study focuses on globalization - which has many interactive and cross-cultural paths – pointing out how it would be possible to distinguish between approaching cultural difference "through language" and the use of learning techniques whose objectives are more overtly "behavioral". The idea that led to the analysis of this topic had as starting point the fact that language, on one hand, is a sensitive political issue, as it is a profound symbol of national and personal identity. On the other hand, the burgeoning field of Intercultural Studies is a complex, eclectic, hybrid "inter-discipline" which is transforming the way Modern Languages are perceived and taught.
The chosen case study aims to draw attention to the possibilities of establishing a sound policy regarding the growth of Intercultural Studies through language teaching and learning, as both a catalyst and an agent for institutional change which is offering Modern Languages in Romanian Higher Education the potential for a fertile intellectual future.

1. INTRODUCTION

The present world has become small and manageable, in the era of modern means of transport and communication. Modern mass tourism brings millions of people each year to other countries. The economy, trade and transport are internationally intertwined, interrelated and mergers and joint ventures of large organizations do not represent any longer a rarity. More and more supranational organizations arise. States unite to form larger groups, such as the European Union. The buzz-word seems to be integration. Therefore, at least in the united Europe, a common language is necessary, but also the idea of multilingualism is becoming more and more important. In Europe today it is no longer enough to only master one language but one must be able to speak at least one or two foreign languages fluently. The role of this common language seems to be inhered by the English language, because it is estimated that nearly two billion people routinely use English and the USA currently enjoy a dominant position in the world, politically, militarily, and economically.

2. GLOBALIZATION AND THE LANGUAGE OF A GLOBALIZED POWER. WHERE DOES THE CULTURAL ISSUE STAND?

The European Union is a truly multilingual institution that fosters the ideal of a single Community with a diversity of cultures and languages. The three core aims of the European Commission's multilingualism policy are to encourage language learning, to promote a healthy multilingual economy, and to give all EU citizens access to legislation, procedures and information of the Union in their own language. The term 'multilingualism' refers to both a person's ability to use several languages and the co-existence of different language communities in one geographical area. Whilst pointing out its supporting role for member states, the Commission says it regards respect for linguistic diversity as a core value of the European Union.
Language is a sensitive political issue, as it is a profound symbol of national and personal identity. As language, culture and education are in principle matters for individual member states rather than the Union, language policy at the supra-national level is largely implicit and covert. As some languages are more "international" than others the equality of the EU languages has in fact always been a myth. What is urgently needed is clarification of the criteria that should guide an equitable language policy, and mechanisms that permit real equality of communication between speakers of different languages. We need imaginative and realistic scenarios. We need to see a coming together of the relevant constituencies in the political, business, academic, cultural and human rights worlds. There is a need for thorough analysis of

how to ensure efficient, cost effective and democratic strategies for increased multilingualism. In this way English can be appropriated without other languages being marginalized.

There is no doubt that English is becoming more important in Europe, as elsewhere in the world. According to the Economist, over 92% of secondary-school students in the EU's non-English-speaking countries are studying English. Local languages may even now provide a defense shield against the threat of cultural globalization. Paradoxically, as the world learns English, it may be more difficult to learn about other cultures and literature through it. It is now easy to move around the world in an English-speaking bubble. Tourist and hospitality services, conference and business facilities, as delivered around the world have a similar look and feel. They are becoming international, with just a safe hint of local flavor.

The English language has been at the forefront of globalization. English is celebrated as the language of global corporate management, the Internet, youth culture and science. At the same time, there appears to be a crisis in foreign language learning amongst native English speakers - it seems that there is no need any more to learn foreign languages if everyone now speaks English. But we are now experiencing a second phase of globalization which is redirecting the 21st century world. The facts are complex, sometimes contradictory, often unexpected. But when we examine them methodically, what emerges is a clear, but surprising, message. The need for English speakers to learn other languages is now greater than at any time in history, and the benefits to learners, to their employers and their countries are similarly great.

3. CULTIVATING GLOBAL LITERACY FOR A PEACEFUL WORLD

First of all, globalization means global, transnational interactions of people, shared cultures, information and technology, education, economy and value systems beyond the cultural divide of West and East. The world has already witnessed a dramatic increase in multicultural, bicultural, cross-cultural and transnational people who have plural personal, ethnic, national and global identifications as well as transnational and cross-cultural organizations and institutions. The process of globalization needs to carefully respond to the issue of culture for the purpose of a multicultural and equitable coexistence. In many multinational companies, understanding culture is more important than understanding technology. Being ahead of the competitor in terms of cultural understanding is increasingly more important. Culture is the way people approach and resolve dilemmas. Culture is a dynamic process of solving human problems, and these problems come to us as dilemmas. "Dilemma" comes from the Greek word meaning "two propositions". Then how should we cope with different cultures with an effective strategy for cultural confrontation and opposing values? The key answer is awareness, respect, communication and, as Trompenaars emphasizes, reconciliation from your cultural strength.

Secondly, the study of languages other than one's own can not only serve to help us understand what we as human beings have in common, but also assist us in understanding the diversity which underlies not only our languages, but also our ways of constructing and organizing knowledge, and the many different realities in which we all live and interact. Such understanding has profound implications with respect to developing a critical awareness of social relationships. Understanding social relationships and the way other cultures work is the groundwork of successful globalization business efforts. Learning a foreign language is important in intercultural business communication studies. But equally important is developing intercultural communicative competence, that is, recognition of the cultural factors influencing behavior in business encounters around the globe. Therefore, foreign language courses can be contextualized to promote intercultural learning geared to "achieving an awareness of cultural diversity and an understanding of the different modes of living and behavior".

Thirdly, as language and culture are symbiotic, cultivating global literacy for a peaceful world is one of the most urgent tasks for educators and researchers. For multicultural citizens of the world, in a more sustainable global village where borders play such a minor role, global awareness, respect for other cultures and communication skills, especially communicative competence in English as an International Language (EIL) will be more vital. Global literacy includes cross-cultural competence/sensitivity with trans-cultural and trans-national perspectives to get along with the rest of the world. It also requires communicative competence in EIL to have a global and peaceful dialogue with people of the world.

Fourthly, the significance of English as an international language (EIL) is becoming more vital as a means of global communication. Smith (1981) defines EIL as a language that is used by people of different nations to communicate with one another. Smith predicted the future of English as an international language; in his view, English is a means to communicate to the rest of the world one's identity, culture,

politics, and way of life, stating that one doesn't need to become more Western or change one's morals to use English well in international situations.

Last, but not least, the burgeoning field of Intercultural Studies is a complex, eclectic, hybrid "inter-discipline" which is transforming the way Modern Languages are perceived and taught. As our idea of "culture" has changed, so too has our insight into the relationship between intercultural understanding and language. Cultural insight has become more codified, more identifiable both as a behavioral attribute of citizenship in culturally mixed societies, and as essential baggage for the globally mobile. Knowledge of what these codes comprise linked to an ability to describe and investigate them is an increasingly central component of the Modern Languages curriculum. At the same time, it has become clear that intercultural awareness should also entail a more widely informed type of 'deep learning' which can only be fully achieved by a 'grounded empathy' with the condition of displacement and an understanding of its historical origins.

4. THE INTERCULTURAL DIMENSION OF FOREIGN LANGUAGE TEACHING IN THE ROMANIAN HIGHER EDUCATION

In education, there is, of course, a rising tide of concern with political issues such as globalization. However, intercultural language education questions why we use and learn languages. In particular, intercultural teachers see language use as involving much more than information exchange. Language is also seen as the main instrument by which we construct and maintain our sense of personal and social identity; it is the means by which we make and break friendships, and other relationships; in short, it is the tool with which we assert our place in the world. This change in our understanding of what language does leads intercultural teachers to re-think what language courses should set out to achieve – that is, it leads to a change in our curriculum aims. The intercultural curriculum focuses less on tasks that exchange information and more on tasks that explore how we construct a sense of cultural identity – whether that construction takes place in small conversational groups, in larger professional bodies, or in broad national communities.

Language teaching with an intercultural dimension helps learners to acquire the *linguistic competence* needed to communicate in speaking or writing, to formulate what they want to say/write in correct and appropriate ways. In addition to this, it develops their *intercultural competence*, i.e. the ability to ensure a shared understanding by people of different cultures, and to interact with people as complex human beings with multiple identities and their own individuality.

Therefore, the intercultural dimension of foreign language teaching in the Romanian higher education is embedded through the following learning objectives:

- to give students intercultural competence as well as linguistic competence in the target language;
- to prepare them for interaction with people of other cultures;
- to enable them to understand and accept people from any other culture as individuals with other perspectives, values, beliefs and behaviors;
- to make them tolerant and flexible to "otherness" in order to avoid passing judgments in this respect;
- to help them perceive exposure to another culture and interaction with it as a positive and enriching experience.

In order that the linguistic programs conducted in the Romanian Higher Education successfully meet their objectives and commitments, i.e. to train not only foreign language speakers, but first and foremost intercultural speakers/negotiators, the following practical ways have been developed in our institution:

- including in the foreign language syllabuses activities which might help raise awareness of one's own culture as well as of the target culture;
- including in all the foreign language syllabuses some students' research topics based on intercultural issues and materialized into briefings or end-of-course projects which the students have to prepare as part of the intensive or extensive linguistic programs, irrespective of the level of training (i.e., graduate or postgraduate);
- organizing group discussions/seminars on intercultural education, whose aim is to facilitate perception of the latter as a solution to certain current issues, e.g. interethnic violence, immigration and demographic change, historical conflicts, prejudices, etc.
- solving some specific problems by applicative exercises and case studies in order to develop the cognitive complexity towards other culture, as a response to the challenges of a cultural environment different from the Romanian one, including here:
    - A conflict analysis of societies divided from the cultural viewpoint;

- Cultural relativism and reciprocity of influences;
- The perception in different cultures of: time and space; the two sexes and their role; human relationships; family relationships; humor; non-verbal communication, etc.
- Principles of education in different cultures, and so on.

In addition to this, what could bring further results would be asking the foreign students of the University to take part in the debates on intercultural topics and encouraging them to express their points of view, with two precise objectives in mind:

1. to facilitate the information exchange on traditions, values and attitudes in their own culture, and
2. to facilitate understanding by their Romanian colleagues of the way in which foreigners perceive our traditions, culture and values.

The main outcomes of these methods applied, as far as foreign language courses are concerned, have proven successful for endowing students with the ability to:

- use teamwork as a guiding principle for both classroom and job-related tasks;
- lead and take part in a discussion using various language functions in order to hypothesize, support opinion, agree and disagree, etc.
- reach consensus;
- choose jointly the best course of action;
- interpret adequately cultural resemblances and differences and mediate cultural misunderstandings;
- build a successful multinational team;
- develop interpersonal skills, by communicating and sharing knowledge, beliefs and experience;
- become more flexible and tolerant.

5. CONCLUSIONS

The methods applied within the foreign language courses the have demonstrated that students working together cooperatively progress faster and the overall learning process not only has positive effects on the classroom climate, but also teaches them to accept differences, to become more tolerant and to change attitudes into positive ones. Being able to perform language skills such as listening, speaking, reading, writing is valuable indeed, but of little use if the person cannot apply those skills in cooperative interaction with other people in career and/or multinational settings.

It is clear that intercultural language education has a lot to offer – it is an exciting, demanding, often difficult but ultimately rewarding approach to teaching and learning. The way that different cultures present and process information is a fascinating topic for intercultural exploration. But the question still remains: How can we encourage learners to value the opinions and attitudes of others? It is a tall order to teach people to be tolerant – and some might argue that this is not the brief of the foreign language teacher at all, particularly not in the commercial sector. It is equally problematical to teach harmony – passionate differences of opinion, belief and value are inevitable in most classrooms. Intercultural language education should neither exaggerate cultural difference nor gloss over the real divisions that characterize relations between different cultures. What the language classroom can offer is a unique arena where individuals can engage with different cultures and languages. The language classroom is a site where we can explore similarities, differences, modes of social and cultural interaction and influence – both beneficial and malign. Let us therefore keep in mind that, in order to develop the intercultural openness of the representatives of the academic institutions, the role of any foreign language teacher is to develop their students' skills, attitudes and value awareness, complementing the language acquisition for both short and long term purposes.

Despite the increasing use of English as a global lingua franca, the reasons for learning languages are more compelling than ever - especially for the kind of study that goes beyond "survival" language skills and provides a deeper knowledge and appreciation of other cultures and societies. Language skills have become the mark of an educated, and employable, global citizen.

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LİSE ÖĞRENCİLERİNİN DİSİPLİN SUÇLARI İLE BENLİK İMGELERİNİN İNCELENMESİ **

THE INVESTIGATION BETWEEN HIGH SCHOOL STUDENT'S MISSBEHAVIOR AND SELF IMAGE

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ÖZET

Bu araştırmanın amacı, disiplin cezası alan ve almayan lise öğrencilerinin benlik imgelerinin incelenmesidir. Çalışmanın evrenini Kuzey Kıbrıs'ta öğrenim gören lise öğrencileri oluşturmuştur. Araştırma örneklemini, Girne ve Lefkoşa şehirlerindeki 6 değişik lise ve kolejlerde öğrenim gören ve sistematik örnekleme yöntemi ile belirlenen 220 öğrenci oluşturmuştur. Araştırmada veri toplama aracı olarak uyarlaması Özbay ve arkadaşları (1991) tarafından Türkçeleştirilen ve Cronbach-alpha güvenirlilik katsayısı .87 olan ''Offer Benlik İmgesi Ölçeği'' uygulanmıştır.

Rehber öğretmeler yardımıyla disiplin cezası almış öğrencilerin sınıflarından benzer sosyo- demografik aile yapısında olan öğrencilerin seçilmesiyle kontrol grubu oluşturulmuştur.

Araştırma sonucunda, disiplin cezası alan ve almayan öğrencilerin benlik imgelerinde istatistiki değerlendirme sonucunda anlamlı farklılaşmaların olduğu saptanmıştır. Bu iki grup öğrenci arasında benzer birçok özellik bulunmuştur.

Verilerin analizinde araştırmanın amaçları doğrultusunda yüzdelik dökümleri, aritmetik ortalama, tek yönlü varyans analizi (ANOVA) ve ki-kare kullanılmıştır. Bu araştırmada önem düzeyi .05 alınmıştır.

Disiplin cezası alan öğrencilerin çevreyle uyumları, kararlılıkları, özgüveni belirleyen baş etme ve aile ilişkisi alt ölçekleri de beklenildiği gibi düşük değil kontrol grubuna göre yüksek çıkmıştır.

Anahtar Kelimeler: Lise öğrencileri, Benlik İmgesi, Disiplin suçu ve cezası

ABSTRACT

The aim of this research is to investigate the level of between high school student's missbehavior and self image. The population of the study consists of the Lycee students in North Cyprus. The research sample, in the citıes of Nicosia and Kyrenia in various high school and colleges students and selected according to systematic sampling method consisted of 220 students.

In this study the ''self image scale'' developed by Özbay and friends (1991) and the Croancbach's Alpha Reliability coefficient of .87 were used as data collection instruments.

With the help of guides to teach classes of students have taken disciplinary action with similar socio-demographic structure of the students in selecting the control group was formed.

Considering purposes of the study, the percentage documentation average, aritmetic average, ANOVA were used in data analysis. The statistical significance level was accepted as .05 in the study.

As a result, disciplinary action and not the students' self-image as a result of the statistical analysis showed significantly different enrichments. Many features of these two groups were similar among students. Integration of students with disciplinary action for the environment, stability, self-esteem and family relationships in determining coping subscales, as well as expected, not lower than the control group were higher

Keywords: High school student's, self- image, disciplinary, high school student's missbehavior

**Doç. Dr. Ebru Çakıcı nın danışmanlığında hazırlanmış (Disiplin Suçu İşlemiş Lise Öğrencilerinde Problem Çözme Becerisi ve Benlik İmgesi) yüksek lisans tezinden alıntı yapılmış ve sözlü bildiri olarak sunulmuştur.

GİRİŞ

Günümüzde göç; bireysel, toplumsal, ulusal ve uluslararası çatışmalara, tartışmalara yol açan ekonomik, kültürel, toplumsal, yasal boyutları olan, saldırgan davranışların, uyum ve davranım bozukluklarının, şiddet eylemlerinin nedenleri içinde yer alan önemli bir sorundur (Köknel,1999).

Benlik, psikolojik bakımından bireyin çevresini algılamasında, değerlendirmesinde, yapılandırmasında ve çevresine tepkide bulunmasında en önemli dayanaktır. Benlik kavramı bireyin 'algıladığı', başkalarının onu nasıl değerlendirdiklerine dair inanışlarını içeren 'başkalarının gözündeki benliği ' ve gelecekte olmak istediği 'ideal benliği' olarak üç ayrı biçimde düşünülebilir (Kulaksızoğlu,1990).

Benlik bireyin kendini nasıl gördüğüdür. Birey kendisini yüzlerce sıfatla değerlendirebilir. Bireyin kendine ilişkin bu değerlendirmelerinin bir kısmı olumlu bir kısmı ise olumsuz olabilir. Örneğin, bir öğrenci kendisini derslerinde başarılı, zeki biri olarak görürken; diğer yandan kendisini düzensiz veya insan ilişkilerinde başarısız olarak tanımlayabilir. Burada beklenen, her bireyin kendisini çeşitli yönleriyle daha çok olumlu olarak algılamasıdır. Buna olumlu benlik algısı da denmektedir. Öğrencinin benlik algısının olumlu veya olumsuz olduğunun bilinmesi önemlidir. Çünkü öğrencinin geliştirdiği benlik algısı onun ruh sağlığı, meslek seçmesi ve okul başarısı ile anlamlı olarak ilişkilidir (Yıldırım,2002).

Benlik kavramının, günlük davranışlarımız, öğrencilerin okuldaki başarıları, hatta yaptığımız işteki başarımız üzerinde büyük etkisi vardır. Benlik, kendi kişiliğimize ilişkin kanılarımız ve kendi kendimizi görüş tarzımızdır. Bir insanın kendisini ve çevresini algılayış tarzı, onun genel tutumunu ve davranışlarını büyük ölçüde etkilemektedir. Benlik kavramı, çocuğun kendisiyle ilgili olarak kafasında çizdiği görünümdür. Bu görünüm, çocuğun kendine güvenli olup olmayacağını, içe ya da dışa dönük oluşunu belirler. Çocuğun benlik kavramı, dünyayı seyrettiği bir gözlük gibidir. Onun kişiliğinin odak noktasıdır (Düzgün, 1992).

İnsanın kendisi hakkındaki tutumları, benliğin bilişsel boyutunu, kendisi hakkında ne hissettiğini, nasıl değerlendirme yaptığı ise duyuşsal boyutunu oluşturmaktadır. Benliğin bilişsel ve duyusal boyutları arasındaki uyum, benliği zamanla statik olmaktan kurtararak gelişimi için motivasyon sağlar (Ersanlı,1996).

Benlik kavramı, adölesanın kişilik yapısında önemli bir boyuttur. Yapılan çeşitli çalışmalarda benlik kavramının ödelesanların uyum ve ruh sağlıklarıyla doğrudan ilişkili olduğu görülmüştür. Benlik kavramı doğuştan gelmez. Fakat kişinin çevresiyle olan etkileşimi ile gelişir. Benlik kavramının dinamik yönü önemlidir. Çünkü bu onun değişebilir olduğu anlamına gelir (Purkey, 1970).

Benlik karmaşıklığı yüksek olan bireylerin kendilerini daha olumlu değerlendirdikleri bulunmuştur. Olumlu ve olumsuz benlik karmaşıklığının ruhsal ve fiziksel sağlıkla da ilişkili olduğu ve benlik karmaşıklığının bir işlevi olan ayrımlaşma bütünleşme düzeyinin kendini değerlendirme ve kişiler arası ilişkilerde önemli rol oynadığı gözlenen bulgular arasındadır (web:psikolog.org.tr).

Benlik saygısı yükseldikçe insanlarda güven de artmaktadır. Gençlerdeki depresyon bulguları ile benlik saygısı da sıkı ilişki göstermektedir. Depresyon belirtisi olmayan gençlerin çoğunun benlik saygısı yüksektir. Depresyon belirtileri arttıkça benlik saygısında düşme gözlenmektedir. Ayrıca gençlerde yalnızlık, içe dönüklük ve hayalcilik eğilimi arttıkça benlik saygısı da o oranda düşmektedir (Çetin, 1985).

Patterson (1973), kişinin olumlu bir benlik tasarımı geliştirebilmesi ve kendini kabul edebilmesi için, onun başkaları tarafından kabul edilmesi ve bazı alanlarda başarılı olması gerektiği görüşündedir. Birey kendini, benlik kavramına tutarlı olarak davranışını algıladığında yeterlilik, güven ve değerli olma duygularını yaşar. Tanımadığı normalden farklı olarak davrandığını algılıyorsa tehdit, yetersizlik, güvensizlik ve değersizlik duygularını yaşar.

Ergenliğin başlangıç döneminde görülen okul başarısızlığı, ufak çaptaki uygunsuz davranışlar, okulu sevmeme gibi özelliklerin, ergenliğin daha ileri yıllarında görülen depresyon ve psikolojik sağlık ile ilgili olduğu bilinmektedir (web:psikolog.org.tr).

Kimlik başarımı ve kendini tanıma özellikle ergenlik dönemi ile ilgili en önemli gelişimsel görevdir. Psikososyal gelişimin 12-20 yaşları arası kişinin kimliğini oluşturma, çözümleme ve sonuçlandırması ile ilgili sonuçlarla iç içedir. Bu ayni zamanda ergenlikte ortaya çıkan bir yığın problemlerin de ana eksenini oluşturmaktadır (Kulaksızoğlu, 1999).

Ergenin farklı olma çabaları, yetişkinleri veya otoriteyi takmamaları, başkalarının bakış açılarını anlamamakta zorlanmaları, zaman zaman kendine özgü iç dünyalarında yaşamaları gibi sorunlar veya konular ergenin kimlik oluşturma süreciyle ilgilidir.

Erikson (1968), güvensizlik duygusuyla kendileri hakkında utanç ve güvensizlik duygularıyla, davranışlarına ilişkin suçluluk duygularıyla ve yetenekleri ile ilgili aşağılık duygusuna sahip olarak büyüyen gençlerin, ergenlik döneminde olması gerekenden daha fazla kimlik karmaşası yaşayabileceklerini belirtmiştir. Erikson,

yaşamın belli dönemlerindeki başarı ya da başarısızlıkların, benlik kavramına değişik biçimlerde etkileri olduğunu belirtmiştir. Bireyin psiko-sosyal gelişiminde sekiz ayrı gelişim dönemi üzerinde duran Erikson, 12-20 yaşları arasında yer alan "ergenlik ve gençlik dönemi" diye adlandırılan devrede ego kimliğinin belirginleştiğini öne sürer

Çocuklar arasında farklı beklentileri olan anne babaların çocuklarında yarattıkları benlik çatışması, onun ruh sağlığını da bozacaktır. Olumlu bir benlik kavramı ve benlik saygısı, ancak insanlar arası ilişkilerin neticesinde, kendilerine ve başkalarına saygının olduğu bir eğitim ortamında algılanabilir ve yaşanılarak öğrenilebilir (Düzgün, 1992).

Araştırma bulgularına göre, ana babaların aşırı kontrol edici, otoriter ve baskıcı algılayan ergenlerin, öz değeri ve özgüveni düşük olmaktadır (Karadayı, 1994; Noller&Callan, 1991). Güney(1989) ise, 'ayrıca bu gençlerin depresyon olasılığı artmakta, çevrelerine yeni uyum yolları geliştirme çabaları da düşük düzeyde kalmaktadır' demektedir.

Otoriter, baskıcı, koruyucu, bağımlılıkçı, uygun rehber ve modellerin bulunmadığı ortamlarda ergenlerin sağlıklı kimlik gelişimlerinin olması beklenemez. Kimlik gelişiminin sağlıklı olarak başarılmasında kişinin kendini tanıması, yeteneklerini bilmesi, özelliklerinin farkına varması, problemlerine ve özelliklerine ilişkin içgörü geliştirmesi gibi kendini tanıma çabalarının önemli olduğu bilinmektedir (Özbay,2002).

Hiçbir çocuk suçlu olarak dünyaya gelmez. Çocuğun suça yönelmesinde; doğuştan sahip olduğu fizyolojik ve biyolojik özellikleri yanı sıra toplumsal yapı, ekonomik nedenler, aile yapısı, eğitim ve bireyler arasındaki ilişkiler, sağlıksız yaşam koşulları, göçler, kentleşme ve sanayileşmenin meydana getirdiği hızlı değişim sonucu toplumsal değerlerde ortaya çıkan uyumsuzluklar da önemli rol oynayabilmektedir (Gümüşçubuk, 1991).

Uyumlu aile ilişkileri, çocuğun okulu, kişilik özelliği geliştirmesi ve toplumda iyi ilişkiler kurabilmesi açısından önemlidir. Ailesi tarafından sevilen ve desteklenen çocuk özsaygısını(benlik) kazanarak hoşgörülü olmayı, toplum içerisinde bağımsız davranmayı öğrenebilir. Toplum kurallarını, iyi-kötü, doğru-yanlış, kavramlarını benimsedikçe toplum içerisinde kendi kendini yönetmeyi başarabilir (Yörükoğlu, 2000).

Sevgi, saygı ve güvenli aile ortamından mahrum olan anne ve baba tarafından sürekli azarlanan, hor görülen genç ise kendine ve çevreye karşı güvensiz bir kişilik geliştirebilir, karmaşık duygu, düşünce ve çelişkiler içerisinde bunalıp, büyüklerin ilgi ve sevgisini çekmek için gereksiz davranışlara yönelebilir. Bu davranışlar gencin çevreye uyumunu bozmaktadır. Önceleri sinirlilik, yalancılık, kavgacılık, söz dinlememe, kaygı ve korku hali şeklinde davranış bozuklukları gözlenmektedir. Daha sonraları bu tür davranışlar topluma ve çevreye uyum bozukluğu şekline dönüşerek evden ve okuldan kaçma, hırsızlık, sürekli baş kaldırma, saldırganlık, alkol, sigara ve uyuşturucu kullanmak şekline dönüşebilir (Yavuzer,1987).

Çevresi ile bir sürü çatışmalara giren ve dış tesirlere karşı çok duyarlı bulunan genç, gerek kendi bünyesinden, gerekse dışarıdan gelsin herhangi bir zorlanma, bir stres ile karşılaşırsa beden ve ruh yapısı dengesini bozar. Bu durumda gencin kişiliğinin ego'sunun gerilemesi söz konusudur (Aksoy,1982).

Ergenlik döneminde kendini kabul ettirmeye doğru bir eğilim, araştırıcı girişimler, gururunu koruma tepkileri, mizaç değişiklikleri, kızgınlık ve sevgi patlamaları en çok göze çarpanlarındandır (Ersanlı,1997).

Bowlby (1953) de Freud gibi kişiliğin temellerinin atıldığı ilk beş yıl içinde anneden ayrı kalmanın, çocukta suçlu kişilik gelişmesinde önemli etken olacağını savunur. Hırsızlık yapan bir çocuğun, bu suça yönelmesindeki amacın yalnızca fizyolojik gereksinmelerini değil, bunun yanı sıra, sevgi ve sevecenlik eksikliğini karşılamak olduğunu söylemektedir.

Sosyalleşme, bir ferdin, bulunduğu toplumda kendinden beklenen sosyal norm ve rollerden haberdar olmasıdır. Aile kurumu içinde fert, bazı davranış şekillerini ve toplumla ilgili esas normları öğrenir (Dere,1989)

ARAŞTIRMANIN AMACI

Lise öğrencilerinin disiplin cezası alıp almamalarının benlik imgeleri üzerindeki etkisini araştırmak amaçlanmıştır.

ARAŞTIRMANIN PROBLEM CÜMLESİ

Araştırmanın problem cümlesi, "Disiplin cezası alan ve almayan lise öğrencilerin benlik imgeleri arasında fark var mıdır?" şeklinde ifade edilmiştir.

Bu çalışmada Disiplin cezası alan-almayan öğrencilerin,

a. Cinsiyetlerine göre anlamlı olarak fark var mıdır?
b. Disiplin cezası almış – almamış öğrencileri offer benlik imgesi puan ortalaması arasında fark var mıdır?

YöNTEM

ARAŞTIRMANIN MODELİ

Araştırmamız bir anket çalışmasıdır. Bu araştırma, betimsel türde ilişkisel tarama modeli ile gerçekleştirilmiş bir çalışmadır. Yaygın olarak kullanılan betimleyici yaklaşım, istenen durumu tanımlamayı amaçlamaktadır. Tarama modelleri ise var olan durumu, var olduğu şekliyle betimlemeyi amaçlayan araştırma yaklaşımıdır (Karasar, 2009).

EVREN VE ÖRNEKLEM:

Araştırmanın evrenini Kıbrıs'ta öğrenim gören lise öğrencileri oluşturmuştur. Araştırma örneklemini önce, Lefkoşa ve Girne' de 6 değişik lise, ve kolejde öğrenim gören amaçsal örnekleme yöntemi ile,' kınama' ve 'okuldan kısa süreli uzaklaştırma' displin cezası almış toplam 323 öğrenci oluşturmuştur. Daha sonra bu öğrenciler arasından sistematik örnekleme yöntemiyle %35.6 (n=73) kız %64.22 (n=131) erkek 102 öğrenci belirlenmiştir. Rehber öğretmeler yardımıyla da disiplin cezası almış öğrencilerin sınıflarından benzer sosyo-demografik aile yapısında olan ceza almamış 102 öğrenci daha seçilmiştir.

Araştırma örneklemi, hazırlık, lise 1 – 2 – 3' cü sınıfları içeren aşağıdaki öğrenci gruplarından oluşmuştur; Sedat Simavi Meslek lisesinden; 5 uzaklaştırma, 9 kınama, 14 ceza almamış (toplam 28), Atatürk Kız Meslek Lisesinden; 2 uzaklaştırma, 6 kınama, 8 ceza almamış (toplam 16), Türk Maarif Kolejinden ; 3 uzaklaştırma, 9 kınama, 12 ceza almamış (toplam 24), Bülent Ecevit Anadolu Lisesinden ; 6 kınama, 6 ceza almamış (toplam 12), Girne Anafartalar Lisesinden; 7 uzaklaştırma, 2 kınama, 10 ceza almamış (toplam 19), Lefkoşa Türk Lisesinden ; 13 uzaklaştırma, 39 kınama, 53 ceza almamış (toplam 105) öğrenci.

VERİ TOPLAMA ARAÇLARI

Araştırmada, veri toplama aracı olarak uyarlaması Özbay ve arkadaşları (1991) tarafından Türkçeleştirilen ve Cronbach-alpha güvenirlilik katsayısı .87 olan ''Offer Benlik İmgesi Ölçeği'' uygulanmıştır. Offer Benlik İmgesi Ölçeği, ölçtüğü nitelik ergenlerin 11 farklı alandaki uyumlarıdır. Ölçeğin 99 maddelik formunda gerekli tersine çevirmeler yapıldıktan sonra toplam puanı 50'nin altında olması zayıf uyumu göstermektedir (Savaşır&Şahin, 1997). Ergenler, her maddeye kendilerini tanımlama derecesine göre "çok iyi"den başlayarak "hiç"e kadar giden 6 likertli seçenekten birini işaretleyerek, yanıt verirler. Verilen cevapların analizi sırasında puanlar sayısal değerleri tersine çevrilmektedir. Alt Ölçekler; Aile İlişkileri ; 5, 9, 12, 15, 55, 65, 67, 74, 79, 82, 91 Dürtü Kontrolü; 4, 10, 61, Cinsel Tutumlar; 6, 60, 71, 76, Bireysel Değerler; 27, 31, 49. Baş etme Gücü; 80, 84. Beden İmgesi ; 17, 54, 62, 70, 73, Duygusal Düzey; 7, 14, 25, 36, 48, 99, Çevre Uyumu; 16, 35, 38, 83, 85, 88. Meslek Ve Eğitim Hedefleri;30, 45, 89.Sosyal İlişkiler; 8, 34, 44, 56, 66. Ruh Sağlığı; 1, 13, 19, 23,29, 43, 72. Bu ölçeklerde puanın artması, ruh sağlığında olumsuz belirtilerin olması anlamına gelmektedir. Aynı şekilde OBİÖ'da da puan artışı, benlik imgesinde olumsuz yönde artış anlamına gelmektedir. Bulunan korelasyonlar, benlik imgesinde olumsuz yönde artışların, ruh sağlığı göstergelerinde de olumsuz artışlarla birlikte bulunduğunu göstermiştir (Şahin, 1993). Ölçeğin anlamlı fark olan alt boyutları ve bunların özellikleri sırasıyla şu şekildedir: 1. ***Aile İlişkileri*****:** Ergenin ailesine ilişkin duyguları ile ilgilidir. Bu alt ölçek aynı zamanda bireyin yaşadığı evin duygusal atmosferi hakkında bilgi verir. **2.** ***Bireysel Değerler***: Bu alt ölçekteki sorular, bireyin davranışlarında, kendi mi yoksa başkalarını mı merkeze aldığı ile ilişkilidir. **3.** ***Baş etme Gücü****:* Bu alt ölçekte, bireyin, çevreye ne kadar başarılı bir şekilde uyum sağladığı, kararlılığı ve özgüveni ele alınmaktadır.

Birey okuduğu her ifadenin kendine ne derece uygun olduğunu belirtmek için Bana çok uygun (1), Bana uygun (2), Bana Biraz uygun (3), Bana pek Uygun değil (4), Bana Çoğunlukla uygun değil (5)Bana hiç uygun değil (6) seçeneklerinden birini işaretlemektedir. Ölçekte puanının yükselmesi özgüven duygusunun artmasına işaret etmektedir. Offer benlik imgesi ölçeğinde alınabilecek en düşük puan 99, en yüksek puan ise 594' tir. Ölçeğe ek olarak araştırmacı tarafından oluşturulan "kişisel bilgi formu" uygulanmıştır.

VERİLERİN ANALİZİ VE YORUMLANMASI

Verilerin çözümlenmesinde**,** bilgisayarda, SPSS-16 istatik proğramı kullanarak, ortalama, standart sapma, tek yönlü varyans analizi (ANOVA), ki-kare, hesaplanmıştır. Araştırmada önem düzeyi .05 olarak alınmıştır.

BULGULAR

Araştırmamıza toplam 204 öğrenci alınmıştır. Bunların 73 ü kız (%35.6) ve 131 erkek (%64.22), öğrencidir. Öğrencilerin 39(%19.1) uzaklaştırma cezası, 61(%29.9) kınama cezası ve 104(%51.0)ü herhangi bir disiplin cezası almamıştır. Öğrencilerin 2 tanesi hazırlık (%01.0), 84'ü lise 1(%41.4), 64'ü lise 2(%31.5), 53'ü lise son (%26.1). Bu bölümde, araştırmanın problemlerinin test edilmesi için yapılan istatistiksel analizler sonucunda elde edilen bulgular sunulmuştur.

Tablo I-Disiplin cezası alan –almayan öğrencilerin cinsiyet karşılaştırılması

	CEZA ALMAMIŞ	KINAMA	UZAKLAŞTIRMA	P
KIZ	50 (48.5)	17 (28.3)	6 (15.4)	0.003*
ERKEK	53 (51.5)	43 (71.7)	33 (84.6)	
TOPLAM	103 (100)	60 (100)	39(100)	

*p≤0.05

Gruplar ki-kare yöntemi ile karşılaştırıldığın da erkeklerin kızlara göre anlamlı olarak daha yüksek oranda disiplin cezası aldığı tespit edilmiştir (p=0,003)

Tablo II-Disiplin Cezası Almış ve Almamış Öğrencilerin Offer Benlik İmgesi Puan Ortalaması Karşılaştırılması

	CEZA YOK	CEZA VAR	p
O.B.Ö.TOP	148.61± 33.62 (n=62)	155.76± 32.15 (n=55)	0.244
Benlik aile	31.50 ±7.82 (n=90)	34.41 ±7.93 (n=86)	0.015*
Benlik dürtü	10.14 ±3.62 (n=90)	10.47± 3.62 (n=86)	0.520
Benlik cinsel	2.16±1.50 (n=104)	2.18 ±1.62 (n=97)	0.921
Benlik bireysel değerler	8.23±2.49 (n=98)	8.66± 3.05(n=92)	0.293
Benlik baş etme	5.19 ±2.74 (n=100)	6.14 ±2.57 (n=97)	0.013*
Benlik beden	12.71 ±5.20 (n=94)	13.73 ±5.57 (n=89)	0.203
Benlik duygusal	17.18 ±6.36 (n=96)	18.40± 6.28 (n=94)	0.190
Benlik çevre	18.21 ±4.!5 (n=95)	18.90± .77 (n=88)	0.291
B. meslek ve eğitim hedefleri	6.79 ±3.25 (n=102)	7.51 ±3.31 (n=92)	0.130
Benlik sosyal	16.04 ±3.53 (n=95)	15.52 ±3.51 (n=89)	0.324
Benlik ruh sağlığı	21.30 ±7.08 (n=97)	22.07 ±7.00 (n=88)	0.459

*p≤0.05

Disiplin cezası almış ve almamış öğrencilerin OBİÖ puan ortalaması Student's t-testi ile karşılaştırıldığında aile ilişkileri ve baş etme gücü alt ölçek puanlar arasında istatistiksel olarak anlamlı fark bulunmuştur (p≤0.05). Disiplin cezası alan öğrenciler anlamlı olarak daha yüksek puan alınmıştır.

Tablo III-Disiplin Cezası Almış-almamış Üç Gurup Öğrencinin Benlik İmgeleri İle Aile-Bireysel Değerler ve Baş etme Puan ortalamalarının Karşılaştırılması

	CEZA ALMAYAN	KINAMA	UZAKLAŞTIRMA	P	ANLAMLI FARK
Aile ilişkileri puan ortalaması	31.50±7,82 (n=90)	33,42±7,20 (n=50)	35,80±8,7(n=36)	0,020*	+
Bireysel değerler puan ortalaması	8,23 ± 2,49 (n=98)	8,10 ±2,95 (n=55)	9,48 ± 3,05 (n=37)	0.037*	+
Baş etme puan ortalaması	5,197±2,74 (n=100)	5,87±2,43(n=58)	6,53±2,75(n=39)	0,022*	+

*p<0,05

ANOVA ile yapılan araştırmada öğrencilerin ***aile ilişkileri alt ölçek puan ortalaması*** karşılaştırıldığında anlamlı fark bulundu (p=0,020). Tukey ile yapılan ileri incelemede öğrencilerde uzaklaştırma-kınama (p=0,349),

uzaklaştırma- ceza almayan (p=0,017) ve ceza almayan -uzaklaştırma (p=0,017) grupları arasında anlamlı bir fark bulunmuştur. Bu durumda uzaklaştırma cezası alan öğrencilerin aile yaşantılarına bağlı olarak benlik imgelerinin yüksek olduğu görülmektedir.

Öğrenci grupları ***bireysel değerler alt ölçek puan ortalamaları*** açısından ANOVA yöntemi ile karşılaştırıldığında istatistiksel olarak anlamlı fark bulunmuştur (p=0.037). Tukey ile yapılan ileri incelemede bireysel değer puanı uzaklaştırma alan öğrencilerde kınama (p=,050) ve ceza almayan (p=0,050) grubuna göre anlamlı olarak yüksek bulunmuştur.

Öğrenci grupları ***baş etme alt ölçek puan ortalamaları*** açısından ANOVA yöntemi ile karşılaştırıldığında istatistiksel olarak anlamlı fark bulunmuştur (p=0.022). Tukey ile yapılan ileri incelemede bireysel değer puanı uzaklaştırma alan öğrencilerde ceza almayan grubuna göre anlamlı olarak yüksek bulunmuştur (p =0,021).

SONUÇ, TARTIŞMA VE ÖNERİLER

Araştırma sonucunda, Kuzey Kıbrıs'ta çeşitli lise ve kolejlerde eğitim gören öğrencileri verilerinin incelenmesi sonucunda, kınama cezası alan öğrencilerin ceza almamışlara göre daha büyük yaşta olduğu tespit edilmiştir.

Araştırmamızda kız öğrencilere göre erkek öğrenciler daha yüksek oranda disiplin cezası almıştır. Yavuzer (2001) in araştırmasında da 1978 yılı istatistiklerine göre, 1.1.1978 ile 31.12.1978 tarihleri arasında İstanbul Emniyet Çocuk Bürosuna 2542 çocuk getirilmiştir. Bu çocuklar çeşitli kez yeniden getirilmiş çocuklardır. Getirilen tüm çocukların 291'i kız, 953'ü erkektir. Yapılan geniş çaplı araştırmalar sonucu, İstanbul'da işlenen suçların %25'i çocuklar tarafından işlenmektedir (Yavuzer, 2001). Bu durum düşündürücüdür. K.K.T.C. de de Ankay'(2000) ın yaptığı araştırma sonuçlarına göre; 2000 yılında 25, 2001 yılında 14, 2002 yılında 21 çocuğun adam öldürme, adam öldürmeye teşebbüs, vahim yaralama, darp ve tecavüz gibi nedenlerden ötürü yargı önüne çıktığına ve çeşitli cezalara çaptırıldığına dikkati çekmiştir. Yüksek mahkeme Genel Sekreterliği tarafından hazırlanan 2002 faaliyet raporuna göre 2002 yılında ülke genelinde 217 çocuğun 16'dan küçük suçlu çocuk olduğu ve çocuk suçlularda büyük artışın var olduğu görülmüştür. 177'si erkek, 9'u kız tam 186 çocuk yargılanıp mahkum edildi. Soygun, ev ve dükkan açmak, sirkat ve trafik suçlarını içermektedir (Ankay, 2000).

Disiplin cezası alan öğrencilerin ailesine ilişkin duyguları ve yaşadığı evin atmosferi hakkında bilgi veren aile ilişkileri alt ölçeğinden, çevreye ne kadar başarılı bir şekilde uyum sağladığı, kararlılığı ve özgüvenini ele alan baş etme alt ölçeğinden ceza almayan gruba göre daha yüksek puan aldığı bulunmuştur. Ergenin davranışlarında kendini mi yoksa başkalarını mı merkez aldığını değerlendiren bireysel değerler alt ölçeğinden uzaklaştırma cezası alanlar daha yüksek puan almıştır.

İngiltere'de 8 - 13 yaş arası 179 öğrencide zorba, kurban, zorba / kurban ve zorba / kurban rolünde olmayan 4 grup öğrencinin benlik algısı ve kişilik yapıları karşılaştırıldığın da zorba öğrencilerin sosyal kabul görme, atletik yetenek gibi alanlarda zorba/kurban olmayanlara göre farklı olmadığı kendilerini kurbanlar ve zorba / kurbanlardan daha fazla sosyal kabul edilir buldukları görülmüştür. Zorba öğrencilerin yine dışa dönüklük, nerotizisim ve psikotisizm puanları zorba / kurban olmayanlarla benzer bulunmuştur (Piek ve Edwards,1997). Bu araştırmada zorba öğrencilerin benlik algısı değerlendirmesinin hiç de düşük olmadığı, birçok alt ölçekte zorba/kurban olmayanlardan farklılık göstermezken, kurban ya da zorba/kurbanlara göre çok daha iyi puanlar aldıkları tespit edilmiştir.

Bu gençler başlangıçta karşı gelme, yalan söyleme gibi uyum ve davranım bozukluklarını içeren okul disiplin kuralları kapsamındaki küçük suçlar, daha sonrada hırsızlık, saldırganlık, adam öldürme, mala ve şahsa tecavüz, gibi toplum kural ve yasalarına karşı gelme gibi büyük suçlara yönelmektedirler. Bu gençler sigara, alkol yada uyuşturucu madde kullanmaya yatkın olmakta sıkıntı ve kırıklıklarına bir çıkış yolu olarak bu yola başvurmaktadırlar. Çakıcı (2003) nın da vurguladığı gibi, ergenlik çağının en önemli kimlik sorunu kişinin bireyselleşmesidir. Bireyselleşme başarılı bir şekilde tamamlandığı zaman kendini kontrol eden ve yükselmiş benlik saygısı gibi kuvvetli hislere sahip özellikte kişiler ortaya çıkmaktadır. Akran grubu arasında doğal statüsü olmayan ve kendini göstermek isteyen öğrencilerin özellikle agresyon modelini daha kolay benimseyebileceğini bildirmektedir (Piek ve Edwards,1997). Araştırmamızda disiplin cezası alan öğrencilerin hipotezde beklenenin aksine benlik imgesi ölçeğinin baş etme ve bireysel değerler alt ölçeklerinden daha yüksek puan alması Piek ve Edwards' ın çalışmasıyla paralel bulgulardır.

ÖNERİLER

Bu çalışmalar iki aşamada yapılmalıdır.

I.*Gençlerin Suça Yönelmesini Önlemek İçin Yapılması Gereken Hizmetler*

1. Ülkede yeniden eğitim planlaması şart. Ve önleyici tedbir olarak PDRM erken tanı merkezleri kurulmalı, yaşam becerileri programları hazırlanmalı, yaygınlaştırılmalı.

2. Ana-Baba Okulu Eğitim projesi bir an önce yaşama geçirilmeli.

3. Özellikle nüfus yapısının değişim gösterdiği bölgelerde, gençlere yönelik kültür merkezleri kurulmalı, ücretsiz sosyal kültürel aktiviteler yaptırılmalı.

4. Kitle iletişim araçları ile aileler çocuk eğitimi konusunda bilgilendirilmeli ve ailelerin çocuklara karşı tutum ve davranışlarında olumlu etkiler yaratılmalı,

5. Okul Disiplin Yönetmeliği daha çağdaş bir yapıya kavuşturulmalı ve yeniden düzenlenerek uygulamaya konmalıdır.

6. Okul müdürü, okul idaresi, öğretmen ve PDR merkezi bir bütün olarak ayni doğrultuda çalışılmalı

7. Bu araştırma genel ada çapında, tüm lise ve ortaokul öğrencilerine uygulanabilir.

II- Suça Yönelmiş Çocukları Yeniden Topluma Kazandırılması İçin Çocuklara Ve Ana-Babalara Verilmesi Gerekli Hizmetler

1. PDRM ‘de disiplin suçu işleyen çocuklara dönük yoğun danışmanlık proğramları hazırlanması – uygulanması.

2. Bu çocukların aileleri ile iletişim, işbirliği, ailelere dönük eğitim ve danışmanlık hizmetleri verilmeli.

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MATHEMATICS E-HOMEWORK

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ABSTRACT

Modern technology has given up many new possibilities in learning. In the new e-society e-learning has become a challenge for teachers and students to find a new way to learn and teach mathematics, based on creative pedagogical approaches and supported by modern technology. In the paper construction of mathematics e-homework with dynamic generating exercises will be presented as well as their didactic implementation into learning process. Finally, the results of research will be given to prove hypothesis of e-homework high usefulness.

Keywords: e-learning, exercise, homework

1. INTRODUCTION

As an innovative new approach of learning for the new e-society generation in Slovenian school the E-um [15] system was developed. The aim of the E-um project was to provide students of primary and high school interactive e-learning material to either serve as help for studying or to increase student's interests, initially focused on mathematics [2,4,13,14].

E-um (a word game meaning e-mind) has been an extensive e-learning project [3] financed by EU and Slovenian Ministry of Education. The system has been developed in close collaboration between experts in math education and computer science [1,5,6,7,11]. After four years of intensive work a complex e-learning E-um system is freely accessible and in Slovenia widely used portal for students and teachers of primary and high school which includes: e-learning materials (e-textbook), simulations as explanations without words (e-laboratory) and finally a repository of dynamic generating exercises (e-workbook). One of the cornerstones of the project were authoring tools [8,9,10,12] and their modifications which provided ideal tools for writing and designing mathematical e-learning materials. We will give our main attention to those interactive and partly randomized exercises and we will try to find benefits for their implementation in learning process.

Homework exercises play important role in the education of the mathematics, since students have to practice and check their knowledge. Exercises in the books are static, which means that they can be used only once. On the other hand dynamic generating exercise are useful practical as long student want to train. Moreover, teacher can follow student's progress online.

In the next section we will present our concept of mathematics e-homework, using prepared e-um dynamic generating exercises. The sample of e-homework for primary school and high school will be given and the procedure of constructing will be explained. Finally, we present a questionnaire for students, which will give the answer on our hypothesis of e-homework usefulness.

The results of research will be presented in the third section and evaluated in the conclusion section.

2. METHODS AND PROCEDURES

Dynamic generating exercises, constructed on the E-um system, can be saved in a compressed (.zip) file and SCORM 2.0 standard. This is the reason why we can imbed them into any LMS (Learning Management System) which support SCORM 2.0 standard and allows monitoring an activity progress.

Using E-um system [1], we construct an e-homework from repository of dynamic generating exercises and export it to a file as it is shown on the Figure 1. Many exercises are equipped with Geogebra graphic applet, which represents generated values in the exercise. This is a very powerful didactic device, because it allows student to train specific type of exercise and also teacher can use it to show different aspects of o problem.

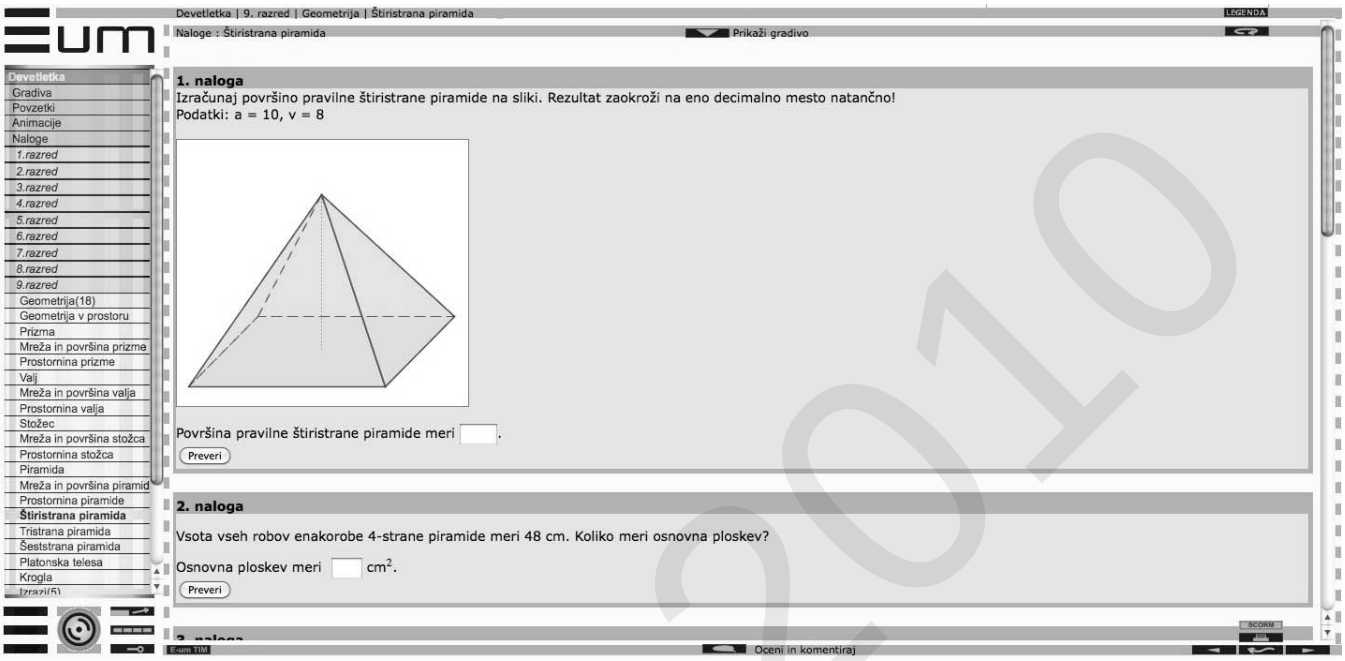


Figure 1: Constructing an e-homework from repository of dynamic generating exercises

We can now import the e-homework by adding the activity in our LMS (for example in Moodle as SCORM/AICC) as we can see on the Figure 2. The student progress is automatic recorded beside other grades in the e-classroom. Teacher can set the calculation of average e-homework grade to get final insight into student's own work.

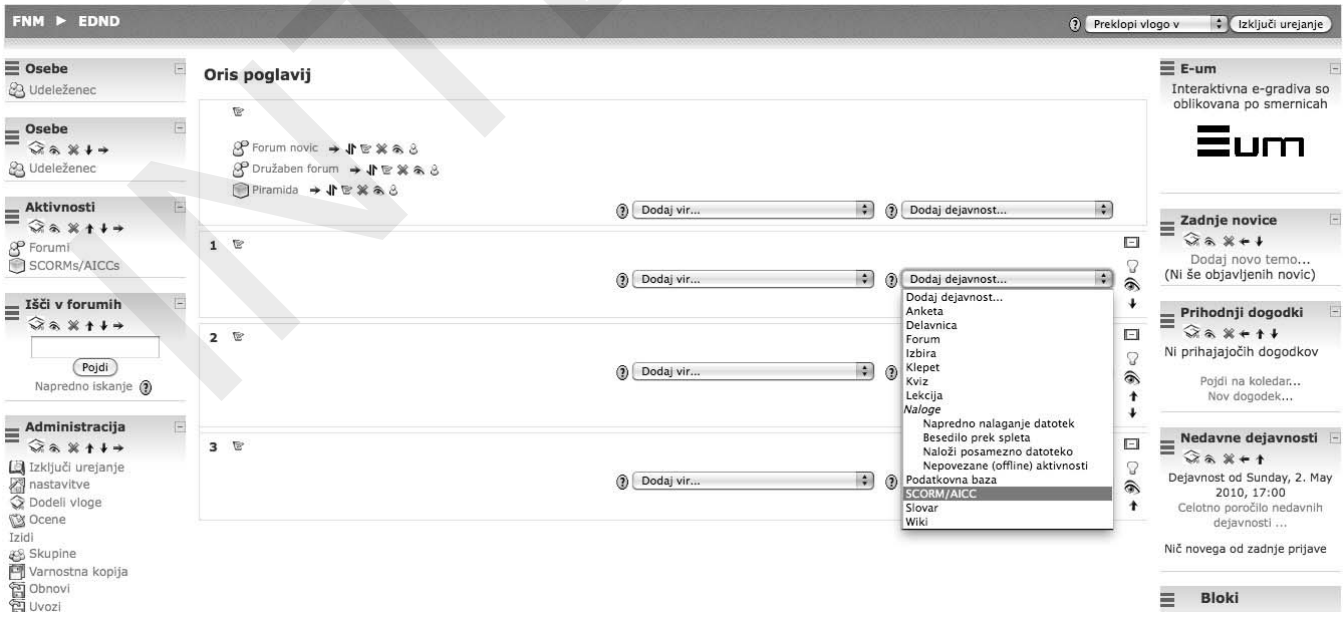


Figure 2: Inserting e-homework into LMS (Moodle)

In the LMS students are encouraged to fulfill the e-homework (Figure 3) in a specified time period and they get an online evaluation response. The teachers can inspect the progress and the grades of all students. They can also make an intervention during the e-homework period.

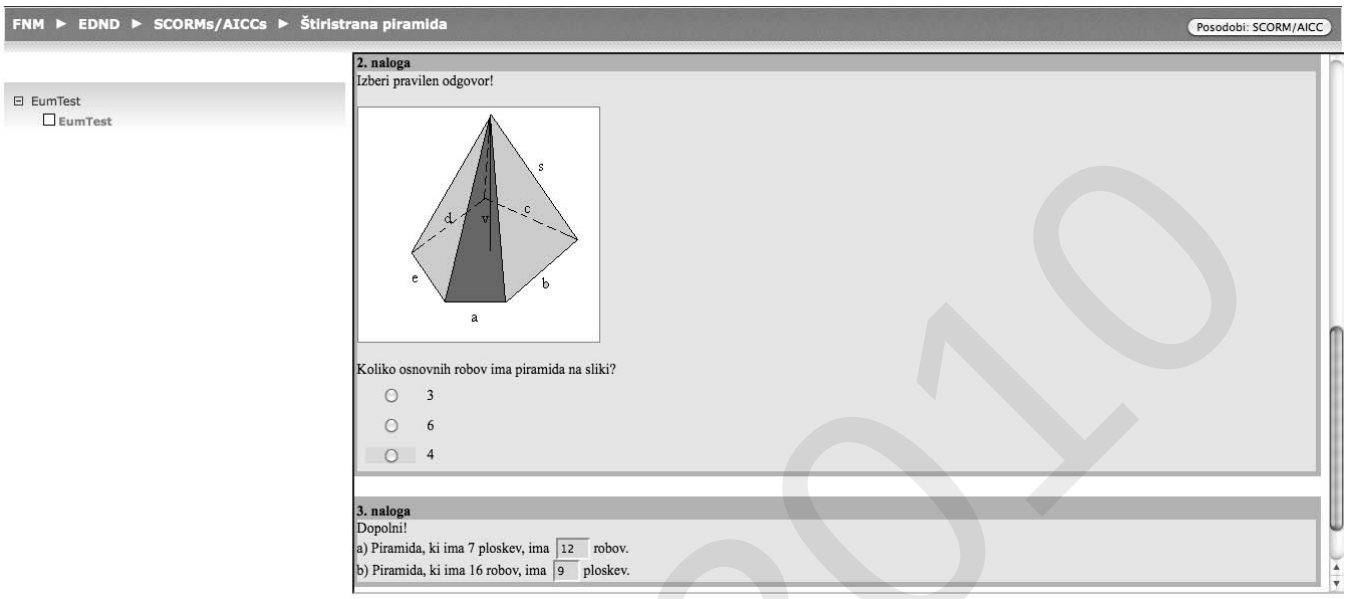


Figure 3: E-homework in LMS (Moodle)

For the case study, a sample of 100 student are asked to make a mathematics e-homework and answer relevant questions concerning benefits of online training.

The questionnaire consists of the following relevant questions:

1. Are you familiar with E-um system?
2. Did you have any problems with e-homework?
3. Do you get homework at school?
4. Do you do your homework?
5. Do you think you would make e-homework more regularly?
6. Do you think implementing e-homework would decrease cheating?
7. Would teacher's monitoring of student progress make e-homework solving more seriously?
8. Would you learn more with e-homework?
9. Please evaluate usefulness of e-homework with grades 1 to 5.

We present the results of this case study in the next section.

3. RESULTS

Despite quite technically complex e-homework, almost all students had no serious problems solving it and all were willing to answer to the asked questions. With this research we wanted to prove the high usefulness of new information technologies exploitation for the education purposes.

Almost all students know the E-um system (97%) and most of them use it occasionally (63%) some of them are regular E-um users (9%) and the others (24%) did not use the system. Most of the student did not have any problem solving the e-homework (62%), some of them had problems with internet connection (17%), some did not understand the exercises (9%) and the other (19%) had some problems with fully downloaded exercise.

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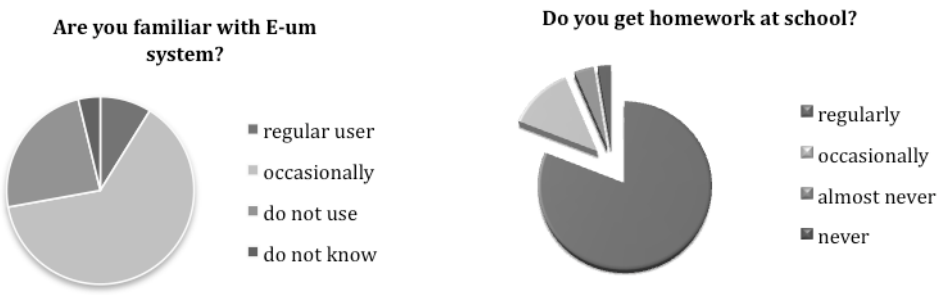


Chart 1: Questions about E-um system and homework

In the group of questions about performing a homework we got very interesting results. Almost all students are given a homework from their teacher very regularly (81%) and 62% of students always make all the exercise, while about half of them copy some answers from their classmates. On the question whether they would make e-homework more regularly than classic homework, more than half gave positive response. Very convincingly students confirmed that implementing e-homework would decrease cheating and copying (88%) and also it would make solving of e-homework more seriously and relevant (73%). Vast majority of students think that they would learn more or equal making e-homework regularly. Finally they assess usefulness of e-homework with average grade 3.73 and majority of them would learn more doing e-homework.

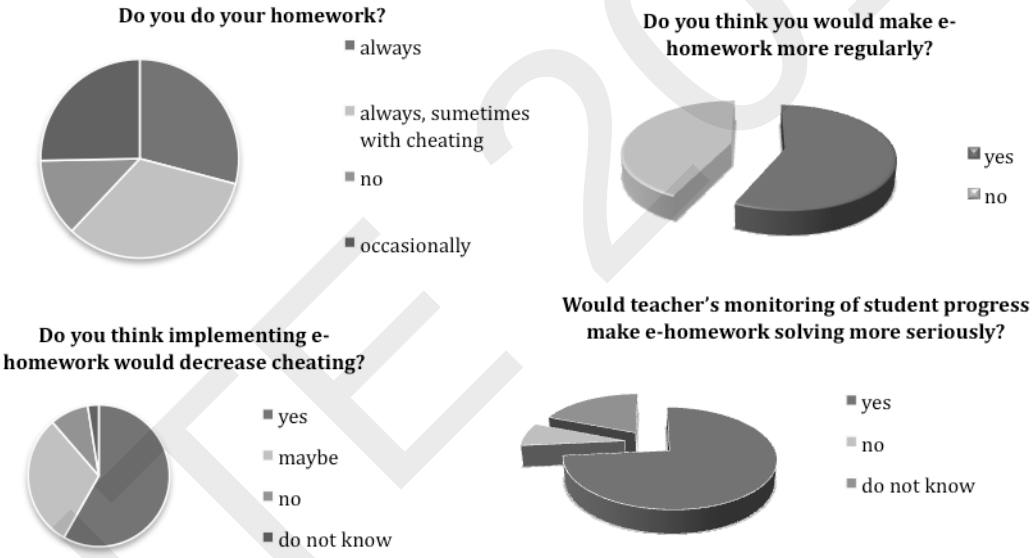


Chart 2: Questions about performing a homework

The obtained results of discussed questionnaire gave us findings that e-homework in the presented form are relevant, serious and fair type of training e-materials which complement and enrich the classical education process.

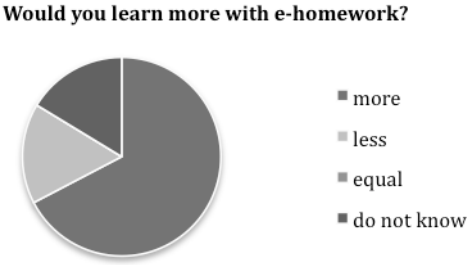


Chart 3: Would students learn more with e-homework?

4. CONCLUSION

Concluding the research we confirm our hypothesis, that implementing e-homework with dynamic generating exercise in an education process would make teaching and learning more useful and primarily efficient.

We believe that similar approach can be implemented by the other subjects, especially by the natural sciences. For example, many dynamic generating exercises for physics are published at the web side http://www.fiz.e-va.si. Teachers can use dynamic generating exercises with graphic applets combined with interactive whiteboard to give more examples to any type of exercises. It would make the task more clear and understandable.

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MATHEMATICS PERFORMANCE OF FOURTH GRADERS IN NORTH CYPRUS LOCATED ON A GIS SOLUTION, A PROPOSAL

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ABSTRACT

Geographic information system (GIS) which is a computer-based tool for mapping and analyzing events on the earth, allows researchers to explore and analyze data by location. By using this advances in database management tool this study is suggesting an alternative approach to let the decision makers to analyze students' performances if they are kept in such a system. In our context mathematics performances of fourth graders will be mentioned. It is aimed to combine the results of observations about students' performances by researchers into a Geographic Information System (GIS) by which a related person will be able to access these performances of students from different school locations by a simple click. Then they can put their decisions if they are poor. Those observations may point out a change in class teaching methods, for example. So, it can provide several feedbacks to decision makers to improve and/or making a better plan for the education system.

INTRODUCTION

In the following paragraphs you will find a simple demonstration of a Geographic Information System (GIS) by which some student performances from CANKOY & TUT, are graphically pictured so decision makers can collect ideas for making decisions to improve or to redesign the current educational system and also to message the class teachers to correct their teaching styles/methods. But it is meaningful to give a simple introduction about a GIS solution.

A geographic information system (GIS), or geographical information system, is any system that captures, stores, analyzes, manages, and presents data that are linked to location. It is a computer-based tool for mapping and analyzing events on the earth, allows researchers to explore and analyze data by location. There are several software packages that perform these mentioned tasks, for example ARCGIS by ESRI. To obtain a GIS solution for a project you need only the following five steps. First we need to set a general topic for the project. While, it is usually easy to generate ideas, they have to be supported by attainable data. Second stage is to formulate a specific question. Once a researchable topic is identified, we will generate a specific research question, by choosing from an array of questions in brainstorming sessions with the team members. The reasearch question has to be focused,defined, and answerable, to help us narrow down the data requirements, in a timly manner.. This approach will lead to a reliable result at the final stages of the project. Third is to develope the methodology. Were the the research question narrows down the scope of the research, the methodalogy provides a frame work to address the main problem set forth by the research question. Moreover, the major steps involved, in the process will be vividly articulated. Further, a sequence of analysis steps will formulate the methodology. In this regard parameters and equations will specify the data we need to collect in the next step. Next, finding the data. Whearas, in previous steps we emphesized on finding a researchable question, the data collection process, should be costeffective too. Cost effectiveness will be determined in comparison to our awailable research funds. Finally, writing the proposal.
Once previous steps have been done,the proposal nearly writes itself. In this step we should notice to the relevant proposal guidelines and follow them carefully. It's usually recommanded to follow the fairly standard outline below. The introduction, is a short overview of the general problem & why it is important and mentions the overall goals of the project. Objectives define the specific objectives to be accomplished or products to be created. It's better to be short and presented in a list. In the methodology section we should explain the rationale behind the methodology by listing the major steps and defining the unique aspects. The data sources section lists the data layers and the sources. The work plan section, lists the major tasks and the estimated completion dates. The budget section, specifies the exact amount of funds dedicated to the research process, and provides measures to keep the spending within the confids of the funding.

A GIS SOLUTION IN EDUCATION

A research on mathematical performances of fourth graders in North Cyprus was performed and some important results were depicted by CANKOY & TUT. That results was showing that students who spent more time on test taking skills performed better, especially in routine mathematics items, than did students who spent less time on test taking skills. There was no difference observed in test results from nonroutine story problems. It was also indicating that spending too much time on test taking skills led to memorize procedures and cuing on surface attributes of a problem.
The following GIS solution is to depict some of these results by graphs attached to some hypothetical locations to give an idea to the audiences and you the authors in education. We are mainly expected some feedbacks and valuable comments while creating a solution by inserting these real data to real location so that goverment authorities can give important decisions on the current education system in North Cyprus.

Create Waypoint:

The process of sketching the polygons and assigning the GIS point using the GPS device was by creating new maps on the device and walk around the buildings that we have added to our maps. The creation was done by creating name for each building e.g. Information technology and storing them in the device.



Create polygon:

Using Google Maps, we created new specified maps by drawing and creating polygons of the buildings and save each maps exclusively. The process of drawing polygons is as follow

1. Going to http://maps.google.com/
2. Searching one of our waypoint's longitude and latitude on search maps
3. Finding our location on map
4. Selecting "MYMAPS"
5. Selecting "CREATE A NEW MAP"
6. Filling the "TITLE" and "DESCRIPTION" blank
7. Checking one of the ratio's button for "PRIVACY"
8. On the right side we selected the "DRAW A LINE" then we drew plan of the department.
9. By Adding a place mark we specified the special angles.
10. By "DRAW A LINE ALONG A ROAD" we have shown the roads.
11. At the left side clicking on "DONE" button
12. Clicking on "Save" button.



Import polygon to ArcGis:

13. On the right side of the page, by selecting "LINK" we copied address link from "PASTE LINK IN EMAIL OR IM BOX"

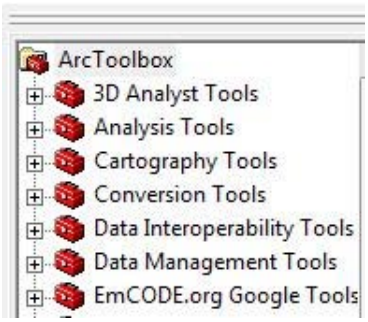


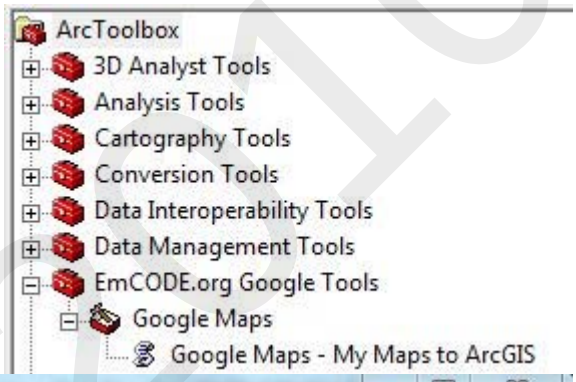
14. We added “GOOGLE TOOLS” by downloading it from the following web page: http://code.google.com/p/emcode/wiki/GPSOnTheCheap to ArcCatalog
    To insert that polygon we had drawn in Google map to ArcGIS.

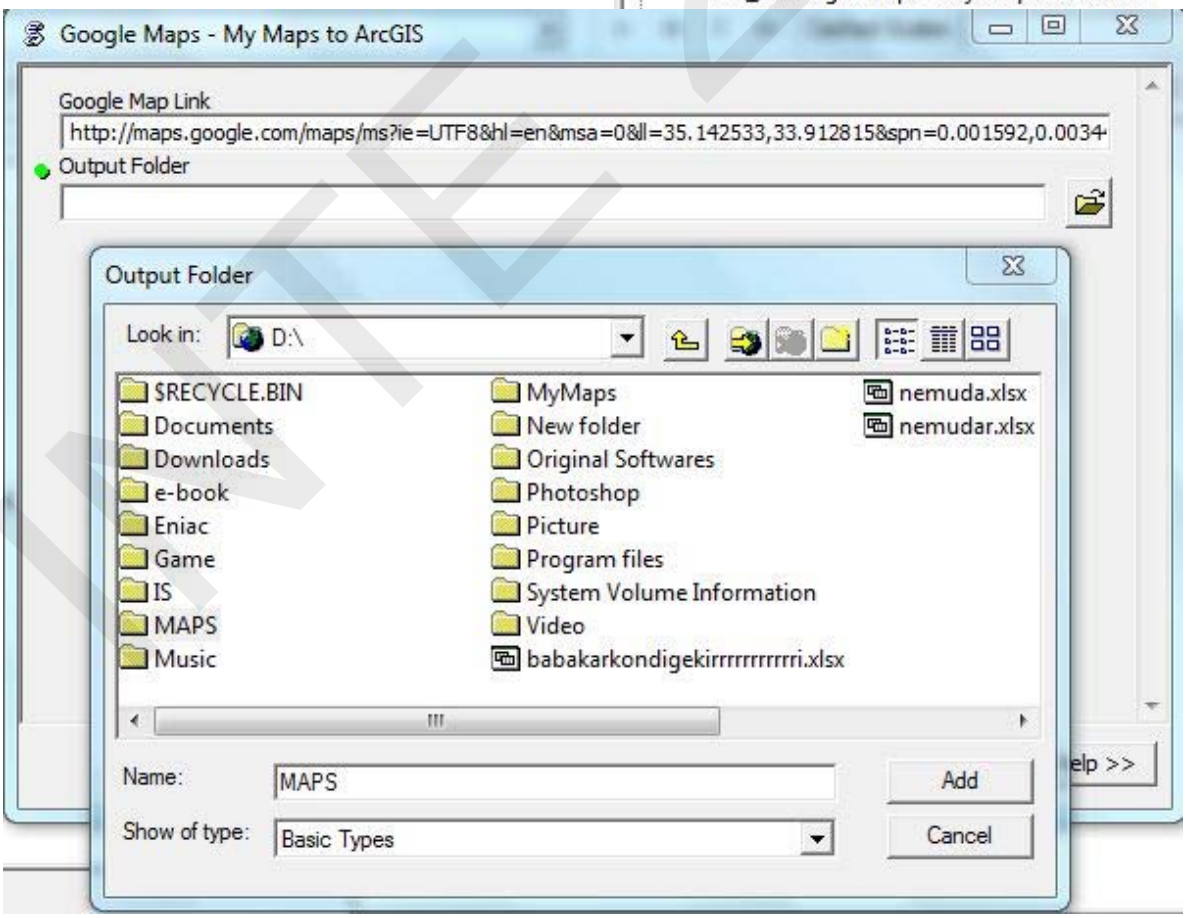
- Notice that for steps 9 and 10 we filled “TITLE” and “DESCRIPTION”.

15. We opened ArcCatalog
16. We selected the Arc Toolbar Window
17. From Arc Toolbox window, we selected “EmCODE.org Google Tools” and by double clicking on “Google Maps My Maps to ArcGIS “After new window appeared we pasted the link that we had copied at step 13 in “GOOGLE MAP LINK” box and at the OUTPUT we selected the folder to save the layers that we have downloaded from Google maps.

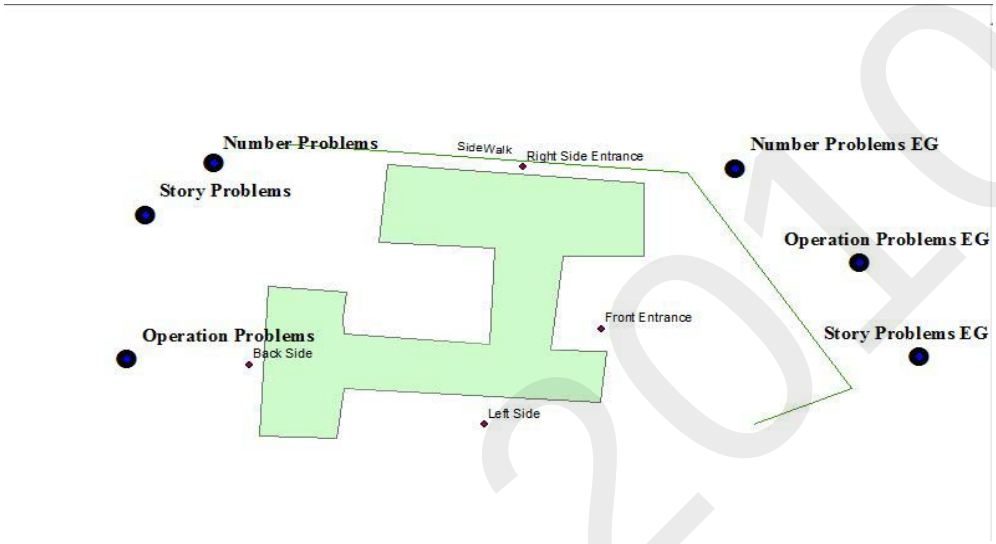
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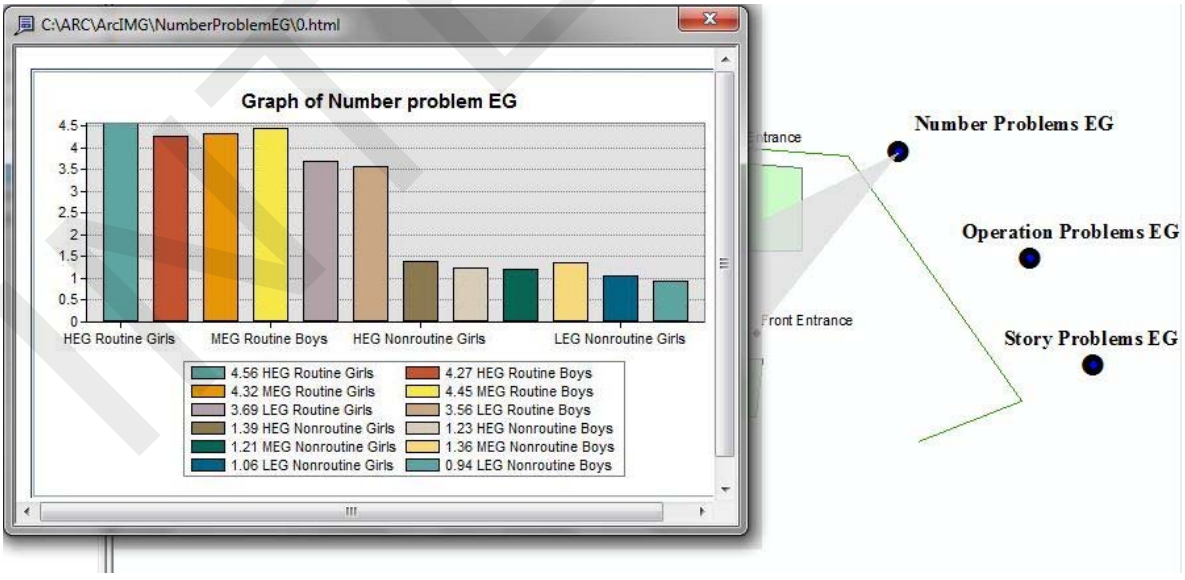






18. We opened the ArcGisMap, and then at the toolbar by selecting ADD DATA icon we selected all layers that we downloaded, from the folder that we saved.
19. Imported polygon, exactly allocated to the XY points (longitude and latitude of our waypoints that we inserted before)
20. At the left side on display window by selecting or deselecting, checkbox you can show or hide the layers.





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MECHATRONICS ENGINEERING EDUCATION AND ITS IMPORTANCE IN TURKEY

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ABSTRACT

Mechatronics engineering is a new field of engineering and electrical, electronic, mechanical and computer engineering fields, such as occurred with the integration. Due to an interdisciplinary field, especially the industrialists in our country, a section of the train's engineers are preferred.

People who are trained in this area investigate mechatronics systems including mechanical, electrical and electronic components consisting of front data sensors, microprocessors acting according to the data sensors. Nowadays as a general communing material, all of the cameras, copy devices, washing machines and CDs etc. are most simple and typical examples to systems which include sensors, computer control and actuator mechanisms.

So because of common use of these systems, we can see these systems around us often. This paper gives a general overview about mechatronics education in Turkey and points out its importance.

1. INTRODUCTION

Terms of mechatronics was originated from Yasakawa Electric Company and since its origination mechatronics definition developed and changed in time [9]. Mechatronics study has been diversified into sub areas such as a system modeling, sensors and actuators, data acquisition and signal processing, software, computers and logic systems [3].

Interrelation between electronic systems and mechanical systems with the advancements in computer systems narrowed the job fields of graduates with only mechanical engineering vision. Today, almost in all modern products there are sensors, micro-chips and actuators. Automotive industry, mostly field of mechanical engineers, uses micro-chips in modern vehicles and demands for these electronic systems getting higher [6]. This changes affect the role of engineers in these companies and the role of an engineer evolve into a multi-disciplinary aspect. Advancements in the electronics applied into the mechanical systems require radical changes in the current engineering education curriculums [11]. Mechatronics present an approach that is the combination of different disciplines to the design and development stages in engineering processes. Therefore, an inter-disciplinary teaching degree is necessary for engineering success.

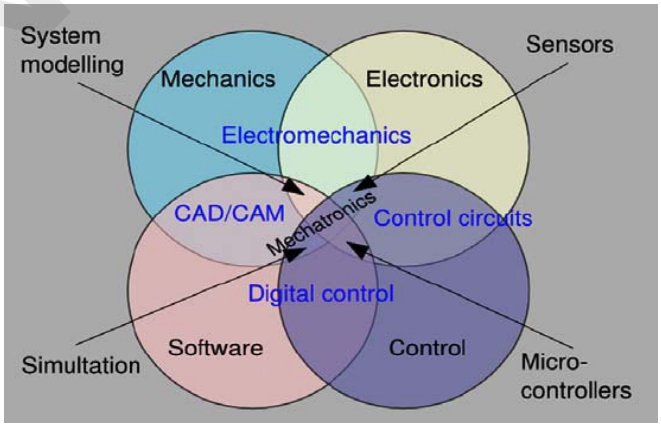


Fig.1. Mechatronics: synergetic integration of different disciplines

There necessity is partly met by the degrees in Electromechanical Engineering and Mechatronics from universities around the world. In academic circles, it is accepted that mechatronics is valuable combination of conventional disciplines of information technology, mechanical and electronics systems [7].

Today's definition of mechatronics combines the precision mechanical engineering with electronic control systems for designing the products and process of manufacturing [8]. Mechatronics aim to use the aspects of traditional disciplines effectively in designing intelligent product and processes.

A mechatronics engineer should have the ability of modeling and analyzing the products in design stage before production. Another capability of mechatronics engineer is the selection of appropriate sensor and actuators, writing the controller software for the system and also designing the mechanical components. A mechatronics engineer should also be able to manage and coordinate the design teams from various engineering disciplines.

2. MECHATRONICS EDUCATION IN TURKEY

While mechatronics product market growing rapidly and mechatronics systems becoming a part of life routines, Turkey should develop well-planned approach to the design and production stages in order to take a strong place among the main manufacturing countries in the world.

Turkey must continue progressively in the field of mechatronics which will give the chance of competition with the master manufacturer countries. Therefore, Turkey has no chance other than being interested in mechatronics development. Mechatronics education becomes vitally important to achieve this goal. Even attentions from industrial and governmental circles are dissapointing, academical circles undertstood the importance of mechatronics progression. Acceptance of wide circles, especcially industry, realized at late 1990's. This led an enhanced progresesion in mechatronics education. In today's Turkey, mechatronics education found its base and it is recognised as a discipline taught in high schools, vocational training schools, graduate and post-graduate levels. However, it is still away from meeting the current and future demands because it is a newly understand discipline and reflection limitations in the educational programs [4].

The most important part of mechatronics education is taught at universities. Therefore, Turkish Universities have added the department of mechatronics engineering to their structure after the increase of demand for mechatronics engineering. Turkish Universities where mechatronics engineering education is trained are,

- Atilim University
- Bahcesehir University
- Eastern Mediterranean University
- Erciyes University (Primary education and evening education)
- Firat University
- Kocaeli University (Primary education and evening education)
- Yildiz Technical University

3.MECHATRONICS COURSE OVERVIEW

The aim of mechatronics course is to give an interdisciplinary approach to the students with practical and hands-on approaches to the mechatronics system design. Also, giving educational skills like encouraging team work, ability of technical design presentations to audiences from different disciplinaries. Teams will be formed by three students in order to improve team working skills of students and mixing and matching the ability and interest of students. In last stage, each group will prepare and present their final projects.

3.1 Course Philosophy

Mechatronics Course philosophy and arrangement is shown in Fig.2 below.

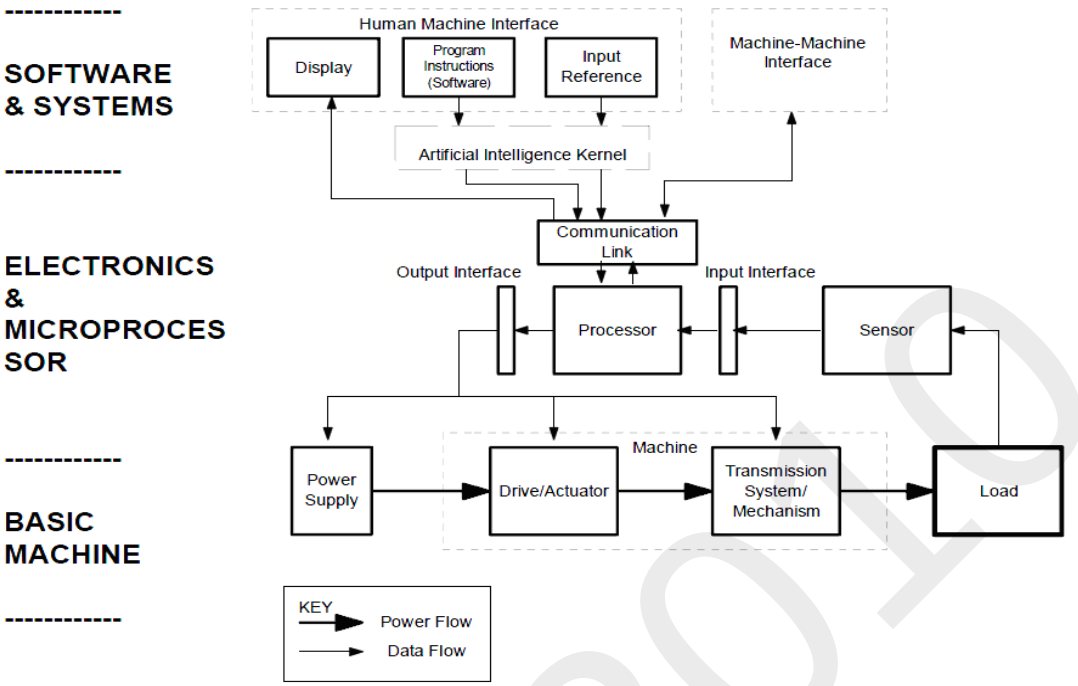


Fig.2 Typical Mechatronic Model

Fundamental aspect of the model is, understanding the operating principles of machines. After that by the help of electronics, in terms of sensors, microprocessors and their interfaces, “close the loop” control system of the machine is achieved. By completing the fundamental bases, software is used in order to give the accuracy, versatility and intelligence properties to the control operation. Also, availability of data transfer and communication ways between man to machine and machine to machine gives the chance of establishing an intelligent factory that is formed from individual machines [5].

4. WHY MECHATRONICS ENGINEERING?

There are various reasons for Turkey to form a mechatronics curriculum.

4.1 Industrial Demands

Computer aided and automated manufacturing is becoming the key instrument for the industry. These advancements release demands of engineeers in multi-disciplinary culture with knowledge of both mechanics, electronics and computers. Even this demand is still not named as mechatronics engineer in some part of industry, it fully describes mechatronics engineers and has rapidly growing demands.

Meanwhile, demands for study of mechatronics also rise. Mechatronics student population in Turkey is increasing in time as shown in Fig.3. Also, in several progression reports it is stated that developments in the automatic and computer controlled production, micro electro mechanical systems (MEMS), intelligent sensors and automotive industry leads an acceleration of mechatronics in Turkey [2,13,12,1]

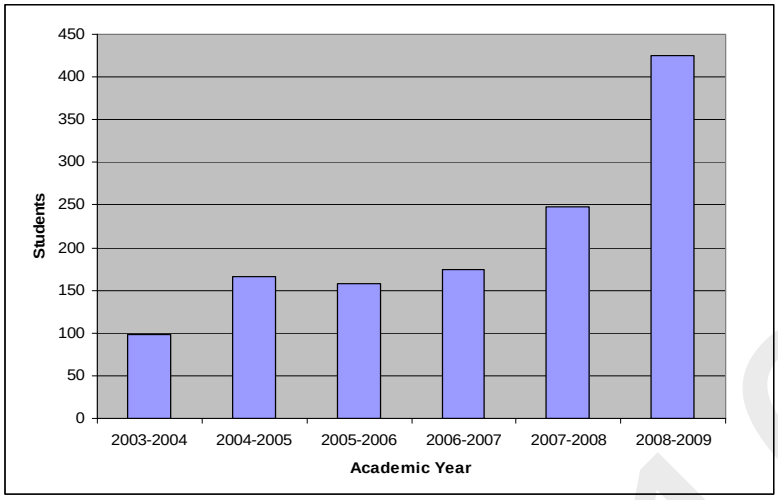


Fig. 3. Number of students at mechatronics department, Turkey.

4.2. Educational Motivation

The interaction between different types of engineering has effected the studies about system functionality and developed the importance of integrated system engineering.

4.3. Mechanical Engineering Development

New technology increased the role of computers and electronics in mechanical systems and mechanical engineers started to interest in computer and electronic courses due to grasp on mechanical system technology. According to the industry reports, companies prefer the mechanical engineers who have computer science and electronic skills [10].

5. CONCLUSION

Mechatronics was a strange term for Turkey in 1993. Development about technolgy in the world made Turkey close to the term ‘mechatronics’. Especially, Turkish industry circles started to realize the importance of mechatronics engineering. Demand for mechatronics engineering increased. As a result of this statement, mechatronics started to take big role in all levels of education system.

Today mechatronics education is taught from high school level to graduate level in Turkey. However it is not enough for meeting the demands. Especially in high school education, lack of serious planning and accreditation is a serious problem. Also laboratory conditions are not enough to grow qualified graduates. If these problems are solved, qualified personal education will start from high school level before universities.

A few universities give mechatronics engineering education and this is a series problem for Turkey’s future. Demands for mechatronics engineering are increasing day by day and universities should realize the importance mechatronics engineering in industry. Not only academic circles but also private sector should focus on it.

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INTE 2010

MERSİN ÜNİVERSİTESİ MERSİN MESLEK YÜKSEKOKULU UZAKTAN ÖĞRETİM SİSTEMİ ve ÖĞRENCİ ÖZELLİKLERİ

DISTANCE LEARNING SYSTEM AND STUDENTS' CHARACTERIC IN UNIVERSITY OF MERSİN HIGHER VOCATIONAL SCHOOL OF MERSİN

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Özet : Teknoloji, bilgisayarlar ve iletişimdeki yeni gelişmeler; öğretim anlayışında da değişimlere neden olmuş ve günümüz öğretiminde yeni teknik ve yöntemlerin kullanımını da beraberinde getirmiştir. Günümüz dünyasında her geçen gün öğrenilmesi gereken bilgi artmakta, bu da insanın kendini sürekli yenileme ve geliştirme ihtiyacını zorunlu kılmaktadır. Sadece mesleki açıdan değil, kişisel gelişim içinde "yaşam boyu öğrenme" kavramı giderek yaygınlaşmakta ve dolayısıyla "uzaktan eğitim" ve "sürekli eğitim" talebi artmaktadır. Bu kapsamda; dünyada her yıl binlerce insan okul dışında meslek odaları, sertifika programları, endüstri, tarım, hizmet v.b. alanlarda kişileri bir mesleğe hazırlamak ve yenilikleri öğretmek amacıyla yapılan öğretim etkinlikleri sürecinden geçerek yeni bilgi, beceri, tutum ve değerler kazanmaktadırlar.

Bu çalısmanın amacı; Mersin Üniversitesi Mersin Meslek Yüksekokulu uzaktan eğitim öğrencilerinin özelliklerini arastırmaktır. Bu amaçla 2009-2010 öğretim yılında Mersin Üniversitesi Mersin Meslek Yüksekokulu öğrencileri arasından seçilen 1049 öğrenciye anket uygulanmıstır. Veriler SPSS 15.0 paket programı kullanılarak analiz edilmistir. Konu ile ilgili çıkan sonuçlar yorumlanmış ve öneriler getirilmistir.

Anahtar Kelimeler: Uzaktan öğretim, web tabanlı öğretim, Internet üzerinden eğitim

Abstract : The recent developments in tecnology, computers and communication have caused variations in instruction comprehension and have brought with them the use of modern techniques and methods nowadays. Today, the amount of information that needs to be learned increases day by day, making it compulsory for an individual to renew and develop her/himself continuously. The "Life-time learning" concept does not only get prevalent professionally but it also gets widespread for the personal development purposes and thus the demand on "distance learning" and "continuous training" increases.

In this concept, thousands of people – in addition to their formal educations – among the world go through a "training activities process" like the vocational schools, certificate programs as well as programs that helps particular people get better prepared for particular professions such as the industry, the agriculture, the service sector ect. And keep a better track of innovations thereof. Correspondingly, people get the opportunity to acquire new information, skills, attitudes and values.

The aim of this study is to examine of University of Mersin, Higher Vocational School of Mersin students' characteristic. For this purpose, questionaire was applied to 1049 students attending Higher Vocational School of Mersin in 2009-2010 academic year. The data were analyzed buy using SPSS 15.0 package program. Issues related to the results and proposals have been interpreted.

Keywords: Distance learning, web-based teaching, online teaching.

1. UZAKTAN EĞİTİM

Internet gibi yeni ortam ve araçlar "dördüncü nesil uzaktan öğretim" olarak adlandırılan yeni anlayışları da beraberinde getirmiş bulunmaktadır [B.Atıcı, M.Gürol, 2001]. Bilgisayar ağlarındaki hızlı gelişmeler, kişisel bilgisayarların işlem hızlarındaki artışlar, manyetik bilgi saklama teknolojisindeki ilerlemelerin boyutu ile bu yeniliklere paralel şekilde yazılımların gelişmesi, eğitimcileri Internet'i uzaktan eğitim alanında etkili ve etkin bir araç olarak kullanmaya yöneltmiştir [Frank Mayadas, 2001].

Uzaktan Eğitim, geleneksel öğrenme-öğretme yöntemlerindeki sınırlılıklar nedeniyle sınıf içi etkinliklerin yürütülme olanağı bulunmadığı durumlarda eğitim çalışmalarını planlayanlar ve uygulayanlar ile öğrenenler arasında iletişim ve etkileşimin özel olarak hazırlanmış öğretim üniteleri ve çeşitli ortamlar yoluyla belli bir merkezden sağlandığı bir öğretim yöntemidir.Yine uzaktan eğitimi şu şekilde tanımlayabiliriz; farklı mekanlardaki öğrenci, öğretmen ve öğretim materyallerinin iletişim teknolojileri aracılığıyla bir araya getirildiği kurumsal bir eğitim faaliyetidir [Online: http://www.yok10.com/uzaktan-egitim-uzaktan-egitim-nedir/]. Öğretim, öğrenmelerin gerçekleşmesi için bilginin ve ortamın düzenlenmesi olarak tanımlanabilir. Ortam denilince yalnızca öğretimin yapılacağı yer değil, bilginin aktarılmasında ve (öğrenen) bireylere çalışmalarına rehberlik edilmesinde kullanılacak yöntemler, araç-gereçler ve materyaller de kastedilmektedir (Demirel ve diğ., 2002: 13-14).

Internet üzerinden dersler eş zamanlı(senkron) ve eş zamanlı olmayan (asenkron) yöntemlerle yapılır. Bazen her ikisinin karışımı da uygulanabilir. En güncel eş zamanlı olmayan sunum yöntemi web tabanlı olanıdır. Web, kolay ve çabuk ulaşılabilen, farklı uygulamalar geliştirme ve sunma olanağı sunan, güncellemesi kolay bir öğretim ortamıdır.[Çiğdem Koçoğlu, Emre Sezgin,2000]. Web tabanlı asenkron derslerde ders malzemesi büyük ölçüde web üzerinden sunulur. Ders, öğrenci destek hizmetleri, iletişim, etkileşim, ve ölçme-değerlendirme aktiviteleri de web üzerinden gerçekleştirir. Eğitimi desteklemek için cd-rom, kitap ve video kaset gibi yardımcı malzemeler de kullanılabilir.

Eğitim teknolojisi öğrenme-öğretme süreçleriyle ilgili özgün bir disiplindir (Alkan ve diğ., 1995). Bir uzaktan öğretim sisteminde uzaktan öğretim platformunu kurmak ne kadar önemliyse öğretimin içeriğinin hazırlanması da o kadar önemlidir. Doğru bir öğretim tasarımı yapmak ve çoklu-ortam (multimedya) içerikler üretmek belli bir uzmanlık ve deneyim gerektirmektedir. Başarılı bir Web tabanlı eğitim web sayfasının tasarımı, kendi yapısı, içeriği, görsel tasarım ve forum, sohbet, arama, e-mail gibi barındırdığı Internet hizmetleri önemli rol oynamaktadır. Dikkate alınacak bir diğer önemli husus da, sayfanın görünümüdür. Web sayfalarının tasarımının görsel yapısını düzenlemek, kontrol edebilmek ve devamlılığını sağlamak, tasarım teorisi, uygulama ve Web teknolojisi alanında ihtisaslı kişileri gerektirmektedir. Web tabanlı öğretimde sayfa içeriklerinin; hem teknik hem de öğretimsel açıdan hazırlanması işin en zor tarafıdır. Burada yoğun emek harcanılarak hazırlanan web ders içeriklerinin ve materyallerinin telif hakları ve korunması çok önemlidir.

2. MERSİN ÜNİVERSİTESİNDE UZAKTAN EĞİTİM

Mersin Üniversitesi Uzaktan Eğitim çalışmalarına 1998 yılında başlamıştır. Üniversitemizde halen işletme yüksek lisans programı ve sadece uzaktan eğitim hizmeti veren 2 yılık yüksekokul bulunmaktadır. Bu çalışmada sadece Mersin meslek yüksekokulu uzaktan eğitim ve öğrencileri incelenmiştir.

Mersin Meslek Yüksekokulu eğitimine 2002 yılında Meslek Yüksek Okulu teknik programlar bölümü bünyesinde 4 farklı programla başlamıştır. Daha sonra yüksekokulun örgün ve ikinci öğretim öğrencileri ayrı bir yüksekokul bünyesine alınmış ve yüksekokulumuz sadece uzaktan eğitim veren yüksekokul haline gelmiştir.

Yüksekokulumuzda aşağıda verilen bölüm ve programlarda eğitim verilmektedir:

Teknik Programlar Bölümü

- Bilgisayar Teknolojileri ve Programlama
- Elektronik Teknolojisi
- Kontrol ve Otomasyon Teknolojisi
- Elektronik Haberleşme Teknolojisi

İktisadi ve İdari Programlar

- İşletme Yönetimi

Sağlık Hizmetleri Programı

- Eczane Hizmetleri
- Tıbbi Tanıtım ve Pazarlama(2009-2010 Eğitim Öğretim yılında eğitime başlayacak)
- Sağlık Kurumları İşletmeciliği(2009-2010 Eğitim Öğretim yılında eğitime başlayacak)

Yüksekokulumuzda eğitim web sayfası üzerinden uzaktan eğitimin her iki yöntemi de kullanarak sohbet, ödev, proje forum vb. alanda yapılıyor. Toplam not içerisinde ağırlığı %20 olan vize sınavları Internet üzerinden yapılıyor. Pekçok derste vize notlarının içerisine %25 oranında verilen ödevlerde etkili

oluyor. Final sınavları hafta sonu cumartesi-Pazar günleri Mersinde ve merkez kampus dersliklerinde gözetim altında yapılıyor. Açık öğretim sınavları yapısı ve formatında yapılan sınavlarda cumartesi-Pazar sabahları birinci sınıf öğrencileri, öğleden sonra ikinci sınıf öğrencileri sınav oluyor. Final sınavlarının not ağırlığı ise %80 dir.

Tüm eğitim-öğretim işlemleri Internet üzerinden Uzaktan Eğitim Yönetim Sistemi aracılığı ile yapılmaktadır. Öğreticiler, öğrenciler ve sistemde görevli elemanların tüm eğitim-öğretim işlemlerini Internet üzerinden yapabilmesini ***Web Tabanlı Uzaktan Eğitim Yönetim Sistemi(UEYS)*** olarak isimlendirebiliriz. Yüksekokulda ödev, ftp, anket, istatistikler, arama, mesajlaşma, sohbet, ders içeriği takibi, görsel içerik ve eş zamanlı ders anlatımları Internet üzerinden web tabanlı (UEYS) sistemi ile yürütülüyor. UEYS'de her kullanıcının bir kullanıcı adı ve şifresi vardır ve herkes sistem yöneticisi tarafından kendisine verilen haklar dâhilinde sayfalarda gezerek işlemlerini yapıyor. Sistem aynı zamanda hem öğretim elemanları, hem de öğrencilere ait kişisel bilgileri de tutuyor. Öğretim elemanının yoğun emek harcayarak hazırladığı; ders notları, web ders içerikleri, ders anlatımlarının stüdyo kayıtları, görsel ders anlatımları ve sınav soruları gibi telif haklarıyla korunması gereken bilgileri içeriyor.

3. ANKET ÇALIŞMASI

3.1. Yöntem

Evren ve Örneklem: Araştırmanın evrenini 2009–2010 eğitim-öğretim yılında Mersin Üniversitesi Mersin Meslek Yüksekokulunda okuyan öğrenciler oluşturmaktadır. Araştırmanın örneklemini ise; yüksekokulumuza devam eden öğrencilerin UEYS sistemi üzerinde belirlenen tarihler arasında tanımlanan ankete katılan öğrenciler oluşturmaktadır. Anket UEYS sistemi üzerinden tüm öğrencilere zorunlu olarak uygulanmıştır. Anket uygulanma tarihinin öğrencilerin sistemde yoğun oldukları dönemde olması, anket uygulama tarih aralığının uzun olması ve sistemde ankete katılmadan başka bir işlem yapamamanın mümkün olmaması ankete katılımın fazla olmasını sağlamıştır. Bu çalışmada yüksekokulumuza ders kaydı yaptıran 1055 öğrenciden 1049 tanesi ankete katılmıştır. Ankete katılım oranı ise %99,43 dir.

Araştırmada veri toplama aracı olarak 56 adet sorudan oluşan "Uzaktan Öğretim Üniversite Öğrencisi Anket Formu" anket uygulanmıştır. Bu anket ile öğrencilerin demografik, ailevi, eğitim durumları, çalışıp çalışmadıkları, çalışma statüleri, uzaktan öğretimi seçme nedenleri, uzaktan öğretim hakkındaki bilgi düzeyleri, uzaktan öğretime bakış açıları, mezuniyet sonrası beklentileri, hedefleri, eğitim-öğretim metotlarımız hakkındaki görüşleri ve benzeri sorular bulunmaktadır. Ankettin yapısı gereği öğrenciler hiçbir soruyu boş bırakamamıştır.

Anket uygulaması ile elde edilen veriler frekans(f) ve yüzdelerle(%) betimlenip yorumlanmıştır. Elde edilen veriler bilgisayar ortamında SPSS 15.0 istatistik programından yararlanılarak çözümlenmiş ve sonuçlar tablolar halinde listelenmiştir. Bu çalışmada 56 sorudan 10 tanesi öğrencilerimizin genel durumunu öğrenme amacı ile kullanılmıştır. Tablodaki sonuçlar yorumlanırken sonuçların önemli olanları belirtilmiştir.

Aynı anket 2004-2005 eğitim-öğretim döneminde de uygulanmıştı. O dönemde UEYS sistemimiz farklı olduğu için ankete katılmak zorunlu değildi ve 4 farklı bölümde okuyan 345 öğrencimizden random örnekleme yöntemiyle seçilmiş 247 adet öğrenci ankete katılmıştı. Ankete katılım oranı %64.15 di. Anket elle doldurularak yapıldığı için bazı soruların cevabı öğrenciler tarafından boş bırakılmıştı.

Bu çalışmada 2009-2010 eğitim-öğretim dönemindeki sonuçlar yorumlanmış; ama daha önceki durum ile de bir karsılaştırma yapılarak gerek önceki gerekse şu andaki durum karşılaştırılarak bazı sonuçlar elde edilmeye çalışılmıştır.

3.2. **Bulgular**

1.Yaşınız

Yaşınız	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
17-20	89	31,0		285	27,17
21-24	52	18,1		429	40,89
25-29	34	11,8		156	14,88
30-34	36	12,5		105	10,01
35-üzeri	76	26,6		74	7,05
	287	100		1049	100

Öğrencilerimizin %40'ı 21-24 yaş arasında, %27,17 si ise 17-20 yaş arasında ve %7,05'i ise 35 yaş ve üzeri öğrencilerden oluşmaktadır

2004-2005 yılında yapılan anket çalışmasında ise Öğrencilerimizin %31'i 17-20 yaş arasında, %26,6'sı ise 35 yaş ve üzeri ve %18,1'i ise 21-24 yaş arasındaki öğrencilerden oluşmaktadır.

İki dönem yas grubu farklarının 35 yas ve üzeri Öğrencilerimizin %31,21'i erkek, %68,79'u bayanlardan oluşmaktadır.

2004-2005 yılında yapılan anket çalışmasında erkek öğrencilerimizin büyük farkla daha fazla olduğu görülmektedir.

2.Cinsiyetiniz

	2004-2005			**2009-2010**	
	f	**%**		**f**	**%**
Erkek	236	82,2		380	31,21
Bayan	51	17,8		669	68,79
	287	100		1049	100

3.Mezun olduğunuz Lise türü

Lise Türünüz	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Normal Lise	63	22,0		522	49,76
Teknik-Meslek Lise	200	69,7		348	33,17
Anadolu Lisesi	5	1,7		41	3,91
Fen Lisesi				6	0,57
Özel Lise	4	1,4		24	2,29
Öğretmen Lisesi	2	0,7		3	0,29
İmam Hatip Lisesi	4	1,4		36	3,43
Açık Lise	4	1,4		56	5,34
Dışarıdan Bitirme	2	0,7		13	1,24
Cevapsız	3	1,0		0	0
	287	100		1049	100

Öğrencilerimizin %49,76'sı normal lise, %33,17'si Teknik-Meslek Lise mezunudur. Öğrencilerimizin yaklaşık yarısı normal lise mezunudur.

2004-2005 yılında yapılan anket çalışmasında öğrencilerimizin %69,7 sini teknik-meslek lise ve %22 sini normal lise ve geriye kalan %8,7 sini ise kalan 7 grup lise türü mezunları oluşturmaktadır.

İki dönem mezun olunan lise türü arasında değerlendirilmesi gereken ciddi farklar bulunmaktadır.

4.Bir işte çalışıyor musunuz?

Çalışıyormusunuz?	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Evet	163	56,8		615	58
Hayır	117	40,8		434	42
Cevapsız	7	2,4		0	0
	287	100		1049	100

Öğrencilerimizin %58'i çalışanlardan, %42'si çalışmayanlardandır.

2004-2005 yılında yapılan anket çalışmasında elde edilen değerler benzerdir.

5.Okuduğunuz okul ile iş arasında benzerlik var mı?

Okul-İş Benzerlik	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Hayır	28	17,18		360	58,54
Evet	135	82,82		255	41,46
	163	100		615	100

Çalışan öğrencilerin okuduğu okul ile çalıştığı iş arasında benzerliği %41,46 dır.

2004-2005 yılında yapılan anket çalışmasında bu değer %82,82 dir. Bu değer 1.yaşınız sorusundaki elde

6.Okula başlamadan önce uzaktan öğretim hakkında bilgi sahibi miydiniz?

Bilgi Sahibi	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Hayır	129	44,9		460	43,85
Evet, az	132	46,0		549	52,34
Evet, çok	15	5,3		40	3,81
Cevapsız	11	3,8		0	0
	287	100		1049	100

Öğrencilerimizin yaklaşık %55'i okula başlamadan önce uzaktan öğretim hakkında bilgiye sahiptiler.

2004-2005 yılında yapılan ankette de benzer sonuçlar elde edilmiştir.

7.Okulu uzaktan öğretim olduğu için mi seçtiniz?

UÖ*. Olduğu için mi tercih edildi?	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Evet	210	73,17		694	66,16
Hayır	62	21,60		355	33,84
Cevapsız	15	5,23		0	0
	287	100		1049	100

*** UÖ uzaktan Öğretim**

Öğrencilerimizin %66,16'sı okulu uzaktan öğretim olduğu için seçmiş ve %33,84'ü uzaktan öğretim olduğu için seçmemiştir.

2004-2005 yılında yapılan ankette de benzer sonuçlar elde edilmiştir.

8. Şu anda seçme imkanınız olsaydı hangi öğretim türünü seçerdiniz?

Hangi Öğr.Türü	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Normal üniv.eğitimi	123	42,9		698	66,54
Uzaktan Öğretim	140	48,8		287	27,36
Açıköğretim	9	3,1		64	6,10
Cevapsız	15	5,2		0	0
	287	100		1049	100

Öğrencilerimizin %66,54'ü şu anda seçme hakları olsaydı normal öğretimi seçeceklerinin, %27,36'sı ise uzaktan öğretimi seçeceklerini belirtmişlerdir.

2004-2005 yapılan ankette ise yaklaşık yarısının uzaktan öğretim türünü seçmek istediği görülmektedir.

9. Okul bitince beklentiniz nedir?

Beklenti nedir	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Üniversite mezunu olmak	25	8,7		160	15,25
İşimde daha iyi konuma gelmek	118	41,1		234	22,30
Meslek öğrenmek ve edinmek	50	17,4		95	9,05
Kendimi geliştirmek	61	21,3		170	16,20
DGS ile 4 yıllık fakülteye geçmek	33	11,5		390	37,17
	287	100		1049	100

Öğrencilerimizin %37,17 si okul bitince DGS ile 4 yıllık bir fakülteye geçmek, %22,30'u işinde daha bir konuma gelmek beklentisi içerisinde.

2004-2005 yılında yapılan ankette yaklaşık yarıya yakını işinde daha iyi konuma gelmeyi beklemektedir..

10.Daha önce bir üniversite eğitimi aldınız mı?

Eğitim aldınız mı?	**2004-2005**			**2009-2010**	
	f	**%**		**f**	**%**
Hayır				668	63,68
Evet, yarım bıraktım				251	23,93
Evet, mezun oldum				130	12,39
				1049	100

Öğrencilerimizin %63,68'i daha önce bir üniversite eğitimi almamış, %23,95'i üniversite eğitimini yarıda bırakmış ve %12,39'u ise daha önceden bir üniversiteden mezun olmuştur. Bu soru sadece 2009-2010 eğitim öğretim yılında sorulmuştur.

3.3. **Anketin Sonuçları**

Öğrencilerimize uzaktan öğretimle ilgili yapılan anket ve ankete vermiş oldukları cevaplara göre bu araştırmada şu sonuçlara ulaşılmıştır.

Öğrencilerimizin büyük çoğunluğu yaş dağılımı 21-24 yaşları arasında bayanlardan oluşmaktadır. 35 yaş ve üzeri yaş grubu %7 dir. 2004-2005 yılında yapılan anket çalışmasında ise öğrencilerimizin %31'i 17-20 yaş arasında, %26,6'sı ise 35 yaş ve üzeri ve %18,1'i ise 21-24 yaş arasındaki büyük çoğunluğu bayan öğrencilerden oluşmaktadır. İki anket dönemi arasında yaş grubu ve cinsiyet farklarının olmasını; ilgili yıllarda uzaktan eğitimin teknik eleman olarak çalışanlarca daha fazla tercih edilmesine bağlayabiliriz. Yıllar içerisinde çalışan bu yaş grubu diplomalarını almış ve doyuma ulaşmıştır. 4,5,6,7,8 ve 9. sorularda elde edilen değerlerde bu sonucu desteklemektedir.

Öğrencilerimizin %49,76'sı normal lise, %33,17'si lise mezunudur. 2004-2005 yılında yapılan ankette %69,7 si teknik-meslek lise %22'si normal lise mezunudur. Bunu daha önce açıkladığımız sebebin bir sonucu olarak değerlendirebiliriz. Teknisyenlikten teknikerliğe giden adım doyuma ulaşmış ve artık uzaktan öğretim bir eğitim yöntemi olarak kabul edilmektedir. Bunu diğer anket sorularından elde edilen değerlerde desteklemektedir.

Öğrencilerimizin %58 si çalışmaktadır. %42'sinin okumak için seçtikleri bölüm ile yaptıkları iş arasında benzerlik vardır ve bölümlerini isteyerek uzaktan öğretim olduğu için ve uzaktan öğretimin faydasına inandıkları için seçmişlerdir. Öğrencilerimiz şu anda seçme hakkına sahip olsalardı %67'si normal eğitimi seçmeyi tercih edeceklerini belirtmiştir. Oysa 2004-2005 yılında yapılan ankette ise durum farklı idi. Normal eğitimi almak isteyen öğrenci oranı %42 iken Uzaktan eğitim almak isteyenlerin oranı %48,8 di. 2009-2010 yılında yapılan ankette 21-24 yaş grubu aralığındaki öğrenci sayısı %40 dır. Oysa 2004-2005 yılında yapılan ankette 17-20 yaş grubu öğrenci sayısı %31, 35 yaş üzeri öğrenci sayısı %26,5 dur. Yaş grubu aralığındaki öğrenci sayılarının yüzdesine bakıldığında; öğrencilerimizin büyük çoğunluğunun üniversite sınavlarında birkaç kez başarısız olduktan sonra uzaktan eğitimi seçmiş olduklarını söyleyebiliriz. Bu yorumları; uzaktan eğitim yerine normal üniversite eğitimini tercih edenlerin yüzde oranının %67 olmasından ve burada yer verilmeyen diğer anket sorularının cevabından çıkarabiliriz.

Öğrencilerin %37'si DGS(Dikey geçiş sınavı) ile 4 yıllık bir üniversiteye devam etmek %22,30'u ise işte daha iyi bir konuma gelmeyi beklediklerini belirtmişlerdir. 2004-2005 yılında yapılan ankette öğrenciler %11,5 ile DGS sınavını, %41 ile işte daha iyi konuma gelmeyi beklediklerini belirtmişlerdir. Aradaki tam tersi olan tercih farkının nedenleri diğer sorularda elde edilen nedenlerle benzerdir.

4. SONUÇ VE ÖNERİLER

Bugün, birey gereksinimlerini teknoloji aracılığı ile karşılamaktadır. Birey ve toplum, bugünkü yaşama düzeyine teknoloji ile erişmiştir. Teknoloji düzeyi ileri olan ülkelerin yaşama düzeyi daha yüksektir (Doğan, 1983: 33)

Internet ortamında web tabanlı uzaktan öğretim eğitimin hemen hemen her alanında ve muhtelif amaçlarla kullanılmaktadır. Yapılan anket çalışmasına göre; Mersin Meslek Yüksekokulu Uzaktan öğretim ile DGS şansı elde etmek, çeşitli meslek gruplarındaki pek çok kişiyi meslekte yükselme, daha iyi kariyer elde etme veya mesleğinde başarı için gelişen ve değişen bilgileri öğrenme, bir meslek sahibi olma, çeşitli sebeplerle normal öğretim imkanı yakalayamadığı için uzaktan öğretimi tercih etme, maddi imkânsızlık, hem çalışıp hem de okumak isteyen grupların isteyerek seçip okudukları eğitimlerinde etkin rol oynamaktadır.

Uzaktan öğretim henüz ülkemiz açısından yeni bir uygulamadır ama hızla büyümektedir. İleride bu eğitime geçilmesi kaçınılmazdır. Uzaktan öğretim konusunda insanlar bilinçlendirilmeli, olanaklar artırılmalı ve erişilemeyen uzak üniversitelere erişilerek yeni imkânlar sunulmalı, eğitimde fırsat eşitliği sağlanmalı ve aynı zamanda insanların yaşam boyu öğrenme süreçlerine destek olunmalıdır.

ÖZGEÇMİŞ(LER)

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INTE 2010

MESLEK LİSELERİNDE ELEKTRONİK BİLGİSAYAR BÖLÜMLERİNDEKİ ÖĞRENCİLERİN EĞİTİM TEKNOLOJİLERİNİN KULLANIM DÜZEYİNİN VE GÖRÜŞLERİNİN BELİRLENMESİ

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ÖZET

Bu araştırmanın amacı, Meslek Lisesinde görev yapan bilgisayar öğrencilerin Eğitim teknolojileri kullanabilme yeterlilikleri hakkında görüşlerinin açıklanmaktır. Betimsel bir çalışma olan bu araştırmada veriler; Doç Dr. Mehmet Durdu Karslı ve arkadaşları (2002) tarafından geliştirilen "Eğitim Yöneticileri ve Öğretmenleri bilim teknolojilerinin ve bileşim teknolojilerinden yararlanmalarını engelleyen nedenler" isimli ölçek kullanılarak toplanmıştır.
Araştırma evrenini; 2009-2010 öğrenim döneminde Bilgisayar ve Elektronik Kontrol alanında öğrenim gören öğrenciler oluşturmaktadır. Araştırmanın örneklemini ise basit tesadüfi örnekleme yöntemi ile seçilen İstanbul da 6 okulda görev yapan 242 öğrenciden oluşmaktadır. Verilerin çözümlenmesinde frekans, yüzde, t testi, Krukall Wallis, Anova istatistiksel yöntemleri kullanılmıştır. Araştırmaya katılan Elektronik ve bilgisayar bölümündeki öğrencilerin cinsiyet, ailenin gelir durumu, kardeş sayısı, bölüm farklılığı gibi değişkenlere bağlı olarak Teknolojiyi kullanabilme düzeylerinde farklılıklar görülmüştür. Bununla birlikte Teknolojiyi kullanabilme yeteneklerine ilişkin görüşleri sunulmaktadır.

Anahtar Kelimeler: Eğitim Teknolojisi, Eğitim teknolojilerini kullanıma yönelik tutum.

ABSTRACT

The most valuable resource of a society that enables it to survive is human power. The education and employment of this resource not only shows the difference of a society from the others, but renders a healthy interaction within the society. This difference is only possible with education. There is yet no consensus about the concept of education. There are different definitions of education [7,8,]. When we look at education within this framework, the factor which will provide the biggest contribution to the development of the country is the vocational, technical education. The vocational, technical education must serve the society more and more every single day in order to provide for the limitless needs of humans. Although the fact that vocational, technical education should not ultimately educate people into only one unique mold does not seem to agree to the other concepts of education, vocational improvement will only be possible with the employee who has acquired good vocational background, who can speculate the future and who can present his/her speculation with scientific research. These qualifications are only possible when the individual gets a good vocational education. The group is important for a human. Society is a big mass of humans made up of more than one small group. These groups are the family, relatives, friends, school environment, work environment, and so on. [9]

GİRİŞ

Yeni teknolojilerin benimsenerek uygulamaya konmasında birincil rol oynayacak yönetici ve öğretmenlerin yetiştirilmesi, eğitim kurumlarını teknolojik olanaklarla donatmak kadar önemlidir. Teknolojileri uygulamaya geçirecek elemanların sadece teknolojiyle tanıştırılması yeterli değildir.

Teknolojinin ve yeni öğretim tekniklerinin kullanılarak öğrenme etkinlikleri düzenleme becerilerinin de öğretmenlere kazandırılması gerekmektedir. [1,2]
Öğrenme ortamlarında teknoloji kullanımı öğrencilere daha zengin öğrenme ortamları sunmakta, ilgi uyanmakta, motivasyonlarının artmasını ve konuya ilişkin eski bilgilerini hatırlamalarını sağlamaktadır. Yapılandırmacı yaklaşımda öğrenci merkeze alındığı ve öğrenme süreçlerinde öğrenci aktif olarak rol aldığı için öğrenci yeni öğrenme ürünlerini ortaya çıkarırken, iletişim kurarken, öğrenme öğretme süreci içerisinde teknolojinin rolü büyüktür [3, 4]
William Mc Keefery bir teknolojinin etkisinin söz konusu teknolojinin belirli bir iti yapmak için gereken insan yeteneklerini kaç kat artırdığıyla ölçülebileceğini öne sürmektedir. [5,6]

YÖNTEM

Bu bölümde araştırmanın yöntemi ele alınmıştır. Araştırmada kullanılan model, evren ve örneklem, verilerin toplanması ile ilgili çalışmalar, verilerin işlenmesi ve araştırmada kullanılan istatistiksel teknikler açıklanmaktadır.
Araştırma Modeli: Bu araştırmada deneklere uygulanan anketten veri elde edilmesi şeklinde yapılmıştır. Ayrıca alanlar ve davranışlarla ilgili literatür taraması yapılarak bunlardan elde edilen bilimsel verilerden de yararlanılmıştır.
Evren Ve Örneklem: Araştırmanın evreni; İstanbul ilinde Endüstri Meslek Lisesinde Elektronik ve Bilgisayar bölümü öğrencileridir. Araştırmamamızın örneklemelini ise İstanbul ilinde bulunan 6 Meslek Lisesinde gerçekleştirilmiş
Verilerin Toplama Araçları: Araştırmada bu okulların bilgisayar ve elektronik bölümlerinde görev yapan öğretmen ve öğrencilere uygulanmış anket sonucunda elde edilmiştir. Verilen veri toplama aracı öğrencilere verilmiş 242 tanesi değerlendirmeye uygun görülmüştür.
Verilerin Analizi: Uygulanan anketlerin cevapları bilgisayarda Microsoft Excel programına kodlanarak girilmiştir. Bu bilgiler veri tabanı olarak SPSS istatistik analiz programına girilmiş ve değerlendirilmiştir. Verilerin çözümlenmesinde frekans ve yüzde hesaplamaları değerlendirilmiştir.

BULGULAR

Tablo–1: Araştırmaya katılan öğrencilerin cinsiyet dağılımları

Cinsiyet	N	Yüzde %	Kümülatif %
Bayan	34	14.0	14
Bay	208	86.0	100
Toplam	242	100.0	

Tablo-1'de görüldüğü gibi, araştırmaya katılan öğrencilerin 34'sı (%14,0) kız, 208'i ise (%86,0) erkek öğrenciden oluşmaktadır

Tablo–2: Araştırmaya katılan öğrencilerin sınıf dağılımları

Sınıf	N	Yüzde %	Kümülatif %
1. Sınıf	78	32.2	32.2
2. Sınıf	107	44.2	100
3. Sınıf	57	23.6	

Tablo-2'de görüldüğü gibi, araştırmaya katılan öğrenciler10. Sınıf 78'i (%32,2) ,11. Sınıf 107'si (%44,2), 12. Sınıf 57'si (%23,6) öğrencisidir.

Tablo-3.: Araştırmaya katılan öğrencilerin okulda eğitim gördüğü bölüm dağılımları

Bilişim Bölümü	N	Yüzde %	Kümülatif %
Ağ Sistemleri	29	23,5	23,5
Web Programcılığı	94	76,5	100
Toplam	123	100.0	

Tablo-3'de görüldüğü gibi, araştırmaya katılan öğrencilerin Bilişim Teknolojileri alanı dışında 119'u (%49,2),Ağ Sistemlerinde 29'u (%12,0), Web programcılığında 94'ü (%38,8), öğrenim görmektedir.

Tablo–4: Araştırmaya katılan öğrencilerin eğitim gördüğü bölüm dağılımları

Elektronik Bölümü	N	Yüzde %	Kümülatif %
Haberleşme	62	52,2	52,2
Görüntü ve Ses Sistemleri	50	42,0	94,2
Güvenlik	5	4,2	98,4
Otomasyon Sistemleri	2	1,6	100
Toplam	119	100.0	

Tablo-4'de görüldüğü gibi, araştırmaya katılan öğrencilerin Elektronik Teknolojileri alanı dışında 123'ü (%50,8),Haberleşme 62'u (%25,6), Görüntü ve Ses Sistemleri 50'ü (%20,7), Güvenlik 5'i (%2,1) , Otomasyon Sistemleri 2'si (%0,8) 'nde öğrenci eğitim görmektedir.

Tablo–5: Araştırmaya katılan öğrencilerin aile aylık gelir dağılımları

Gelir	N	Yüzde %	Kümülatif %
0 – 1000	126	52.1	52.1
1001 – 2000	96	39.7	91.7
2000 üstü	20	8.3	100
Toplam	242	100.0	

Tablo-5'de görüldüğü gibi, araştırmaya katılan öğrencilerin aile aylık geliri 0-1000TL 126' sı (%52,1), 1001 TL.-2000TL. 96' sı (%39,7), 2001 TL ve üzeri 20 si (%8,3)'ü aylık gelir sahibidir.

Tablo–6: Araştırmaya katılan öğrencilerin kardeş sayısı dağılımları

Kardeş Sayısı	N	Yüzde %	Kümülatif %
0 - 2	132	54.5	54.5
3 - 5	99	40.9	95.5
5 üstü	11	4.5	100.0
Toplam	242	100.0	

Tablo-6'de görüldüğü gibi, araştırmaya katılan öğrencilerin kardeş sayısı 0-2 arası 132'si (%54,5), 3-5 arası 99' u (%40,9), 5 ve üstü için 11'i (%4,5) kardeşi bulunmaktadır.

YORUMLAR

Tablo 8. : Öğrencilerin Cinsiyet Değişkeni ile İnterneti Kullanma Düzeyi Üzerindeki Etkisi
Araştırmamıza katılan Meslek Lisesi Elektronik ve Bilgisayar bölümü öğrencilerine İnterneti Kullanma Düzeyine Yönelik Düşünceleri ölçeği puanlarının cinsiyete göre t-testi sonuçları tabloda verilmiştir.

Cinsiyet	N	X	S	sd	t	p
Kadın	34	57,78	5,56	53,45	-2,86	0,00
Erkek	208	60,74	7,29			

Öğrencilerin İnterneti Kullanma Düzeyine Yönelik Düşünceleri cinsiyete göre anlamlı bir farklılık göstermektedir. T(53,45)= -2,86 Erkek öğrencilerin İnterneti Kullanma Düzeyine görüşleri ne bakıldığında (X=60,74), kız öğrencilere (X=57,78)'den daha fazla yeterli oldukları görülmektedir.
Bu bulgu, İnterneti Kullanma Düzeyine Yönelik Düşünceleri görüşü ile cinsiyet arasında anlamlı bir farklılık olduğu şeklinde yorumlanabilir.
Ancak öğrencilere yöneltilen teknolojiyi kullanma yeterliliği, bilişim teknolojilerini ve bilişim teknolojilerinden yararlanmasını engelleyen nedenler hakkındaki görüşleri ile cinsiyet arasında t-testi sonuçlarına göre anlamlı bir ilişki görülememiştir.

Tablo 9.: Bilişim Teknolojileri Alanında Öğrenim Gören Öğrencilerin teknolojiyik kullanabilme yeterlilikleri düzeyleri

Tablo 9'da Öğrencilerin öğrenim alanlarının teknolojiyi kullanma yeterlilikleri üzerindeki etkisi t-testi ile sorgulanmıştır. Bilişim Teknolojileri alanında; Ağ Sistemleri, Web Programcılığı bölümleri yer alan öğrencilerinin Teknolojiyi kullanma yeterlilikleri hakkında görüşlerine ilişkin t-testi tablosu verilmiştir.

BTA	N	X	S	sd	t	p
Ağ Sistemleri	29	69.48	5.52	121	-2,12	0,02
Web Programcılığı	94	72.25	6.33			

Öğrencilerin Teknolojiyi kullanma yeterlilik düzeyine Yönelik Düşünceleri BTA bölüm öğrencilerinin alanlarına göre anlamlı bir farklılık göstermektedir. T(121)= -2,12 Web Programcılığı bölümü öğrencilerin Teknolojiyi Kullanabilme yeterlilik düzeyine görüşlerine bakıldığında (X=72,25), Ağ Sistemleri bölümünde eğitim gören öğrencilere (X=69,48)'den daha yeterli oldukları görülmektedir.
Bu bulgu, Öğrencilerin teknolojiyi kullanabilme yeterlilikleri düzeyine yönelik görüşü ile BTA bölümü arasında anlamlı bir farklılık olduğu şeklinde yorumlanabilir.

Tablo 10.: BTA öğrencilerinin Teknolojiyi kullanma yeterlilikleri hakkında görüşlerine ilişkin t-testi tablosu

BTA	N	X	S	sd	t	p
Ağ Sistemleri	29	58,06	5.25	121	-1,92	0,03
Web Programcılığı	94	60,74	6.87			

Öğrencilerin Teknolojiyi kullanma yeterlilik düzeyine Yönelik Düşünceleri BTA bölüm öğrencilerinin alanlarına göre anlamlı bir farklılık göstermektedir. T(121)= -2,12 Web Programcılığı bölümü öğrencilerin Teknolojiyi Kullanabilme yeterlilik düzeyine görüşlerine bakıldığında (X=72,25), Ağ Sistemleri bölümünde eğitim gören öğrencilere (X=69,48)'den daha yeterli oldukları görülmektedir.
Bu bulgu, Öğrencilerin teknolojiyi kullanabilme yeterlilikleri düzeyine yönelik görüşü ile BTA bölümü arasında anlamlı bir farklılık olduğu şeklinde yorumlanabilir.
Ancak öğrencilere yöneltilen "bilişim teknolojilerini kullanma düzeyine yönelik düşünceleri" ve "öğrencilerin interneti kullanma düzeyine yönelik düşünceleri" hakkındaki görüşleri ile BTA ölümü arasında t-testi sonuçlarına göre anlamlı bir ilişki görülememiştir.

KRUSKAL-WALLİS TEST
Öğrencilerin sahip oldukları kardeş sayıların a göre elde edilen bulgular Kruskal - Wallis testine göre elde edilen bulgular bu bölümde verilmiştir.

Tablo 11.: Öğrencilerin kardeş sayılarıyla - yeterlilik düzeyine yönelik düşünceleri ilişkin Kruskal – Wallis Testi sonuçları

Kardeş Sayısı	**N**	**Mean Rank**	**sd**	**χ^2**	**p**
0 - 2	132	133.90	2	9,83	0,07
3-5	99	108.48			
5 üstü	11	89.86			

Öğrencilerin sahip olduğu kardeş sayısının Teknolojiyi kullanma düzeyleri ile incelendiğinde anlamlı bir fark görülmektedir. $\chi^2(sd=2, n=242) = 9,83, p<0,05$. Bu bulgu bizlere kardeş sayısının öğrencilerin teknolojiyi kullanma yeterlilikleri hakkında etkili olduğu görülmektedir.

Tablo 12.: Öğrencilerin kardeş sayılarıyla - interneti kullanma düzeyine yönelik düzeylerine ilişkin Kruskal – Wallis Testi sonuçları

Kardeş Sayısı	N	Mean Rank	sd	χ^2	p
0 - 2	132	133.24	2	8,24	0,01
3-5	99	107.93			
5 üstü	11	102.73			

Öğrencilerin sahip olduğu kardeş sayısının interneti kullanma düzeyine yönelik düzeyleri ile incelendiğinde anlamlı bir fark görülmektedir. $\chi^2(sd=2, n=242) = 8,24$, $p<0,05$. Bu bulgu bizlere kardeş sayısının öğrencilerin teknolojiyi kullanma yeterlilikleri hakkında etkili olduğu görülmektedir.
Anova Testi sonuçları Orta Öğretim Kademesindeki Sınıf farklılığı Öğrencilerin Bilişim Teknolojilerini kullanabilme ($F=6,6$; $p<0,01$) ve Bilişim teknolojilerinden yararlanmada engelleyen nedenler hakkında görüşlerde ($F= 6,7$; $p<0,01$) anlamlı bir şekle değiştiğini Tablo 13. De görülmektedir.

Tablo 13.: Öğrencilerin sınıf düzeylerinin eğitim teknolojilerini üzerindeki etkisini ANOVA Testi sonuçları

	Varyans Kaynağı	Kareler Toplamı	sd	Karelerin Ortalaması	F	P
BTK	Gruplararası	937.271	2	468.636	6.6	0.00
	Gruplariçi	16787.208	239	70.239		
	Toplam	17724.479	241			
Engel	Gruplararası	1612.007	2	806.004	6.7	0.00
	Gruplariçi	28565.203	239	119.520		
	Toplam	30177.211	241			

Sınıflar Arası Farkların Hangi Gruplar Arasında Olduğunu Bulmak Amacıyla Yapılan Scheffe Testinin Sonuçları

Tablo 14.: Scheffe Testi Sonuçları.

Sınıf	**Sınf**	Mean Diff.	SS	p
2	4	-5,20	1,46	0,00
3	2	4,45	1,62	0,02
4	2	6,63	1,90	0,00

Sınıf farklılıkları Teknolojiyi kullanma yeterliliği hakkında görüş ve Teknolojinin kullanılmasını engellendiği yönünde anlamlı bir görüş farklılığı olduğu görülmektedir.

SONUÇLAR

Yaptığımız çalışmada öğrencilee verilen anketimiz 4 bölümde oluşmaktadır. Burada elde edeiln sonuçların frekans dağılımları yapılarak eled edilen sonuçlardan bazıları bu bölümde sunulmuştur

1. **Öğrencilerin Eğitim Teknolojileri Kullanabilme Yeterlilikleri**

Anketimizin 1. Bölümü içinde öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumlu cevaplar (en fazla katıldıkları ifadeler); "Bilgisayarı açma-kapama v.b. temel yeterliliğine sahibim " ifadesi (X=3,96 “Yeterli” düzeyinde), " Bilgisayarda istediğim dosyayı açıp/kapatabiliyorum " ifadesi (X=3,93 “Yeterli” düzeyinde) ve " Fare (mouse) yi tüm özelliklerini bilerek kullanabiliyorum " ifadesi (X=3,88 “Yeterli” düzeyinde) olarak bulunmuştur.
Anket çalışmasına dahilindeki öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumsuz cevaplar (en fazla katılmadıkları ifadeler); " Eğitim – İstatistik (SPSS vb.) programlarını kullanabiliyorum " ifadesi (X=2,33 “Yetersiz” düzeyinde), " Bilgisayar programlama dillerini (Pascal, Java, C#, Delphi v.b) kullanabiliyorum " ifadesi (X=2,47 “Yetersiz” düzeyinde) ve " Okul Yönetimi Programını kullanabiliyorum " ifadesi (X=3,01 “Kısmen Yeterli” düzeyinde) olarak bulunmuştur.

2. Öğrencilerin Bilişim Teknolojilerini Kullanabilme Yeterlilikleri

Anketimizin 2. Bölümü içinde öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumlu cevaplar (en fazla katıldıkları ifadeler); " Yazıcı kullanmayı gerekli görüyorum " ifadesi (X=3,81 "Yeterli" düzeyinde), " Modemi kullanmayı gerekli görüyorum " ifadesi (X=3,78 "Yeterli" düzeyinde) ve " Yazıcıyı kullanabiliyorum " ifadesi (X=3,76 "Yeterli" düzeyinde) olarak bulunmuştur.

Anket çalışmasına dahilindeki öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumsuz cevaplar (en fazla katılmadıkları ifadeler); " Telekonferans (Net meeting) sistemini kullanabiliyorum " ifadesi (X=2,20 "Yetersiz" düzeyinde), " Elektronik tahtayı kullanabiliyorum " ifadesi (X=2,45 "Yetersiz" düzeyinde) ve " Telekonferans (Net meeting) sistemini kullanmayı gerekli görüyorum " ifadesi (X=2,45 "Yetersiz" düzeyinde) olarak bulunmuştur.

3. **Öğrencilerin İnterneti Yeterlilikleri**

Anketimizin 3. Bölümü içinde öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumlu cevaplar (en fazla katıldıkları ifadeler); " İnternette gezinme (surf) " ifadesi (X=3,81 "Yeterli" düzeyinde), " Müzik dinleme ve film izleme " ifadesi (X=3,78 "Yeterli" düzeyinde) ve " E-posta alma ve gönderme " ifadesi (X=3,73 "Yeterli" düzeyinde) olarak bulunmuştur.

Anket çalışmasına dahilindeki öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumsuz cevaplar (en fazla katılmadıkları ifadeler); " Cinsel konularla ilgili siteleri izleme " ifadesi (X=2,38 "Yetersiz" düzeyinde), " Uzaktan eğitim kurslarına (Yabancı dil v.b.) katılma " ifadesi (X=2,45 "Yetersiz" düzeyinde) ve " Web sayfası hazırlama " ifadesi (X=2,68 "Kısmen Yeterli" düzeyinde) olarak bulunmuştur.

4. **Öğrencilerin Bilişim Teknolojilerini Kullanabilme Yeterlilikleri**

Anketimizin 4. Bölümü içinde öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumlu cevaplar (en fazla katıldıkları ifadeler); " Mesleki " ifadesi (X=2,51 "Katılıyorum" düzeyinde), "Ekonomik olanaksızlıklar " ifadesi (X=2,50 "Katılıyorum" düzeyinde) ve " Okul yönetiminin bilgisayar çıktılarını resmi işlemlerde kabul etmemesi " ifadesi (X=2,41 "Katılmıyorum" düzeyinde) olarak bulunmuştur.

Anket çalışmasına dâhilindeki öğrencilerin bağımlı değişkenlere (ifadelere) verdikleri en olumsuz cevaplar (en fazla katılmadıkları ifadeler); "Mesleki olarak ihtiyaç duymama" ifadesi (X=1,96 "Katılmıyorum" düzeyinde), "Bilgisayarın sağlık sorunlarına yol açması nedeniyle" ifadesi (X=1,97 "Katılmıyorum" düzeyinde) ve "Kişisel olarak ihtiyaç duymama" ifadesi (X=2,00 "Katılmıyorum" düzeyinde) olarak bulunmuştur.

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MISCONCEPTIONS IN EXPONENTS AND RADICALS IN UNIVERSITY MATHEMATICS

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ABSTRACT

The aim of this study is to determine misconceptions and errors of university students about exponents and radicals in simple context in university mathematics. For this reason 110 students were randomly selected and tested. The selected students are from business faculty, and school of computing and information techhnology in Easterranean Mediterian University, North Cyprus. There performances are meaningful about common errors and misconceptions obut the mentioned context.

INTRODUCTION

Students' understanding of many physiological phenomena is often seriously flawed. Such conceptual difficulties are often referred as misconceptions or as errors. Misconception is often quite persistent, and it interfere with students' ability to learn physiology.

Misconceptions' have different peculiarities than arbitrary errors. Normally one can easily arrange the errors that he/she did. However for misconceptions, can not be arranged easily. Students can not distinguish their fault and do not change their mind. Fisher(1985)

Misconceptions and errors are defined by Olivier, in 1989, that; it is natural result of children's efforts to construct their own knowledge and these misconceptions are intelligent constructions based on correct or incomplete (but not wrong) previous knowledge.

Errors and misconceptions are defined by Strike, in 1983, that they seen rather like a faulty byte in a computers' memory. 'If we do not like what is there, it can simply be erased or written over, by telling the pupil the correct view of the matter.'

Misconception is defined in different statements by different authors but they refer more or less same phrase; 'Students do not come to the classroom as 'blank slates'. (Resnick, 1983). Instead, they come with theories constructed from their everyday experiences. They have actively constructed these theories, and activity crucial to a successful learning. Some of the theories that students use to make sense of the world are, however, incomplete half truths. They are 'misconceptions'. (Mestre, 1987).

Misconception is commented by Jerome Bruner with these words: 'When children give wrong answers it is not so often that they are wrong, as that they are answering a different question. Teachers' job is to find out what question they are in fact answering.'

Since errors are wrong answers due to planning, they are applied in the same circumstances and misconceptions are principles in cognitive structures that are cause of systematic conceptual errors and Students have misconceptions because of their experiences, wrong believing and thinking styles. There are some different conditions that are cause of misconceptions and errors:

Teacher, curriculum, social factors, affective factors, emotional factors, motivation, attitudes, possible interactions (Hart, 1984), students' previous experiences, wrong believings and thinking styles (Baki, 1999), memorizing (Olivier, 1989) are cause of misconceptions and errors.

Some properties of misconceptions are defined by Fisher in 1985 that; 'different people should have the same type of misconceptions'. Truly, different students from different faculties did the same type of misconceptions without corresponding. Second one is 'alternative attitudes should be produced by misconceptions.' Third one is 'most misconceptions can not be overcome by general methods.' And last one is 'some experiences should cause misconceptions.

Misconceptions and errors cause; low achievement in mathematics education. If the number of misconception and errors increase, students will have difficulty in understanding. Learners' previous conceptual structures effect their future learning abilities and construction of new knowledges harmfully. Because of these affects teachers should help students to overcome their misconceptions. it is not very useful to think of students' errors in terms of low intelligence, low mathematical aptitude, perceptual difficulties or learning disabilities. Of course these factors play a role but if they are really concerned with helping individual children, such abstract ideas will not help. It is only when we work at the level of specific detail and get to know the specific roots of mistakes

(Olivier, Alwyn; 1989),using readiness, concrete, and semiconcrete experiences (Eisenhart, 1993), different activities and applying new teaching techniques (Geban, Ertepınar, Yayla and Işık, 1999), using conceptions of fundamental operations (Osman Cankoy, 1998), attention to the development of concepts in mathematics (Aksu, 1997), to support the students to construct their own knowledges, discussion, communication, reflection and negotiation (Swan,1983; Nesher,1987; Olivier,1988) will be useful while helping students.
Overcoming misconceptions and errors is very important to make the students high achievers.
Students are coming to school with complex ideas the main point while overcoming misconceptions and errors is true application of actualizing the seperation of these complicated concepts.
Some ideas while overcoming errors are given by Rokusek in 1992 that; 'Make sure the students have a step-by-step procedure to follow when going through the division algorithm.', 'Use manipulative whenever possible to help students create a visual image of the process. This will help them bring meaning to the algorithm', 'Train the students to make an estimate of their answer first. This will help learners become aware of reasonable answers', 'Involve the three processes with cooperative learning group interactions.', 'As a teacher find the trouble spot. This is the place where the students' errors increase as they proceed through the skill levels. If it does not happen until previous level, then take advantage of their previous knowledge and build from here. In one-to-one or error group situation, start from where the error starts.'

METHODOLOGY

The aim of the study is evaluate and analyze misconceptions and errors in university students in exponents and radicals with using different abilities on these topics. It is conducted with randomly selected 110 university students who are from School of Computing and Technology, and Business and Economics Faculty. The test was based on the prototyping model with simple context.
In the test, there were 26 questions testing a total of 14 basic abilities from exponents and radicals. Mostly, for each ability two questions were asked, one is the control question and other one is for test. The control questions are to realize their arbitrary selections.
Four options are given for each questions. At the end of the each question a blank space was provided to let the learners write their own solution steps.
For each option; one shows the correct answer, the other two of them shows the answers including misconception and error about question. Forth option is given, named 'other', is an alternative for students that; they wrote their own solving method to the provided space for each question but if they can not find their answers in the options, they selected this one. This provided space is used to help us to see the solving steps of learners but with this option it gave us new misconception and/or error types that we did not imagine while preparing the questions.
Putting this option is also one of the helpful process for arbitrary selections. If they do not know how to solve they left the question empty. But if they know or think they know the answer they wrote and selected one option that they found.
While analyzing, interview period is very important but because of lack of time we could not do any interview.
This option is also used for replacing the interviews, while interviewing researchers want students to comment on their solvings and think aloud, this option is our silent interview.

ITEM ANALYSIS

The aim of the question 1 and 5 is to see the ability of adding similar symbols. The percentages are similar so we can observe that this ability is improved by students. However
the aim of the questions 2 and 6 is to see the ability of applying power zero. The percentages of misconceptions are similar but difference results for errors and correct answers are appeared. We can comment that different faculties' backgrounds are cause of these differences. The aim of these questions 3 and 7 is to see the ability of multiplication by similar symbols. Performances of misconceptions are same but difference results for errors and correct answers are appeared. We can comment that different faculties' backgrounds are cause of these differences. This result is common because we find the same solution for question 2 and 6 too. The aim of the questions 4 and 8 is to see the application of power of division. Seen percentages of misconceptions are same but difference results for errors and correct answers are appeared. We can comment that different faculties' backgrounds are cause ofthese differences. The aim of the questions 9 and 11is to see the application of negative and positive power. Because of the negative and positive values of power, we can see the different misconception percentages. For negative power learners do not have enough conceptual structure. But for positive power, learners background is beter. The aim of the questions 12 and 15 is to see the application of collective addition and multiplication. The different values of misconception and error percentages are seen because of using paranthesis. Because it effects students' solving and thinking style. The aim of the questions 13 and 14 is to see the ability of power's definition and application of power. Value of percentages are similar so we

can say the definition and application of power is learnt by students. The aim of the question 10 is to see the ability of adding different symbolled exponents. However we put one option that is the same with question, is normally correct. But 33 students select option 'a'. First option is made the learners failed. Putting it to the first option is a method to evaluate them easily. It is misconception and it also gives us some ideas: First; this result shows that learners do not need to check any option. Second; learners do not give attention while solving. Finally; there is a wrong and common idea that $x^2+y^2=(x+y)^2$. The aim of the questions 16 and 17 is to see the ability of defining radicals. Values of percentages are similar and the difference of misconception percentages is shown because of different faculties' backgrounds.

The aim of the questions 18 and 19 is to see the root of negative numbers ability. Results are similar so; we can observe that, the roots of negative numbers are not learnt enough. Students have missing conceptual and prototyped structures that they do not have enough information. The aim of the questions 20 and 21 is to see the ability of applying root of division. Correct answers' and errors' percentages are similar. Infact questions are looking for the same abilities. Question 21 looks more complicated than 20. Because of this; for question 21, percentages of not selected options' are more than question 20. The aim of the questions 22 and 23 is to see the ability of applying root of multiplication. We can observe that learners do not understand some parts of radical forms. While applying root of multiplication they do not have attention. For example in question 22; we put the same result in option 'c' but most of them select option 'a' because they do not check all options. The aim of the question 25 and 26 is to see the ability of rational exponents. For these two questions' correct answers are less than % 50. And almost the same number of students could not answer them. These mean they do not have enough conceptual structure about rational exponents

The aim of the question 24 is to see the application of root of addition. In fact most of learners select correct answer, the percentages of error shows us, there is a common behaviour that students think; $\sqrt{9+7}=3+\sqrt{7}$. Misconception: 6 learners who are % 5,45 of 110 students. Error: 21 learners who are % 19,09 of 110 students. Correct answer: 71 learners who are % 64,55 of 110 students. Empty: 10 learners who are % 9,09 of 110 students. In fact 71 learners select correct answer, the percentages of error shows us, there is a common behaviour that students think; $\sqrt{9+7}=3+\sqrt{7}$.

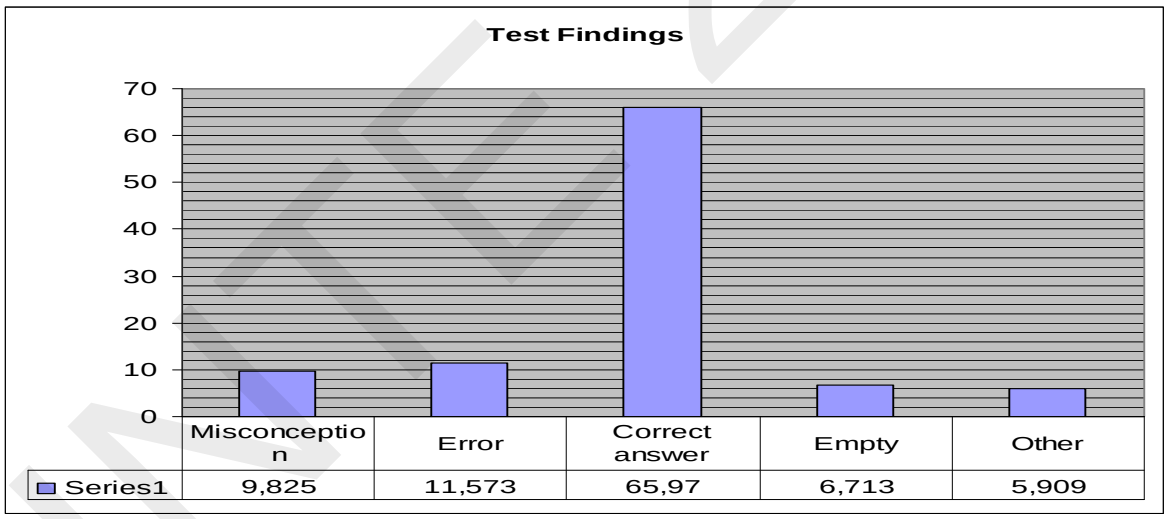


Fig. 1. Overal Test Findings

As it is explained in the methodology option 'd', named ''other'', is used as an alternative for students' own solving methods and learners wrote their solution steps to the provided space and find some solutions. But if they can not find their result in the options, they used option 'd', again. This is a useful process that will help us not only for analyzing the students' behaviours but also to see their misconception or/and error styles that we did not imagine while preparing the questions. But as shown in Fig 1. we categorized the option types. As observed in bar chart are overall view of test's options. But we have to add some important details to the table about datas. These details will change the percentages of overall view of table and it will be much specific analization for categoraized options.We know the percentages of correct answers is % 65,97.

Now, let us define what the empty answer is. If learners do not have any idea, then; they leave it empty. Under these conditions this shows a missing part of the learners' conceptual structure. This missing part(s) effect(s) students' performances harmfully while learning. Then they can be commented as a misconception type. Because of these observations, the empty answers in our test can also be commented as misconception so overall

misconception percentage is minimum %65 plus some factors from 'other' option. Some of the 'other's are errors, some of them are misconceptions.

From the observations on 'other option' it was seen that $(2/3) \cong \%60$ of them contributing misconceptions. So it is rising up approximately %20.We analyzed all 'd' options. And separated the learners solutions. At the end of keeping in mind all 'd' options and empty answers of all test findings, we can easily evaluate that, the percentages of errors and misconceptions will be changed.

If we re-organize 'Test Findings' chart depicted in Fig. 2, difference of misconception and error percentages will be seen clearly. Percentages of correct answer is % 65,97. In the new chart,percentages of misconceptions and errors' values are shown approximately.

We can also observe that; total values of misconception and error percentages converge the half of the value of correct answers' percentages. And also values of detected behaviours, while answering, which is misconception, is greater than value of errors. This means there are obvious detected conceptual structures in students' mind about some mathematical topics as we examine exponents and radicals.

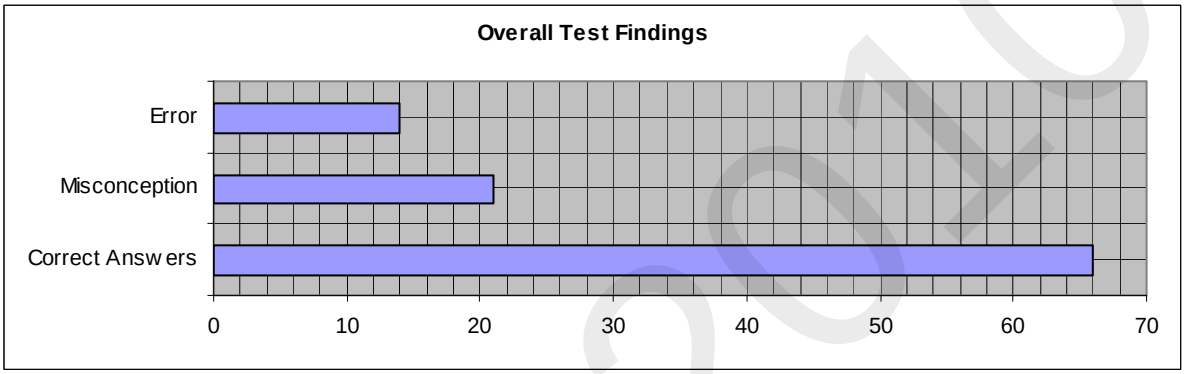


Fig. 2. Overall Test Findings

The following scatter distributions as shown in Fig. 3 and Fig. 4 can also be helpful for the distributions of the abilities in exponents and also in radicals, respectively.

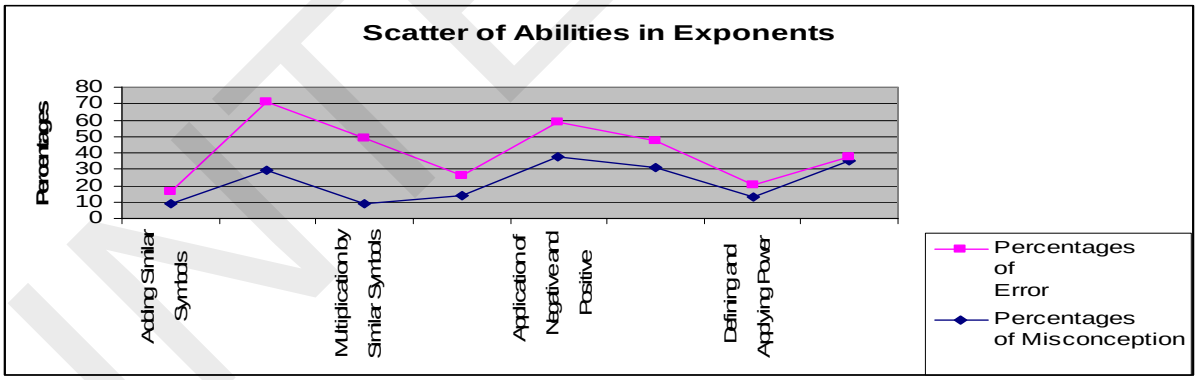


Fig. 3. Scatter Distribution of Abilities in Exponents

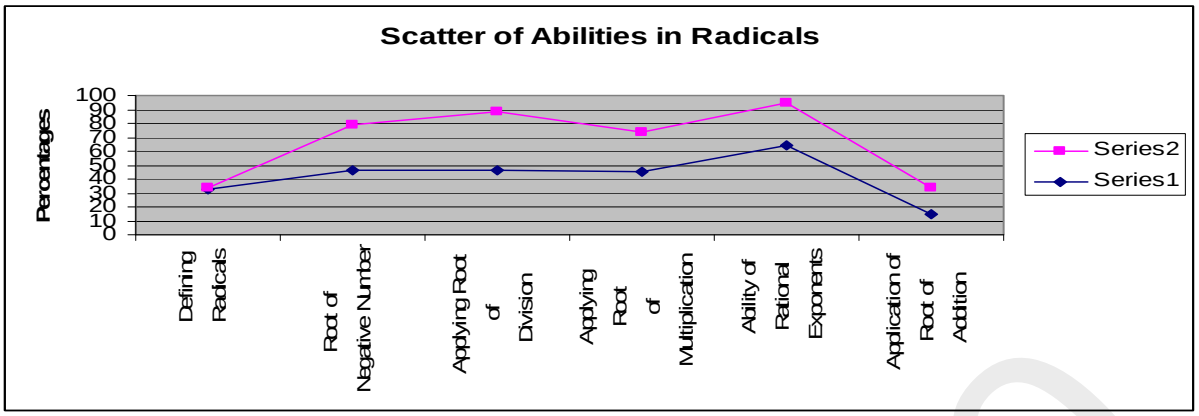


Fig. 4. Scatter Distribution of Abilities in Radicals

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MİMARLIK LİSANS VE LİSANSÜSTÜ PROGRAMLARINDA YAPI MALZEMESİ DERSLERİNE YÖNELİK BİR DEĞERLENDİRME

AN ASSESSMENT OF COURSES RELATED TO BUILDING MATERIAL IN ARCHITECTURE UNDERGRADUATE AND GRADUATE PROGRAMS

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ÖZET

Yapı malzemeleri, tasarımı gerçekleştirirken aynı zamanda sahip olduğu çeşitli özellikleri kullanıldığı yapıya yansıtırlar. Ayrıca yaşam döngüleri boyunca çevresel değerler üzerinde de bir etkide bulunurlar. Bu nedenle birçok malzemenin bir araya gelerek oluşturduğu yapıların tasarım aşamalarında malzeme seçimi önemlidir. Bu malzemelerin birbiri ile uyumlu bir biçimde kurgulanmasında ise malzemelerin çeşitli özelliklerinin bilinmesi gerekmektedir. Geçmişten günümüze malzeme teknolojisinin kullanım amacı, biçimi giderek gelişmiş ve gelişmeye devam etmektedir. Bu gelişmelerin bilinmesi ve sürekli izlenmesi çağdaş mimarlık eğitimi için önemli olmaktadır.

Bu çalışmada mimarlık eğitiminde yapı malzemesi ile ilgili derslerin önemini, diğer dersler ile bağlantısını/ etkisini ve sorunlarını irdelemek amacıyla GYTE Mimarlık Fakültesi Mimarlık Bölümü Lisans ve Lisansüstü Programlarında yer alan malzeme derslerinin bir değerlendirilmesi yapılmıştır. Çalışmanın, yapı malzemesi derslerinin daha etkili ve verimli hale getirilmesine dolayısıyla mimarlık eğitim ve eğitimcilerine, öğrencilerine ve meslek adamlarına katkı sağlayacağı düşünülmektedir.

ABSTRACT

Building materials reflect their various features on the texture of the structure during the application of design. Besides, they have also an impact on environmental values throughout their life cycle. Therefore material selection is important during the design of buildings which are formed by several building materials. Installation of these materials with harmony needs knowledge about properties of the building materials. Today, purpose and tradition using technology of materials develops increasingly when compared with past. To know and monitor these developments is essential for contemporary architectural education.

This study investigates the importance of courses related to building materials, their relations/impacts with other courses and their problems using the assessment of courses related to building materials of Undergraduate and Graduate Programs at Gebze Institute of Technology Faculty of Architecture, Department of Architecture. The study will assist to upgrade the level of the lectures related to building materials and by means of this contribute to architectural education, lecturers, students and architects.

1. GİRİŞ

İnsanlar beslenme, barınma ve korunma gibi ihtiyaçlarını geçmişte çevresindeki doğal malzeme olanaklarını kullanarak karşılarken günümüzde gelişen teknoloji ile birden fazla malzemenin bir araya getirilerek amacına uygun özellikteki yeni malzemeler ile çözmeye çalışmaktadır.

Yapı malzemeleri, tasarımı gerçekleştirirken aynı zamanda sahip olduğu çeşitli özellikleri kullanıldığı yapıya yansıtırlar. Ayrıca yaşam döngüleri boyunca çevresel değerler üzerinde de bir etkide bulunurlar. Bunun için bir tasarımın ilk aşamasından itibaren uygun malzeme seçimi çok önemli olmaktadır. Geçmişten günümüze farklı disiplinlerdeki malzemelerin kullanım amacı, biçimi giderek gelişmiş ve gelişmeye devam etmektedir. Çağdaş mimarlık eğitiminde bu gelişmelerin bilinmesi ve sürekli izlenmesi gerekmektedir. Yapıları meydana getiren birçok malzemenin bir arada uyumlu bir biçimde kurgulanabilmesi için malzemelerin gereken özelliklerinin bilinmesi uygulamalarda başarılı sonuçların elde edilmesini sağlamaktadır.

Yüksek öğrenimin farklı eğitim dallarında yer alan malzeme derslerinin içeriği gelişen teknolojik olanaklara bağlı olarak değişmiş ve çeşitlenmiştir. Yeni malzemelerin her birinin ders kapsamında ele alınması hem ders saati hem de laboratuar olanakları bakımından giderek azalmaktadır. Bu nedenle ders programlarında malzemelerin genel özellikleri, üretim yöntemleri ve uygulama ile ilgili örneklere yer verilmektedir.

Ülkemizde 45 vakıf, 94 devlet üniversitesi olmak üzere toplam 139 üniversite bulunmaktadır [1]. Bugün yaklaşık olarak 45 üniversitenin Mimarlık Bölümlerinde Lisans ve Lisansüstü eğitim sürdürülmektedir. Eğitim programı açısından farklılıklar taşıyan Mimarlık Bölümleri arasında AB (Avrupa Birliği) ve UIA (Uluslararası Mimarlar Birliği) belgelerinde tanımlanan niteliklere sahip, uluslararası düzeyde hizmet verebilecek temel yetenek, beceri ve bilgiye sahip meslek adamı yetiştirilmesine uygun koşulların yaratılması artık bir zorunluluk haline gelmiştir.

Bu çalışmanın amacı; mimarlık eğitiminde yapı malzemesi ile ilgili derslerin önemi, diğer derslerle bağlantısını/etkisini ve sorunlarını tartışmaktır. GYTE Mimarlık Fakültesi Mimarlık Bölümü Lisans ve Lisansüstü Programları örnek olarak seçilmiş, bu programlarda yer alan malzeme derslerinin bir değerlendirilmesi yapılmıştır. Bu değerlendirmede, az sayıda da olsa öğrenci görüşleri de göz önüne alınmıştır. Bu konuların ele alınmasının, yapı malzemesi derslerinin daha etkili ve verimli hale getirilmesine, mimarlık öğrencilerine, akademisyenlere ve meslek adamlarına yararlı olacağı düşünülmektedir.

2. MİMARLIK EĞİTİMİNDE YAPI MALZEMESİ BİLGİSİNİN ÖNEMİ

Mimari tasarımların uygulanabilmesi yapı malzemelerinin olanaklarıyla sınırlı olduğundan her yapı malzemesi ile tasarımlar gerçekleştirilemez. Mimari tasarımda malzeme bilgisinin anlamı ve önemi, yapı yapanların yakından karşılaştıkları ve bildikleri bir konudur. Malzeme bilgisi birçok bilim dalıyla ilişkili olduğu için mimarlık eğitiminde yer alan bazı derslerin içeriğinde de yer alması kaçınılmazdır.

Yapıların farklı işleve sahip bölümlerinde değişik nitelikte ve özellikte yapı malzemesi kullanılması ve bu şekilde işlevin amacına uygun şekilde yerine getirilmesi, yapısal tasarım ilkelerindendir. Yapısal tasarım ve malzeme arasındaki bu ilişki yapı içindeki mekânların üstlendiği işlevlerin gerekli nitelikleri taşımasında önemli bir yer tutmaktadır.

Uygun nitelikte kullanılan yapı malzemeleri ile oluşturulan mekânların karşılayacağı işlevlerin yanı sıra görsel, estetik, renk, doku, yüzey özellikleri ile ilgili işlevleri de belirli bir düzeyde sağlaması gerekmektedir. Bununla birlikte, iç mekânda insan sağlığı ve çalışma verimliliği üzerinde olumsuz etkide bulunmamalıdır. Sürdürülebilir mimari tasarımlarda da yapı malzemelerinden yaşam döngüleri boyunca çevresel etkisinin az olması beklenmektedir. Bunun tam olarak uygulanabilmesi için malzemelerin fiziksel, mekanik, kimyasal, biyolojik, ekolojik, elektriksel, manyetik, optik, akustik ve ısıl özelliklerinin ile birlikte ekonomikliğinin, sağlanma kolaylıklarının, görünüş ve estetik özelliklerinin bilinmesinde ve hatta bunların sayısal büyüklüklerle ifade edilebilir olmasına gereksinme vardır. Mimarlık eğitiminde yapı malzemesiyle ilgili bu bilgilere sahip olunması, amaca ve beklentilere uygun yapı malzemesi seçiminde önemli yol gösterici ve belirleyici olacaktır.

Malzeme özellikleri ve performansı ile o malzemeyi yararlı hale getirmek için uygulanan işlemler arasında kurulan ilişki, malzemeden istenilen özellikleri neden ve nasıl sağladığını anlama ve bu özellikleri geliştirme açısından Bayındırlık ve İskân Bakanlığı tarafından 8 Eylül 2002'de çıkarılan "Yapı Malzemeleri Yönetmeliği" önemlidir. Amacı, tüm yapı işlerinde daimi olarak kullanılmak amacıyla üretilecek yapı malzemelerinin sahip olması gereken temel gerekleri, bu malzemelerin tabi olması gereken uygunluk değerlendirme süreçleri, piyasa

gözetimi ve denetimi işlemleri ile ilgili usul ve esasları belirlemek olarak tanımlanan yönetmelik 2007 yılında yürürlüğe girmiştir [3].

Ülkemizdeki üniversitelerin mimarlık bölümlerinde verilen yapı bilimleri adı altındaki lisans derslerinin, toplam ders saati içindeki yeri genel ortalamada %18 değerine ulaşırken, iki devlet üniversitesinde bu oran %26 ve %28 değerindedir [2]. Malzeme laboratuarı ise çok az sayıdaki mimarlık bölümlerinde bulunmaktadır. Malzeme özelliklerinin deneysel çalışmalarla ölçülmesi uygulanan işlemlerin başarılı olup olmadığı konusunda bilgi sahibi olunmasını sağlar. Malzeme laboratuarlı ve görsel ağırlıklı bir eğitim, öğrencilerin malzeme dersini anlamasına, katılmasına ve önemli bilgileri almasında faydalıdır. Ancak, gerek ders programlarının yoğunluğu, gerekse öğrenci sayısı nedeniyle farklı bölümlerdeki laboratuarların kullanımı da söz konusu olamamaktadır. Bu durum yapı anabilim dalı lisansüstü öğrencilerini de etkilemekte, deneysel çalışma alanlarını kısıtlamakta veya zorlaştırmaktadır.

3. GYTE MİMARLIK BÖLÜMÜ LİSANS VE LİSANÜSTÜ PROGRAMLARINDA YAPI MALZEMESİ DERSLERİ

Gebze Yüksek Teknoloji Enstitüsü Mimarlık Fakültesi Mimarlık Bölümü, 1995 yılından bu yana yüksek lisans eğitimini, 2008 yılından itibaren de lisans eğitimini sürdürmektedir. Mimarlık Bölümü lisans programında, “Mimarlıkta Malzeme Teknolojileri “ adı altında ikinci sınıfın güz döneminde (III. yarıyıl) iki saat teorik, lisansüstü programında ise “Geleneksel Yapı Malzemeleri” ve “Ekolojik Yapı Malzemeleri” dersleri üçer saat teorik olarak verilmektedir. Bu dersler haricinde lisans programında “Fiziksel Çevre Denetimi” ve lisansüstü programında “Yapı ve İnsan Sağlığı” derslerinin içeriklerinde yapı malzemesi bilgilerine geniş olarak yer verilmektedir. Ayrıca lisans mesleki derslerinden “Yapı Bilgisi I ve II”, “Taşıyıcı Sistemler ve Teknolojileri I, II, III”, Yapı Uygulama Tasarımı” ,lisans seçmeli derslerinden “Tarihi Mekânlar” ve “Yapı Hatalarının Analizi” lisansüstü derslerinde de içeriğe ve işlenişine göre yapı malzemelerine değinilmektedir. “Mimarlıkta Malzeme Teknolojileri” dersine Lisans Programında sadece iki saat yer ayrılmış gibi gözükse de sözü edilen diğer derslerin katkısı ile bu süre arttırılmıştır.

Lisans programında yapı malzemesi dersinin amacı, mimarlık eğitimi süresince yapı malzemelerinin özellikleri, üretim, kullanım ve uygulamalarıyla ilgili ilke ve standartların “Yapı-Malzeme-Tasarım” ilişkileri bakımından tasarıma ve uygulamaya yönelik tanıtılmasıdır.

GYTE Mimarlık Bölümü lisans eğitiminde henüz ikinci eğitim öğretim yılını tamamlamış ve malzeme laboratuarı fiziki şartlarını henüz sağlayamamış olmasına rağmen, Çayırova Kampusu’nun sanayi bölgesine yakınlığı sebebiyle “Mimarlıkta Malzeme Teknolojileri” dersi ve diğer dersler kapsamında malzeme üreticisi firmalara, yeni yapı malzemelerinin uygulandığı çeşitli yapılara teknik gezilerek düzenlemektedir. Ayrıca yapı malzemeleri üreticisi, çeşitli firma temsilcileri tarafından verilen seminerler ve birebir ölçekteki örnek uygulamalar ile malzemelerin tanıtılmasına da imkân verilmektedir. Bu seminerler ile derslerde anlatılan yapı malzemelerinin öğrenciler tarafından birebir görülmesi sağlanırken yakın gelecekte kurulması planlanan malzeme laboratuarında örnek yapı malzemesi olarak kullanılmak üzere bu ürünlerin bir araya getirilmesine devam edilmektedir.

Bu ders kapsamında öğrencilerden seçtikleri herhangi bir yapı malzemesinin özellikleri, üretim ve uygulama biçimlerini araştırması istenerek takım çalışması becerisini kazanması ve araştırmasını örneklerle destekleyerek sunması istenmektedir. Malzeme laboratuarının henüz olmayışı nedeniyle öğrenciler deney yapma imkânı bulamamaktadırlar. Malzemelerin fiziksel, mekanik ve kimyasal özelliklerinin deneyler ile anlatılması ve anlaşılması bu ders kapsamında çok önemli olduğundan teknik geziler ile öğrenciler çeşitli laboratuarları görme fırsatı bulmakta ve görsel olarak deneylerin uygulama aşamaları derslerde görsel olarak anlatılmaktadır.

Bu sayede günümüz mimarlık öğrencisi, ülkemizdeki uygulamalar açısından en önemli yeri tutan yapı malzemelerini tanıyarak, temel bilgileri kavrayarak, bir tasarımcı için ihtiyaçlara en iyi cevap verecek malzemeyi seçme ve eldeki malzemeyi en uygun ve en ekonomik şekilde kullanma bilgi ve becerisini kazanacaktır.

“Yapı Bilgisi I ve II” lisans derslerinde öğrencilere yapıyı oluşturan bileşenlerin ve elemanların temel ilkelerini kavrama, araştırma, değerlendirme, seçme, bütünleştirebilme ve tasarımlarını yapabilme bilgi ve becerisi kazandırılması hedeflenmiştir. Bu dersler kapsamında Yapı elemanları, yapı bileşenleri ve yapı malzemeleri hakkında teknik bilgi, sınıflandırma, taşıyıcı ve taşıyıcı olmayan yapı elemanları, yapım sistemlerine göre taşıyıcı yapı elemanları, temel, duvar, döşeme, kolon, kiriş vb. yapı elemanlarının tanıtımı ve her konu ile ilgili uygulama çalışmaları, düşey sirkülasyon araçları, çatı türleri ve sınıflandırması, kapı ve pencere sistemleri, duvar, döşeme, tavan kaplama sistemleri teorik ve uygulamalı olarak aktarılmaktadır.

Yapı strüktürlerinin davranış ilkeleri ile çağdaş taşıyıcı sistemlerin gelişim ve uygulamalarının aktarılması amacı ile hazırlanan "Taşıyıcı Sistemler ve Teknolojileri I" lisans dersinde taşıyıcı sistemin tanımı, sınıflandırılması ve tarihsel gelişimi yığma sistemden çağdaş taşıyıcı sistemlere kadar sistematik olarak öğrencilere aktarılmaktadır. Ayrıca öğrencilerden seçtikleri bir yapım sistemini ve bu sistemi anlatabilecekleri bir yapı ve mimarı hakkında araştırma yapması, sunması ve uygun ölçekte yapım sistemini anlatan maket istenmektedir. Bu sayede öğrencilerin düşey ve yanal kuvvetlerle ayakta duran strüktürlerin davranış ilkeleri ile çağdaş taşıyıcı sistemlerin gelişim ve uygulamalarını, bina kabuğu malzemeleri ve sistemleri tasarımının temel ilkelerini ve doğru uygulama şekillerini, yapı malzemeleri ve bileşenlerinin üretim, kullanım ve uygulamalarıyla ilgili ilke ve standartları anlama bilgi ve becerisi kazanmaları beklenmektedir. "Taşıyıcı Sistemler ve Teknolojileri II ve III" lisans derlerinde de betonarme ve çelik yapım sistemleri ile bilgiler verilmesi planlanmıştır.

Lisans programında yer alan "Fiziksel Çevre Denetimi" dersinde, dış etkenlerin yapı üzerindeki olumsuz etkilerini azaltmada uygun malzeme seçiminin önemi vurgulanmaktadır. Dış etkenler karşısında malzemenin nasıl ve hangi sebeplerle bozulduğu v.b. konular açıklanarak, bunları önlemek/azaltmak için alınacak önlemler ders kapsamında öğrencilere aktarılmaktadır.

"Tarihi Mekânlar" lisans seçmeli dersinde yurtiçi ve yurtdışından seçilen bazı önemli anıtsal yapılar ile çeşitli sit alanlarının mimari karakterleri tanıtılarak bu yapı ve alanların sürdürülebilirliği konusunda yapılan çalışmalar öğrencilere aktarılmaktadır. Belirli bir dönemin mimari düzenini, yapım tekniğini ve yapı malzemesini, estetik anlayışını, sosyal yaşamını açıklayan tarihi alanlara yapılan geziler yardımıyla tarihi yapıların planlama, yapım tekniği ve estetik düzeni konusunda mimar adaylarına bilinç kazandırma hedeflenmiştir.

"Yapı Uygulama Tasarımı" lisans dersinde öğrencilere, geniş kapsamlı programı olan bir mimari projeyi şematik tasarım aşamasından detaylı sistem geliştirme aşamasına kadar geçerli yapı mevzuatına göre taşıyıcı sistemini, konstrüksiyon sistemlerini, yapı alt sistemlerini ve bu sistemlerle ilgili malzeme seçimlerinin bütünleştirilmesi becerisinin kazandırılması hedeflenmiştir.

Lisansüstü programında yer alan "Ekolojik Yapı Malzemeleri" dersinde yapı malzemeleri, yaşam döngüleri, ekolojik ve biyolojik özellikleri açısından araştırılarak değerlendirilmektedir. Bu derste, öğrencilere sürdürülebilirlik için en uygun malzemeyi seçebilme ve çevre sorunlarına karşı sorumluluk bilincini geliştirebilme becerisi kazandırılması hedeflenmektedir. Ders kapsamında öncelikle, genel olarak yapı malzemelerinin yaşam döngüleri boyunca insan sağlığı ve çevresel değerler üzerinde yaptıkları olumsuz etkiler irdelenerek sorun ortaya konulmaktadır. Daha sonra bu etkileri ortadan kaldıracak/mümkün olduğu kadar azaltacak çözümler, yapı malzemelerinin diğer özelliklerinin yanında biyolojik ve ekolojik özelliklerinin de önceliği ve önemi vurgulanarak tartışılmaktadır.

Kuramsal bilgi edinilmesinden sonra, dersin araştırma ağırlıklı bölümünde öğrenciler seçtikleri bir yapı malzemesinin yaşam döngüsü boyunca çevresel etkilerini araştırarak, olumlu ve olumsuz yönlerini ortaya koyarak, literatür taramaları ve malzeme üretim tesislerinden elde ettikleri verileri kullanarak ekolojik ve biyolojik kriterler açısından bir değerlendirme yapmaktadırlar. Yapı malzemeleri üretimi, çevresel etkinin en fazla olduğu aşamadır. Çünkü bu aşamada hammadde, enerji ve su tüketilerek atık oluşturulmaktadır. Bu süreç içerisindeki çevresel etkilerin bilinmesi, çözüm üretilebilmesi açısından oldukça önemlidir. Konumu itibariyle Gebze Yüksek Teknoloji Enstitüsü'nün çevresinde çok sayıda yapı malzemesi üretim tesisi bulunmaktadır. Öğrencilerden bu aşamada oluşan çevresel etkiyi yerinde görerek veri toplaması, bu verileri değerlendirmesi ve yorumlaması beklenmektedir. Bu kısım, dersin önemli bir bölümünü oluşturmaktadır. Dersin sonunda her öğrenci seçtiği malzeme ile ilgili araştırma raporunu sözlü ve yazılı olarak sunarak diğerleriyle paylaşmakta ve tartışmaktadır.

"Geleneksel Yapı Malzemeleri" lisansüstü dersinde ise öğrencilere geleneksel yapı tiplerinde yaygın olarak kullanılan yapı malzemelerinin tanımı, özellikleri ve bu malzemelerin geleneksel yapılarda kullanım alan ve biçimleri hakkında bilgi kazandırılmaktır. Belirli bir dönemin mimari düzenini, yapım tekniğini sergileyen ve bu özellikleri nedeniyle tarihi belge niteliği taşıyan yapılarda yaygın olarak kullanılan taş, ahşap, kerpiç, geleneksel harçlar, tuğla, seramik, demir vb. geleneksel yapı malzemelerinin tanımları ve özellikleri hakkında öğrencilere genel bilgi verilmektedir. Bu malzemelerin özelliklerine bağlı olarak geleneksel yapım teknikleriyle tarihi yapılarda kullanıldığı yerler, görsel malzemeler ve yapılan teknik gezilerle aktarılmaktadır. Ders hakkında öğrencilerden alınan görüşler doğrultusunda ders notları güncellenmektedir.

Lisansüstü programında yer alan diğer "Yapı ve İnsan Sağlığı" dersinde de malzemenin yapı ve insan sağlığı üzerindeki etkilerine geniş kapsamlı yer verilmektedir. Çünkü yapı malzemesi bozulduğunda yapı sağlığı da bozulmakta, insan sağlığı da bundan olumsuz etkilenmektedir. Yanlış malzeme seçiminde ise yine yapı sağlığı bozulmakta, aynı zamanda yapı içinde insan sağlığı için gerekli olan konfor koşulları sağlanamamaktadır.

Türkiye'de özellikle konut yapılarında yapı bozulmaları ve yapım hatalarının işçilik, malzeme seçimi, projelendirme ve detaylandırma açısından irdelenmesi, bunları azaltıcı önerilerin geliştirilmesi konularını içeren "Yapı Hatalarının Analizi" adlı lisansüstü dersinde öğrencilerden konu kapsamında seçilecek bir yerleşim bölgesinde/biriminde gözleme dayalı bilgi toplama çalışması yapması istenmektedir. Toplanan verilerin raporlar halinde dökümünün yapılması, hazırlanan raporların analizi sonucunda yapı üretiminde projelendirme ve detaylandırma, malzeme seçimi, işçilik ve yapım denetimi ile ilgili üzerinde durulması gereken konular bir tartışma platformunda irdelenmektedir.

GYTE Mimarlık Bölümü lisans ve lisansüstü öğrenci sayısının az olması nedeniyle öğrenci görüşleri dönem sonunda ders kapsamında ele alınmıştır.

Mimarlık bölümü ilk lisans öğrencilerinin malzeme dersini ikinci sınıfın birinci döneminde almaları tasarımlarında temelden çatıya kadar doğru malzeme seçimine yönelik kararları almalarında yardımcı olduğu, öğrenci sayısının az olması avantajı ile teknik gezilerin sıklıkla yapılarak yerinde malzeme kullanım örneklerinin incelenmesinin faydalı olduğu ifade edilmiştir. Mimarlık lisans bölümünün ilk öğrencileri olmaları, önlerinde üst sınıf mimarlık öğrencisinin olmamasının getirdiği dezavantajların yakın çevrede diğer üniversitelerin mimarlık bölümleri ile yapılan çalışmalar ve laboratuarlara yapılan gezi ve derslerde verilen görsel materyaller ve ürünler ile giderilmeye çalışıldığı öğrencileri tarafından belirtilmiştir.

Restorasyon dalı lisansüstü eğitiminde malzeme dersi alan öğrencilere göre, bütün mimarlık anabilim dallarında alınması gereken bir bilgi demetidir. Çünkü tarihi yapıların onarımında veya günümüz yapılarının inşa aşamalarında kullanılan/kullanılacak malzemelerin içeriği hakkında bilgi sahibi olmak, ortaya çıkacak uygulamaların doğru sonuçlanmasını büyük ölçüde etkileyecektir. GYTE lisansüstü programında yer alan "Malzeme" dersi gerek lisans eğitiminde alınan, gerek mesleki hayatta öğrenilen ezbere malzeme isimlerinin kökenine inmeye yardımcı, yapıda kullanılacak bazı malzemelerin -özellikle restorasyon uygulamalarında- hammaddelerinin neler olduğu, bileşiminin nelerden meydana geldiği, özelliklerinin nasıl incelendiği hakkında fikir sahibi olunduğu ifade edilmiştir. Dersin içerik olarak yeterli olduğu ancak akılda kalıcılık ve anlaşılabilirlilik bakımından uygulamaya yönelik çalışmalara (laboratuar) zaman ayrılması ve mekân oluşturulması gerektiği belirtilmiştir.

4. DEĞERLENDİRME VE SONUÇ

GYTE Mimarlık Fakültesi, Mimarlık Bölümü Lisans ve Lisansüstü Programları, 2010 yılına kadar Türkiye'deki tüm Mimarlık Bölümlerinin Mimarlık Akreditasyon Kurulu (MİAK) kararları gereği akreditasyon hazırlıklarını tamamlaması gerekliliği göz önüne alınarak ulusal ve uluslararası akreditasyon kuruluşları ile meslek örgütlerinin mimar formasyonuyla ilgili yapmış oldukları tanımlar ve mimarlık eğitiminde öğrenciye kazandırılması beklenen bilgi ve becerileri sağlayacak şekilde, aynı zamanda GYTE 'in misyon ve vizyonu ile de uyumlu özgün bir "Eğitim Programı" hazırlanmıştır [4]. Bu program ile;

- Bilimsel araştırma yapma becerisine sahip,
- Bilgiyi sorgulayan ve eleştirel düşünebilen,
- Çağdaş teknolojiyi kullanabilen,
- Deprem riskini göz önüne alan,
- Toplumsal ve çevresel sorunlara duyarlı,
- Sürdürülebilir tasarımlar yapabilen,
- Özgün, yaratıcı meslek insanlarının yetiştirilmesi

hedeflenmektedir. Dört yıllık mimarlık lisans eğitiminin tamamlanmasından sonra yapılacak olan değerlendirilmeler ile bu hedeflere ne kadar ulaşıldığına bakılarak ders içeriklerinde ve eğitim programlarında gereken düzenlemeler yapılacaktır.

GYTE Mimarlık Fakültesi Mimarlık Bölümü lisans ve lisansüstü programlarında yer alan yapı malzemesi ders içeriklerinin "amaç, öğrenciye kazandırılmak istenen bilgi ve beceriler, öğrenim çıktıları" gibi konular açısından irdelendiğinde yeterli olduğu, aynı zamanda "Yapı malzemeleri ve bileşenlerinin üretim, kullanım ve uygulamalarıyla ilgili ilke ve standartları anlama" olarak açıklanan MİAK (Mimarlık Akreditasyon Kurulu) kriterlerinden "Yapı malzemeleri ve uygulamaları" adlı 25. maddesi ile ilgili isteklerini de sağladığı görülmektedir. Öğrencilere malzeme konusunda verilmek istenen gerekli bilgiler, sadece başlığında "malzeme" sözcüğü geçen derslerde değil, Yapı Bilgisi grubu içinde yer alan birçok derste, ilgili dersin konusu ile bağlantısı kurularak verilmektedir. Bu bilgiler gelenekselden en gelişmiş sistemlerle üretilen geniş bir yelpazedeki malzemeleri kapsamaktadır. Bazı derslerin öğrenim çıktılarında bilgi birikimi yanında öğrencilerin çevreye

duyarlılıklarının da artırılması hedeflenmiştir. Yine bazı dersler kapsamında günümüz teknolojik gelişmelerine paralel olarak gelişen malzeme teknolojileri ve bu yollarla üretilen ileri yapı malzemeleri hakkında da bilgiler aktarılarak, bu malzemelerin sağladıkları geniş tasarım olanakları tartışılmaktadır.

GYTE Mimarlık Fakültesi bünyesinde "Yapı Malzemeleri Laboratuarı" kurulması ile ilgili hazırlık çalışmalarına başlanmıştır. Bu sayede malzemelerin fiziksel, kimyasal ve mekanik özellikleri ile ilgili problem çözümü ve temel yapı malzemeleri deneyleri ile lisans ve lisansüstü öğrencilerin yapacağı bilimsel çalışmaların sayı ve çeşitlilik bakımından arttırılmasına imkân verilerek üniversiteye katkı sağlanacaktır.

Mimarlık bölümlerinde çeşitli yapı malzemelerinin firma temsilcileri tarafından verilen seminer ve birebir ölçekte örnek uygulamalar ile tanıtılmasına da imkân verilmesi ve bu faaliyetlerin sayısının giderek artırılması geleceğin mimarları ile yapı malzemesi üreticileri arasındaki ilişkilere olumlu bir şekilde yansıyacaktır. Mevcut yaşam alanlarının korunmasında ve yeni yaşam alanlarının oluşturulmasında rol alacak geleceğin mimarlarının mezun olmadan önce yapı malzemesi üreticilerini tanımaları, iletişim içine girmeleri her iki tarafa da olumlu bir şekilde geri dönecektir.

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INTE 2010

MOBİL ÖĞRENME TEKNOLOJİLERİ VE MOBİL AYGITLAR

Yrd. Doç. Dr. Ahmet AĞIR
Yunus ŞEN

Özet

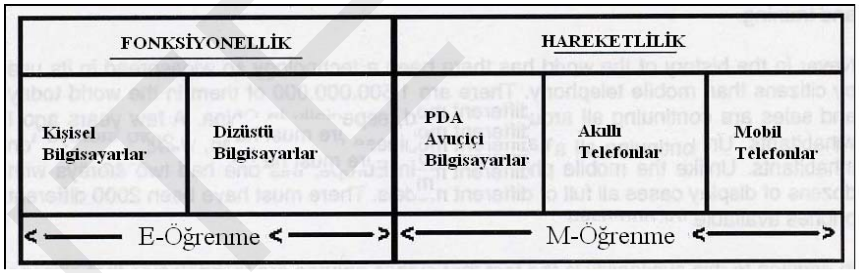
Mobil teknolojilere dayalı aygıtların öğrenme amaçlı kullanılması mobil öğrenme (m-öğrenme) olarak tanımlanmaktadır. Cep telefonları iletişim özelliğinin yanına eklenen ses, görüntü fonksiyonları ve Internet erişim özelliği ile yeni nesil çok işlevli aygıtlara dönüşmüşlerdir. Sadece cep telefonları değil bunun yanında yeni ortaya çıkan aygıtlarında m-öğrenme için kullanılması düşünülmektedir. Çok hızlı bir şekilde ilerleyen mobil teknolojiler günümüzde farklı özelliklere sahip aygıtların piyasaya çıkmasını sağlamıştır. Bu cihazların gelişmiş yeni fonksiyonları m-öğrenmenin daha etkin bir şekilde kullanımı sağlayabilmektedir. Bu anlamda aygıtların sahip oldukları özellikler önem taşımaktadır. Bu çalışmada m-öğrenme uygulamalarının etkin kullanımı için mevcut mobil aygıtları ve özellikleri detaylı bir şekilde incelenmektedir.

1. GİRİŞ

1.1. Mobil öğrenme nedir?

Mobil öğrenme için yapılan en yaygın tanıma göre, m-öğrenme; mobil aygıtlar vasıtasıyla öğrenmenin zamandan ve mekandan bağımsız olarak gerçekleştirilmesidir (Walsh, 2009).

Desmond Keegan'a göre; mobil öğrenme, mobilite (mobility) konusunun üzerine odaklanmalıdır. Bu anlamda Keegan mobil öğrenmeyi, cihazları temel alarak "bir bayanın çantasında veya bir kişinin cebinde taşıyabileceği aygıtlar yoluyla öğrenmenin gerçekleştirilmesidir" şeklinde tanımlamaktadır. Üzerinde durduğu cihazlar PDA/avuçiçi bilgisayarlar, akıllı telefonlar ve mobil telefonlardır (Keegan,2005).



Dye mobil öğrenmeyi, mobil aygıtlar vasıtasıyla gerçekleştirilen zamandan ve mekândan bağımsız öğrenme olarak tanımlamaktadır. Bu mobil cihazlar, ders içeriklerini sunabilme ve öğrenci-öğretmen arasında çift yönlü iletişimi gerçekleştirebilme yeterliliğine sahip olmalıdır. Tipik olarak, eğitim kurumları, ders içerikleri ve iletişim servislerinin her ikisini de yönetebilmelidir .(Dye,2003)

Bu tanımlara göre mobil aygıtlar; taşınabilir, kablosuz, web sayfalarını gösterebilen cihazlardır. Bu aygıtlar PDA, mobil telefonlar ya da türevleri olabilir. (Dye,2003)

M-öğrenme kavramıyla ilgili bazı farklı araştırmalar da bulunmaktadır. Leung ve Chan a göre (2003) mobil öğrenmenin çalışma alanı dört kategoriye ayrılmaktadır.

- Mobil Öğrenme Uygulamaları
- Mobil Kullanıcı Altyapısı (Tarayıcı, taşınabilir cihazlar, mobil telefonlar)
- Mobil Protokol (İçeriğin, WAP ve diğer protokollere uyum sağlaması)

- Mobil Ağ Altyapısı (Hücresel sistemler, uydular)

Mobil öğrenmenin özelliği, bilişim ağları vasıtasıyla klasik sınıf öğrenmelerini sınıf dışına taşıma fırsatı sunmasıdır. Başka bir ayırt edici özelliği ise; öğrencilerin bilgiye erişmek istedikleri anda, taşınabilir öğrenme araçlarını ve kablosuz iletişim ağlarını kullanarak bilgiye ulaşabilmeleridir. (Sariola,2001)

Günümüzde öğretmen ve öğrencilerin nasıl çalıştıklarına bakıldığında, çevrimiçi materyallerin kapsamlı ve okunabilir bir yapıyı talep eder halde olduğu görülmektedir. Burada ekran boyutu önemli bir konudur. Fakat mobilite, (mobility) göz önünde bulundurulması gereken çok daha önemli bir konudur. Ekran boyutu, daha geniş ve büyük bir hale geldiğinde, aygıtın aynı oranda büyümesi kaçınılmaz bir hal alacaktır. (Keegan,2004)

Bazı araştırmacılar (Strauss,2004; Robson,2004) mobil teknolojilerin, geleneksel sınıf içi öğrenmelerine ve sınıf dışı yaşam boyu öğrenme etkinliklerine, yeni fırsatlar getirdiğine inanmaktadır. Berger (2001) mobil teknolojilerin öğrenme ve öğretim ortamlarına katkıları konusunda şu çıkarımları yapmıştır:

- "Zamandan ve mekândan bağımsız" olmanın tam olarak gerçekleştirilmesi
- Sınıf içinde ve dışında organizasyon yapabilme özgürlüğü
- Ağ ile bağlantı kurulabilmesi
- Bilgilerin uzaktan algılanması ve bütünleştirilmesi
- "Herhangi" bir yer ve zamandan, "her" yer ve zaman kavramına geçiş

Bu maddelere ek olarak, yanı sıra mobil öğrenmenin avantajları şu şekilde sıralanmıştır:

- Öğretmen ve öğrenciler arasındaki etkileşimi arttırır.
- Anlık öğrenme ve içeriklerin gözden geçirilmesi açısından yeni imkânlar sunar.
- Öğrenci merkezli öğrenmeyi destekler.
- Öğrenci farlılıklarını ve ihtiyaçlarını göz önünde bulundurarak bireysel öğrenmeyi destekler.
- Öğrenciler ve okul yönetimi arasındaki kültürel ve iletişimsel engelleri, iletişim kanallarını kullanarak azaltır.
- Senkron ve asenkron iletişim vasıtasıyla işbirlikli öğrenmeyi destekler. (Corbeil,2007)

Kulber ve Hilker (2002)'e göre; mobil öğrenme platformları, ders yönetiminin dört temel unsuru olan; yönetim, içerik, iletişim ve değerlendirme ile desteklenebilir. Onlara göre, mobil aygıtlar vasıtasıyla sunulan içerik öğrencilerin ilgisini çekecektir. 3G teknolojisiyle yeterli bant genişliğinin sağlanmasıyla birlikte veri alış veriş hızları artarak video ve ses dosyalarının paylaşımı kolaylaşacaktır. Bu cihazlar vasıtasıyla kısa mesaj servisi gibi metin tabanlı araçları kullanmak, bu araçların kullanıcı dostu olmaması dolayısıyla kısıtlı kullanım sunabilmektedir. İletişim araçları olarak e-mail ve tartışma forumlarının kullanılması mobilize edilebilecek bir alandır ve yeterli bant genişliğinin sağlanmasıyla birlikte veri alışverişinde kolaylık sağlayacaktır. Asenkron iletişim unsuru olarak tartışma forumların geliştirilmesinde sesli mesajların kullanımı ilgi çekici bir konu olarak görünmektedir. Yazara göre; mobil öğrenme platformlarına, kullanıcı girişi, derse kayıt olma, yetkilerin sınırlandırılması gibi bir takım ek özelliklerin eklenmesi gerekmektedir. Ayrıca, değerlendirme özelliklerinin mobil öğrenme adayları için tekrar gözden geçirilmesi gerekmektedir. Açık uçlu sorularda metin girişi bakımından kullanıcı dostu olmayan mobil aygıtlar için, doğru-yanlış, çoktan seçmeli ya da sese duyarlı test sistemleri geliştirilmelidir. (Avenoğlu,2005)

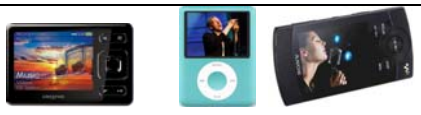
1.2. Hangi aygıtlar mobil öğrenme için kullanılabilir?

Mobil aygıt denildiğinde genel olarak ilk akla gelen cihazlar PDA ve akıllı telefonlar olsa da, daha genel bir bakış ile yaklaşıldığında; insanların güncel yaşamın her anında yanında rahatlıkla taşıyabildikleri,

küçük, sade ve otonom olan cihazlardır. Bu aygıtlar vasıtasıyla, mp3 oynatıcı örneğinde olduğu gibi, öğrenmenin bazı farklı formları gerçekleştirilebilir.(Walsh,2009)

Kuramsal olarak, mükemmel bir mobil aygıt rahatlıkla bir cebe sığacak kadar küçük olmalıdır. Ekran ise bir A4 sayfasının rahatlıkla okunabileceği netlikte olmalıdır. Kablosuz bağlantı yüksek hızda olmalı, kullanıcı kablosuz ağlar ve telefon hatları arasındaki bölgelerde bile her zaman çevrimiçi kalabilmelidir. Mobil aygıtlar, standart telefon özelliklerini bünyesinde barındırmalı, temel ofis formatlarının yanı sıra PDF dosya formatını da desteklemelidir. Güvenlik önlemleri üst seviyede olmalı ve cihazın çalınması halinde kullanıcıya zarar verilmeksizin, kullanıcı verilerinin kullanılmaz hale gelmesi sağlanmalıdır. Mükemmel bir aygıt, standart web sayfalarını rahatlıkla gösterebilmeli, reklamları engelleyerek, yalnızca faydalı içerik sunmalıdır. Web sayfaları çevrimiçi iken okunabildiği gibi çevrimdışı olunan durumlarda da okunabilmelidir. (Keegan,2004)

2. MOBİL ÖĞRENME AYGITLARI

Mobil Aygıt	Ürünler	Modeller
Mobil Telefonlar	Nokia, Samsung, Sony Ericsson, Motorola, General Mobile…	
Akıllı Telefonlar	iPhone, Palm ve Türevleri	
PDA Cihazları (Telefon özelliği olmayanlar)	Hp iPaq, iPod Touch	
iPad		
Tablet PC	Hp, Toshiba, Dell, Asus, Gateway	
Dizüstü Bilgisayar	Hp, Toshiba, Dell, Asus, Gateway, Compaq, Apple	
Netbook	Hp, Acer, LG, Samsung, Asus	
Mp3 Oynatıcı (ses)	iPod Shuffle, Creative, Sony, Philips	
Mp3 Oynatıcı **(ses + video)**	iPod Nano, iPod Touch, Creative Zen, Sony Walkman, Philips GoGear	

E-kitap Okuyucu	Hp, Sony, iTablet, Kindle	 

Tablo 1 Mobil Aygıtlar

Mobil aygıtlar olarak ilk akla gelenler PDA lar ve cep telefonlarıdır. Ama daha genel olarak düşünüldüğünde, küçük ve kişiye özel olup, bize her yerde eşlik edebilecek ve eğitimsel amaçlarla kullanılabilecek her cihaz mobil aygıt olabilir. Günümüzde mobil aygıt pazarında, önde gelen cihazlar iPhone, Palm tabanlı aygıtlar, cep bilgisayarları ve Symbian işletim sistemli cep telefonlarıdır.

2.1. Mobil Telefonlar

Mobil telefonlar her geçen gün yeni özellikler eklenerek pazara çıkmaktadır. Son dönemlerde üretilen telefonlarda ise, kamera, multimedya ve Java desteği gibi özellikler standart hale gelmiştir. Ayrıca daha uzun süredir de belirli bir seviyenin üstündeki telefonlarda Bluetooth, GPRS ve 3G destekleri bulunmaktadır. Tüm bu özellikler telefonların, sadece ses görüşmelerinden çok daha fazlasını sunmasını sağlamıştır. GPRS sayesinde 384 Kbps ye varan veri transferi hızı, 3G desteği ile 21 Mbps a kadar ulaşabilmektedir.

2.2. Akıllı telefonlar (Smartphone)

Yeni nesil akıllı telefonlar genel olarak şu özelliklere sahiptir:

- Tüm mobil iletişim ve organizasyon araçlarını (Mobil telefon + PDA + mobil Internet tarayıcısı) tek bir cihazda sunmaktadır.

- Kişisel elektronik posta gönderme ve alma işlemlerini gerçekleştirebilmektedir.

- Yerel ve uzaktan bağlantı ile veri eşleme işlemlerini gerçekleştirebilmektedir.

- Sesli ve görsel medya içerikleri kullanıcıya rahatlıkla sunulabilmektedir.

- Ofis ve Pc uygulamalarını (MS Office, MS Outlook, IBM Lotus..) desteklemektedir.

Akıllı telefonlar, pek çok iletişim ve bilgi işlem özelliğini tek bir sistem üzerinde toplamaktadır. Küçük ekran boyutu, web üzerinde gezinti yapmayı ve metin okumayı zorlaştırmaktadır. Uzun e-posta ve metin yazımında küçük klavye tuşları ve sanal klavye uygulamaları yetersiz kalmaktadır. Son olarak, maliyet açısından bazı akıllı telefonlar giriş seviyesindeki bir masaüstü bilgisayar ile eşdeğer fiyattadır.

iPhone

iPhone, Apple şirketi tarafından tasarlanmış, kullanıcılarına Internet erişimi sağlayan, günümüzde son derece yaygın bir kullanım alanına sahip olan bir akıllı telefondur. Çoklu dokunuş özelliği sayesinde kullanıcılar herhangi bir araca gerek duymaksızın yalnızca parmak hareketleriyle, resimler üzerinde veya web sayfalarında yakınlaştırma işlemi yapabilirler. Internet erişimi, bir kablosuz yerel ağa bağlanarak veya hücresel ağlar vasıtasıyla gerçekleştirilebilir. (Mohnsen,2009)

iPhone'un devrim niteliğindeki en önemli özelliklerinden birisi de, pek çoğu ücretsiz olan uygulama programlarıdır. Bu programların yanı sıra pek çok mp3 dosyası, Internet üzerindeki iTunes mağazalarından satın alınarak, iPod larda dinlenmek üzere indirilebilir. (Apple, 2009) Uygulamaların içeriklerine bakıldığında, bilimsel ve grafiksel hesap makineleri, elektronik kitaplar, dünya haritaları, sanatsal koleksiyonlar, yabancı dil eğitimi materyalleri, sözlük ve daha birçok farklı tür ile

karşılaşılmaktadır. Ayrıca, öğrencilerin zamandan ve mekândan bağımsız olarak zengin medya içeriklerine erişim ve arkadaşları ile ortak çalışma alanı oluşturma imkânları bulunmaktadır. (Yee & Hargis 2009) iPhone tabanlı mobil öğrenme araçlarının kullanılmasını öğrencilerin motivasyonunu arttıracak, kullanıcı ihtiyaçların olumlu yönde giderilmesini sağlayacak, öğrenme etkinliklerini erişim sınırlılıklarının ötesine taşıyacaktır. (Nash, 2008)

Palm ve türevleri

Cep bilgisayarlarının piyasaya girmesi ile birlikte rekabet artmış, ekranlar renklendirilmiş, işlemciler hızlandırılmıştır. Bunun sonucunda pil ömrü azalmıştır. Bu cihazlarda Palm webOS adı verilen özel bir işletim sistemi kullanılmaktadır. Palm'dan sonra pek çok firma cep bilgisayarı üretimine girişmiş fakat başarılı olamamıştır. En son Sony firması bu tür cihazların üretimini durdurduğunu açıklamıştır. Palm firmasının geliştirdiği yeni işletim sistemi Palm webOS ilk defa Palm Pre adı verilen cihasında kullanılmıştır. Daha sonra Palm Pixi modeli çıkmıştır. Halen Palm firması Palm Pre ve Palm Pixi modellerini satmaktadır.

Palm webOS'un kullanım kolaylığı sağlayan özellikleri sıralanacak olursa; cep telefonu özellikleri, Internet erişimi, 3G desteği, kullanıcıların sistemlerine ekleyebilecekleri 3. parti uygulamalara erişebilme imkanı, güncellenmiş Graffiti elyazı tanımlama programı, çoklu ortam desteği, Palm Desktop sayesinde Windows ve Macintosh cihazlarının her ikisi ile senkronize çalışabilme gibi fonksiyonlardır. (Freudenrich & Carmack, 2010)

2.3. PDA (Personal Digital Assistant) Kişisel Dijital Yardımcılar

PDA cihazları genellikle bireysel düzenlemeler için kullanılan cihazlardır. Bu aygıtların temel fonksiyonları; takvim, adres defteri, görev listesi gibi uygulamalardır. (Keegan, 2002) Bu tip fonksiyonlar Kişisel Bilgi Yöneticisi (Personel Information Manager) terimi başlığı altında toplanmaktadır. PDA'lar, sıradan bir masaüstü bilgisayarının sahip olduğu pek çok özelliği sunmasının yanı sıra, kelime işlemci, hesap tablosu ve veritabanı programları gibi temel ofis uygulamalarına da mobil olarak erişim imkanı sağlar.

Günümüzde PDA cihazları; renkli ekran, yükseltilmiş RAM hafızası, modem bağlantısı, hoparlör ve genişleme yuvaları gibi özellikleri beraberinde getirmektedir. Kişisel bilgisayarlar gibi, PDA cihazları da bir işletim sistemi üzerinden çalışmaktadır. Yaygın olarak kullanılan işletim sistemleri ise Windows Mobile ve Symbian ve gelişmekte olan Android'dir.

Seyahat halindeyken kullanıcılar 3G teknolojisi sayesinde PDA cihazlarıyla Internet'e kolaylıkla erişebilmektedir. Bu durum ise mobilite duygusunu arttırmaktadır. Küçük boyutlu bu bilgisayarlarda isim ve adreslerin saklanabildiği bir veritabanı, not defteri ve iletişim kurmayı sağlayan bölümler yer alır. Gelişen elektronik ve bilgisayar teknolojisi cihazların boyutlarını küçültmüş ve özelliklerini arttırmıştır. Cep telefonu, video ve fotoğraf çekimi, 3G gibi özellikleri olan örneklerinin üretilmesi ile PDA ların kullanımı yaygınlaşmıştır.

PDA cihazları, etkileşimli ve işbirlikli öğrenme ortamlarını desteklemektedir. Öğrenciler, projelerinin sunumunda, araştırmalarının yönetiminde ve ders esnasında not alırken bile bu cihazları kullanabilirler. PDA cihazları, diğer mobil aygıtlarla karşılaştırıldığında boyutları açısından daha fazla yer kaplamaktadır. Harici veri giriş aygıtları olmaksızın, uzun e-posta ya da metin oluşturulması uygun görülmemektedir. (Corbeil,2007)

iPod touch

Yenilikçi eğitimciler, eğitimsel bir araç olarak iPod touch'ın, öğretmen ve öğrencilere ne gibi katkılar sunabileceğini, 21. yüzyıl okuryazarlık düzeyi açısından araştırmışlar ve iPod touch 'ın eğitsel katkılarını şu şekilde özetlemişlerdir:[1]

- iPod touch, taşınabilir bir aygıt olduğundan, öğrenmeyi sınıf ortamının dışına taşımaktadır.
- Boyutları açısından rahatlıkla bir cebe sığabilecek olması, zaman ve mekan kısıtlaması olmaksızın, öğrenme ve öğretme olanağı tanır.
- Öğretmenler, her bir öğrencinin ihtiyaçları doğrultusunda, işbirlikli, bağımsız ve farklılaştırılmış öğrenme ortamı sunabilir.
- Profesyonel gelişme aracı olarak, öğretmenlerin üzerinde çalıştıkları konuları daha etkili bir şekilde anlamasını ve öğretimsel strateji geliştirmelerini sağlar.
- iPod touch ve iTunes uygulamaları, günümüz öğrencilerinin öğrenme stillerine uygun içerikleri sunarak onları motive etmektedir.

En temel seviyede iPod touch cihazı, bir ses ve video oynatıcıdır. Zengin medya içeriklerini saklayabilmesi sayesinde, öğrencilerin bilişsel ve kültürel açıdan gelişmesini katkıda bulunur. iTunes mağazalarından veya diğer çevrimiçi kaynaklardan geniş bir Podcast kütüphanesine ulaşılabilir. Ayrıca, iPod touch öğretmenlere, medya okuryazarlığı derslerinde de aktarıldığı gibi, aktif dinleme ve seyretme fırsatı sunar. Yabancı dil, matematik ve fen bilimleri gibi derslerde öğrenmeye yardımcı unsur olarak, iPod touch kullanılmaktadır. (Pasnik,2007)

iPod touch sayesinde öğrenciler dersleriyle ilişkili öğretimsel materyalleri, podcast uygulamalarını rahatlıkla indirebilirler. İlk sürümlerinde var olan küçük ekran boyutu, yeni sürümlerinde aşılarak, elektronik kitaplar okunabilir hale gelmiştir. iPod Touch ile öğrenciler bilgilerini transfer edebilirler, projeler üzerinde işbirliği yapabilirler, derslerini tekrar gözden geçirebilirler, sınavlarına hazırlanabilirler ve ödev sonuçlarını arkadaşları ile paylaşabilirler. Anlaşılması zor olan konular adım adım gösterilebilir, görsel öğelerle zenginleştirilebilir. Sınırlılıklarına bakıldığında, öncelikli olarak iPod Touch tüm öğrencilerin satın alabileceği bir fiyat sunmamaktadır. İkinci olarak, bu cihaz tek yönlü iletişim sağlamaktadır, etkileşimli değildir. Buna rağmen, materyalleri kayıt edilebilmektedir. Son olarak, karmaşık uygulamalar için ekran boyutları çok küçüktür. (Corbeil, 2007)

2.4. iPad

iPad, genel olarak lise öğrencilerinin sırt çantalarında taşıdıkları, kitap, bilimsel hesap makineleri, sözlük ve taşınabilir oyun aygıtlarının yerini alacak bir cihaz olarak görülmektedir. Üniversite öğrencileri için ise, bir bilgisayar uzmanı tarafından tamir edilmeye gereksinim duymayan ve güncellemelerin otomatik olarak yapıldığı, virüs içermeyen, dizüstü bilgisayarlardan daha küçük ve hafif bir cihazdır. Yazılım yüklemek, iTunes mağazalarından bir albüm satın almak kadar kolaydır. iPad, öğrencilerin sınıf içinde not alması, Internet'te gezinti yapması, e-postalarını kontrol etmesi, takvim, adres defteri, elektronik kitap okuyucu gibi işlevleri yerine getirmesi ve oyun desteği açısından dizüstü bilgisayarlardan daha çok ilgi çeken bir taşınabilir aygıt olarak görülebilir. (Trachtenberg & Kane, 2010)

iPad, birçok yeni özelliklere sahip olmasına rağmen bazı özelliklerinin olmaması eleştirilmiştir. Bunlar; klavyesi ve sabit diski bulunmaması, USB portu olmaması, farklı uygulamaları veya özellikle Adobe Flash tabanlı web içeriklerini çalıştırmamasıdır. Bu sınırlılıkları dolayısıyla pek çok kullanıcının

[1] http://images.apple.com/education/docs/teachers/Apple-iPodGettingStartedGuide081809.pdf

beklentileri karşılanmamaktadır ve taşınabilir bir bilgisayar olarak görülmemektedir. Fakat şirketin uygulamış olduğu bu kontrol mekanizmaları sayesinde, kullanıcılar virüs saldırılarıyla daha az karşılaşacak, sistemlerini yeniden başlatmak zorunda kalmayacak, donanımla ilgili herhangi bir çakışma olmayacaktır. Kullanıcıların bakış açısına göre bu nitelikler ya da sınırlılıklar iPad'i farklı ve yeni bir kategoriye yerleştiren ana özelliklerdir.

iPad, verileri saklamak üzere solid state disk kullanmaktadır. Ana menü, ses arttırma/azaltma ve cihazı açma/kapama düğmesinin dışında herhangi bir tuş bulunmaması iPad'i uzun ömürlü bir cihaz olarak farklı bir konuma taşımaktadır. İlköğretim öğrencilerinin kullanımı açısından (tuşların kaybolması, herhangi bir parçanın kırılması gibi.) dikkate değer bir tasarım sunmaktadır. Ayrıca iPad, 10 saatlik pil ömrü sunarak öğrencilerin tekrar şarj etmeden okul süresince kullanımına olanak tanımaktadır. (Trachtenberg & Kane, 2010)

2.5. Tablet PC

Tablet PC'ler yaklaşık 1 - 2 kg ağırlığı ile el bilgisayarlarından daha ağır ama onlara göre oldukça fazla özellik içeren bir yapıya sahiptir. Notebookların birçok özelliklerine sahiptir.

Tablet PC'ler, geliştirilmiş elyazısı ve ses tanıma özellikleri sayesinde, tamamen fonksiyonel bir işletim sistemine sahiptir ve bu cihazlar kullanıcıların aldıkları notları metin dosyalarına dönüştürmesine olanak tanıyan Windows Journal yazılımını beraberinde getirir. Ayrıca taşınabilirlik açısından kullanıcılara kolaylık sağlar.

Eğitimsel açıdan Tablet Pc'lerin kullanımına bakıldığında, öğretmenler el yazısı ile hazırlamış oldukları metinleri öğrencilerin kullanımına sunabilirler. Tablet Pc'lerin bu işlevi öğretmen ve öğrencilere işlem hızı kazandırdığı gibi, öğretmenin hazırlamış olduğu notların dijital ortama aktarılıp saklanmasına ve daha sonra istendiğinde üzerinde rahatlıkla değişiklik yapılmasına olanak sağlar. (Petty,2007)

2.6. Dizüstü Bilgisayar

Birkaç yıl içinde satışlarının masaüstü sistemlerden daha yüksek olacağı tahmin edilen notebookların, en önemli problemi ise ağırlıktır. Bu yüzden kablosuz erişim imkanları dahilinde kullanılsa bile, tam olarak mobilite sağlayıp sağlayamadığı şüphelidir. Ancak hem pazar payının önemli olması, hem de diğer cihazlardan daha önemli fonksiyonlara sahip olması nedeniyle halen ciddi bir kullanım alanı bulunmaktadır. (Bulun,2004)

2.7. Netbook

21. yüzyıl eğitim aracı olarak netbooklar 1 kg ve altındaki ağırlıkları ile birçok kullanıcı tarafından tercih edilmektedir. Bu eğitim devrimi, öğrencileri kablolardan arındırarak, evde veya okulda teknoloji vasıtasıyla öğrenmeyi sürdürmelerini destekler. Netbooklar zamandan ve mekandan bağımsız olarak bilgiye ve öğrenmeye erişimi sağlar. Netbook vasıtasıyla, öğrenciler gerekli yazılımları kullanarak uzakta iken bile sınıftaki yerini alabilir, daha önceden netbook'una indirmiş olduğu kaynaklara başvurabilir, ya da netbook 'un da kayıtlı bulunan ses, video ve resim dosyalarıyla çalışabilirler. (Pike,2009)

Öğrenciler, ses ve video dosyalarını indirebilir, podcast uygulamalarını kullanabilir, dersleri ile ilişkili değerlendirmeleri düzenleyebilir, web üzerinde gezinti yapabilir, e-mail, anlık ileti ve metin mesajı gönderebilir ve web sitelerine uzaktan erişim sağlayabilirler. Netbook, küresel ölçekte işbirliği projelerini destekleyebilir, bilimsel deney ve araştırmaları sunabilmektedir. Etkileşimli öğrenme ortamlarına izin vermektedir. Netbook lara, eğitimsel açıdan bakıldığında, taşınabilirlik, kullanım kolaylığı (kişisel bilgisayarlarda bulunan işletim sistemiyle aynı sisteme sahip olması) ve gelişmiş fonksiyonlar gibi özellikler ön plana çıkmaktadır. Bu özellikleriyle öğrenmeye yardımcı bir aygıt konumundadır.

Notebook	Netbook
Tam bağlantı, Yönetilebilirlik ve Güvenlik	İçerik sunumu, E-mail ve anlık ileti uygulamaları ile işbirlikli çalışabilme
Web 2.0 araçlarını kullanım,sosyal medya içeriklerini düzenleyebilme ve akademik ağlar	İnternette gezebilme ve içerikleri görüntüleyebilme
Çoklu uygulamaları yükleyebilme ve yönetebilme	Temel olarak mobil deneyim sunabilme
Internette gezerken diğer uygulamaları yönetebilme	İlköğretim öğrencileri için birincil mobil öğrenme aygıtı
Modelleme ve sanallaştırma teknolojilerini destekleme	Eğitimsel uygulamalar, iş hayatı ve eğlence alanlarında ikincil mobil kullanım olanağı
Mobil Medya ve Oyun	
Eğitimsel uygulamalar, iş hayatı ve eğlence alanlarında birincil mobil kullanım olanağı	

Tablo2 Dizüstü ve Netbook Karşılaştırması[2]

2.8. Diğer Mobil Aygıtlar

2.8.1. MP3 Oynatıcı

Dijital ses dosyası oynatan bu cihazların bazı modellerinde ses kayıt özelliği de bulunmaktadır. Öğrenciler podcast uygulamalarını indirmek ve dinlemek amacıyla MP3 oynatıcıları kullanabilirler. Ayrıca, ders materyallerini gözden geçirebilir, sınavlarına çalışabilir, sesli kitapları dinleyebilir ve bazı aygıtlar vasıtasıyla kayıt yapabilirler. MP3 oynatıcılar küçük ve şık bir tasarıma sahip olup, güç tüketimi açısından son derece uzun süreler çalışabilmektedirler. Ayrıca yüksek seviyede ses kalitesi sunmakta ve güncelleştirilebilmektedirler. MP3 oynatıcıların yeri diğer aygıtlar tarafından doldurulabilir. Dosyaların kodlanması ve veri transferi zaman alan uygulamalardır. Bu cihazlar tek yönlü iletilişimi sağlamaktadırlar, etkileşimli değillerdir. (Corbeil,2007)

2.8.2. E-Kitap Okuyucu

E-kitap okuyucular, yüzlerce e-kitap gazete ve dergi saklayabilirler. Büyütme ve vurgulama özellikleri, okumayı kolaylaştırmakta, metinler üzerinde not alabilmeyi sağlamaktadır. Öğrenciler e-kitap okuyucu vasıtasıyla, metin tabanlı ders içeriklerini saklayabilir, ihtiyaç duydukları kaynakları okuyabilir ve araştırma yapabilirler.

E-kitap okuyucular, kolay okuma açısından geniş ekran özelliklerine sahiptirler. Metinler üzerinde vurgulanması gereken noktaların altının çizilebilmesi, hatırlatma işaretçilerinin eklenebilmesi, aranan özel kelimelerin rahatlıkla bulunabilmesi gibi özellikler öğrencilerin çalışmalarını kolaylaştırmaktadır. E-kitap okuyucular geniş hafızası sayesinde birden çok ders için tüm materyal ve kitapları belleğinde saklayabilmektedir. E-kitap okuyucular sınırlı işlem kapasitesine sahiptir. Bazı metinlerde özel fontlara ihtiyaç duymaktadır.(Corbeil,2007)

Kindle

2007 yılında, Amazon web sitesinde satışa sunulan Kindle, 6 inch ekran boyutu ve 167 piksel ekran çözünürlüğüne sahip bir e-kitap okuyucudur. Kindle, nesneleri yalnızca siyah ve beyaz olarak gösterir.

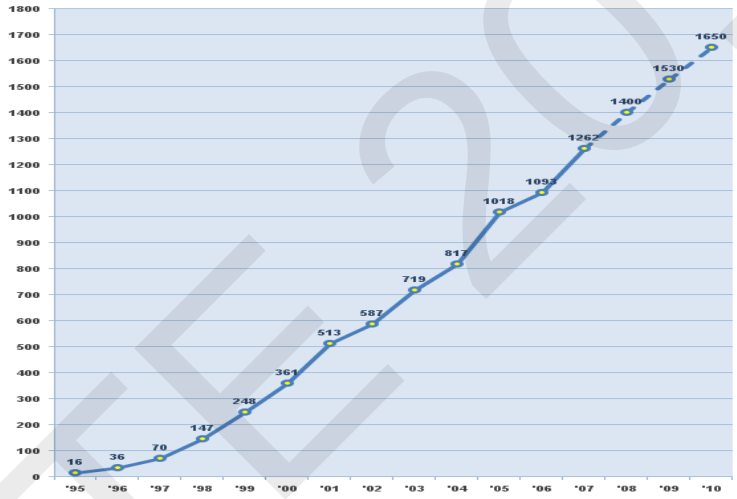
[2] http://professional.us.acer.com/edu/K-12_Notebook_Netbook_Differentiators.pdf

LCD ekranlar gibi backlit(arkadan aydınlatmalı) olmadığı için, loş ortamlarda kitap okurken harici bir ışık kaynağına ihtiyaç duyulmaktadır. Ayrıca, Kindle Linux tabanlı bir işletim sistemi kullanır.

E-kitap okuyucu kullananlar, LCD ekranın, okunabilirlik açısından bir dezavantaj oluşturduğundan şikayet etmektedir. Bazı kullanıcılar ise, uzun süreli okumaların sonucunda göz ağrılarından yakınmaktadır. Bu sorunlara karşı Amazon Kindle'ın çözümü ise elektronik mürekkep teknolojisini kullanmaktır. Kindle'ın elektronik mürekkep teknolojisini kullanan ekranı bir LCD ekrandan çok, bir kağıda benzemektedir. Işık yalnızca kâğıttan yansıdığı ölçüde kullanıcılara ulaşmaktadır. Ekranın arkadan yansıtılan ışık teknolojisine sahip olmayışı kullanıcıların okuma ve göz rahatsızlıkları ile ilgili şikâyetlerini azaltmaktadır.[3]

3. Mobil Öğrenme Aygıtlarında İletişim Standartları

Internetin mütevazi gelişimi, 1969 yılında Amerikan ordusundaki dört bilgisayar arasında bilgi alışverişiyle başladı. Bu ağın(ARPANET) amacı; nükleer saldırılara karşı hayatta kalabilmek için askeri araştırmalar yapılmasıydı. Bu ağ, zamanla üniversiteler arasında yaygınlaşarak, büyük ilerlemeler kaydedildi. Günümüzde milyonlarca bilgisayar bu ağın içerisinde yer almaktadır. Aşağıdaki tabloda bu durumu yansıtmaktadır:



(Yıllara göre milyon bazında Dünya üzerindeki Internet kullanıcı sayısı)[4]

Günümüzde, Internette gösterilen web sayfaları, durağan ve metin tabanlı değildir. İnternet daha etkileşimli ve dinamik hale gelmiştir. Gelişmiş kodlama teknikleri ve çoklu ortam içerikleri Internet ortamında sunulmaktadır. (Dye,2003)

Mobil cihazlarda cep telefonları ile gelişmeye başlayan mobil iletişim standartlarına destek vermeye çalışılmaktadır. Her mobil cihaz tüm mobil iletişim standartlarını desteklememektedir. Cep telefonlarının mesaj özelliği ile başlayan mobil iletişim standartları Internet'in sunduğu imkanları en geniş şekilde kullanabilmek için geliştirilmeye devam etmektedir. Yeni çıkan mobil cihazlarda yeni mobil standartlara destek vermekte, bu standartların özelliklerini kullanıcılarına sunmaktadırlar.

[3] http://electronics.howstuffworks.com/gadgets/travel/amazon-kindle.htm

[4] www. Internetworldstats.com (Ocak,2008)

3.1. SMS (Kısa Mesaj Sistemi)

Kısa mesaj sistemi olarak adlandırılan bu sistem ile kullanıcılar 160 Latince karakter, 70 Arapça ya da Çince karakter uzunluğunda metin alışverişinde bulunabilmektedirler. Mobil öğrenme açısından bakıldığında, SMS sistemi küçük boyutlu önemli bilgilerin rahatlıkla paylaşılabilmesini sağlamaktadır. SMS kullanımında en büyük dezavantaj ise kullanıcıların ilgisinin başka konulara kayabilme ihtimalidir. Bu servis öğrencilerin sınavları sonrasında aldığı puanları göstermeye yarayan, öğretmenin otomatik olarak mesaj gönderebileceği bir model olarak da kullanılabilir. (Dye,2003)

3.2. MMS (Çoklu ortam Mesaj Sistemi)

Cep telefonlarında çoklu ortam verilerinin kullanılması, telefonlar arasında resim alışverişi yapılması ihtiyacının giderilmesi amacıyla ortaya çıkmış bir teknolojidir. MMS, SMS sisteminin geliştirilmiş bir versiyonudur. Resimler, öğrencilerin gerçek durumları gözlemlemesine olanak tanımaktadır. (**Kynaslahti, H ve Seppala,P 2002, Aktaran Dye,2003)**

3.3. WAP (Kablosuz Uygulama Protokolü)

WAP, kablosuz işaretleme dilinde kodlanmış web sayfaların gösterimine olanak sunan protokoldür. "WAP, mobil telefon ağları üzerinde oluşturulan ilk evrensel standarttır. Bu teknoloji normal web siteleriyle karşılaştırıldığında daha küçük olan siteleri yayınlayabilmektedir. Bunun yanı sıra bilet satışı, bankacılık işlemleri gibi güçlü hizmetleri de sunabilmektedir." (Nokia Corporation,2002, **Aktaran Dye,2003)**

3.4. GSM (Küresel Mobil İletişim Sistemi)

En yaygın kullanılan protokoldür. GSM protokolünün bazı çeşitleri bulunmaktadır. Avrupa'da GSM 900 ve 1800 standartları kullanılırken, Amerika Birleşik Devletlerin'de GSM 1900 standardı kullanılmaktadır. Dual bantlı mobil telefonlarda GSM 900 ve 1800 teknolojileri bir araya getirilmiş, tri bantlı telefonlarda ise bu standartlara 1900 teknolojisi de eklenmiştir. GSM teknolojisiyle sunulan saniyede 9,6 Kbit veri transfer hızı, mobil öğrenme için yeterli görülmemektedir. (Dye,2003)

3.5. GPRS (Genel Paket Radyo Servisi)

GPRS, kullanıcıların yayınlanan güncel bilgilere anında ulaşılabilmesini ve istedikleri her an bağlantı gerçekleştirebilmelerini sağlayan bir teknolojidir. Bu teknoloji sayesinde, öğrenciler, öğretmenlerinin uygun ve çevrimiçi olduğu durumlarda, onlara varolan sorularını sorup, onlardan bilgi alabilirler. Veri transfer hızı saniyede 30 ile 100 Kbit arasında değişmektedir. Bu hız, grafiksel verilerin sunumu gibi veri alışverişi ihtiyacının yüksek olduğu durumlarda bile yeterli olmaktadır. GPRS üçüncü nesil mobil teknolojilerin geliştirilmesinde büyük rol oynamıştır. (Dye,2003)

3.6. HSCSD (Yüksek Hızda Devre Anahtarlamalı Veri)

HSCSD, GSM hizmetlerine eklenerek hızı dört kata kadar arttırabilen bir teknolojidir. Veri transfer hızı standart kablolu modemlerde olduğu gibi saniyede 56Kbit tir. (Mobile/Cellular Technology,2002, Aktaran Dye,2003) Bu teknolojide, transfer edilen veri miktarına göre değil, bu transfer için gerekli olan süreye göre ödeme yapılmaktadır. Bu sayede öğrenciler erişmek istedikleri ya da indirmek istedikleri bilgileri herhangi bir ücret ödemeden okuyabilirler, indirme işlemine karar verdikleri anda ücret ödemeye başlarlar. (Dye,2003)

3.7. UMTS (Evrensel Mobil Telekomünikasyon Sistemi)

Pek çok ağ operatörünün çalışmaları doğrultusunda geliştirilen 3G ağ teknolojisi, genişletilmiş bant genişliği, hızlı iletişim ve video-konferans gibi gelişmiş çoklu ortam servislerinin kullanımını

sağlamaktadır. Birkaç yıl içerisinde 3G teknolojisinin gelişimi tamamlandıktan sonra, kullanıcıların bu hizmetlerden en üst seviyede faydalanması sağlanabilecektir.

2,5G ağlarının performansı EDGE teknolojisi sayesinde arttırılmıştır. EDGE (Geliştirilmiş Veri Hızı), var olan GSM ağları için gelişmiş servislerin kullanımına izin veren, kapasitesi ve kalitesi arttırılmış bir teknolojidir. EDGE, GPRS (Genel Paket Radyo Servisi) sisteminin GSM ağları için yükseltilmiş halidir. Norveç Telekomünikasyon şirketi TELNOR'un 2004 yılında yaptığı açıklamaya göre; EDGE teknolojisi saniyede 100-200 kbit veriyi iletilebilecek güçtedir. Fakat bu hızlara ulaşabilmek için baz istasyonları ve mobil telefonlar üzerinde gerekli düzenlemeler yapılmalıdır. (Attewell,2005)

UMTS, Avrupa'da geliştirilen, üçüncü nesil bir standarttır. Bu teknoloji, yüksek hızlarda ses, veri ve çoklu ortam hizmetleri desteği sunmaktadır. Saniyede 2Mbit veri transferi gerçekleştirilmektedir.(Topland,2002, **Aktaran Dye,2003**) Bu yüksek hız beraberinde maliyet artışını da getirmektedir. (Dye,2003) 3G teknolojisiyle video gösterimi gibi farklı özelliklerin mobil öğrenme içeriklerine eklenmesi mümkün hale gelmiştir.

4. Sonuç

Mobil teknolojiler, zengin sosyal etkileşim olanağı ve Internet erişimi sayesinde, günlük hayatta, her yerde rastlanabilir hale gelmiştir. Bu teknolojiler, eğitim üzerinde büyük yeteneklere sahip olabilir. Öğretim sanal ve gerçek yöntemlerin her ikisi de kullanılarak sınıf ortamının dışına çok daha fazla taşınabilecek ve öğrencilerin çevresine yerleştirilebilecektir. Bu sayede bireysel, işbirlikli ve yaşam boyu öğrenme kuramları öğretimin içinde daha fazla yer alabilecek. Esas mücadele, mobil teknolojilerin kullanımının, eğitim sürecine nasıl sorunsuz bir şekilde yayılacağı, noktasında yaşanacaktır. (FutureLab,2004)

Mobil aygıtlar ve beraberindeki teknolojiler mobil öğrenmenin gelişimi ve mobil öğrenmeye yardımı açısından gerekli bileşenlerdir. Madem ki, öğrenciler bu teknolojilere erişebilme imkanına sahipler, öyleyse öğretmenlerinde bu teknolojilere aşina olmaları gerekmektedir. Sonuç olarak; mobil öğrenmenin hedefi, öğrenmeyi kolaylaştırmak ve yakın gelecekte kablosuz ağ teknolojilerinin tüm alanlara yayılmasıyla birlikte, zamandan ve mekandan bağımsız öğrenmenin tam anlamıyla gerçekleştirilebilmesidir.(Jacob ve Issac, 2008)

Zamandan ve mekândan bağımsız öğrenme için kablosuz teknolojilerin kullanılması eğitimsel açıdan yeni fırsatlar ortaya çıkarmaktadır. Öğrenciler, öğretmenler, yöneticiler ve hatta aileler okuldaki olaylarla ilgili bilgi almak üzere okula erişebilirler. Öğrenciler ödevlerini tamamlamak, araştırma yapmak ve sunumlarını hazırlamak için kolaylıkla çevrimiçi olabilirler ve ayrıca uzmanlarla ihtiyaç duydukları anda çevrimiçi iletişim kurabilirler. Eğitimsel metotlar ve kuramlar bu yeni teknolojilerle uyumlu bir hale getirilmek üzere değiştirilebilir. Teknoloji, öğretim programlarının olumlu yönde değişimi için aracı olabilir ve eğitimciler bu konuda cesaretlendirilerek, yapılandırmacı yaklaşımın öngördüğü şekilde öğretmen merkezli eğitim anlayışından öğrenci merkezli eğitim anlayışına geçilebilir. Öğrencilerin geleceği için, eğitimciler bu fırsattan yararlanmalı ve bu zorlu görevde yer almalıdırlar. (McDevitt,2004)

Mobil öğrenme, öğrenmenin pratik ve rahat yönü olmalıdır. Sıradan mobil teknolojilerde var olan küçük ekran ve düşük kalite özellikleri geliştirilmelidir. Yeni nesil modellerde gerçek renk, yüksek çözünürlük gibi özellikler sunulmalıdır. Yine bu modeller ses desteği ve CD kalitesinde müzik oynatabilme yeterliliğinde olmalıdır. Mobil öğrenme öğrencilere ses ve görsellik açından farklı öğrenme deneyimleri yaşatmalıdır. Mobil çoklu ortam ürünlerinin maliyetleri düşürülerek son kullanıcıya daha düşük fiyatlarda sunulmalıdır. Bu sayede eğitimsel hizmetlerin bu aygıtlar vasıtasıyla geniş kitlelere yayılması muhtemel hale gelecektir.

Pil kapasitesi, mobil aygıtlar için kritik bir faktördür. Günümüzde mobil aygıtlar yeterli pil kapasitelerine sahip olmalarına rağmen, yüksek çözünürlükte video gösterimi ve müzik dosyalarının oynatılması gibi yüksek uygulamalar, cep telefonlarındaki basit oyun uygulamalarından daha fazla güç gerektirmektedir. (Dye,2003)

Elektronik öğrenmenin gelişmesiyle birlikte, lise ve üniversite mezuniyeti, sertifika programları ve daha pek çok eğitim uygulaması, zamanının pek çok kısmını bilgisayar ekranı karşısında geçiren öğrenciler için fırsat haline gelmiş ve 1995 sonrasında küresel ölçekte yayılma göstermiştir. Gelişen teknolojiler, birkaç yıl önce hayal bile edilemeyen öğrenme ve rehberlik uygulamalarının geliştirilmesine önderlik etmektedir. Tüm bu gelişmeler global uygulamaları da beraberinde getirmiştir.

Telekomünikasyon endüstrisi uygulamaların geliştirilmesini tekrar gözden geçirmeye ihtiyacı vardır. UMTS (3G) teknolojisinin yaygınlaşmasıyla birlikte, öğrenme yaşam durumlarının içine yerleşecektir. Mobil öğrenme ise bu uygulama ve eğitim programlarının 3G için hazır hale gelmesiyle rahatlıkla gelişecek ve daha etkili öğrenme ortamları oluşturabilecektir.

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MODELLING OF REALISTIC DYNAMICAL SYSTEMS AND DEVELOPMENT OF NATURAL SCIENCE COMPETENCES IN EDUCATION

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ABSTRACT

When introducing realistic time-dependent experiments in school, one can often find a gap between the quantitative experimental results and the simplified model of the problem with a known analytical solution. The lack of necessary mathematics knowledge of primary- and also secondary-school students is too big. The article presents a possibility of modelling realistic dynamical systems in physics with the use of graphic oriented computer software, e.g. Berkeley Madonna, Daynasys and Stella in primary schools, which enable pupils to construct the corresponding minimal mathematical model by connecting different graphical objects for parameters, variables and their fluxes. Our experiences show that pupils in primary school gain deeper understanding of physics and develop natural science competences more successfully if the experimental results and computer models agree well; the mathematics itself is not so important here. In contrast, mismatch between experimental results and the model of dynamical system leads to lower level of knowledge, sometimes only to learning by heart.

Keywords: dynamical systems, system thinking, educational computer software, natural science competences, mathematical modelling

INTRODUCTION

Nowadays, various competences that the students should acquire through different activities in educational process are stressed besides the pure knowledge. This holds in particular in the area of natural sciences where the so called natural science competences can be declared. In the following, we will focus on the development of these competences during the study of dynamical systems. We will consider the description of dynamical systems with corresponding mathematical models which are crucial for understanding natural phenomena. Mathematical description enables the calculation of physical variables determining the system state. The term mathematical modeling is used in this context (Schecker, 1998b). This turned out to be an extremely successful scientific method and forms together with experimental work the basis for physical theories in most cases. The question arises of how to transfer this method into educational area. The study of relations between the state variables generally demands solving a system of differential equations what represents one of the key difficulties of the system modelling in education.

This problem has been recently softened somewhat with the ever growing use of computers in school practice (Schecker 1998a, Wells 1995). Computers have brought a breakthrough in successful mathematical modeling in education. Graphic oriented computer programmes, such as Berkeley Madonna, Daynasys and Stella (glej računalniški programi), take part in this breakthrough. They enable an easy and evident connection of graphical symbols for parameters, variables and their fluxes into composed mathematical model the simulation of which is handled by computer (Grubelnik and Repnik 2010).

In this paper, we present the possibility of treating dynamical systems in primary and secondary school with the help of graphic oriented programmes and we also point to the parallel development of natural science competences. We will show some study cases suitable for treatment in education, where we focus on generic competences, particularly those connected with experimental work. We also lay great stress upon the generic competence *use of mathematical ideas and techniques*, from quantitative evaluation to *system thinking* particularly relevant at lower educational level (Ossimitz 2000a, 2000b).

Here we just mention one of the key competences – digital competence in connection with the use of computer software.

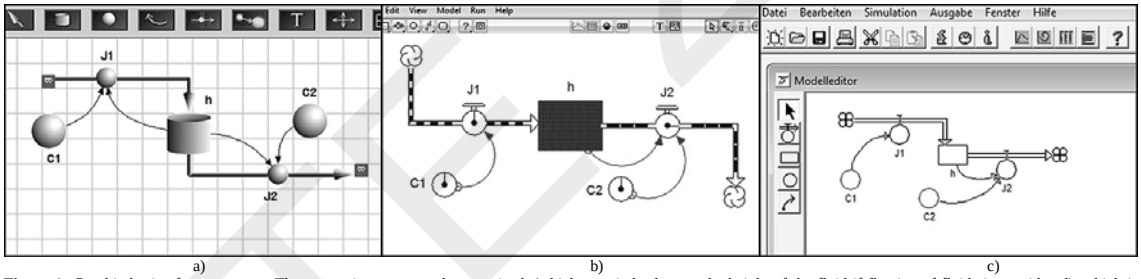
MODELING OF REALISTIC DYNAMICAL SYSTEMS IN EDUCATION

Study of real dynamical systems enables the treatment of everyday natural events in school practice and reduces disagreement between theory and reality, the problem which is often encountered in education (Schecker 1996, Schecker 1998a, Leisen 1999, Stöckler,1995). The complexity of physical systems in nature accompanied by the wish for analytical solutions leads teachers to consider oversimplified systems too frequently. These simplified solutions are memorized by heart while they tend to deviate from realistic circumstances resulting in students' poor comprehension of reality. This is also true for dynamical systems which involve coupled differential equations related to state variables what makes their treatment in school very difficult.

We will show how this difficulty can be circumvented by using graphic oriented programmes. These offer the user the possibility to link various graphic elements and study complex systems more systematically while the programmes automatically perform numerical simulations of the models behind the physics.

Graphic Oriented Computer Programmes

Study of natural dynamical systems is complex and usually demands simultaneous treatment of more time-varying physical quantities. Graphic oriented programmes, such as Madonna, Stella, Daynasys and Powersim, are useful for this purpose. They enable direct construction of mathematical model for the system in consideration with the help of special graphic objects (Fig. 1). Particular attention is paid to fluxes of different quantities: variables are symbolized by reservoirs while the input and output fluxes are regulated by valves.



a) b) c)

Figure 1: Graphic basis of programmes. The reservoir represents the quantity h (which may indeed mean the height of the fluid if flowing of fluids is considered), which is changing because of fluxes J_1 and J_2, illustrated by two valves. Fluxes can be influenced by additional constants (c_1 and c_2) or by changing variables. **a)** Berkely Madonna. **b)** Stella. **c)** Dynasys.

Aside from building mathematical models these graphic oriented programmes provide the time dependence of the variables. This keeps the user away from analytical solving differential equations or programming numerical procedures (Bohte, 1987). As a consequence, the transfer of modeling to the lower educational level is possible, where the system thinking is preferable (Ossimitz 2000a, 2000b), but not solving the equations and memorizing their solutions.

Examples of the Use of Mathematical Modelling in Education

We are going to introduce a few examples of educational treatment of dynamical systems with no attempts to go into details. The aim of this presentation is exposing the role of dynamical systems in the development of some natural science competences (given in the next section).

In order to bring the students into dynamical systems more feasibly so that they understand the relation between the quantities and corresponding fluxes properly, we advice some simple examples of fluid flow as a starting point. The amount of water in the vessel illustrates the magnitude of some other physical variable which time evolution is determined by the water flow into the vessel or out of it (Grubelnik and Repnik 2010).

Other physical quantities depending on time can be treated in a similar manner, e.g., the movement of bodies under the influence of external forces. In this case, the velocity of the body (v) is imagined as the flux of its position (x), and the accelerated (a) is the flux of velocity. An example of the falling parachutist (air resistance has to be taken into account) can be mentioned. The subject of free falling bodies appears as early as in primary school physics, but with neglected air resistance. The pupils are in danger to be mislead towards senseless conclusions, e.g., increasing of the object's velocity without limit, although experience tell us that the falling objects approach the terminal velocity sooner or later, depending on the object's size, shape and mass (Grubelnik and Repnik 2010, Marhl and Grubelnik, 2001; Grubelnik et al., 2003b).

Let us mention a few other examples of key natural phenomena where the system complexity gives a preference to the qualitative approach which is of basic relevance for the development of system thinking in primary school. One example is the water cycle in nature which gives the pupils an excellent opportunity of gradual building and upgrading of the model via cyclic phases (Grubelnik et al., 2003a). Another example is population models where the response of the system to external factors can be studied nicely (Grubelnik et al., 2004; 2006).

Fluid flow in the sense of treatment of dynamical systems could be applied to the number of other cases as well: charging and discharging the capacitor, radioactive decay, heat conduction, etc.

DEVELOPMENT OF NATURAL SCIENCE COMPETENCES

In the following, we wish to indicate the possibilities of development of natural science competences on the basis of mathematical modeling of dynamical systems. In doing this we must be aware of the tie connection between the credible modelling and experiment penetrating different scientific areas due to the system complexity. Therefore, generic competences in connection with both the experimental work and mathematical modelling should be emphasized.

Ability of Collecting Information

This generic competence is of key importance in the study of natural phenomena. This holds in particular in experimental work where sufficient quantity of relevant information has to be collected in order to build an appropriate mathematical model. When working with graphic oriented computer programmes, however, the model also takes over the function of the experiment, and so it mimics the operation of collecting information (which in turn validates the model) by displaying the corresponding results. The students can train collecting of information about the system response by varying input parameters; in this way they study specific relations between the system variables both in a qualitative and quantitative sense.

Ability to Organize, Analyze and Interpret the Information

After the information has been collected its organization, analysis and interpretation follows. Mathematical modelling may useful also in this respect since it offers the possibility to compare experimental and numerical results. Graphic oriented computer programmes can illustrate well the process of solving complex equations and thus enable the analysis of the results in the sense of interpretation of final findings. The student can self-initiatively add or take away individual influential factors from the treated system on the basis of the analysis of results and, following the responses of the system, he/she can interpret its fundamental mechanisms. In regard to information organization and interpretation the presentation of the results in the form of diagrams should be mentioned. Computer programmes offer several possibilities for showing the results by time and phase diagrams.

Ability of the Synthesis of Conclusions, Ability to Learn and Solve Problems

Mathematical modeling is of great help in the study of relations between the quantities within the system, thus the conclusions about these relations can be drawn relatively easily. As already mentioned, the student can collect information about the system response by varying input parameters; in this way they study specific relations between the system variables both in a qualitative and quantitative sense. The knowledge obtained in this way for a specific example can be transferred (applied) to new cases.

Comparison of numerical simulation with experiment gives the student a chance to create a minimal model that still describes the given physical system satisfactorily. The student learns to decompose the system into key components and becomes able to look for fundamental external impacts on the components as the part of the whole system as well as the operational mechanisms between the components. Doing this, the student gains the very important key competence – learning to learn. Here we mention the exemplar minimal model for specific body movement according to the 2nd Newton law, where the model for movement can be upgraded any time in regard to various external forces (Grubelnik and Repnik 2010). We cannot forget the generic competence *transfer of theory into practice* in the frame of problem-solving, because the simulations can often aid in subsequent technical decisions.

Organization and Planning the Work

When the experiment or numerical simulation is done, the student gets a chance to plan the activity schedule as a part of the competence *ability of organization and planning the work*. The study of more complex systems also calls for the team work as well the cooperation between the teams. Let us mention again the free fall of bodies with air resistance, where the work can be organized such that different teams investigate different aspects: the influence of area, size, shape and the object's momentary speed on the resistance force (Leisen, J. and Neffgen, M. 1999). Next, in the frame of training the competences of oral and writing communication and inter-personal interaction, all groups report their findings to others, and finally the joint mathematical description of the relations between all the parameters and variables is constructed.

DISCUSSION AND CONCLUSIONS

We have indicated the possibilities for the development of natural science competences in the frame of the treatment of dynamical systems. We exposed the graphic oriented computer programmes which enable the transfer of mathematical modeling to lower educational level. We also pointed out that this method is suitable for development of natural science competences, particularly generic competences connected with experimental work and mathematical modeling of dynamical systems.

Since the theoretical description of natural phenomena is enforced with experimental work in natural sciences, we focused here on some relevant generic competences: ability of collecting information, ability of literature analysis and organization of information, capability of learning and problem-solving and the ability to synthesize conclusions. This kind of work with stressed competences is the guide for ever more important process learning. Owing to the complex treatment of natural phenomena, with different segments seizing various scientific areas, some other generic competences are relevant: ability of organization and planning the work, capability for team work and finally the inter-personal interaction with all its aspects, such as the verbal communication.

This strategy helps the students to understand numerous problems and phenomena in natural and social science, and at the same time some natural science competences are developed which are crucial for the permanent personal development of students.

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MUHASEBE MESLEK MENSUPLARININ SÜREKLİ MESLEKİ EĞİTİMİ

CONTINUING PROFESSIONAL EDUCATION FOR ACCOUTANTS

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ÖZET

Muhasebe mesleği, içinde bulunduğu sosyal, ekonomik, hukuki, teknolojik çevre nedeniyle bilgi çağı ve küreselleşmenin beraberinde getirdiği değişimlerden en çok etkilenen mesleklerden biridir. Muhasebe meslek mensubunun teknolojik, ekonomik ve sosyal değişimler karşısında etkin ve yeterli olabilmesi için sadece okuldan alınan mesleki eğitimle yetinmeyip, meslek yaşamı boyunca eğitimine devam etmesi önem kazanmıştır. Muhasebe meslek mensubunun, çok hızlı değişen bilgi ve becerileri takip etmesi ve kaynakları tek başına yaratması zamanını alacaktır. Meslek kuruluşları, tüm bu değişim ve gelişmeleri meslek mensubu için takip edip, uygun programlar geliştirerek üyelerinin niteliklerinin artırılmasını sağlamalıdırlar.

Bu çalışmada, Türkiye, Amerika, İngiltere, Fransa ve İtalya'daki muhasebe meslek kuruluşlarının sürekli mesleki eğitim şartları ve uygulamalarını ortaya konularak; muhasebe meslek mensuplarına yönelik gerçekleştirilen sürekli eğitim uygulamaları hakkında bilgi verilecektir.

Anahtar kelimeler: muhasebecilik, sürekli eğitim, sürekli mesleki eğitim, mesleki gelişim

ABSTRACT

Accounting is one of the most affected professions from the change resulting from the coming of the age of information and globalization of social, economical, technological, environmental and legal systems. For being productive and affective with the changes in technology, economy and social life It is not enough for an accountant the mere university education programs that are taken during the school period but to continue to learn through all her professional life. For an accountant to track all the changes of information and abilities and create new resources alone is not possible. The related institutions must follow these changes and developments and find ways to increase it's members abilities by creating appropriate programs.

Here in this article the professional education programs and conditions of the accounting institutions in Turkey, USA, England, France and Italy is discussed and information is given about the continuous professional education applications.

Key words: Accountancy, continuous education, continuous professional education, professional development

GİRİŞ

Dünyada sınırlar kalkarken, piyasalar daha da karmaşıklaşmakta, şirketlerin küresel ve teknolojik nedenlerden dünyadaki diğer şirketlerle iş yapmaları kaçınılmaz olmaktadır. Şirketler için sürdürülebilir bir rekabet avantajının yaratılmasına yardımcı olan muhasebecilerin çalıştıkları kuruluşlara yeni değerler katması gittikçe önem kazanmaktadır. Muhasebecilerin temel geleneksel bazı becerileri, hızla artan ve gelişen yeni teknolojiler karşısında değişmektedir. Muhasebecilerden artık tam zamanlı danışmanlık gibi hizmetler de beklenmektedir. Bu nedenle muhasebecilerin becerileri ve yeterliliklerini bu yönde geliştirmeleri gerekmektedir. Ayrıca endüstriyel alanlardaki hızlı değişimler, bilgi kaybı, uzmanlaşma ve lisans yenileme yasal zorunluluğu gibi gelişmeler de muhasebecilerin mesleki gelişimini sağlayan sürekli mesleki eğitimi kaçınılmaz kılmıştır.

MUHASEBE MESLEK MENSUPLARININ SÜREKLİ EĞİTİMİNİN ÖNEMİ

Küreselleşme, sermaye piyasası, rekabet, yeni işletme modelleri, uzmanlaşma ve yeni eğitim modelleri muhasebe mesleğini bilgi teknolojisi kadar etkilemektedir. Muhasebede meslek çevresinin hızla değişmesi, hem sürekli mesleki eğitimde hem de üniversite eğitiminde, pedagojiden andragojiye yönlendirmiştir (Rahman ve Velayutham,1998). Muhasebe mesleğinde, sürekli eğitimi gerekli kılan nedenleri şu başlıklarla sıralamak mümkündür (Boritz,1999);

- **Küreselleşme**; Tüm dünyada muhasebe mesleğinin de içinde olduğu toplumlar arasındaki karşılıklı etkileşimi sağlayan küreselleşmenin muhasebe mesleğine en önemli etkilerinden biri, uygulamaların standartlarla uyumlaştırılması zorunluluğunu ortaya koymasıdır.
- **Uluslararası sermaye piyasalarının büyümesi,** İşletmelerin büyümesinde ve devamlılığında önemli bir rol alan sermaye piyasaları özellikle muhasebe müfredat programlarının içeriğini etkilemiştir. Muhasebecilerin kamu uygulamaları, maliyet ve yönetim muhasebesi alanındaki çalışmaları ile finans alanındaki çalışmaları önem kazanmıştır.
- **Rekabet**; Muhasebeciler defter tutma hizmetleri, vergi işlemleri, finansal tablo hazırlama ve denetleme gibi çok sayıda işte faaliyet göstermektedirler. Uzun süre, bu faaliyetlerle muhasebeciler ekonomik konumlarını korumada avantaj sağlamışlardır. Ancak artık sadece kendi ülkeleri değil başka ülkelerdeki muhasebecilerle de rekabet etmek durumunda kaldıklarından son yirmi - otuz yılda bu durum, değişmiştir. Ayrıca mesleğin faaliyet alanı da değişmiş; denetim ve danışmanlık önem kazanmış yeni rekabet alanları ön plana çıkmıştır.
- **Yeni iş modelleri**; Çeşitli ortaklıklarda bilişimin (network) tercih edilmesi, farklı biçimlerde birleşmeler gibi birçok yenilik farklı yönetim biçimlerini, raporlama sistemlerini gerektirmiştir. Bunun sonucunda karar almaya yönelik bilginin niteliğini geliştirmek için yeni işlemlerin oluşturulmasına gereksinim duyulmuştur. Muhasebecilerden bunlara sağlamaları beklenmektedir.
- **Uzmanlaşma;** Rekabetin artması ve yeni çalışma alanlarının ortaya çıkması meslekte başarıyı zorlaştırmış, uzmanlaşmayı gerekli kılmıştır. Profesyonel kişi, işletme içindeki birçok işe hakim olmalı ancak belirli bir alanda başarı sağlamalıdır. Muhasebe mesleğinde yüksek bir konuma gelebilmek için sadece eğitim kurumlarında verilen ders programları ile yetinilmemeli, gelinen pozisyonla ilgili yeni nitelikler edinilmeye çalışılmalıdır. Gelecek birkaç yıl içinde, muhasebe kuruluşları, uzmanlaşma öncesinde aradıkları birçok niteliği uzmanlaşmadan sonra da isteyecekler ve meslek mensuplarının niteliklerini geliştirmelerini isteyeceklerdir.

Muhasebe mesleğinde değişen iki yön vardır;

- Bilgi alanlarının değişmesi
- Faaliyetlerle ilgili uygulamaların ve becerilerin değişmesi

Günümüzde bilginin daha fazla kullanımı ve daha çok bilgi olması, muhasebecilerin pozisyonunu değiştirmiş, artan bir önemde bilgi insanı rolünü almaya başlamıştır. Bu pozisyonu korumak ve geliştirmek için de eğitim zorunlu hale gelmiştir (Fleming, 1999). Ayrıca muhasebe meslek mensubu bilgiyi işleme sürecinde bilgi teknolojilerinden yaygın bir biçimde yararlanmaktadır. Geçmişte bilgi teknolojilerini kullanma becerisine sahip olması beklenilmezken, günümüzde bu beceriye en üst düzeyde sahip olanlar başarılı kabul edilmektedirler.

SÜREKLİ EĞİTİMLE MUHASEBE MESLEK MENSUPLARININ SAHİP OLMASI BEKLENİLEN NİTELİKLER

Denetim ve danışmanlık rolü ön plana çıkmaya başlayan muhasebe mesleğinde muhasebecilerin beklentilere cevap verebilmesi için daha fazla beceriye sahip olmaları istenmektedir. 21.yy.da muhasebe mesleğinin de içinde olduğu birçok meslekte ileri yönetim ve kişiler arası becerilere sahip olma beklentisi bulunmaktadır. Uygulama ve eğitimde sürekli gelişim gösteren meslek mensubu başarılı bir kariyer sağlayacaktır. Muhasebeciler yeterli uygulama yapabilmek için gerekli bilgi ve becerilerini geliştirmek ve sürdürmek için yaşam boyu öğrenmenin içinde olmalıdırlar. Meslek mensubu bireysel mesleki gelişimi için, kısa ve uzun vadeli amaçlarını oluşturmalı, öğrenme ihtiyaçlarını belirlemeli ve mesleki gücünü devamlı olarak değerlendirmelidir. Bu kapsama uygun olan sürekli eğitim programı oluşturmalıdır. Muhasebe meslek mensubu değişen bilgi, beceri ve mesleki değerleri verebilecek sürekli eğitim programlarına katılmalıdır.

Bağımsız muhasebeciler faaliyetlerini, meslek kuruluşunun belirlediği ilke ve kurallar çerçevesinde gerçekleştirir. Meslek mensubunun bağlı bulunduğu meslek kuruluşları da üyelerinden rollerini koruyabilmeleri için sahip oldukları ve meslekteki yeterliliği ifade eden becerilerini artırmalarını

beklemektedirler. Muhasebe meslek kuruluşlarının üyesi olduğu Uluslararası Muhasebeciler Federasyonu (IFAC) bu anlamda meslek kuruluşlarına yardımcı olacak çalışmalar yapmaktadır. IFAC bağımsız muhasebecilerin bilgi, beceri ve mesleki değerlerini çeşitli çalışmalarla tespit etmiş ve yayınlamıştır.

Bilgi

Bilgiyi elde edip ve veriyi bilgiye dönüştürme sürecinde yer alan muhasebecilerin beklenen bilgi, beceri ve yeterliklere sahip olması önemlidir. Günümüzde muhasebe meslek mensubunun yapacağı işlerin çeşitliliğinin artmasına paralel olarak mesleki bilgileri de artmaktadır. Bilgideki ve iş rollerindeki bu değişimler karşısında, meslek kuruluşları da mesleki yeterliliği ve kamu güvenirliğini sağlamak için, üyelerinden artan bu bilgiyi istemektedirler. Bir kişinin, muhasebe alanında çalışabilmesi için öncelikle işletme ve örgütsel alanlar, bilgi teknolojisi, muhasebe ve muhasebe ile ilişkili bilgilere sahip olması beklenen bir niteliktir. IFAC'a göre muhasebe alanında verilecek mesleki eğitim,

- Temel örgüt ve işletmecilik bilgilerini,
- Temel bilgi teknolojileri bilgilerini,
- Muhasebe ve muhasebeyle ilgili bilgileri içermelidir.

Gerek lisans eğitim programları gerekse sürekli mesleki eğitim programları bu bilgileri verecek biçimde oluşturulmalıdır.

Beceriler

IFAC, bilgiyi ders müfredat programlarının içerikleri olarak tanımlarken, becerileri bilgiyi başarılı kullanmadaki sonuç olarak ifade etmiştir. Beceriler, genelde özel derslerle elde edilememektedir ancak mesleki deneyim ve eğitim programlarının toplam etkisi sonucu edinilmektedir.

Bilgi teknolojisi, küreselleşen ekonomi, yeni rekabet kaynakları ve büyük sorumluluk talebinin etkisiyle muhasebe mesleğinin yapısı ve istenen bazı beceriler değişmiştir. Çeşitli muhasebe kuruluşlarının hazırlamış olduğu raporlarda geleceğin muhasebecisinin, çeşitli danışmanlar, mühendisler, finansal planlamacılar, işletme danışmanları, vergi uzmanları ile rekabet edeceği belirtilmiştir. Bu nedenle de muhasebeciler, yaşam boyu öğrenmeyi gerçekleştirerek yeni becerileri geliştirmeli ve daha yüksek değerli etkinlikleri gerçekleştirmelidir (Barry, 2000).

21. y.y.'da çeşitli becerilerini geliştirme ihtiyacı duyacak olan muhasebeciler, bunu sürekli mesleki eğitimle sağlayacaklardır. Muhasebeciler, müşterilerin, işverenlerin ve çalışanların ihtiyaç duyduklarından daha iyisini yapmalıdırlar (Yuen Teen, 2002). Bunu gerçekleştirebilmek için IFAC'a göre muhasebecilerin sahip olması gereken beceriler üç temel başlıkta toplanabilir;

- Karışık işletme sorunları karşısında doğru düşünüp problemleri çözebilmesi ve karar alabilmesini sağlayan entelektüel beceriler,
- Farklı kuruluşlardaki kişilerle çalışabilmesini sağlayan kişiler arası ilişki becerileri,
- Mantıklı değerlendirmeler yaparak etkili kararlar alabilmesi için bilgiyi sağlaması ve iletmesi ile ilgili yetenekleri kapsayan iletişim becerileri.

Mesleki Değerler

Mesleki değerler, muhasebe meslek mensuplarının davranışlarından oluşur. Muhasebeciler, geliştirdikleri becerilerini yaptıkları etkinliklerle gösterebilirler. Bunu yapmak için de kamu ilgisi ve bağımsızlık gibi geleneksel güçlerden faydalanmaya ihtiyaç duyarlar. IFAC'ın yayınlarında belirtmiş olduğu mesleki değerler şunlardır;

- Dürüst, tarafsız ve bağımsız olma taahhüdü
- Mesleki etik standartlar bilgisi
- Kamu yararını gözetme ve sosyal sorumluluklara duyarlılık

MUHASEBE MESLEK MENSUPLARINA YÖNELİK SÜREKLİ EĞİTİM UYGULAMALARI

Sürekli mesleki eğitim etkinlikleri, teori ile uygulama arasındaki ilişkiyi güçlendirmeyi ve bunu yansıtan uygulamacılar oluşturmayı amaçlamaktadır. Sürekli mesleki eğitim etkinlikleri, farklı alanlarda çalışan muhasebeciler için farklı beklenti ve becerilerle ilgili konuları kapsamaktadır.

Son yıllarda yeniden lisans alabilmek için de sürekli eğitimin kullanımı gittikçe yaygınlaşmaktadır. 1970'lerden bu yana birçok meslekte lisans veya sertifika alınabilmesi zorunlu sürekli eğitim koşuluna bağlanmıştır ABD, İngiltere, Avustralya ve Yeni Zelanda gibi birçok ülkede yetkili (sertifikalı, kamu) muhasebecilerinin faaliyette bulunabilmesi için sürekli mesleki eğitim zorunlu olmaya başlamıştır. Ayrıca ülkelerin meslek mensuplarının sürekli eğitim için ayırmış olduğu bütçeler de gittikçe artmaktadır. Örneğin, ABD'de, 1958 yılında AICPA, sürekli mesleki eğitim projesi için 50.000$ ayırırken 2000'li yıllarda, yıllık yüz binlerce katılımcının olduğu milyon dolarlık bir projeye ulaşmıştır (Cervero, 2000).

Son yıllardaki gelişmelerden biri de eğitimde internetten yararlanılmasının gittikçe yaygınlaşmasıdır. Meslek mensuplarının gün içindeki iş yoğunluğundan eğitimlere katılmalarını sağlamanın kolay yollarından biri internet siteleri üzerinden eğitim verilmesidir. Ayrıca internetin yaygın kullanımı sayesinde, bilgilerin aktarılması da kolaylaşmıştır. Meslek mensupları meslekleri ile ilgili birçok gelişmeyi ve değişmeyi, meslek kuruluşlarının siteleri yardımıyla takip edebilmektedirler. Meslek mensupları çevrimiçi sürdürülen bu eğitimler sayesinde, gerçek bir sınıf ortamında gerçekleştirilen birçok etkinliğe katılabilmektedirler.

Bu çalışma kapsamında, Amerika Birleşik Devletleri, İngiltere, Fransa, İtalya ve Türkiye'deki meslek kuruluşlarının internet siteleri incelenmiş, bu ülkelerde muhasebe meslek mensuplarının tabi olduğu sürekli mesleki eğitim etkinlikleri ortaya konmaya çalışılmıştır.

Amerika'da yetkili muhasebeci kuruluşları, 1940'ların sonlarından 1950'lerin başlarına kadar, üyeleri için genellikle, Kamu Muhasebecisi olarak gerçek uygulamaya katılan yeni üyenin eğitimine yönelik eğitim programları düzenlemişlerdir. Günümüzde bu kuruluşlar, bu eğitimlerin dışında, çalışanlarının gelişimine yönelik programlar da geliştirmişlerdir. Amerikan Bağımsız Kamu Muhasebecileri Enstitüsünün (AICPA) tüm üyelerinden, 2001 yılından itibaren 120 saatlik sürekli mesleki eğitimi tamamlamış olma zorunluluğunu aramaktadır. Kamu uygulamalarında çalışan üyeler her yıl en az 20 saat olmak koşuluyla, 3 yılda 120 saatlik eğitimi tamamlamış olmalıdırlar. Kamu uygulamalarında çalışmayan üyelerin ise her yıl minimum 15 saat olmak şartıyla, 3 yılda 90 saatlik bir eğitimi tamamlamış olmaları şartı aranmaktadır. Meslek mensubunun eğitim süresi, AICPA'ya üye olduktan sonra başlamaktadır. Sürekli mesleki eğitim kapsamındaki derslerin üyelerin istihdamını veya uygulama alanlarındaki mesleki yeterliklerini sürdürmesine katkıda bulunmasına özen gösterilmektedir. Üyeler her yıl AICPA'nın istediği raporları hazırlayıp, tüm kayıtlarını saklamaktadırlar. Meslek kuruluşu istediğinde de bir kopyasını sunmak zorundadır. Emekliler, çalışmayanlar (işsizler), ve geçici olarak işyerlerinden ayrılanlar sürekli eğitim etkinliklerinden muaftırlar. Lisans sahibi olup da aktif olmayan CPA'ler, bağlı bulunduğu eyaletin kurulu istemediği sürece, AICPA'nın sürekli mesleki eğitim şartlarından muaftırlar. Sürekli mesleki eğitim talebi, eyaletten eyalete farklılık göstermektedir.

İngiltere'de sürekli mesleki gelişim başlığı altında, farklı kategorilerdeki tüm üyelere eğitim verilmektedir. Bu programın amacı, tüm üyelerin gelişimini arttırmaktır. İngiliz meslek kuruluşu olan Yetkili Devlet Muhasebeciler Enstitüsü (CIPFA), hazırlamış olduğu sürekli mesleki gelişim programı, mesleki sorumluluğu sağlayarak kamu anlayışını geliştirmeye katkıda bulunmayı hedeflemektedir. CIPFA, sürekli mesleki gelişimi, üyelerinin kariyerleri süresince uygun bilgi ve becerilerini geliştirebilecekleri ve sürdürebilecekleri bir süreç olarak tanımlamaktadır. CIPFA'nın hazırlamış olduğu programlara katılım iki biçimde gerçekleşmektedir;

1.aşama, güncel yasal düzenlemelerle ilgili hazırlanmış basit bir programdır.

2. aşama, daha çok mesleki uygulamalarla ilgilidir.

Üyeler isterlerse her iki etkinliğe de katılabilmektedirler. Tüm üyeler, 1 Ocak 2005 tarihinden itibaren enstitüye üye olabilmek için bu programlara kayıt olmalıdırlar. Sürekli mesleki gelişim programına kayıt olma zorunluluğu nedeniyle bir intibak programı hazırlanmıştır. Üyelerin enstitüye üye olma tarihine göre belirlenen üç aşamalı geçiş programı 2007 yılında sona ermiştir. Üyeler programa yılın herhangi bir zamanında başlayabilmektedirler. İngiltere'de meslek kuruluşu (CIPFA), üyelerinden her yıl minimum 20 saat olmak şartıyla, 3 yılda 120 saatlik bir etkinlik istemektedir. CIPFA üyesinin aldığı role göre (denetçi, geleneksel muhasebeci, genel yönetim pozisyonları ve diğer roller) edinecekleri bilgi ve beceriler de değişmektedir. Gelişim için gerekli olan bilgi ve becerileri verecek bir plan ve ders programını oluşturmada üyeler esnek davranabilmektedirler. Teknik gelişmelere, finans ve bilgi teknolojisi, denetim ve muhasebeciliğin düzeyi örnek verilebilir. Yönetim becerileri ise, takım liderliği, sunum becerileri, zaman yönetimi, iletişim gibi daha güncel bilgi ve becerileri ifade eder. Yönetim becerileri, sadece yönetimde çalışanlar için değil herkes için gereklidir. Teknik ve yönetim bilgi ve becerileri arasındaki denge üyenin rolüne, işine, çalıştığı sektöre, kariyerindeki ilerlemesine göre üyeden üyeye değişmektedir. Program oluşturulmadan önce kazanılması veya geliştirilmesi istenilen bilgi ve beceriler tanımlanmakta, daha sonra bunun nasıl yapılacağı ortaya konulmaktadır. Üyenin öğrenme stilini destekleyen etkinlikler seçilmektedir. Üye planına uygun oluşturduğu ders programını gerçekleştirirken şu etkinliklerden yararlanabilmektedir; kısa bilgilendirme toplantıları (brifing), dersler, toplantılar, seminerler, çalışma odası etkinlikleri (workshops), tartışma grupları, konferanslar, örnek olay çözme, gönüllü etkinlikler, işte öğrenme, Web'e dayalı gelişim, kılavuzlar, uzaktan öğrenme. Program çerçevesinde üyenin katıldığı etkinlikler doğrulanmalı ve kanıtlanmalıdır. Bu nedenle de etkinlikleri onaylayan bağımsız kayıtlar oluşturulması istenmektedir. Üyeler, yıllık olarak 1. aşama ve 2. aşamadaki etkinliklere katıldıklarını gösteren Beyan Tablosunu (Statement of Declaration) göndermelidirler. Üyeler özel programlarla, birliğin sürekli mesleki gelişim bölümünün onayı ile ders saatlerinin azaltılmasını

isteyebilirler. Her istekte bireyin yararı göz önünde bulundurulmaktadır. İngiltere'de sürekli mesleki eğitim şu durumlarda zorunludur;

- Uygulama sertifikası almak için,
- Yetkili Muhasebecilik üyeliği için,
- Yetkili Muhasebecilerin eğitimine denetçi olarak katılabilmek için,
- Denetim, işletme yatırımları, haciz gibi kısıtlı alanlarda çalışabilmek için,
- İleri diploma (Advanced Diploma) için sürekli mesleki eğitim zorunludur.

İtalya'da, Ticaret Doktorları Ulusal Kurulu (CNDC) 31 Haziran 2002 tarihinde Ticari Doktorlar için Sürekli Mesleki Eğitim Uygulamasını (Continuous Professional Formation) onaylamıştır. İlk uygulamaya 1 Ocak 2003'te geçilmiştir. Sürekli mesleki eğitim, mezun olan ticari doktorların uyguladıkları mesleki etkinliklerle ilgili teknik ve bilinen beceriler ile bilgileri derinleştirmeye ve yenilemeye yönelik etkinliklerdir. CNDC, sürekli mesleki eğitim, mesleği daha iyi sürdürebilmek için mesleki etkinlikleri destekleyen ve tamamlayan çalışmalar olarak tanımlamaktadır. Sürekli mesleki eğitim, meslek kuruluşlarına kayıtlı olan tüm ticari doktorlar için zorunludur. Ancak meslek kuruluşuna kayıtlı olup da aktif olarak çalışmayanlar için zorunlu değildir. İtalya'da da sürekli mesleki eğitimin süresi 3 yıldır. Üyeler katıldıkları etkinlikleri belgelemek zorundadırlar.

Fransa'da Kamu Muhasebecileri Ulusal Enstitüsüne (OEC) kayıtlı olan üyeler sürekli mesleki eğitime tabidirler. Fransa'da da üyelerden 3 yılda minimum 120 saatlik sürekli mesleki eğitim istenmektedir. Enstitünün yerel organları seminerlerle eğitimi sağlamaktadırlar. Ayrıca üyeler isterlerse özel kuruluşlardan da çeşitli dersler alabilmektedirler. 1994 yılından beri, denetçilerin karşılaşabilecekleri durumlarla ilgili, son koşulları da göz önünde bulundurarak çeşitli kurslar da verilmektedir.

Türkiye'de şu anda meslek mensubu adayları için sürekli mesleki eğitim uygulamaları bulunmaktadır. Bu kapsamda SMMM Mesleki Yeterlik Sınavlarına ve Staja Başlama Sınavlarına Hazırlık eğitimleri verilmektedir. Ancak muhasebe meslek kuruluşu TÜRMOB'un belirli dönemlerde muhasebeciler için düzenlemiş olduğu seminer, sempozyum ve toplantılar sürekli mesleki eğitim etkinlikleri kapsamındadır. Özellikle de vergi uygulamaları ağırlıklı olan bu etkinlikler daha çok illerdeki odalar tarafından organize edilmektedir. Mesleki ve kişisel gelişim için meslek mensupları, üniversite veya diğer özel eğitim kurumlarından ders almamaktadırlar. Yukarıda bahsedilen ülkelerden farklım olarak ülkemizde, lisans yenileme için sürekli eğitim zorunluluğu bulunmamaktadır.

Yukarıdaki bilgiler ışığında Amerika, İngiltere, İtalya, Fransa ve Türkiye'nin içinde ülkelere ait sürekli mesleki eğitime ait aşağıdaki tablo oluşturulmuştur. Türkiye haricinde incelenen dört ülkede IFAC'ın öngördüğü 3 yılda toplam 120 saat sürekli mesleki eğitimin zorunlu olduğu görülmüştür. Ayrıca muhasebecilerin lisanslarını yenileyebilmeleri için yılda toplam 120 saat sürekli mesleki eğitim Amerika ve İngiltere'de zorunlu olduğu ortaya konmuştur. Ancak incelenen 5 ülkede de muhasebe meslek mensubu ve adaylarının eğitimlere katılmasının zorunlu olduğu görülmüştür.

Tablo 1. Bazı Ülkelerde Muhasebe Meslek Mensuplarına Yönelik Sürekli Eğitim Uygulamaları Süresi ve Zorunluluğu

Ülke	***Sürekli Eğitim Süresi***	***Lisans Yenileme Şartı***	***Programlara Katılma Zorunluluğu***
Amerika*	3 yılda toplam 120 saat	Var	Var
İngiltere	3 yılda toplam 120 saat	Var	Var
İtalya	3 yılda toplam 120 saat	-	Var
Fransa	3 yılda toplam 120 saat	-	Var
Türkiye	-	-	Var

* ABD'de lisans alma ve yenileme eyaletten eyalete faklılık gösterir.

SONUÇ

Küreselleşme, uzmanlaşma, uluslararası sermaye piyasalarının büyümesi, rekabet, yeni iş modelleri muhasebecilerin bilgi elde etme ve üretmedeki bilgi ve becerilerini değiştirmiştir. Sürekli değişimin olduğu günümüzde meslekte başarı sağlayabilmek mesleki bilgi ve becerilerin güncellenmesinin yanı sıra yeni bilgi ve becerileri de edinmeyi gerekli kılmıştır. Meslek mensubunun bunu bireysel gerçekleştirmesi iş yaşamı içinde zordur. Bu nedenle mesleki gelişimi

sağlamayabilmeleri için meslek mensupları bağlı bulundukları kuruluşlarının düzenlemeleri çerçevesinde sürekli mesleki eğitimlerini gerçekleştirirler.

Yapılan çalışmada muhasebe mesleğine öncülük yapan ülkelerde ve Avrupa Birliği'nin gelişmiş ülkelerinde, Uluslararası Muhasebeciler Federasyonu'nun beklentileri doğrultusunda sürekli mesleki eğitimin zorunlu kılındığı görülmüştür. Avrupa Birliği adayı ve IFAC üyesi olan ülkemizde de sadece meslek mensubu adaylarına yönelik değil tüm meslek mensupları için kapsamlı zorunlu sürekli mesleki eğitim programları gerçekleştirilmelidir.

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INTE2010

MUHASEBEDE İLK DERS

THE FIRST LESSON IN ACCOUNTING

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ÖZET

Muhasebe eğitiminde, muhasebede ilk ders denildiğinde anlaşılması gereken olgu muhasebe dersinin ilk saatleri değil, muhasebe eğitimi almaya başlayan öğrencilerin bu eğitimde karşılaştığı ilk ders ve bu dersin içeriğidir. Diğer bir deyişle Finansal muhasebe kavramı içerisinde yer alan ve müfredatlarımızda Muhasebeye Giriş, Genel Muhasebe, Muhasebe gibi değişik isimlerde yer alan dersin ve bu derse ait içeriklerin anlaşılması gerekir. Dört yıllık ve iki yıllık muhasebe eğitimi alan tüm öğrencilerin aldıkları bu dersler, muhasebenin olumsuz klişelerini onaylayabilir veya reddedebilir. Bunu yaparken de en iyi ve zeki öğrencileri muhasebeye çekebilir yada onları muhasebeden uzaklaştırabilir. Bu yüzdende muhasebede ilk dersin önemi son derece büyüktür. İlk ders muhasebede kariyer yapmada ve muhasebenin bir alan olarak seçilmesinde önemli bir yere sahiptir. Dersler öğrencilerin mesleği, muhasebede başarılı bir kariyer için gerekli yetenek ve becerileri, muhasebedeki kariyer fırsatlarının doğasını algılayışlarını biçimlendirir. Muhasebede veya işletmenin herhangi bir alanında ihtisas yapmaya kara verenler için ilk ders, gelecekteki akademik yaşamda başarılı olmada önemli bir bloktur. Muhasebe eğitiminde öğrencinin karşılaştığı ilk dersin içeriğinin, meslek hakkında doğru algılamayı sağlayabilecek nitelik ve niceliklere sahip olacak şekilde oluşturulması , verildiği saatin düzenlenmesi son derece önemlidir.

Anahtar kelimeler: Muhasebe, ilk ders, eğitim

ABSTRACT

In accounting education; when it is said that “the first lesson in accounting” , it must be understand that the first course and its content which is given to the new accounting students, not the starting hours of the accounting lecture. In other words, it must be understand that the courses and the content of the courses such as Entrance to Accounting, General Accounting or Accounting which give the concept of Financial Accounting. This courses taken by the bachelor or college degree students, give a positive accounting image or not. As a result, the best and the smartest students like accounting or hate from it. Because of this reason the first lesson in accounting is very important. The first lesson has a significant role at choosing the accounting as a field and having a carrier at this area. Courses shape the students understanding of accounting as a field with required knowledge and ability So for the students who decided to specialize at accounting or management, the first lesson is very important role on successful academic life in the future.

Key Words: Accounting,The first lesson, Education

*Bilecik Üniversitesi, Bozüyük Meslek Yüksekokulu, Muhasebe ve Vergi Uygulamaları programı

1.GİRİŞ

Muhasebe eğitiminde ve diğer işletme branşları için muhasebede ilk dersin önemi (Accounting Education Change Commıssıon) AECC, (American Accounting Association) AAA ve bir çok muhasebe firmasının de dahil olduğu muhasebe mesleği ile ilgili gruplar tarafından ABD'de tartışılmıştır. Muhasebedeki ilk ders, bütün işletme araçları için daha iyi karar vermeyi sağlayacak yararlı muhasebe bilgileri sunması ve muhasebenin branş dersi olmasında, branş dersi olarak muhasebeyi teşvik ettiği veya uzaklaştırdığı için önemlidir. Bu önem AECC'nin yayınladığı (The First Course in Accounting: Possition Statement No. One-Two) Muhasebede İlk Ders Konum Beyanat No2 yazısında da açıkça belirtilmiştir.(1)Muhasebedeki ilk ders öğrencinin muhasebe mesleğini algılayışı üzerinde etkilidir. Bu algılama onların muhasebe mesleği için yeterli sayıda yeteneğin arz edilip edilmeyeceğini, mesleği, muhasebede başarılı bir kariyer için gerekli olan beceri ve yetenekleri, muhasebedeki kariyer fırsatlarının algılanışını etkilemektedir.

2.MUHASEBEDE İLK DERSİN AMACI

Eğitimin en temel görevleri; Ders amaçlarının belirlenmesi, amaçların başarılmasını sağlayacak öğrenme tecrübesinin seçimi, Öğrencilerin bu tecrübe, deneyim ile bütünleşmesine yardım edecek öğrenme tecrübesinin organizasyonu, erişilmek istene hedeflerin neler olduğunun belirlenmesi olarak belirtilebilir.Eğitimin ilk üç görevi, muhasebe eğitimi açısından hedeflerin ve öğrenme yöntemlerinin değiştirilmesi anlamını taşırken, dördüncü görev ders hedeflerinin elde edildiğini tayin etmede uygun değerlendirme hedeflerini belirleme ve geliştirmeyi anlatır.

Muhasebe eğitimi alan öğrencilerin ilk karşılaştıkları ders olan Muhasebeye Giriş, Genel Muhasebe veya Muhasebe dersinin amacı, dar defter tutma perspektifinden ziyade öğrencilere muhasebe hakkında geniş bir girişin yapılmasını, değişik pedagojik araçlarla birlikte muhakeme yapmayı, kendi kendine öğrenmeyi ve yazılı ile sözlü iletişim becerilerini gelişmesini sağlamaktır.Bu ders aynı zamanda öğrencilerin muhasebe kavramları ile tanıştırarak muhasebe bilincini oluşturmakta ve muhasebenin bir meslek veya kariyer alanı olarak seçilmesini sağlamayı da amaçlamaktadır. Bir diğer amaç da zeki ve yetenekli öğrencileri bu alana çekmek olarak belirtildiğinde mevcut ders içerikleri ile bu dersin hedeflerinin uyuşmadığı, öğrenme yöntemlerinin geleneksel çerçeve içinde kaldığı bu nedenle de değerlendirme hedeflerinin değiştirilmesi gerektiği belirtilebilir.Muhasebede ilk dersin amacı öğrenciler için ekonomik karar vermeyi destekleyen bir bilgi geliştirme ve iletişim fonksiyonu olan muhasebeyi öğretmektir.(2)

Ülkemizdeki üniversitelerde ve ABD'deki birçok üniversitede ilk muhasebe dersleri geleneksel olarak finansal muhasebeye giriş şeklinde olup finansal muhasebenin defter tutma ve mekanik özelliklerine değinmekte ve daha sonra öğrencilere borç- alacak, bilanço, envanter konuları öğretilmektedir. Bu durumda öğrencilerin dersleri çok mekanik ve sıkıcı bulmalarına, muhasebe ve muhasebecilerle ilgili derslerden önce duydukları olumsuz klişileri onaylamalarına neden olmaktadır.(3)

3. MUHASEBEDE İLK DERSİN ALGILANMASI

Öğrencinin muhasebedeki ilk dersi algılayışı ve bu algılayışın muhasebeyi branş olarak seçip seçmemesi kararı üzerine etkisi ile ilgili olarak ABD'de ve Türkiye'de çok az deneysel kanıt vardır. Bu konuda ABD'de çeşitli üniversitelerde muhasebe giriş dersini alan öğrencilerle anket vb. diğer çalışmalarla muhasebedeki ilk dersin algılanması ve bu algılamanın kariyer çalışmalarına etkisi ortaya konmaya çalışılmıştır. Bu çalışmalarda elde edilen en önemli bulgu ise muhasebenin branş olarak seçilmesinde muhasebedeki ilk dersin performansı ve öğrencinin bu dersi olumlu algılamasının rolünün büyük olduğudur.(4)

AECC'nin Muhasebeye Giriş dersine verdiği önem, öğrencinin algılayışına etkisini temel almaktadır. Ancak bu algılayışın neler olduğu konusunda net deneysel kanıtlar bulunmamasına rağmen aşağıdaki sonuçların ortaya çıkma olasılığı üzerinde durulabilir:Derse girmeden önce öğrenciler bu dersin yararlı olacağına inanıyorlar mı?, Muhasebeyi branş dersi olarak almaya niyetli olanlar, diğer muhasebeyi branş olarak seçmeyenler arasında ilk dersi algılamada farklar bulunuyor mu?, Dersi ödüllendirici mi yoksa sıkıcı mı buluyorlar?,Öğrencilerin algılamaları dönem boyunca değişiyor mu?, Dersi algılamasında

olumlu değişiklikler olanlar muhasebeyi branş olarak seçerler mi?.Yukarıda saydığımız tüm bu sorular ve bu sorulara alınabilecek yanıtlar öğrencinin muhasebedeki kariyerini yakından ilgilendirmektedir.(5)

Muhasebedeki ilk dersi öğrencilerin nasıl algıladıklarını ve bu algılamanın muhasebeyi branş olarak seçip seçmeme konusu üzerine çok sayıda araştırma yapılmıştır. Özellikle bu araştırmaların ABD, Kanada üzerinde yoğunlaştığı görülmektedir Bu çalışmalar sonucunda; Muhasebeyi branş olarak seçen öğrencilerin muhasebeye giriş dersinde yüksek performansa önem verdikleri ve dersin performansıyla muhasebenin branş olarak seçme kararı arasında yakın ilişki olduğudur. Ayrıca ilk dersten alınan olumlu algılamanın da bundaki rolü büyüktür.

4.ALGILAMADA ETKİLİ OLAN FAKTÖRLER

Muhasebede ilk derse karşı öğrencilerin algılayışı eğitimin duygusal alanının büyük bir parçası olarak görülebilir. Öğrencilerin öğrenmeleri bilimsel alanda oluşurken aynı zamanda duygusal alanda da oluşmaktadır. Duygusal alandaki öğrenmenin amaçları, ilgileri tutumları, algılayışları, değerleri, hisleri ve değerlendirmelerin bütününü kapsar ve bilişsel alanın amaçlarından; bilginin görünümü, kavrama, uygulama, analiz, sentez ve değerlendirme farklılık gösterir.Algılamada etkili olan duygusal aşamaları beş gruba ayırabiliriz:.Kabul ve Hazır Bulunma, Cevap Verme, Değer Verme, .Organize Etme, Birleştirme bu aşamalardan ilk üç aşama genel bir seviyeyi gösterirken, öğrencilerin genel algılayışlarını, değerlerini, beklentilerini ve muhasebedeki ilk derse karşı tutumlarının belirlenmesine yöneliktir. Son iki aşama ise herhangi bir disiplin alanındaki yüksek öğrenme için önemlidir.(6)

Öğrencilerin muhasebenin ilk dersini karşı genel algılayışlarını belirlemek için kullanılan araçlar, kişisel raporlar, dosyalar ve finansal muhasebeye giriş derslerinin ilk ve son haftalarında sınıfa yapılacak anket çalışmalarıdır. Özellikle yapılan anket çalışmalarında aşağıda sorulacak sorularla öğrencilerin bu dersi nasıl algıladıkları ortaya konulabilecektir.

a.Bu ders benim gelecekteki işletme derslerini iyi yapmam konusunda bana yardım edecek (DERS)
b.Bu ders benim iyi bir kariyer yapmama yardım edecek (KARİYER)
c.Bu derste iyi olmak kişisel olarak ödüllendirilmektir. (ÖDÜLLENDİRME)
d.Bu derse diğer derslerden daha fazla zaman ayırmam gerekiyor (ZAMAN)
e.Bu dersi sabırsızlıkla bekliyorum (HOŞLANMAK) **Dönem sonunda bu soru:.**Bu dersten hoşlandım (HOŞLANMAK)
f.Bu ders zor olacak (ZORLUK)
g.Bu ders sıkıcı olacak (SIKICILIK)
h.Bu dersi iyi yapmak için oldukça motive oldum (MOTİVASYON)
ı.Bu derste çok şey öğrenmeyi hedefliyorum (ÖĞRENME)
i.Öğretmen dersin yararlılığı konusunda benim fikirlerimi etkileyecek (ÖĞRETMEN)
j.Bu dersten beklediğiniz not kaçtır (DEĞERLENDİRME)(7)

ABD'deki pek çok üniversitede yukarıdaki sorulara benzer sorulardan oluşan anket çalışmaları sonuçları göstermiştir ki muhasebede ilk dersteki olumlu algılama muhasebeyi branş olarak seçmede son derece önemlidir. Muhasebeyi branş olarak seçen öğrenciler muhasebeye giriş derslerinden pozitif anlamla yüklenmiş olanlardır. Muhasebeye giriş dersleri öğrencinin ilk ve tek muhasebeyle tanışma durumu olduğu için bu dersin içeriği, dersin aktarılma şekli, dersin anlatım tekniği ve tüm bunlardan öğrencinin kafasında oluşan muhasebe kavram ve mesleği muhasebenin branş olarak seçilmesinde önem taşımaktadır. Bunun içinde ilk dersin içeriği de son derece önemlidir. (8)

5.MEVCUT "MUHASEBE,-GENEL MUHASEBE VEYA MUHASEBEYE GİRİŞ" DERSLERİN İÇERİKLERİ

Ülkemizdeki üniversitelerin İktisadi ve İdari Bilimler Fakültelerinin İşletme ve İktisat bölümlerinde, İşletme Fakültelerinde ve Meslek Yüksekokullarının Muhasebe ve Vergi Uygulamaları programlarında genel olarak Muhasebe, Muhasebeye Giriş veya Genel Muhasebe adı altında muhasebede ilk dersin verildiği görülmektedir. Benzer adlardaki derslerin içerikleri incelendiğinde bu derslerin genel olarak aşağıdaki içerik ile programlarda yer aldığını, öğrencilere birinci sınıfta I veya II dönemde verildiğini görmekteyiz.(9)

Genel Muhasebe I.-II

Bu dersin genel olarak içeriği şu şekildedir:İşletme ve Muhasebe, Mali Nitelikli İşlemler, Bilanço ve Gelir Tablosu, Hesaplar:Kavramı,Türleri,Hesap Planı, Belge ve Defterler, Hazır Değerler: Kasa,Bankalar,Çekler, Alacaklar: Senetli Alacaklar, Senetsiz Alacaklar, Şüpheli Alacaklar, Menkul Kıymetler, Mal Alım-Satım İşlemleri:,Aralıklı ve Devamlı Envanter Yöntemi, Duran Varlıklar: Maddi Duran Varlıklar, Maddi Olmayan Duran Varlıklar, Borçlar: Kısa Vadeli Borçlar, Uzun Vadeli Borçlar, Öz Kaynaklar, Gelir Gider İşlemleri, Hatalar, Envanter İşlemleri, Dönem Sonu Ayarlama ve Düzeltme Kayıtları, Kapanış Kayıtları, Dönem Sonu Mali tabloların Düzenlenmesi (10)

Üniversitelerimizdeki muhasebe eğitimi genel anlamı ile geleneksel yaklaşım çerçevesinde verildiğinden, ders içeriği kavramlardan çok muhasebe işleyiş ve kurallarının öğretilmesi. yönündedir. Bu derste öğrencinin pasif algılayıcı olarak kabul edilmesi, muhasebedeki dış kullanıcılara sunulan finansal raporların hazırlanması, yevmiye kaydı, muhasebe defterlerine kayıt düşme iletişim ve yeteneğe çok az değer verme, bilgisayarsız derslerde teknolojinin az kullanımı, tek doğru cevabın hesaplanmasına odaklanma gibi bir felsefe benimsenmektedir. Bu durumda muhasebenin bir defter tutma şeklinde algılanması sonucunu yaratmakta, öğrenciler tarafından muhasebenin meslek ve kariyer alanı olarak seçilmesindeki en olumsuz faktör olarak karşımıza çıkmaktadır.

6. MUHASEBEDE İLK DERSİN İÇERİĞİ

Muhasebe eğitiminde kullanılan geleneksel yaklaşım yerini son yıllarda yenilikçi yaklaşıma bırakmıştır. Yenilikçi yaklaşım çerçevesinde oluşturulan yeni müfredat programının felsefesi muhasebede kuralları öğretmeden önce muhasebe kavramlarını öğretmektir. Bu yaklaşım öğrencilerin kuralları daha iyi kavramasına ve onları daha uzun süre hatırlamalarına yardımcı olmaktadır. Aynı zamanda bu yaklaşım düşünme becerilerinin ve iletişim becerilerinin gelişmesine de katkıda bulunmaktadır.

Yenilikçi yaklaşım genel eğitim, işletme ve kurumsal bilgi üzerinde geniş vurgu yapmak; Vergi, yönetim muhasebesi, muhasebe sistemleri, denetim konuları ve kanunları arasındaki bağlantıları güçlendirmek; kurgulanmamış muhasebe olaylarındaki problemlerin çözümüne odaklanmak, öğrenciyi öğrenmede aktif katılımcı olarak kabul etmek; muhasebe müfredatını muhasebe teknolojisi ile birleştirmek; muhasebeye giriş derslerini muhasebenin kurumlarsa ve toplumdaki rolü ile bağdaştırmak ve muhasebe bilgilerinin kullanımı üzerine odaklaşmak olarak özetleyebiliriz. Bu felsefe ve amaç muhasebenin defter tutma olarak algılanmasını da engellemekte ve muhasebeye yeni bir bakış açısı kazandırmaktadır. Bu nedenle de bu felsefe muhasebe ilk ders olarak kabul edilen muhasebe derslerinin içeriğinin yeniden düzenlenmesi veya oluşturulması konusunu gündeme getirmektedir.

Giriş derslerinin yeniden tasarlanmasında, ilk adım muhasebe temellerinin kavramsal anahtar alanlarının tanımlanmasıdır. Bu sürecin bir parçası olarak, yakın zamanda derse dahil olan bütün konuların öğrencinin öğrenmesi için gerekli olmadığının kabul edilmesi gerekir. Gerçekte de çok fazla konu başlığının olması öğrenciyi temel konulardan uzaklaştırıyorsa konuların sınırlandırılması ve temel muhasebe konuları üzerinde yoğunlaşılması gerekir. Çünkü öğrencide ne kaldığı neyin kapsandığından daha önemlidir.(11) Geleneksel muhasebe eğitimi içindeki Genel Muhasebe derslerinde borç ve alacakların öğretildiği, finansal tabloların hazırlanması üzerinde durulduğu görülmektedir.Muhasebe müfredatı incelendiğinde derslerde öğretilenlerin genellikle teknik kurallar dizinden oluştuğu, dar bir kapsam taşıdığı, küresel bir perspektif kullanılmadığı, değerler, etik ve doğrulukla yeterince uğraşılmadığı tespit edilmektedir. Muhasebecilerin ne yapacakları yerine ne yapmayı alışkanlık haline getirmeleri gerektiği üzerinde durulduğu öğrencileri daha başarılı yapacak kritik öğrenme becerilerinin geliştirilmesi üzerinde durulmadığı, muhasebenin defter tutma ve kurallar dizisi olarak algılanmasına neden olunduğu, derslerin teknoloji ile yakından desteklenmediği gözlenmektedir.Ortaya çıkan bu bakış açısı ile Muhasebeye Giriş, Genel Muhasebe ve Muhasebe adı altında verilen muhasebe derslerini öğrencinin muhasebe ile karşılaştığı ilk ders olarak kabul ettiğimizde bu dersin içeriğini şu şekilde dört ana bölümden oluşan bir bütün olarak yeniden oluşturabiliriz.(12) I.Ders içeriği, II.Tartışma soruları, III.Ödevler, IV.Değerlendirme: a.Ara sınavlar, b.Ödevlerin değerlendirilmesi, c.Final sınavı

a.Dersin İçeriği

Bölüm I.

Muhasebenin Çatısı

Giriş, Bilanço, Gelir Tablosu, Envanter Kayıtları, Nakit Akım Tablosu, Finansal Tablolarla ilgili notlar, Finansal Tabloların Düzenlenmesi,Risk ve Belirsizliğin kaynağı
Bölüm II
Ölçüm ve Tanım
Değerlemeye Giriş, Finansal Borçların ve Kaynakların Değerlemesi, Finansal Varlıklar ve Borçlarda Eldeki Kar/Zarar, Fiziksel Varlıkları Değerleme,Fiziksel Varlıkların Eldeki Kar/Zararı, Pozitif Net Mevcut Değer Projeleri, Varlıkların Tanımlanması, Borçların Tanımlanması,Gelirin Tanımlanması
Bölüm III
Muhasebe Standartlarını Oluşturma Süreci
Muhasebe Standartlarının Düzenlenmesi, Standart Oluşturma Sürecinin Tarihi, Özel Sektörde Standartların Oluşturulması, Mevcut Standart Oluşturma Enstitüleri ve işlevleri, Görevleri,
Bölüm IV
Güncel Muhasebe Standartlarının Uygulanması
Varlıkların Tanımlanmasında ve Ölçülmesinde muhasebe standartları, Borçların Tanımlanmasında ve Ölçülmesinde muhasebe standartları, Gelirin Tanımlanmasında ve ölçülmesinde Muhasebe standartları(13)

b. Tartışma Soruları

Tartışma konuları için aşağıdaki konulardan oluşan bir kavramsal çatı seçilebilir :Muhasebe standartlarındaki gelir kavramını ve tanımını baz alarak uygulamadaki gelir kavramı ve tanımı ile karşılaştırınız ve uygulamadan örneklendiriniz?, Bilgi sağlamak ve analiz yapmak arasındaki ayırım neden önemlidir?, Finansal raporlamada bilgilerin güvenilirliği içeriğindeki gerçekliği kanıtlanabilirlik ne demektir?, Ekonomi içindeki tüm firmaların finansal tabloların karşılaştırılabilirliğini arttırmak veya azaltmak için aynı muhasebe yöntem dizisini mi kullanmaları gereklidir?,Muhasebe bilgisinden yararlananları nasıl tanımlarsınız, bu yararları ölçebilirmisiniz, ölçerken hangi sınırları kullanırsınız?(14)

c. Ödevler

Güncel hayattan alınmış, öğrencilerin öğrendikleri kavram ve kuralları uygulayıp yorumlayabilecekleri çeşitli şirketlere ait muhasebe problemleri veya örnek olayları sınıfa getirilerek, öğrencilerin bu konuda grup halinde veya bireysel çalışmaları sağlanmalıdır ve sınıf ortamında tartışılması sağlanmalıdır. Bu yöntem öğrencinin benzer olaylarda da çözüm getirebilme, düşünebilme, kıyaslayabilme, olaylar arasında ilişki kurabilme yeteneklerinin gelişmesini olumlu yönde etkileyebileceği gibi bu derse duyulan ilgiyi artıracak ve öğrencinin bu mesleği benimsemesine bu alanda kariyer çalışması yapmasına da olumlu etkide bulanacaktır.(15)

d.Değerlendirme

Derslerde öğrencilerin aldıkları bilgileri değerlendirmek için genel olarak iki ara sınav ve bir final sınav kriteri belirlenmelidir. Ayrıca küçük sınavlarla da konuların anlaşılıp anlaşılamadığı tespit edilerek ara sınavlara belirli bir yüzdesi katılabileceği gibi parçalı sınav adı verilen yöntemle de ara sınavlar 2-5 küçük sınavın belli bir yüzdesi şeklinde belirlenebilir.(16)Toplam değerlendirmede ise ara sınavların, ödevlerin belli bir yüzdesi final sınavın belli bir yüzdesine eklenerek öğrencinin bu dersle ilgili genel değerlendirmesine ulaşılabilir.Değerlenmede amaç muhasebe kavramlarının öğrenci tarafından anlaşılıp anlaşılmadığını tespit etmek ve kavramların kurallardan önce anlaşılmasını sağlamak olmalıdır. Böylece muhasebe bir kurallar dizisi ve defter tutma olarak algılanmaktan uzaklaştırılabilecektir. Bunun yerine muhasebe kavramlardan oluşan öğrencinin düşünme, değerlendirme, olaylar arasında ilişki kurabilme ve iletişim yeteneğini geliştiren, öğrencinin aktif rol aldığı bir alan olarak algılanabilecektir.(17)

7.SONUÇ

Öğrencilerin muhasebe ile ilk tanıştığı ders olan Genel Muhasebe, Muhasebeye Giriş, Finansal muhasebe adlarındaki dersler bu alanda çalışmak, kariyer yapmak isteyenler açısından çok önemlidir. İlk derste edinilen kanı öğrencilerin bu alanı benimsemelerine yada bu alandan uzaklaşmalarına neden olabilmektedir. Bu açıdan muhasebenin bir düşünce disiplini olduğunu, olaylar arasında ilişki kurabilme yeteneğini geliştirdiği felsefesinin benimsenmesi , bu felsefeyi yansıtan müfredat programlarının oluşturulması ve geliştirilmesi gereklidir. Geliştirilen bu müfredat programları ile zeki ve yetenekli öğrenciler bu alana çekilebilecek, muhasebe defter tutma ve kayıtlama imajından kurtularak kavramlar oluşana bir bütün ve disiplin olarak kabul edilecektir. Geliştirilen müfredatla birlikte bu müfredat içinde yer alan ve muhasebede ilk ders adını verdiğimiz dersin içeriğinin yeniden oluşturulması son derece önemlidir. Genel Muhasebe dersinde önerdiğimiz ders içerikleri, tartışma soruları, ödevler, değerlendirme çalışmalarını bir bütün olarak düşündüğümüzde bu yeni yaklaşım muhasebenin kariyer alanı olarak algılanmasını da sağlayacaktır

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MULTILINGUAL LEARNING ENVIRONMENT IN FRENCH AND GERMAN LANGUAGE TEACHING DEPARTMENTS

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ABSTRACT

The present paper is to shed light on multilingual learning environment in French and German language teaching departments in Turkish universities. The students in these departments are mostly those who take university entrance exam, national baccalaureate, in English. They start to learn French and/or German using Turkish. In our study, we suggest that they can acquire these languages by means of using their first foreign language, English, which has typological (syntactical and lexical) similarities instead of using Turkish, which is not of the same family of languages. It is found that using English to teach French/German, therefore, instead of Turkish as a medium of communication in the class, creates a multilingual learning environment, which facilitates vocabulary learning, maintains input permanence, help think and act in that language due to typological features. As shortcomings, it is indicated that false-friends and teachers' lack of English are obstacles to create a multilingual learning environment.

Keywords : Multilingualism, Third Language, Language Integrated Learning, Language Acquisition

INTRODUCTION

The effect of globalization is today deeply felt in many areas from politics to education especially when it comes to linguistic studies for language is one's identity which man exposes and speaks within a limited space. While this globalization is ending the frontiers, multilingualism is becoming more and more common. In education, the focus of the researches on multilingualism is how to develop curriculum in a multilingual teaching environment, how to teach languages in multilingual context and how content and language integrated learning atmosphere can be built. So, competence in one language is no more desirable and being proficient in some of the most widely spoken languages is required to get a well-paid job. The phenomenon, multilingualism, is not novel in the federal or multicultural countries but it is so in nation-states where one language is legally required and respected in education. These countries regard multilingual education as a threat to their constitutional structures while multilingualism is overly considered by most European countries to be a crucial part of the union and therefore to be spread all over Europe.

With the advent of content and language integrated learning model (CLIL), foreign languages other than mother tongue are taught easily and without any waste of time. The aim of this type of learning is to teach a subject, for instance, mathematics in a foreign language and this will make it possible to teach that foreign language together with mathematics, which will gain the teacher a lot of time and energy. In this model, the content, let's say, is mathematics and the language is not the mother tongue assuming it to be French. The goal is to economize the expenses of a teacher and hire a teacher that can teach both subjects, French and mathematics in the example above. This way, the student gets immersed in an environment where foreign language integrated into the content is dominant. In this case, teachers are required to be competent in both language and subject he is to teach.

In addition, in the countries like Canada to which there is quite much immigration, there exist a number of students of different origins and backgrounds in a class. Their mother tongues are all different from each other. They strive to understand and learn the language and culture of the country where they are in. In this case, a CLIL environment is needed. The aim of this paper is to create a learning environment where French is taught by means of English which Turkish students in the department of French and German Language Teaching acquire for several years. Due to the similarities and cross-

linguistic influence of French, German and English, we think that French and German can best be taught through English, which we assume to be a medium of instruction.

Multilingualism and Cross-Linguistic Studies

Multilingualism and multilingual acquisition are widespread and not only in officially recognized bilingual and multilingual communities but all over the world. Multilingualism means having a competence of two or more than two languages. Bilingualism is therefore seen as multilingualism. According to double monolingualism hypothesis, Herdina and Jessner (2002) regard bilingualism is as the sum of two monolinguals in one person with two separate language competences or in other words, bilinguals being regarded as two monolinguals in one person. Cenoz and Genesee (1998) have the prevailing concept that multilingualism and multilingual acquisition are complex phenomena because they can occur simultaneously or successively, formally (through instruction) or naturally (outside school) and in childhood, adolescence, or adulthood.

Learning an additional language after mother tongue is very easy for those who already know a second language than for monolinguals. In other words, there is positive transfer from second language learning to learning additional languages especially when the relevant languages are cognate and when there are similarities between these languages. In the case of English, French and German, three Indo-European languages, we see a lot of lexical and syntactical similarities which result in positive cross-linguistic transfers. Möhle (1989) and Singleton (1987) confirm that there is evidence for cross-linguistic transfer in multilingual acquisition when the languages involved are similar with respect to phonetic structure, vocabulary and syntax. For example, learners of French and English who have already acquired a non-Indo-European first language (in our case, Turkish is the first language of those studying in the department of French and German Language Teaching) tend to transfer vocabulary and structures from other Indo-European languages they know rather than from their first language (Ahukanna et al., 1981; Ringbom, 1987; Singh & Carroll, 1979). On the other hand, positive cross-linguistic influences have been found in the study of Hammarberg and Williams (1993) conducting a longitudinal study of the acquisition of Swedish as a third language by a native speaker of English who was also proficient in German and could speak some French. They observed cross-linguistic influence from English, German, and French when acquiring Swedish without formal instruction.

As seen clearly above, cognate languages are learned easily notably when the similarities and positive transfers from one language to another are considered to be influential and contributive factors in the acquisition of a new foreign language. In French and German Language Teaching departments, the students try to acquire these languages after passing the national baccalaureate exam generally in English. They get a year of preparation for learning the basic of these languages. The more they are involved in the novel language, the more lexical, syntactical similarities they recognize between English they have already acquired and French/German they are to learn in order to become teachers. After their bachelor degree studies, they strive to become multilingual and this multilingualism is formed very hard because of the lack of methodology and teacher's insufficient competence in the other foreign language. This language is generally English. In multilingualism whereby the students of French and German are third language learners, Ringbom (2001) and De Angelis and Selinker (2001) state that L2 status plays a crucial role in the third language acquisition like the role the first language plays in second language. It is widely known that under specific conditions being bilingual can have tremendous advantages, not only in terms of linguistic competence but also in terms of cognitive and social development (Jessner, 2006). The languages already acquired can have roles in the acquisition of a third language (Williams & Hammarberg 1998; Hammarberg 2001). Bilinguals learn a third language better than the monolinguals as the former already know how to learn a language while the latter encounter problems during the acquisition of a third language. A monolingual is not experienced with learning a language other than his first language while a bilingual has been subject to all kinds of difficulties during his second language acquisition. In multilingualism, Jessner (2006) states, proficiency in third language depends mostly on a dynamic model, which is made possible through a cumulative learning of languages (L1+L2+Ln+CLIN+M=MP where L1 is mother tongue; L2 is second language; Ln is n number of languages; CLIN is cross linguistic interaction; M is multilingualism factor and MP is multilingual proficiency). As seen clearly above, it is important to recognize the similarities between the target language and already-learned language when it comes to learning a new language.

Content and Language Integrated Learning (CLIL) in French and German Language Teaching Departments

Due to temporal and economic reasons, a subject other than foreign language is taught in the intended foreign language rather than in mother tongue in the classroom environment. This kind of learning is realized based on the content but the instruction is made through a medium of foreign language. The students learn easily the subject and the language at the same time by means of this type of instruction. The general term of this learning is called Content and Language Integrated Learning (CLIL), which refers to educational settings where a language other than the students' mother tongue is used as medium of instruction (C.D. Puffer, 2007). A whole gamut of terms are in use internationally and nationally (e.g. Content-Based-Instruction (CBI), Bilingual Teaching, Dual Language Programs, English Across the Curriculum). This type of teaching has been going on for several decades in most parts of Europe except in Lithuania, Malta, Portugal, Scandinavian countries. With the unification of European countries, Europe is becoming more and more multilingual and linguistic diversity in European countries is respected therefore it become preponderant to create at least bilingual teaching environments. In Europe, while this teaching environment is found mostly on high school or primary school level, it is very hard to observe a multilingual teaching atmosphere at universities.

In Turkey, as most students get into French and German Language Teaching departments with the score from their English test, we think that it is possible to teach them one of these foreign languages with the help of English instead of Turkish, which has no commonality with any of these Indo-European languages. In this case, CLIL methodology plays a key role in teaching foreign languages to those already bilingual. CLIL is widely applied in Canada, a bilingual country especially for those who have just arrived in the country and have been trying to integrate into a bilingual community. We can consider our students in these departments bilingual like those in Canada.

Demographic developments, which have transformed European societies into communities that receive immigrants rather than dispatch emigrants, have begun to undermine the understanding of CLIL, as has the political aim of European integration, embodied in the institutions of the European Union and the Council of Europe. The term CLIL covers a wide range of educational practices and settings whose common denominator is that a non-L1 is used in classes (e.g. Snow 1998). In CLIL education, most reasonable thing to do is to find a reservoir of concepts, topics and meaning which can become the object of 'real communication' where natural use of the target language is possible. In this respect, CLIL is the ultimate dream of Communicative Language Teaching (e.g. Brumfit and Johnson 1979) and Task-Based Learning (e.g. Willis 1996) rolled into one: there is no need to design individual tasks in order to foster goal-directed linguistic activity with a focus on meaning above form, since CLIL itself is one huge task which ensures the use of the foreign language for 'authentic communication'. In European context at least, CLIL classrooms are widely seen as a kind of language bath which encourages naturalistic language learning and enhances the development of communicative competence. In other words, CLIL classrooms are seen as environments which provide opportunities for becoming multilingual and for learning through acquisition rather than through explicit teaching. As CLIL is not based on grammar and vocabulary teaching, it brings an end to the traditional teaching and brings about a way of teaching based on communication.

All in all, we can take into consideration CLIL as today's one of the best way of teaching methods as it is mostly based on practice and communication. CLIL can therefore be applied in language classes, where students already know a language which is close to the target language. In Turkey, notably French and German are taught through Turkish, mother tongue and by means of a method based mostly on grammar and vocabulary. The students are not deeply immersed in the target language. As a result, when they graduate, they rarely express themselves in that language and find jobs easily. With Life Long Learning programs supported by European Council, the students are encouraged to apply CLIL in the classes. This is especially obvious in Comenius program, a program for students of educational sciences, who have a score of 60 in national foreign language exams such as KPDS or UDS. When they get this score, they can teach their own field of study in that language in a school in Europe for 3-6 months. So, it is possible to teach French and German in the departments of French and German Language Teaching with CLIL at the university.

As for the shortcomings of this method applied in French and German Teaching departments, the teachers must have double features. First, they should have linguistic, pedagogical, methodological competence and second, they should have non-linguistic knowledge in teaching. In our case, teachers are good at education and methodology but they lack of English to find similarities and teach French/German comparatively. Proponents of CLIL actually confess to a hidden agenda in this respect: they want to

stimulate language awareness as such via teaching in the foreign language. In addition, the learners can be culturally integrated with both languages and have the opportunity to compare and learn better foreign culture and their own cultures alike as long as the sources of languages involved are bilingual and the teacher is capable of teaching both. In French and German Language Teaching Departments, due to the similarities of the languages concerned, the students are easily motivated, learn quicker and better, practice more and interact with other students.

Multilingual Education and Teacher Competencies

Multilingualism is defined as the ability to use and impose knowledge of more than one language. Multilingual education, on the other hand, is made either in a class composing of students whose first languages are all different from each other or in a class where several languages are employed. Today, in the departments of foreign languages, bilingual education is done and the languages consist of the mother tongue of the learners and the target language. For the last two decades, multilingual education has been given an important role in developing language competencies.

An ideal teacher for the twenty-first century is expected to have knowledge of the discipline, the capability to employ a variety of pedagogical methods, communicative effectiveness in the classroom, the ability to develop materials, the ability to design and implement instruments for assessment and evaluation, aptitude for community relations and use of educational technology and motivation while a language teacher of multilingual teacher preparation even in computer-assisted instruction should have language proficiency in both the target language (languages) as well as the learner's language, knowledge of linguistics and multilingualism, an appreciation of the learner's culture and the ability to respond positively to the diversity of behavior in cross-cultural (multicultural) circumstances, competence in a range of instructional methods including appropriate collaborative work, the ability to utilize and adapt curriculum and develop materials, the ability to design assessment procedures for both self and learners, skills in the effective handling of school community relations, demonstration competencies in supervised classroom experience (D. Nunan, A. Lam, 1998). Among the competencies of language teacher mentioned above comes the language proficiency in the first place. To be able to implement an effective multilingual teaching, teacher is to be competent in both languages (learner's first language and second language(s)).

DISCUSSION

Education in multilingual environment is becoming more and more tenable especially in Europe and Canada. As is widely known, Canada is a bilingual country where multilingual education is commonly done in classes of different ethnicities. Europe and Canada are two of the countries where there is a diversity of immigrants for whom multilingual learning environment is created. An increasing number of multilingual teachers are needed to teach courses in a language spoken and understood by each learner. Today, CLIL model is generally used in European classrooms to teach the target language and the content. CLIL is also the model where language assistants in Comenius program are supposed to use during their traineeship in schools.

It is clear that similarities and positive transfers help create a multilingual learning environment where French and German are taught through a medium of instruction in English, our learners' first foreign language. The fact that teachers of these languages lack of knowledge of the latter and that the sources used to teach these languages are not bilingual, that the students are not subject to multilingual atmosphere where they could practice these languages are some of the deficiencies that could be mentioned. On the other hand, teacher's insufficiency to make comparison of the target language with the source language, to motivate learners by showing the easy aspect of learning a new language, his inability to respond positively to the diversity of behavior in cross-cultural circumstances, his insufficient knowledge of the other cultures can be regarded as in some way the shortcomings of this learning model.

Consequently, in this paper, we suggest that in French and German Language Teaching departments, content and language integrated learning model can be applied; as a source language, instead of Turkish, English, which has a lot of commonalities with the target languages, French and German, should be used by a teacher aware of the similarities to make a comparative teaching, sources should be prepared in both English and the target language. If these conditions are implemented, a better teaching of these target languages is possible. Moreover, false friends should be taken into consideration and explained to the learners during teaching these languages.

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MULTIMEDIA SKILLS AND BASIC COMPETENCES IN SCIENCE AND TECHNOLOGY

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ABSTRACT

Key competences or generic competences are the competences developing by the individual thru the different methods of working manner. In the process of developing the generic competences in science and technology the role of many necessary skills should also be considered. We prepared the learning materials for physics presenting the light refraction effect. The goal was to achieve the student's understanding of the refraction stimulating his activity and skills. To acquire necessary data about the phenomena and perform the calculations not the knowledge alone but particular skills are also required. As necessary tool for acquiring the data is the digital camera. To experimentally verify the refraction law the student has to combine his knowledge about the refraction and his multimedia skills in using of digital camera. Many settings of digital camera parameters are required to make the refraction visible. The settings and controlling of the incoming light delivers the student an additional perspective and experience about the light and its characteristics.

INTRODUCTION

In the process of preparation and designing of the learning materials the term competences is considered in many ways. The term competence is often misunderstood or even misinterpreted regarding to the situation or area of application. In the management, jurisdiction or economy the term competence is usually used to describe the individual's responsibility or position in the hierarchy (Tomažič, 2002). In the pedagogical science and education the skills and knowledge are described as competences. In the Eurydice publication (EURYDICE, 2002) competences are classified as key competences and generic competences. The key competences are described as necessity, enabling the individuals reasonable, responsible and successful living (European Union, 2006). As generic competences the competences developed by individuals approach and working manner are described (EURYDICE, 2002).
Generally speaking the competences can be defined as a combination of knowledge, understanding, skills, capabilities and values (Gonzales & Wagenaar, 2005). In the further text the term competences as synonym for key and generic competences will be used.
From the sight of the modern education the mentioned definition of competences is very appropriate and commonly adopted, regarding to the individual's personality and efforts. According to the educational interpretation of competences emphasizing the student's level of knowledge the project "Development of Natural Science Competences" was started. The project's goal is to research the new pedagogical approaches to achieve better understanding and higher level of knowledge in the area of natural sciences (University of Maribor, Faculty of Natural Sciences and Mathematics, 2008). Under the pedagogical approach the development of modern learning materials is considered. The learning materials and the teacher itself are the appropriate "tool" to achieve the goal of uprising the competences in the natural science.
We started to prepare the learning material for the physics. The main idea was that the learning material should be the experiment comprehending student's activity and the application of the digital camera as the multimedia tool. The digital camera was intended as the documentation tool and data acquisition support. In the process of preparing the learning material we have to deal with some unforeseen problems which were successfully solved. By solving the problem some new conclusions and influences were found.

In testing the learning material we noticed that during the learning process some additional skills and knowledge are gained. To describe the additional knowledge the term collateral knowledge will be introduced. We found the expression collateral very appropriate as the knowledge is gained independent from the original learning theme.
In the present case the law of refraction is introduced to the student. To perform the experiment some additional skill and knowledge were required. The basic subject of the learning theme is the refraction. During performing the steps in the learning material many new characteristics of the light were realized and consecutively new knowledge was gained. Some examples in gaining additional skills and knowledge will be described.

PERFORMING THE EXPERIMENT

To reach the expected level of competences the student has to engage some other not yet gained or formerly gained skills. Actually the skills may be considered as the competences but not precisely. The skills are more likely a kind of tool to reach or achieve certain level of competences. The skills applied in the process of learning about the new facts (more often described as developing of the competences), may support achieving some additional knowledge accompanied with the basic problem.
The learning material about the law of refraction (Shell's law, Descartes' law) may be the good example of how applying some skill brings student to understand additional facts about the behavior of the light (see Figure 1)..

Visualization of the refraction

In the present physics learning material for presenting the light refraction, the source of light is required. To study the refraction by entering the light into certain media only the beam of light is suitable. Normally the white light is invisible and also the beam. To make the beam of light visible the light should be colored and guided thru the set of lenses what makes presentation complicated and expensive. In this case the student's experimental work may become unpractical or impossible.
The physical nature of the laser light (laser) is very comfortable solution to substitute the white light. It is colored and therefore visible. The laser also not dissipates on certain distances. To produce the laser beam many types of laser beamers available. Mainly for fun or some are used by the teaching staff as laser pointers. They are cheap, easy to handle, safe to the student due to their low emitting power and therefore very practical solution (see Figure 1).

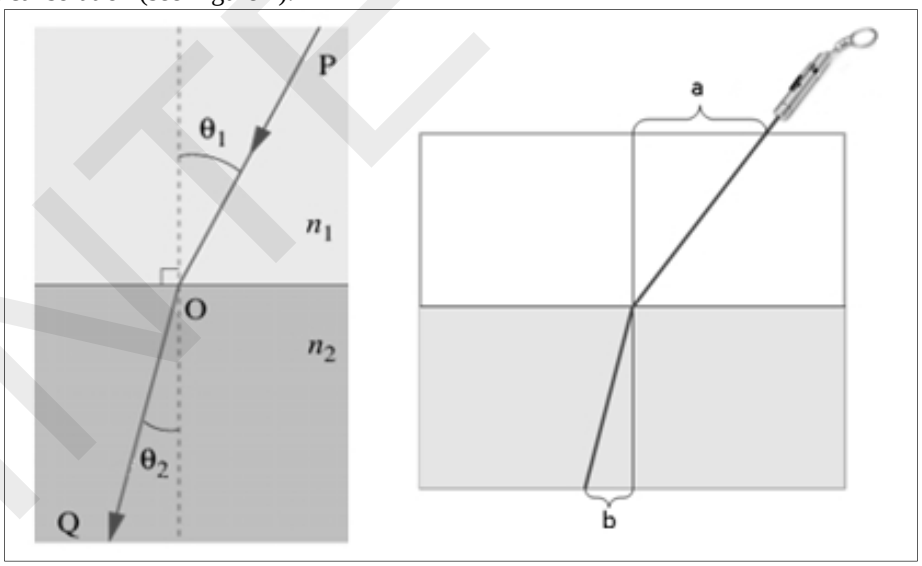


Figure 1: Refraction scheme and visualization of the refraction (Krašna & Bratina, 2010)

As simple as the decision to demonstrate the light refraction effect by implementing the laser beam may look like, some unexpected problems arise. The main problem we found out was the visibility of the laser beam penetrating the water, due to transparent container and backlight. The beam itself as the refraction effect was hard to be neither seen from the near distance nor captured by the digital camera. Putting the sheet of white paper behind the containers wall did not bring much improvement. The reason is in the penetration of the laser beam which always happens inside of the container but not at the container walls.

The laser beams low glare is the second reason of improper visibility.Next we put the sheet of paper direct into the container and guided the laser beam in the vicinity of the sheet. Now the beam and the refraction effect were easier to be recognized but still not intensive enough to be captured by the digital camera. The digital camera (camera) was intended to be used as documentation tool for future measurement of the refraction angles.
The logical solution of making the beam and refraction visible was to reduce the surrounding light intensity. This brought the perfect look to the laser beam and the refraction effect but caused the low light conditions for capturing..
As the camera was intended to be used as documentation tool, the student will realize the necessity of setting up the camera. To set up the camera correctly the skill of finding the information from the other sources (i.e. the manuals) and transfer the gained information into practice is required.

The light and creating the image

The appropriate settings are not the matter of only few steps. The adequate amount of light has to be anticipated to acquire the reasonable image. To perform this operation correctly, some additional knowledge or understating how the amount of the entering light influences the resulting image are necessary. The student becomes familiar with the functionality of the camera sensor and understands the linkage between the amount of light entering the lens and to the sensor and the quality of the image.In this part of learning process the recognition of the meaning of the light amount in capturing the image can be considered as additional or more exactly collateral knowledge.
The studying the manual and selecting only the necessary information, is the upgrade of the skills in collecting the information from different sources. The result of the applied skills and the gained collateral knowledge is the ability to set up the camera to operate in the low light conditions skill.

The consequences of low light conditions

The low light conditions consequently cause the automatic triggering of the flash light. According to the visualization requirements, the amount of light provided by the flash light is inacceptable. The solution is to temporary disable the function of automatic flash light triggering which is normally possible in every of the camera modes.
The skill of detecting the problem and the ability to disable the flash light is another learning theme independent or collateral gained skill. The student also gains the knowledge about the conditions under capturing images without the flash light is necessary. This may also be considered as or collaterally gained knowledge.

Capturing image in low light conditions

All of the problems in capturing the low intensity laser beams refraction effect are still not solved completely. The problem is the procedure of capturing the image itself. The low light conditions and disabling the flash light are responsible for the long exposure.
Long exposure makes impossible to capture images directly from the hand due to undesired hand shaking of the person capturing the image. The clarity of the image is affected and the stabilizing of the camera becomes necessary.
The easiest way to stabilize the camera is to fix the camera onto tripod. But despite of the tripod fixation just simple pressing the camera's shutter button immediately produces slight camera movements. This distorts the image clarity and sharpness. To avoid this issue the usage of self triggering is the reasonable solution.
To use the self trigger the student primarily has to understand the reasons of the triggers application. He also gains the knowledge about the consequences of the long exposures and undesired movements. The student realizes that longer exposure is in direct connection to the amount of the incoming light. The gained knowledge can be considered as collateral knowledge about the light behavior and its role in acquiring the image.
To enable the self trigger the student has to find the information from the other sources (i.e. the manuals). The skill of getting the information and transfer it into practice is gained in this phase of learning process.
By setting up the desired triggering delay the skills in experimenting (i.e. the different settings) is also stimulated. Normally the delay of 2 seconds may be convenient enough but the 10 second delay is more appropriate in this case. Because walking away and setting the camera to the adequate position produces some water movements in the container. After the 10 seconds the water movements normally ceased.

Defining the correct settings considering the present conditions is in function of developing the student's skill in using of cameras advanced settings. The skill of adaptation to the different situation is also stimulated.

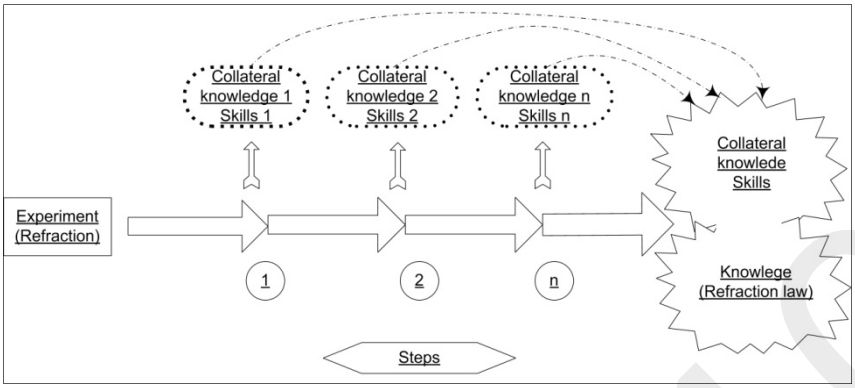


Figure 2: Gaining collateral knowledge thru the experiment

RESULTS

In presented learning material the law of refraction the refraction effect is presented to the student. Thru his activity and the usage of the multimedia tools, the student engages his formerly gained skills into performing of the experiment. Consequently the student gains additional skills in using digital camera and collateral knowledge about the behavior of the light (see Figure 2). The effects of the light behavior are simultaneously verified thru the effects onto captured image.

To make the laser beam and the refraction effect visible, the amount of surrounding light must be reduced. This caused the low light conditions. Using camera in low light conditions is a new skill gained during this step. The understanding the functionality of the sensor, discovering the linkage between the amount of light and the quality of the image is considered as collateral knowledge.

The low light conditions consequently cause the automatic triggering of the flash light. In this step the student gains new skill in detecting the problem of low light conditions and how to disable the flash light. The gained knowledge about the conditions in where capturing images without the flash light is necessary, is considered as the collateral knowledge.

Despite the stabilized camera the distortion of the image caused by pressing the shutter button may occur. Using the self trigger prevents this issue. The student can understand the reasons of distortion and gain the knowledge about the consequences of long exposures and effects of undesired movements. The gained knowledge can be considered as collateral knowledge. To set up the desired triggering delay the skills in experimenting are necessary too.

CONCLUSIONS

The expectations in the preparation of the learning materials are always the enhancements of already developed competences or development of new competences. Despite of whether the key competences or generic competences the expectations are the same. The process of the competence development is in tight connection to the individual's skill and working manner (Bratina, 2009).

In the process of preparation of the learning materials not only competences are considered but some student's skills are also anticipated. Every learning material comprehends deliberate steps leading to the final goal, the knowledge. Every step has to be carefully planned by the teacher and passed by the student. The number of particular steps is in the teacher's domain regarding to his didactical skills. More than in other areas the learning materials in teaching the natural sciences, exactly the physics, are very different. To achieve the expected level of knowledge and competences the learning steps are carefully planned in anticipating the student's activity. As the physics teaching most important part is the experiment, the student activity is essential. The activity itself supports the development of student's skills and gaining the collateral knowledge. This process is more emphasized in learning materials including or supported by multimedia tools.

Through the preparation process of the learning materials desired to develop the specific and key competences, the anticipation of possible gaining of learning theme independent additional skills and knowledge is necessary. Especially in preparing the learning material where activity in form of experimental work is required.

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MUTLAK DEĞER KONUSUNDA YAPILAN KAVRAM YANILGILARI

MISCONCEPTIONS IN ABSOLUTE VALUE PROBLEMS

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ABSTRACT

The objective of this study to create informative resources for Secondary Education Instructors about common misconception exhibited by secondary education students' finding absolute value questions. Participants were public school students in Istanbul, Turkey. Various questions about absolute value have been asked to all participants. They have responded in a written form. The researchers jointly analyze the data based on the responses of students. Misconceptions fall into several main categories for each question. As mathematics educator we need to increase the quality of mathematics education. At this purpose we have to analyze the problematic areas in the teaching and learning of mathematics just like misconceptions in mathematics.

ÖZET

Bu çalışmanın amacı, öğrencilerin mutlak değer ile ilgili sorularında sergilemiş oldukları kavram yanılgılarını ortaya çıkartarak özellikle ortaöğretim öğretmenlerine bir kaynak oluşturmaktır. Bu çalışmadaki veriler, İstanbul'daki bir devlet okulunda 12.sınıf öğrencilerinden toplanmıştır. Araştırmacılar öğrencilerin mutlak değer konusundaki bilgilerini ölçmek amacıyla, haber verilmeden sorulan soruları birlikte analiz etmiş, her soru için kavram yanılgılarını kendi içerisinde birkaç kategoriye almışlardır. Bu soruların sorulmasındaki amaç mutlak değer konusuna ne kadar hâkim olduklarını ve mutlak değerle ilgili soruları çözerken yaptıkları kavram yanılgılarını incelemektir. Soruların çözümleri incelenirken, öğrencilerin gerek işlemsel gerek kavramsal yanılgıları gözlemlendi. Matematik eğitiminin kalitesini arttırmak matematik eğitimcilerinin esas amacıdır. Bu amacı gerçekleştirmek için matematik öğretimi ve öğrenimindeki problemlerin analiz edilmesi gerekir. Matematikteki kavram yanılgıları da bu problemlerden sadece bir tanesidir.

GİRİŞ

Kavram yanılgısı bireyin doğru olarak kabul edip birçok beceriyi sergilemede kaynak olarak kullandığı yanlış kavramlar ya da kavramlamalardır. Kavram yanılgıları rastgele yapılan hatalardan farklı özellikler gösterir. Kişi yaptığı hatayı ufak bir uyarı ile farkedebilir ve düzeltebilir. Ancak belirli bir kavram yanılgısına sahip birey bu sebepten dolayı hata yaptığı zaman ve birisi tarafından uyarıldığı zaman once kendini savunmaya geçer (Akt.Cankoy, 2000).

Yenilmez ve Avcu (2009), ortaöğretimde matematik derslerinin anlaşılması en zor konularından biri olan mutlak değer konusunun kavramla ilk karşılaşılan dönem olan ilköğretim yıllarında problem yaratmaya başladığını, temelde eksik olan bilgiler ve kavram yanılgılarının ortaöğretime geçince bu konuyla ilgili önyargıya dönüşmekte ve başarı oranını olumsuz yönde etkilediğini ortaya koymuşlardır. Mutlak değer konusu öğrencilerin ortaöğretimde ilk olarak karşılaştıkları önemli ve zor konulardan biridir. Matematik konularının çoğu için öğrenilmesi ve iyi bir şekilde kavranılması gereken bir ön bilgidir. Şandır, Ubuz ve Argün'ün (2002) Ankara'daki bir lisenin 9. sınıfında okuyan 67 öğrenci üzerinde yaptıkları çalışmada öğrencilerin mutlak değer kavramındaki performansları ve kavramsal yanılgıları incelenmiş araştırma sonucunda mutlak değer konusundaki kavramsal sorularda işlemsel sorulara oranla performansın daha düşük olduğu görülmüştür. Ayrıca ortaya çıkan kavramsal yanılgıların en önemli nedenlerinin mutlak değerin tanımının ve geometrik yorumunun anlaşılmaması olduğu görülmüştür. Buradan hareketle bu çalışmalara ilave olacak şekilde çalışmanın amacı, öğrencilerin mutlak değer konusuna ne kadar hâkim olduklarını ve mutlak değerle ilgili soruları çözerken yaptıkları kavram yanılgılarını incelemek ve ortaöğretim öğretmenlerine bir kaynak oluşturmaktır.

METOD VE YÖNTEM

Soruların cevaplanması için 100 kişilik bir çalışma evreni oluşturulmuştur. Çalışma evreni İstanbul'da üniversite sınavına hazırlanan devlet okulu lise öğrencilerinden oluşmaktadır. Bu 100 kişilik gruba mutlak değer konusundaki bilgilerini ölçmek amacıyla, önceden haber verilmeden 5 tane soru sorulmuştur. Soruların çözümleri incelenirken, öğrencilerin gerek işlemsel gerek kavramsal yanılgıları gözlemlenmiştir.

BULGULAR

Bu çalışmada sorulan soruların değerlendirilmesi her soru için oluşturulmuş kriterlere göre verilmektedir. Öğrencilerin yanıtları detaylı olarak incelenmiş ve sahip olunan hatalar ve kavram yanılgıları her bir soru için ayrı ayrı kategorilerde irdelenmiştir.

Soru1: *| x | - 1 = | x - 1| çözüm kümesini bulunuz.*
Yukarıdaki soruda öğrenciler tarafından verilen çok farklı cevaplarla karşılaşıldı. Hatta kimisinin kendi formülünü ürettiğine bile rastlandı. Ancak verilen cevaplardaki yanılgılar incelediğinde genel anlamda yanılgılar 4 farklı kategori içerisinde toplandı.
1.Kategori : Bu kategori içerisinde yer alan öğrenciler mutlak değerin tanımından yola çıkarak çözüm yapmaya çalışmıştır. Mutlak değer içerisindeki ifadeleri, herhangi bir ifade mutlak değer dışına her zaman bir artılı bir eksili çıkar mantığıyla hareket ederek; mutlak değer dışına sıfırdan büyük (x >0 ve x-1 >0) ve sıfırdan küçük olarak (x <0 ve x-1 <0) çıkartmıştır. Fakat bu çözümü yaparken kritik noktalara (x = 0 ve x-1 = 0) göre çözüm yapmamıştır. Böyle bir çözüm yolunun izlenmesi de öğrencilerin yanılgıya düştüklerini göstermektedir.
2. Kategori : Bu kategoride ise öğrenciler kritik noktalara göre çözüm yapmak isterken sadece x=1 kritik noktasına göre çözüm yapıp, diğer kritik noktayı göz ardı ediyorlar. Mutlak değerin tanımından x<1 ve x>1 incelemesi yapıyor ve bunun sonucunda x – 1 = x – 1 ise x > 0 ve x – 1 = –x + 1 olduğunda ise x < 0 olarak irdeliyorlar. Fakat x = 0 kritik noktasına göre incelemediği için ciddi bir kavram yanılgısına düşüyorlar. Mutlak değerin tanımından her iki kritik noktaya göre de inceleme yapması gerekmektedir.
3. Kategori : Buradaki öğrenciler mutlak değerin tanımından yola çıkarak mutlak değer içerisindeki x – 1> 0 ifadesini pozitif olarak düşünerek ve pozitif ifadeler mutlak değer dışına aynen çıkar mantığıyla hareket edip (+) ile çarparak mutlak değerin dışına çıkartıyorlar. x – 1= x – 1 ile çözüm kümesini tüm reel sayılar olarak elde ediyorlar.
4. Kategori : Dördüncü kategoride yer alan öğrenciler mutlak değerin tanımından yola çıkarak x> 1 kabul edip |x – 1| ifadesi x> 1 için pozitif olacağından |x – 1|= x – 1 şeklinde mutlak değerin dışına çıkartıyorlar. Daha sonra x<1 olarak kabul ederek mutlak değerin tanımı gereğince x<1 için |x – 1| ifadesi negatif olacağından eksi (–) ile çarparak |x – 1|= –x + 1 şeklinde mutlak değerin dışına çıkartıyorlar. Yine burada iki farklı kritik nokta incelemesi yapmaları gerekirken öğrenciler kritik noktalardan sadece birine yönelerek çözüme gitmeye çalışıyorlar.

Tablo 1: Soru 1 değerlendirilmesi

Soru numarası	Doğru soru sayısı	Boş soru sayısı	Kategori 1	Kategori 2	Kategori 3	Kategori 4	Kategori dışı	Toplam öğrenci sayısı
1	4	21	10	14	12	7	32	100

Soru 2 : *$a \leq | a | \leq a^2$ çözüm kümesini bulunuz .*
Yukarıdaki soru için verilen cevaplar değerlendirildiğinde çok çeşitli çözümler çıkmasına rağmen en genel yapılan yanılgılar 4 farklı kategori içerisinde toplanmıştır.
1.Kategori : Mutlak değerin tanımından; negatif bir sayının mutlak değeri daima kendisinden büyüktür. Öğrenciler negatif sayıların mutlak değeri kendisinden ($| a | \leq a$) ve kendisi de ve mutlak değerinden küçüktür ($a \leq a^2$) şeklinde kabul ederek çözüm yapmaktadırlar. Bu sonuç öğrencilerin mutlak değerin mantığını kavrayamadıklarından kavram yanılgısına düştüklerini göstermektedir.
2Kategori : Öğrenciler, mutlak değerin tanımından; mutlak değer içerisindeki ifade mutlak değer dışına her zaman pozitif çıkmalıdır ve pozitif çıkabilmesi için verilen ifadenin daima eksi (–) ile çarpılarak mutlak değer dışına çıkarılması gerekir şeklindeki düşünceleriyle ($a < - a$ ve $- a < a^2$) hareket etmişlerdir. Ancak burada yapılması gereken; ifadeyi mutlak değer dışına çıkarmaya çalışmak değil, verilen ifadenin mutlak değerin tanımında verilen bir özellik olduğu bilinerek buna göre yorumlamaktır.

Bu da öğrencilerin mutlak değer konusundaki özellikleri yorumlayamadıkları ve önlerine gelen her ifadeyi mutlak değer dışına çıkarmaya çalıştıklarını göstermektedir.

3.Kategori : 3.kategori içerisinde yer alan öğrenciler mutlak değerin tanımını kullanarak çözüme ulaşmaya çalışmaktadırlar. Mutlak değer içerisinde yer alan ifadeyi artı (+) ve eksi (–) ile çarparak mutlak değer dışına çıkarmaktadırlar. Çünkü öğrencinin mutlak değer konusunda zihninde yer eden en geçerli düşünce mutlak değer içindeki bir ifade mutlak değer dışına her zaman bir artılı bir de eksili çıkar düşüncesidir. Yani; $a \Rightarrow a \Rightarrow a^2$ ve $a \Rightarrow -a \Rightarrow a^2$ şeklinde bir çözüm yolu izlemektedir. $a \Rightarrow |a|$ olarak verilmesi $a < 0$ olması demektir. Öğrencilerin $|a|=a$ olarak mutlak değer dışına çıkartması ciddi bir yanılgı ortaya çıkartmaktadır.

4.Kategori : Öğrencilerin düşmüş oldukları yanılgı $|a|= a$ olarak mutlak değer dışına çıkartmaktır. Çünkü mutlak değerin tanımından $|a|= a$ ifadesinin mutlak değer dışına aynen çıkması; a'nın bize sıfırdan büyük olduğunu söyler. Mutlak değerin tanımından $a \Rightarrow |a|$ olması $a< 0$ olması demektir. Yapılan bu yanılgılar bize öğrencilerin mutlak değer konusuna tam anlamıyla hâkim olamadıklarını göstermektedir.

Tablo 2: Soru 2 değerlendirilmesi

Soru numarası	Doğru soru sayısı	Boş soru sayısı	Kategori 1	Kategori 2	Kategori 3	Kategori 4	Kategori dışı	Toplam öğrenci sayısı
2	6	35	9	7	6	6	31	100

Soru 3 *: $3^x = 40$ ise $|x-3|+|x-4|$ toplamının değerini bulunuz.*

Yukarıdaki soru için verilen cevaplardaki kavramsal yanılgılar üzerindeki çalışma 2 farklı kategoride toplanmıştır. Verilen cevap kağıtlarına göre ikiden daha fazla kategoride toplanması gerekirken iki ana kategori altında incelenmiştir.. Bunun nedeni olarak yapılan kavramsal yanılgılarının birbirine çok yakın olması ve tatmin edici 2 kategori olmasıdır.

1.Kategori: Bu soruyu yanıtlayan öğrenciler x'in $3 < x < 4$ aralığında olduğunu bulamadıkları için x'in tamsayı değerini bulmaya çalışmaktadırlar. Oysa ki $3^x = 40$ değerini sağlayan hiçbir tamsayı değeri yoktur. Bu kategoride yer alan öğrenciler x'in değer aralığını yorumlayamadıklarından dolayı yanılgıya düşmektedirler. x'in değerini tamsayı olarak kabul edip buna göre çözüm yapmaları çok ciddi bir kavram yanılgısını ortaya çıkarmaktadır ve öğrenciler sorunun çözümünde yetersiz kalmışlardır.

2.Kategori : Bu kategori içersinde ye alan öğrenciler $|x-3|+|x-4|$ mutlak değer toplamında x yerine x=3 yazarak çözüme ulaşmaya çalışmaktadır. x=3 için $|3-3|+|3-4|= 0 + |-1| = 1$ olarak elde ediliyor. Burada x yerine 3 yazmalarının nedeni $3^x = 40$ ifadesinin $3^3 = 27$'ye $3^4 = 81$ ten daha yakın olmasıdır.

Tablo 3: Soru 3 değerlendirilmesi

Soru numarası	Doğru soru sayısı	Boş soru sayısı	Kategori 1	Kategori 2	Kategori dışı	Toplam öğrenci sayısı
3	30	32	12	8	18	100

Soru 4 : *$y = |x-2| – |x + 5|$ ise y kaç farklı tamsayı değeri alır?*

Yukarıdaki soru için verilen cevaplardaki kavram yanılgıları üzerinden çalışmalar 3 kategoride toplanmıştır. Aslında cevap kağıtlarına görülen yanılgı sayısı üçten fazlaydı. Fakat en genel anlamda tatmin edici kriter 3'ü geçmemiştir.

1.Kategori : Bu kategori içerisindeki öğrenciler mutlak değerin tanımından kritik nokta incelemesi yapmaktadır. Fakat kritik nokta incelemesi yapmakla doğru bir çözüm yolu izlerken çözümde kavram yanılgısına düşmektedirler. Bunun nedeni; $|x-2| – |x + 5|$ ifadesinde $x-2=0$ ise $x=2$ ve $x + 5 =0$ ise $x =-5$ kritik noktalarını bulup $y =|x-2| – |x + 5|$ ifadesinde kritik noktaları x yerine yazarak x=2 ise y=7 ve x= -5 ise y= -7 olarak sadece 2 değer elde ediliyor. Fakat y'nin 2 den daha fazla alabileceği tamsayı değeri vardır. Öğrencilerin bulmuş olduğu -7 ve 7 değerleri y'nin alabileceği en küçük ve en büyük değerlerdir. Öğrenciler, en büyük değer ile en küçük değeri çözüm kabul edip bunların arasındaki her x reel sayısı için oluşan y'nin 13 farklı tamsayı değerini göz ardı etmektedir.

2.Kategori : İkinci kategori içerisinde yer alan öğrenciler mutlak değerin tanımından faydalanmıştır. Öğrenciler mutlak değerin tanımından, mutlak değer içerisindeki ifadeyi artı ile çarparak $y = x– 2 – x– 5$ ise y= – 7 ve yine ifadeyi eksi ile çarparak mutlak değerin dışına çıkartmıştır. $y = – x +2 + x +5$ ise y= 7 olarak çözüm yapmıştır. Öğrencilerin kritik nokta incelemesi yapmadan

ifadeyi artı ve eksi ile çarparak çıkardıkları görülmüştür. Öğrenciler bunu yaparken mutlak değerin tanımından yararlanmaya çalışıp, verilen ifade mutlak değer dışına bir artılı bir de eksili çıkar düşüncesiyle hareket ettikleri için ciddi bir kavram yanılgısı yapmaktadırlar.
3.Kategori **:** Bu kategori içerisindeki öğrenciler $y = |x-2| - |x+5|$ ifadesinde kritik noktaları bulup buna göre çözüm yapmışlardır. Kritik noktaları $x = 2$ ve $x = -5$ olarak bularak $-5 < y < 2$ aralığındaki tamsayı değerlerini çözüm olarak kabul edip kavram yanılgısına düşmektedirler. Burada öğrencinin bulmuş olduğu çözüm y'nin değil x'in deger aralığıdır.

Tablo 4: Soru 4 değerlendirilmesi

Soru numarası	Doğru soru sayısı	Boş soru sayısı	Kategori 1	Kategori 2	Kategori 3	Kategori dışı	Toplam öğrenci sayısı
4	5	31	14	21	9	20	100

Soru 5 : *$y < x < 0 < z$* $\sqrt[4]{(x-z)^4} + \sqrt[3]{(y-z)^3} + \sqrt[2]{(x-y)^2} + \sqrt[2]{(-x)^2} + \sqrt[12]{y^{12}}$ *işleminin değeri nedir ?*
Yukarıdaki soru için yapılan kavram yanılgıları genel olarak 4 farklı kategoride toplanmıştır. Aslında yapılan yanılgı sayısı çok daha fazla olmasına rağmen tatmin edici kategori sayısı 4'ü geçmemiştir.
1.Kategori: Bu kategori içerisindeki öğrenciler derecesi çift sayı olan köklü ifadeleri mutlak değer içinde, tek dereceye sahip köklü ifadeleri de aynen olduğu gibi çıkarmaları gerekirken, derecelerin çift ya da tek sayı olduğuna bakmaksızın tümünü mutlak değer içinde çıkarmışlardır. Burada öğrencilerin tek dereceli ve çift dereceli köklü ifadelerde, ifadeyi kök dışına çıkartırken mutlak değeri kullanmada yetersiz kaldıkları anlaşılmaktadır. Bunlara ek olarak öğrenciler kök dışına çıkardıkları mutlak değer içindeki ifadeleri, mutlak değer dışına çıkartırken yaptıkları yorumlarda yanılgıya düştükleri görülmüştür.
*2. Kategori: Ö*ğrenciler verilen ifadedeki köklerin derecelerini dikkate almayıp, kök içindeki ifadeleri olduğu gibi dışarıya çıkarmışlardır. Burada öğrenci verilen ifadedeki üslerle köklerin dereceleri eşit olduğundan bunları sadeleştirmiş ve hiç mutlak değeri düşünmeden olduğu gibi kök dışına çıkarmıştır. Bu durum bize öğrencilerin çift dereceli köklü ifadelerin kök dışına her zaman pozitif çıkması gerektiğini ve bunun için de ifadenin mutlak değer içinde çıkması gerektiği konusunda yanılgıya düştüğünü gösterir.
*3.Kategori: Ö*ğrenciler, verilen $x<0$ için $|-x|$ ifadesini x olarak mutlak değer dışına çıkarmışlardır. Burada yapılması gereken; $x<0$ olduğundan $-x$ ifadesi pozitiftir ve bu yüzden $|-x|=-x$ şeklinde mutlak değer dışına çıkmalıdır. Ancak öğrenciler $|-x|$ ifadesini gördüklerinde $x<0$ olduğunu göz ardı edip x'i pozitif gibi düşünerek, önündeki eksiden dolayı $-x$ ifadesini negatif gibi düşünmüş ve hiçbir sayı mutlak değer dışına negatif çıkamaz mantığıyla eksi ile çarparak $|-x|=x$ şeklinde çözüm yapmışlardır.

Tablo 5: Soru 5 değerlendirilmesi

Soru numarası	Doğru soru sayısı	Boş soru sayısı	Kategori 1	Kategori 2	Kategori 3	Kategori dışı	Toplam öğrenci sayısı
5	13	31	11	10	9	26	100

SONUÇLAR

Önceden haber verilmeden, bildikleri varsayılarak 100 öğrenciye mutlak değer konusuyla ilgili 5 tane soru sorulmuştur. Amaç, öğrencilerin bu konuda yaptıkları kavramsal yanılgıları belirlemektir. Her bir öğrencinin her soru için yaptıkları çözümler tek tek incelenmiştir.Soruların mutlak değerin kuralları ile çözülmesi istenilmesine rağmen öğrencilerin çoğu farklı yöntemler kullanıp doğru ya da yanlış bir sonuca ulaşmışlardır. Yani öğrenciler problemi çözmeye başlamadan önce, problemin ne ifade ettiğini anlamaya çalışmadan doğrudan çözüme başlamışlardır. Bu da yanılgıya düşmelerine neden olmaktadır. Bu çalışmanın sonunda şu husular dikkat çekicidir:

- Öğrenciler mutlak değer içindeki bir ifadeyi mutlak değer dışına çıkarmada sıkıntı yaşamaktadırlar.
- Öğrenciler soru içerisinde verilen birden fazla olan kritik noktaların hepsini değil sadece birini inceliyor.
- Mutlak değerin özelliklerine tam olarak hâkim değiller.
- Mutlak değer konusundaki özellikleri yorumlayamıyorlar ve önlerine gelen her ifadeyi mutlak değer dışına çıkarmaya çalışıyorlar.

- Öğrencilerin çoğu aralıkları göz önünde bulundurmadan mutlak değer içindeki ifadeleri mutlak değer dışına çıkarmaya çalışmaktadırlar.
- Öğrenciler çift ve tek dereceli köklü ifadelerde ifadenin kök dışına nasıl çıkacağını yorumlamakta sorun yaşıyorlar.

ÖNERİLER

Yapılan gözlemlerden öğrencilerin çoğunun ezber mantığıyla hareket ettiği ve konuya hâkimiyette sıkıntı yaşadıkları görülmektedir. Bu eksiklikleri gidermek için;

- Kavram yanılgısını ortadan kaldırmak öğretmenin temel görevi olmalıdır. Bunun için önce öğretmen kendi içindeki kavram yanılgılarından arınmalıdır. Öğrencilerini çok iyi etüt etmeli ve oluşan kavram yanılgılarını tespit etme yeteneğine sahip olmalıdır.
- Konu anlatımı sırasında öğrencilerin aktif katılımı sağlanmalıdır. Bu şekilde öğrencilerin kafalarında oluşan kavramsal yanılgılar daha kolay görülüp giderilebilir.
- Günümüzde konular daha çok üniversite sınavına hazırlama amaçlı anlatılmaktadır. Bu anlayış ortadan kaldırılıp matematik eğitimi daha anlamlı hale getirilmelidir.
- Konu mantığı anlaşıldıktan sonra, öğrencilere konu ile ilgili ödevler verilmeli ve soruları çözmek öğrenciler için sıradan bir alışkanlık haline getirilmelidir.
- Öğrencilerin en çok ders çalıştıkları kaynaklar olan ders kitapları kavram yanılgılarını ortaya çıkarıcı biçimde yeniden düzenlenmelidir.

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MÜZE EĞİTİMİ BAĞLAMINDA ÇOCUK MÜZELERİ

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ÖZET

Yaratıcılık, mücadele etmek, soru sormak, sorgulamak ve keşfetmek için gerekli olan içgörüdür. Risk almayı, düşüncelerle oynamayı, düşünce geliştirmeyi, açık fikirli olmayı ve olaylar arasında bağ kurmayı gerektirir. Yaratıcı düşünme bir beceridir. Yaratıcı düşünmeyi geliştirmek için duyuların, duyumların, duyguların eğitimine gereksinim vardır. Yaratıcı olabilmek için yapmak ve yaşamak gerekir. Yaparak yaşayarak kalıcı ve yaratıcı öğrenmenin gerçekleşmesinde ortamın da önemli bir rolü vardır. Yaparak, yaşayarak ve düşünerek hayatı öğrenmeye olanak sağlayan öğrenme ortamlarından biri de müze ortamlarıdır. Toplumun ve toplumsal gelişimin hizmetinde, halka açık, insana ve yaşadığı çevreye tanıklık eden materyaller üzerinde araştırma yapan ve sunduğu eğitim olanaklarıyla halkın estetik zevkiyle bilgi düzeyini ve yaratıcılığını artırmayı amaçlayan müzeler, 21. yüzyılda eğitim ve iletişime olağan işlevlerden daha fazla önem verilmektedir. Günümüz müzelerinin eğitim amacıyla kullanımı kapsamında yaratıcılık eğitiminin ön plana çıktığı gözlenmektedir. Müzede yaratıcılık eğitiminde, zaman ve mekan içinde kendini ve insanları anlama, kültürel mirası devam ettirme, geçmişi, bugün ve geleceği anlamlı bir biçimde ilişkilendirme, koruma ve yaşatma, kendi kültürünü ve farklı kültürleri çok yönlü ve hoşgörülü bir yaklaşımla tanıma, kültürlerarası anlayış ve empati geliştirme hedeflenmektedir.

Etkin, yaratıcı ve çağdaş bireylerin yetiştirilmesine katkı sağlamak amacından yolan çıkan Çocuk Müzeleri de bu müze türlerinden biridir. New York Brooklyn'de açılan dünyanın ilk çocuk müzesi, yaparak ve yaşayarak öğrenmenin vücut bulduğu bu anlayışın 21. yüzyıla taşınmasında önemli bir rol oynamıştır. Günümüzde dünyanın pek çok ülkesinde etkileşimli ve yaratıcı sergiler tasarlayan çocuk müzeleri bulunmaktadır. Bu çalışmanın amacı, yaratıcılık eğitiminde önemli bir yeri olan çocuk müzelerini, çocukların bilim, sanat ve kültür alanlarında yaparak ve yaşayarak öğrenmelerini sağlayan sergiler, etkinlikler ve yaratıcılık olanakları açısından ele almaktır. Çalışmada dünyanın çeşitli ülkelerinden seçilen çocuk müzeleri ve Türkiye'de müze eğitim etkinlikleriyle dikkat çeken bazı müzeler, sergileri, atölye çalışmaları ve diğer eğitim etkinlikleri kapsamında incelenmiştir.

Anahtar Kelimeler: Müze, müze eğitimi, çocuk müzesi, müzede yaratıcılık eğitimi, etkileşim.

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EĞİTİM VE MÜZELER

20.Yüzyıl eğitim anlayışında yaratıcılık önemli bir rol oynamaktadır. Toplumların ve bireylerin olanı koruyan değil onu değiştiren, yenileyen doğrultuda eğitilmesi yaratıcı düşüncenin geliştirilmesiyle olanaklıdır.

"Yaratıcılık" sözcüğünün Latince'den geldiği; Latince "creare" sözcüğünün Batı dillerine "kreativitaer, creativity" olarak geçtiği kabul edilir. Bu sözcük doğurmak, yaratmak, meydana getirmek anlamlarında kullanılmaktadır. Yaratıcılığın tanımında bir şeyi oluşturmaktan söz edilmektedir. Yaratıcılık eski bilgi ve yaşantılara dayanarak yeni şeyler ortaya koyabilmektir. Genel anlamı ile yaratıcılık var olan kalıpları yıkmak, başkalarının yaşantılarına açık olmak, alışılmışın dışına çıkmak, bilinmeyene doğru bir adım atmak, belirli bir problem için değişik çözümler getirmek, yeni bir şey bulmak, yeni bir ilişki kurmak olarak tanımlanabilir. Yaratıcılığın pek çok tanımı yapılmıştır. Gartenhaus (2000:33-34)'a göre yaratıcılığın" alışkanlık ve kanaat işlevlerinin ötesinde, kişisel keşif, değişim ve yüksek düzeyde anlayışa götüren fikirleri ve olasılıkları oluşturma becerisi olduğu söylenebilir. San (1985: 11)'ın aktardığına göre sanatta yaratıcılık ise; "yepyeni ilişkilerin kurulması, yeni bireşimlere varılması, o zamana kadar bilinenden bilinmeyen yeni sonuçlar, yeni düşünceler, yeni yaşantılar ve ürünler ortaya koyma süreci" olarak tanımlanmaktadır.

Yaratıcı düşüncenin geliştirilmesi, yaratıcılığın biricik ve yaratım süreçleriyle örnek oluşturan kaynaklardan beslenmesini gerektirir. Yaratıcılığa eşlik ve hatta kaynaklık edecek ortamlardan biri de özgün koleksiyonlarıyla günümüz müzeleridir. Müzeler, toplumun hizmetinde, halka açık, insana ve yaşadığı çevreye tanıklık eden malzemeleri araştıran, toplayan, koruyan, bilgiyi paylaşan ve sonuçta inceleme, eğitim ve zevk alma doğrultusunda sergileyen, sürekliliği olan kurumlardır (Atagök: 2006:59). "Müze" kelimesi Yunanca'dan alınmış olup, bilimler tapınağı anlamına gelmektedir. Olympos'ta Mousalar'a ayrılan yerin adı "Mouseion"dur. Erhat (1996: 208) bu ada kaynaklık eden "Mousa" sözcüğünün "Yunancada akıl, düşünce, yaratıcılık gücü kavramlarını içeren "men" kökünden geldiğini belirtmektedir.

Doğa nesneleri ve sanat yapıtlarını saklama geleneği eskilere dayanmakla birlikte, müzecilik kavramı 18. Yüzyılda ortaya çıkmış ve 20. Yüzyılda müzecilik alanında kaydedilen gelişmeler konuya bilimsel olarak

yaklaşmayı gerekli hale getirerek, müzelere yüklenen anlamın değişmesi sonucunu doğurmuştur. Müzeler ilk kuruldukları yıllarda kültür değerlerini toplum yararına toplama, koruma, belgeleme, sergileme amacını ön planda tutarken; artık bu amaçlar toplumun eğitiminin geliştirilmesi, estetik beğeninin yerleşmesi yönünde gelişmektedir (Atagök 1999: 131; Çakır-İlhan, 2007:28). Müzecilik alanlarında kaydedilen gelişmeler sonucunda müzelere yüklenen anlamın değişmesi konusunda Hooper-Greenhill "…modern çağda müzeciliğin üç temel işlevinden söz edildiğini belirtmektedir: Korumak, araştırmak, iletişim kurmak" (Akt. Onur, 2003:8). Müzelerin var olan koleksiyonların anlamını topluma açma gerekliliği müzeleri, toplum ve insan olma bilincini ve yaratıcılığı yaygınlaştıran önemli bir eğitim kurumu haline getirmiştir.

Günümüzde müzeler eğitime daha sık yer vermeye başlamış, insanların serbest zamanlarını eğlenerek ve öğrenerek değerlendirmelerini sağlamış, müze nesnelerini dokunulabilir kılmış ve her yaş grubundan ziyaretçi için etkileşimli bir sosyal ortam yaratmayı başarmışlardır. Çağdaş müzeler koleksiyon içeriği ne olursa olsun nesnelerin bakım ve onarımını yapmak üzere konservatörlerle, sergi tasarımını yapabilmek için profesyonel küratörler ve sergi tasarımcılarıyla, eğitim etkinliklerini organize etmek için müze eğitimcileri ve pedagoglarla, koleksiyonlara ilişkin verilerin toplanması ve depolanması için bilgi işlem elemanlarıyla, müzeyi ve çalışmalarını tanıtarak pazarlamasını yapacak pazarlama personelleriyle çalışmaya başlayan profesyonel kurumlardır.

18. ve 19. yüzyıl boyunca ve 20. yüzyılın ilk çeyreğinde açılan müzelerin çoğu disiplinler arası koleksiyonlar hazırlayan müzelerdir. 20. yüzyıllın ortasından itibaren ise, müzelerde hem koleksiyon bakımından hem de yönetsel bakımdan bazı değişiklikler meydana gelmiştir. İlk zamanlarda çoğunlukla arkeoloji, etnografya ve doğa tarihi ağırlıklı olan müzeler günümüzde yüzlerce türe ulaşmıştır. Müzeler hakkında yapılan sınıflandırma genellikle müzelerin koleksiyonlarına, hitap ettikleri kitlelere ve bağlı bulundukları yönetim birimlerine göre ortaya çıkmıştır. Milletlerarası Müzeler Komitesi (ICOM) de gerek koleksiyonları ve hitap ettikleri kitle ve gerekse bağlı oldukları birimlere dayanarak müzeleri çeşitli gruplara ayırmıştır. Genel Müzeler, Sanat Tarihi Müzeleri, Sanat Müzeleri, Doğa Tarihi ve Doğa Bilimleri Müzeleri, Arkeoloji ve Tarih Müzeleri, Etnografya ve Folklor Müzeleri, Bölge Müzeleri, Bilim ve Fen Müzeleri, İhtisas Müzeleri ve Üniversite Müzeleri ICOM'un koleksiyon içeriğine ve bağlı olduğu birimlere göre saptamış olduğu müze türleridir. Günümüzde bazı müzeler hedef kitlelerine göre koleksiyon belirlemekte ve programlar hazırlamaktadır. Örneğin, kimi müzeler çocukları, belli alanlarda uzmanlaşmış kişileri, üniversite öğrencilerini ya da toplumun belli kesimlerinden insanları müze izleyicisi olarak hedef alabilmekte, onları belli konularda donanımlı hale getirmek amacıyla programlar tasarlamaktadır. Dolayısıyla çalışılmak istenen hedef kitle ile vurgulanmak istenen konu ya da tema arasında kolaylıkla yakın ve anlamlı bir ilişki kurulabilmektedir. Uzmanlık müzelerine örnek gösterebileceğimiz çocuk müzeleri; geleneksel müzeciliğin ilke edindiği koleksiyon oluşturma, koruma, belgeleme, sergileme ve eğitim amaçlarına paralel olarak, çocukların gelişimini temel alan, öğrenmeye öncelik tanıyan, çocukların öncelikle yaşadıkları çevreye, daha sonra bir parçası oldukları dünyada olup bitene tanıklık etmelerini sağlayacak bilgi ve materyalleri araştıran, bu materyalleri inceleyen, depolayan ve bunları yalnızca çocukların değil gençlerin ve yetişkinlerin de eğitimi amacıyla sergileyerek ve bu sergilerle ilgili etkinlikler oluşturarak ziyaretçileri ile paylaşan, kâr düşüncesinden bağımsız ve sürekliliği olan kuruluşlardır (Çocuk Müzeleri Birliği [ACM], 2008).

Çocuk müzeleri; çocukların çocukluklarını doyasıya yaşayarak ve bulundukları mekan içerisinde kendilerini baskı altında hissetmeden hareket edebildikleri yaşam boyu eğitim müzeleridir. Çocuk müzeleri, yalnız çocukları değil, farklı kültürel ve sosyal alt yapıdan gelen aileleri de buluşturan popüler eğitim merkezleridir. Bu müzeler, çocukların ilgilerini çekecek sergiler ve eğitim programları hazırlayarak onların sanata, bilim ve teknolojiye ilgi göstermelerini, farklı alanlarda yaratıcılıklarını geliştirmelerini amaçlamaktadırlar. Öğrenme motivasyonunu artıran, ziyaretçisini somuttan soyuta doğru yolculuğa çıkaran, ona seçimler yaptıran ve farklı disiplinlerden deneyimler sunan öğrenme merkezleri olan bu müzeler, Hooper-Greenhill'ın da (1996) vurguladığı gibi, çağdaş öğrenme yöntemlerini uygulayan sonucu değil, sonuca götüren becerileri, etkinlikleri, deneyimi, yaratıcı potansiyeli vurgulayan müzelerdir. Çocuk müzelerinin eğitim etkinlikleri çağdaş eğitimin vurguladığı üzere, keşfedici ve yaşantısaldır. Çağdaş eğitimin kişiliği geliştirici, kuralları sorgulayıcı, öğrencinin derse katılımını isteklendirici, ezber yerine anahtar kavramları öğretici ve öğrenme sürecinde öğrenciye etkin bir rol kazandırıcı özellikleri, çocuk müzelerinin de çocuklara kazandırmaya çalıştığı niteliklerle örtüşmektedir. Yaratıcı potansiyeli vurgulayan, öğrenme sürecini eğlenceli ve keşfedici kılan, çağdaş öğrenme yöntemlerini de bu sürece katan müzeler çocuk müzeleridir ve bu müzeler hedef kitlelerini seçerken yaratıcı potansiyelinin farkına varmaya başlayan ve keşfetme isteği ile dolu olan çocukları ilk sıraya alırlar.

YARATICILIK EĞİTİMİ VE ÇOCUK MÜZELERİ

Kuruldukları andan itibaren müzeler ile yaratıcı düşünce arasında çeşitli bağlar kurulmuştur. Yaratıcılık kavramını irdeleyen May, "karşılaşma" kavramı üzerinde durmaktadır. "Yaratıcı" edimde manzarayla, ortamla, malzemeyle bir karşılaşma anı gerçekleşir, sonra yoğunlaşma ve bağlanma oluşur. Yoğunluğunun karşılaşmayla ilişkisi nesnel biçimde olmalıdır…" diyen May (2001: 69), "karşılaşma"nın daha çok nesnel dünyayla gerçek bir ilişkiyi temsil ettiğini vurgulamaktadır (Akt: Afacan, 2008:10). Görsel olanakları ve nesneleri ile bir "karşılaşma" ortamı sunan müzeler, ortamıyla olduğu gibi nesnesiyle de "sahici bir deneyime olanak sağlayan"

özelliklere sahiptir (Huyssen, 2006: 290). Müzede herhangi bir eseri görmek bile insanda güzel, estetik ve mükemmellik gibi duyguları uyandırmak için yeterli olabilmektedir.

Yaratıcılık özgür bir ortamda gelişir. Bireylerin özgür olduğu, rastlantısal güzelliklerin anında değerlendirildiği bir ortamda yaratıcılığın gerçekleşmesi beklenir (Kırışoğlu, 2002:6). Müzeler öncelikle sanat eğitiminde bu tür davranışa en çok olanak veren ortamlar olarak karşımıza çıkmaktadır. Yaratıcı düşüncenin gelişebilmesi için katılımcı, etkileşimli ve paylaşımcı bir ortama ihtiyaç vardır. Eğitimde müzeleri bir kaynak olarak kullanmanın genelde tüm derslerde, özelde sanatlar eğitiminde önemli kazanımlar sağladığı bilinmektedir. Bu kazanımlar sanatsal gelişim sürecinde bireyin yaratıcılığını geliştirmesi, düş gücünü uyarması, bireysel ilgileri cesaretlendirmesi, düşüncenin daha rahat ifade edilmesini sağlaması açısından, zihinsel ve bedensel çeşitli açılardan yaklaşılabilecek nesneler sunmaktır (Gartenhaus, 2000:33-34). Dünyanın en ünlü sanat müzelerinden biri olan Metropolitan Sanat Müzesi'nin kendi koleksiyonuyla bağlantılı sergiler, atölye çalışmaları ve eğitim etkinlikleri hazırlayan bir müze eğitim birimi bulunmaktadır. İlköğretim, lise ve üniversite öğrencileri için eğitim etkinlikleri hazırlayan müze eğitim birimi, okulöncesi dönem çocukları için de özel programlar geliştirmekte, yetişkinler için çeşitli sanat kursları düzenlemekte; internet aracılığıyla çevrimiçi eğitim etkinlikleri hazırlayarak dünyanın dört bir köşesinden sanatseverlere ulaşmaktadır. Yine dünyanın önemli sanat müzelerinden biri olan Philedelphia Sanat Müzesi'nin öğrenciler, eğitimciler ve yetişkinler (araştırmacılar, sanatçılar ve aileler) için koleksiyon bağlantılı eğitim etkinlikleri planladığı gözlemlenmektedir. Londra Ulusal Galeri de koleksiyonlarıyla bağlantılı ve öğretim programları ile bağlantılı düzenli eğitim etkinlikleri tasarlamaktadır.

Yaratıcılıkla özdeşleşen sanat müzelerinin yanı sıra farklı içerikte koleksiyonlara sahip günümüz müzelerinin hemen hepsinde eğitim etkinliklerinin ön planda olduğu göze çarpmaktadır. Louvre Müzesi, Fransız eğitim programları ile bağlantılı olarak hazırladığı eğitim etkinliklerini eğitim yılının başlarında okullara göndermekte ve tüm eğitim-öğretim yılı boyunca geçerli kalacak bir randevu sistemi hazırlamaktadır. Böylece müze, hem yerli hem de yabancı ziyaretçiler için Paris'in gözde yaygın eğitim merkezi haline gelmektedir. Dünyanın sayılı bilim müzelerinden biri olan Londra Bilim Müzesi, günümüzün popüler konularından biri olan nanoteknoloji ile ilgili atölye çalışmaları hazırlamakta, bu alanla ilgili okulları bilgilendirmek amacıyla okul ziyaretleri düzenlemektedir. Böylece sayısını ve örneğini daha da artırabileceğimiz çağdaş müzeler, ziyaretçilerin kendilerini ifade edebilmelerine olanak sağlayan malzeme ve araçları kullanarak serbest öğrenme ortamları yaratmakta; "dokun-yap ve yaşayarak öğren" felsefesiyle hazırlanan ve ziyaretçilerin düş gücünü uyaran yaratıcılık atölyeleri halini almaktadırlar.

"Yaparak-yaşayarak öğrenme" yaratıcılığın geliştirilmesine olanak sağlayan en etkili yöntemlerden biridir. Müzeler, bilim, teknoloji ve keşif merkezleri zengin ve farklı içerikteki koleksiyonlarıyla çağdaş öğrenme yöntemlerini uygulamak için en uygun ortamlardır. Mevcut koleksiyonlarını eğitim malzemesi geliştirmek, öğrencilerin bilgilerini yaparak-yaşayarak öğrenme felsefesi doğrultusunda artırmak ve onları potansiyel müze ziyaretçisi kılmak için kullanan müzeler arasında bizzat çocukların ilgisini çekecek temalara yönelik koleksiyonlar oluşturan çocuk müzeleri, yaratıcı düşünceyi geliştirmek, çocukların yaşadıkları çevreye ve topluma ilişkin sosyal bilinç ve farkındalık kazanmaları doğrultusunda büyük çabalar harcamaktadır. Çocuk müzelerinde müze koleksiyonu oyunun aracıdır ve bu müzelerde gösterilmek istenen sadece sergilenmekle kalmaz, koleksiyon nesneleri birtakım etkinliklerde çocuğa kullandırılarak işlenen konunun çocuk tarafından tam anlamda algılanması sağlar. Bu algılama süreci kimi zaman müzenin sınırlarını aşan bir eğlenceye dönüşür. "Duvarsız müze" tanımına birebir uyan çocuk müzelerinde ziyaretçi söz konusu nesne ile gerek müze içinde gerekse müze dışında etkileşime geçebilmektedir. Çocuk müzelerinde çalışan uzman personel ziyaretçi ile buluşacak koleksiyonu özenle incelemekte ve eğitim etkinliklerinde kullanılacak olan uygun nesneleri titiz bir çalışma sonunda saptamaktadır. Bu nedenle bu müzeler, müze eğitiminin koleksiyonun incelenmesi ve uygun nesnelerin eğitim için seçilmesi ilkesini en iyi uygulayan müzelerdir. Çocuk müzeleri, olguları ve bilgileri doğrudan iletmekten çok, öncelikle ziyaretçisinin estetik duyarlığına, düş gücüne ve duyularına ulaşmayı hedeflemektedir. Bu yaklaşım müze eğitiminin, özgür eğitimcilik anlayışı ile örtüşmektedir; çünkü ziyaretçiyi uyarmanın, güdülemenin ve ilgisini çekmenin koşullarından biri onu özgür bırakmaktır. Duyuları tam kapasiteyle kullanmaya davet eden bir müze etkinliği, ziyaretçinin bilinenden bilinmeyene, somuttan soyuta ve gözlemden genellemeye olan yolculuğunda önemli bir rehberdir. Gerçekleştirilen bu ve benzer etkinliklerin ortak bir özelliği vardır. Çocuk müzeleri bu çalışmalarda geleneksel müzelerdeki katı ve geleneksel kurallara "hoşçakal" demekte ve kendi kurallarını müze ziyaretçilerine hatırlatmaktadır: "Lütfen Dokunun" ya da "Bu müzede nesnelere dokunmamak yasaktır (ACM, 2008)". Çocuk müzeleri ailelere makinelerin nasıl çalıştığını ayrıntıları ile gösteren ve onların çeşitli uygulamalara katılmalarını olanaklı kılan ya da bilimin temel kurallarını hatırlatan faydalı ve öğretici sergiler tasarlamaktadır (ACM, 2008). Çocuk müzeleri sanat, tarih, arkeoloji ya da teknoloji gibi konuları açıklarken olayların tarihlerini içeren listelerin ezberletilmediği, bunun yerine olayın nedenlerini keşfetme etkinliklerinin düzenlendiği öğrenme merkezleri halini almaktadır. Çocuk müzeleri, çocuk ve bebek oyun odaları, bilgi merkezi, kütüphane, aileler na için danışma merkezi, eğitim atölyeleri ve diğer ihtiyaçlar için tasarlanan müze bölümleriyle, klasik bir müze olmaktan çok, değerli bir sosyal ortam olma özelliği de kazanmaktadır.

ÇOCUK MÜZELERININ DÜNÜ VE BUGÜNÜ

Çocuk müzelerinin ortaya çıkışı 19. yüzyılın son çeyreği ile 20. yüzyılın başlarına rastlar. Çocukların dokunarak ve yaparak öğrenmesi" anlayışı ancak 1900'lerin başında benimsenmeye başlamıştır. Dönemin öncü eğitimcilerinden John Dewey'in öğrenmede kişisel deneyim ile yaparak ve deneyerek öğrenmeyi vurgulaması ve Maria Montessori'nin yetişkinlerin çocuk eğitiminde rehber görevi görmelerini ve çocuğun öğrenme sürecinde bağımsız olmasının desteklenmesi gerektiğini savunan kuramları, ilk çocuk müzelerine ilham kaynağı olmuştur. Amerika Birleşik Devletleri'nin ilk çocuk müzelerinin de Dewey ve Montessori'nin fikirlerinin popüler olduğu 1899-1925 yılları arasında kurulduğu dikkat çekmektedir (Cleaver,1988). Dünyanın ilk çocuk müzesi olan *Brooklyn Çocuk Müzesi*, 1899 yılında New York'da ziyarete açılmıştır. Müzenin amacı, çocukların, yaşama ilişkin konulara ilgilerini artıracak ve özellikle okul öncesi ile ilköğretim çağındaki çocuklarla öğretmenlerine eğitim alanında önemli fırsatlar ve yaratıcı programlar sunacak, serbest zamanlarını etkili biçimde değerlendirebilecekleri çekici bir mekân yaratmaktır. Brooklyn Çocuk Müzesi'nin başlattığı çocuk müzeleri hareketi ABD'de hızla yayılmış, günümüzde ülkedeki çocuk müzesi sayısı 300'e ulaşmıştır. Avrupa'daki çocuk müzesi sayısı 60'a yaklaşmıştır. Farklı müzeler içinde açılan çocuk bölümleri de dahil edilirse bu rakam artacaktır. Bu müzelerin büyük çoğunluğunun amacı ortaktır: "Çocukların yaşama ilişkin konulara ilgilerini artırmak, okul dışı eğitimi desteklemek, çocuk ve gençlere yaratıcılıklarını geliştirecek serbest zaman ortamları sunmak".

Çocuk müzeleri arasında zamanla farklı konulara odaklanan türler ortaya çıkmış, çocuk sanatları müzeleri, çocukluk müzeleri ve keşif merkezleri gibi özel ilgi müzeleri açılmıştır. "Çocukluk müzesi" oyuncak, oyun, çocuk giysileri ve benzeri koleksiyonları içeren müzedir. Bu müzenin konusu daha çok, çocukluğun tarihi iken (Hooper-Greenhill, 1999), "çocuk sanatları müzesi" çocukların içindeki sanatçıyı; öğrenme, yaratma, koleksiyon yapma ve sergileme aşamalarından geçirerek açığa çıkarma görevini benimsemiş, çocuğa sanat ve sanatçı sevgisi aşılamayı hedef edinen bir müze olmuştur. "Keşif Merkezi" ise, öğrenme gelişmiş eğitim yöntemleri eşliğinde, çağdaş ve ilgi çekici sergilerin hazırlandığı; arkeoloji, hayvanlar, bitkiler, fosiller, fotoğraflar ve teknoloji alanlarda ziyaretçisine bilinmeyenlerin kapılarını açan bir merkezdir. Çocuk müzelerinin büyük çoğunluğu ziyaretçileriyle, bu alt türlerin koleksiyonlarını da barındıran geniş bir yelpazede buluşmaktadır. Öyle ki, Frankfurt Çocuk Müzesi 2008 yılında açtığı, "Kentin Altında Ne Var? adlı sergide 6 yaş ve üzeri çocuklar müze eğitimcileri eşliğinde çeşitli etkinliklere katılmaktadırlar. Sergi; Frankfurtla ilgili tarih, coğrafya, jeoloji, biyolojik yaşam, arkeoloji ve gündelik yaşam gibi temel bilgiler içermektedir. Yunan Çocuk Sanatları Müzesi 2009 yılından beri çocukların Paul Klee ve İspanyol ressam Miro'nun eserlerinden etkilenerek yaptıkları resimleri sergilemekte ve okullarla işbirliğine giderek Klee ve Miro konulu resim atölyeleri hazırlamaktadır. Indinapolis Çocuk Müzesi, Hamburg Klick Çocuk Müzesi ve Yunan Çocuk Müzesi'nde 2008'den beri çocukların farklı meslekleri tanımalarına olanak sağlayan sergiler hazırlanmaktadır. Brookyln Çocuk Müzesi "Brooklyn Dünyası" adlı bir sergi açmıştır. Bu sergide Brooklyn'nin çok uluslu yapısı vurgulanmış, farklı kültürlerin ilgi çekici unsurlarına, bayram, şenlik vb kutlamalarına yer verilmiş, Brooklyn'de yer alan mağaza, eczane, hastane, kütüphane gibi birimlerin minyatür yapılarak minyatür bir Brooklyn yaratılmıştır. Böylece müze "Brooklyn Çocuk Müzesi'nde dünyaya dokunabilirsiniz" iddiasını da haklı çıkarmıştır. Sydney'de bulunan Çocukların keşif Müzesi 2009 yılında "Çocuk ve Müzik" isimli sürekli bir sergi açmıştır. Bu sergi kapsamında çocuklar yerel ve uluslar arası sanatçılarla buluşmakta, kendi enstrümanlarını çalmakta ve müzik içerikli atölyelere katılabilmektedir. Slovakya'da kurulan Poppins Çocuk Müzesi "Kağıt Hikayeleri" adlı bir sergi açmaıştır. Müze bu sergiyi geçici sergi olarak diğer müzelere de göndermektedir. Sergide kağıdın hayatımızdaki yeri ve kullanım alanlarına ilişkin örnekler yer almaktadır. Norveç'teki Norsk Çocuk Müzesi böcekleri ve yaşamlarını konu alan "Böcek Geçidi" adlı sürekli sergi kapsamında çeşitli etkinlikler düzenlemektedir. Brüksel Çocuk Müzesi "Hayatın Renkleri" adlı sürekli sergisinde insana ilişkin çeşitli duygu durumlarına göre tema değiştirmekte ve güncel temayla ilgili görsel ve yazılı nesnelerden oluşan sergiler hazırlamaktadır. İrlanda'daki Imaginosity: Çocukların Yaratıcılık Alanı adlı çocuk ve keşif müzesi'nde açılan "Hikayeni Yarat ve Canlandır" adlı sergide çocuklar seçtikleri konularla ilgili bir hikaye yazmakta ve yazdıkları hikayeleri sahnelemektedirler. Londra'daki Victoria ve Albert Çocukluk Müzesi'nde koleksiyonla bağlantılı olarak "Victoria Dönemi Gündelik Yaşamı" adlı bir sergi açılmıştır. Sergide Victoria dönemi çocuk giysilerinden, çocuk oyuncaklarına çok sayıda nesne sergilenmektedir. Viyana'daki Zoom Çocuk Müzesi'nde çocuklar Wolfgang Amadeus Mozart'ın yaşam öyküsünü anlatan aynı adlı sergiyi ziyaret etme ve Mozart konulu eğitim çalışmalarına katılma fırsatı bulmuşlardır. Bu örnek sergiler dışında bünyelerinde okuma köşeleri, keşif odaları, sualtı keşif merkezleri, planetaryumlar, sanat atölyeleri, radyo ve televizyon istasyonları, çocuk tiyatroları, canlı hayvan salonları, uçak ve otomobil simülasyonları, çocuk kütüphaneleri ve geri dönüşüm atölyeleri kuran çocuk müzeleri de bulunmaktadır. Gartenhaus (1997)'un da belirttiği gibi; yukarýda bahsedilen müzelerde düzenlenen eðitim ve atölye çalýþmalarýnýn þu temellere dayandýrýldýðý görülmektedir: Nesne üzerinden yapýlandýrýlan eðitim, belirli temalara dayandýrýlan etkinlikler, bireysel ve grup halinde çalýþan (etkinliðe katýlan) etkin müze ziyaretçisi**,** etkinliðin uygun zamana yayýlmasý, çocuklarýn hayal kurmaya özendirilmesi ve tahmin etme yeteneklerinin artýrýlmasýdýr.

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SONUÇ

Günümüzde müzeler geleneksel rollerinin dışına çıkarak birer eğitim kurumu işlevi kazanmıştır. Müzede ziyaretçiler gezerken bilgi aldıkları, sergilenen eserlerle iletişim kurabildikleri doğal bir eğitim sürecinden geçmektedirler. Greenhill (1999)'e göre; müze ve galerilerde eğitim yapmak, müzelerin koleksiyonları ile ziyaretçilerin gereksinimleri ve ilgileri arasında ilişki kurmaktır (Akt. Onur, 2002:10). Müzelerin sergilenen eserin anlam ve değerini anlatmak da müzelerin sorumlulukları arasında yer almaktadır. Her müzenin eğitici görevini tam olarak yerine getirdiğini söylemek güçtür. Bu konuda yeteri kadar yararlı olabilmek için müzeler eğitime, eğitim de müzelere başvurmalıdır (Carr, 2001: 173).
Türkiye'de müzeler 2000'lerin başından beri nesnelerle ziyaretçiler arasında köprü kurarak, geçmiş, günümüz ve gelecek arasında bağlantı sağlama, koleksiyonlarla ziyaretçi gereksinimleri ve ilgileri arasında ilişki kurarak eğitim yapma ve nesnelerden yararlanarak yaratıcılığın gelişmesine katkıda bulunma amacıyla işlevlerini yerine getirmeye çalışmaktadır. Türkiye'de henüz bir çocuk müzesi yoktur ancak; çok sayıda devlet müzesi ve özel müze yerel yönetimler müzelerde çocuk, oyuncak, çocukluk içerikli müze birimleri kurmak konusunda girişimlerde bulunmaktadır. Müze eğitimi 2005 yılından beri ilköğretim programlarında yer alan önemli bir öğrenme alanıdır. Yüksek öğretim kurumlarının öğretmen yetiştiren fakültelerinde müze eğitimi dersi okutulmakta ve öğretmen adayları çeşitli müze eğitimi etkniliklerine katılmaktadır. Kültür ve Turizm Bakanlığı 2009'da "çocuk dostu müze" projesini başlatmıştır. Bu projeyle amaç, müzeleri çocuklara kapılarını daha sık açacak ve çocuk sesleriyle inleyecek, yaşayan kurumlar kılmaktadır. Atılan olumlu adımların ve Türkiye müzelerinde gerçekleştirilen çalışmaların toplumun pek çok kesimine ulaşamadığı ve milli eğitimin ihtiyaçlarına kısıtlı oranlarda yanıt verdiği söylenebilir. Bu nedenle, Türkiye'de müze eğitiminin geliştirilebilmesi için, müzeler, galeriler ve okullar arasında iletişimin sürekliliği sağlanmalı ve işbirliği projeleri geliştirilmelidir. Yakın çevrelerinde müze bulunmayan insanlara, internetin sağladığı olanaklarla müzeciler ve müze eğitimcileri tarafından planlı bir müze eğitimi programı uygulanmalıdır. AB uyum sürecinde müzeler aracılığı ile, kendi kimliğini koruyan evrensel değerlere karşı hoşgörülü ve yaratıcı bireyler yetiştirmek amacıyla eğitim politikaları geliştirilmelidir.

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MÜZİK EĞİTİMİNDE YENİ YAKLAŞIMLAR: İLKÖĞRETİM VE KONSERVATUAR EĞİTİM MODELLERİ ÜZERİNE KARŞILAŞTIRMALI ANALİZ

NEW APPROACHES OF MUSIC EDUCATION: COMPARATIVE ANALYSIS OF ELEMENTARY AND CONSERVATORY MODELS OF EDUCATION

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ÖZET

Müzik eğitiminde yeni yaklaşımların ele alınacağı bu çalışmada, ilköğretim ve yüksek öğretim süreçlerinde kullanılan yöntemlerin, geçmişten bu yana neler olduğu, tarama yöntemi ile incelenecek olup, yeni yaklaşımlar olarak nitelendirebileceğimiz eğitim yöntemleri aynı zamanda gözlem metoduyla elde edilen veriler ışığında ele alınacaktır. Tarama ve gözlem alanlarımız ilköğretim süreci ve mesleki alanda müzik eğitimi biçimindedir.

İlk alanımız olan ilköğretim süreci tarama olarak 1. sınıftan 8.sınıfa kadar olan süreci içerirken, gözlem olarak 4. sınıftan 8. sınıfa kadar olan süreci içerir. Diğer alanımız ise tarama yöntemi açısından müzik eğitimcisi ve sanatçı yetiştiren kurumları, gözlem olarak konservatuar alanını içermektedir. Özellikle konservatuarlardaki gözlemimiz geleneksel müziklerin eğitimi üzerinedir.

İlköğretim süreci ile ilgili gözlemlerimiz Türkiye- İstanbul Anadolu yakasındaki iki öğretim kurumunda gerçekleşmiştir. Konservatuar alanı içindeki gözlemlerimiz ise çoğunluk olarak geleneksel müziklerin eğitimi ile ilgili olan konservatuar modelleri ve eğitim biçimleri üzerinedir. Her iki alanda da müzik eğitimine yeni yaklaşımlar gözlenebileceği gibi, dünyadaki benzer örnekler ile entegrasyon içinde olacağı düşünülen öneri şeklinde yer vereceğimiz yaklaşımlardan ayrıca bahsedilecektir.

Bildirimizin sunumu sırasında özellikle konservatuar eğitiminde, repertuar ve enstrüman dersi örneği eski ve yeni yaklaşımlar bağlamında uygulamalı olarak örneklendirilecektir.

Anahtar Kelimeler: *Müzik eğitimi, yeni yaklaşımlar, geleneksel müzik eğitimi.*

ABSTRACT

In this music education process, new approaches in primary and higher eduation will be discussed, the method used in the past, scanning method will be examined and new approaches can be described by training methods at the same time monitoring method and the data obtained in the light will also be discussed.

Our first field as the primary scanning process will include classed 1 to 8, as for observation classes 4 to 8 will be analyzed. Our second scanning method of observation will include areas of music and artists, educators and training institutions, and the conservatory area. Our observations of the conservatory will particularly focus on the training of traditional music.

Our primary observations about the process of Turkey's Anatolian side of Istanbul has been conducted in two educational institutions. The majority of our observations in the conservatory area at the conservatory for the training of traditional music and models of training focuses on the form. New

approaches to music education in both areas can be observed, also which the similar examples of integration in the world would will also be included in the form of suggestions separately from our approach.

Particularly repertoire and instrumental lessons in the context of an example of the old and new approaches will be practical examples of the conservatory training during our presentation

Keywords: *Music education, new approeches, traditional music education.*

GİRİŞ

Bireylerin eğitim sürecinin formal boyutunun "bilgilenme" aşamasının uygulanabilir olma kısmında, müzik eğitimi önemli rol oynamaktadır. Çalışma içinde ilköğretim sürecinde uygulanan müzik eğitim metotlarının ne şekilde üretim biçimleri ortaya çıkardığı ve uygulanabilirliğinin irdeleneceği bölümün ardından, sonuç ve önerilerimiz sunulmuştur. Müziğin uygulama anının bireyler üzerinde yarattığı etkinin sürecin tamamını nasıl etkileyeceği ile ilgili öngörülerimiz yer almıştır.

Tüm açıklamalarımız geneli ifade etmesinin yanı sıra özellikle Türkiye'deki uygulamalar üzerine yapılacak açıklamalar, tespitler ve önerileri içermektedir.

EĞİTİM VE MÜZİK EĞİTİMİ ÜZERİNE

Caz müziği üzerine *"Siz ne olduğunu bilene değin, ben size onu açıklamaya muktedir olacağım"* diyen Louis Armstrong öğrenen ve öğreten arasındaki öğrenme sürecinin bitti gibi görünen, ancak şiddetinin zamanla değiştiği bitmeyen bir süreç olduğunu vurgular bizlere. Özellikle müzik üzerinden verilen bu örnekleme müzik öğretim sürecini öğreten ve öğrenenin belirlediğinin bir göstergesidir. Ancak Jahoda'nın belirttiği üzere "öğrenme gözlemlenemez. O her zaman davranış ve deneyimlerimizden sonuç olarak çıkarılabilir"(Smith 1986:187). Çalışma içinde kabul ettiğimiz bu değerlendirme elbette ilköğretimdeki müzik eğitim sürecinde öğrenilenin, gözlem raporları üzerinden okunmaya çalışılmasıyla çelişmektedir. Milli eğitim Bakanlığı'nın son olarak uyguladığı 1.- 3. sınıflarda 2 ders saati, 4. – 8. sınıflarda ise 1 ders saatinden ibaret olan müzik eğitimi, müziği öğrenmek bir yana içselleştirme için dahi yeterli olmamaktadır. Çünkü 2 ders saati olan üç yıl boyunca dal öğretmeninin katılmadığı, sınıf öğretmenlerinin de çoğunluğunun bu ders saatlerini diğer dersleri yetiştirmek için kullanması durumu söz konusudur. Bu durum öğrencilerin 4. sınıfa müzikle ilgili bir fikir sahibi olmadan gelmesine neden olur. Müzik eğitimi için "altın yıllar" olarak değerlendirebileceğimiz sürecin ardından yetersiz ders saati ile aktarılmaya çalışılan müzik öğretiminin davranışlar ve deneyimlerden çıkarılarak değerlendirilmesi mümkün olmamaktadır. Aşağıda bahsedeceğimiz müzik eğitiminde kullanılan metotların uygulanabilmesi kâğıt üzerinde kalmaktadır. Özellikle devlet okulları için geçerli olan bu durumun iyileştirilmesi adına her eğitim-öğretim yılının iki döneminde alınan zümre kararlarının da formaliteyi yerine getirir nitelikte olduğunu belirtmek gerekir. İyileştirme olarak yer alan öneriler müzik sınıfının olması, sınıfın müzikle ilgili çalgılar, kitaplar, görsel materyaller ile donatılması, ders saatlerinin arttırılmasından ibarettir.

MÜZİK EĞİTİMİNDE KULLANILAN METOTLAR

Kodaly, Suzuki, Orff, Carobo – Cone, Dalcroze metotları müzik eğitiminde en çok bahsedilen ve aralarında karşılaştırma yapılan metotlardır. Kısaca değinecek olursak öncelikle Suziki metoduyla başlamak gerecektir.

Japon kemancı ve eğitimci Shinichi Suzuki (1898-1998) tarafından 20. yüzyılın ikinci yarısında geliştirilmiş bir müzik eğitimi felsefesi ve metodu, 70lerin sonları 80lerin başlarından itibaren dünyanın birçok değişik bölgesindeki müzik eğitimcileri tarafından oldukça yoğun bir biçimde dikkate alınmış ve ilk olarak Amerika Birleşik Devletleri, Kanada ve Avustralya gibi Pasifik ülkeleri olmak üzere Avrupa ve birçok Afrika ülkesine hızla yayılmıştır. Başlangıçta keman eğitimi için geliştirilen metot, sonraları flüt, blok flüt, gitar, piyano, viyola, viyolonsel, kontrbas, org, arp gibi birçok çalgı ve ses eğitiminde yer almıştır. Hatta matematik, edebiyat, resim eğitimine de uyarlanan metot, kişilik gelişim noktasında da etkin olarak kullanılmaktadır. Tüm çocukların yetenek sahibi olduğu ve ortamın sağlanması ile bu yeteneğin geliştirilebilir olduğuna işaret eden metodun öne çıkan gerekleri müzik dinlemenin önemi, ebeveyn katılımı, olumlu ortam şeklinde sıralanabilir. Suziki'nin metot için "Suziki metodu" ismini tercih etmediğini, "ana dil metodu" ismini tercih ettiğini belirtmek gerekir. Çünkü metot, çocuğun ana dilini, okumayı öğrenmeden konuşması fikrine dayanmaktadır. Felsefi boyuttaki en önemli neticesi ise,

belirlediği meslek ne olursa olsun, müzik yoluyla dürüst ve nitelikli bireyleri yetiştirmenin mümkün olduğudur. Metodun öğretimindeki farklı yaklaşımı konservatuar düzeyine temel müzik eğitimi almadan gelmiş bireyler için uygulamak mümkün görünmemektedir, zira 0-5 yaş arası sözel algının üst seviyede olduğu dönemden oldukça geç bir dönemde nota okumayı öğrenmeden çalgısını çalmasının olumlu sonuçlar doğuramayacağı kesin gibidir. Elbette istisnalar olması mümkündür, ancak geneli kapsayan bir özellikte kabul etmek mümkün değildir. (bkz: www.suzikimusic.org)

Kodaly yöntemi ise Macaristan'da 1940-1950 yılları arasında besteci Zoltan Kodaly (1882-1967), meslektaşları ve öğrencileri tarafından geliştirilen geniş kapsamlı bir müzik eğitimi sistemidir. Japonya, Yeni Zelanda, Avustralya, Afrika,Avrupa, Kuzey ve Güney Amerika gibi ülkelerde hızla uygulanmaya başlanan yöntemde, Suziki'dekine benzer biçimde dil, konuşma üzerinden gitmesidir. Farklı olarak yazma-okumayı da dahil eden Kodaly, yönteminin felsefesini bir dili konuşup, yazıp, anlayabilen her insan, müziğin dilini de aynı oranda öğrenmeye yeterlidir şeklinde özetlemektedir. Felsefeye göre müzik okur-yazarlığı, seçilmiş ufak bir azınlığın becerisi sınırlarında kalmamalı, tüm insanlığın genel bilgisinin, kültürünün bir parçası olmalıdır. Bir arada şarkı söyleme yoluyla işitmenin önemini vurgulayan yöntemin uygulama araçları müzik eğitimcileri tarafından zamanla belirlenmiştir.

Okul öncesi ve çocukluk dönemine işaret eden bir diğer yöntem ise Carabo-Cone yöntemidir. Madaleine Carabo-Cone tarafından geliştirilen bu yöntem, okul öncesindeki çocuklara müzik terimlerinin somut ve görünür biçimde kavratılması ile ilgilidir. Çocukların yöntemin araçları ile birlikte öğretilen konunun bir parçası olması amaçlanır. Örneğin "Do Majör akorunu seslendirmek için bir çocuk do, diğer çocuk mi ve diğeri de sol notasını söyler. Bu yönteme göre çocuklar bir dizi oyunla müziği yaşayarak öğrenmektedirler" (Tufan 1995: 36).

Dalcroze yöntemi ise, E. J. Dalcroze tarafından 20. yy'ın ilk yarısında geliştirilen ve Dalcroze Eurhythmics adıyla anılan bir yaklaşım, Carl Orff, Zoltan Kodaly ve Schiniki Suzuki tarafından geliştirilen müzik öğretimi yaklaşımlarının tarihsel açıdan öncüsü durumundadır. Bu yaklaşım, müziğin temel öğesinin ritim olduğu ve müzikteki tüm ritimlerin kaynağının insan bedeninin sahip olduğu doğal ritimlerde var olduğu düşüncesine dayanmaktaydı. "Eurhythmics", "Ritmik solfej" ve "Doğaçlama" gibi üç aşamadan oluşan yöntem, genel bir isimlendirmeyle sadece "Eurhythmics" olarak anılmaktadır (Özmenteş; Bilen 2005: 89 / Choksy,1986: 27). Bu durum, yöntemin yalnızca ilk ayağını oluşturan Eurhythmics'in, yöntemin en yaygın kullanılan aşaması olması sonucu ortaya çıkmıştır. Eurhythmics üç alanda gelişimi hedeflemekteydi:

- Zihinsel ve Duyumsal Hedefler
  - Farkındalık
  - Konsantrasyon
  - Sosyal bütünleşme
  - Müziksel değişimlerin anlaşılması ve ifade edilmesi
- Fiziksel Hedefler
  - Performansın kolaylaşması
  - Performansın belirginliği
  - Zaman-hareket alanı-enerji-ağırlık-denge/Yerçekimi kanunlarını müziksel ifadenin gelişimi amacıyla kullanmak
- Müziksel Hedefler
  - Hızlı, doğru, sıkıntısız ve güçlü bir müziksel işitmenin gelişimi ve bunun da müziksel icrayı, çözümlemeyi, okumayı, yazmayı ve doğaçlamayı yönlendirmesi (Özmenteş; Bilen 2005: 91-92 / Choksy, 1986: 35).

Bir diğer yöntem ise Orff-Shulwerk yöntemi/yaklaşımıdır. Söz konusu yaklaşımın içeriğine bakacak olursak "Müzik ve Hareket Eğitimi" olarak tanımlanmaktadır. Bu görüşlere yakından bakış bizi yaklaşımın belkemiği sayacağımız "elementer müzik yapma" kavramına götürür. Elementer müzik yapma ise Lisolette sey'in de belirttiği gibi, "her insanda zaten var olan ritim oluşturma, ritme uyma, ritme ve müziğe bedenle ayak uydurma eğilimlerinin harekete geçirilmesine dayanmaktadır. (Toksoy 2009/ Arı 2000:92) Orff yaklaşımında da Elementer müzik yapmak için kişinin özel yeteneğe sahip olması beklenmez. Kendini ifade etmenin en güzel yoludur. Kendi potansiyelilinin farkına varabilme, kişilik gelişimi için de önemli bir aşamadır. 1995'lerde ortaya çıkan yaklaşımın günümüzde bu derece ilgi ile tekrar ele alınması kişisel gelişimde önemli bir noktada yer almasının yanı sıra kolay uygulanabilir olması ve araçların birçoğunun öğrenciler tarafından hazırlanabilir nitelikte olmasıdır. Türkiye'de son yıllarda eğitim sistemine dâhil edilmeye çalışılan yaklaşımın uygulanabilirliği süre darlığı sebebiyle amaçlanan nitelikte olamamaktadır.

TÜRKİYE'DE MÜZİK EĞİTİMİNDE UYGULANAN YÖNTEM VE ARAÇLARI

Günümüzde ilköğretim seviyesinde müzik eğitimindeki uygulamalar "anlatım, Tartışma, örnek olay, gösterip yaptırma, problem çözme, bireysel çalışma", öğretim teknikleri "beyin fırtınası, soru-cevap, drama, eğitsel oyunlar" gibi tanımlamalarla ifade edilmektedir. Yukarıda bahsettiğimiz temel yaklaşım, metot ve yöntemlerin çevre koşulları sağlandığı müddetçe karışımı uygulanmaktadır. Ancak karışımda yöntemlerin uygulama amaçlarını gerçekleştirmede önemli noktada yer alan öğelerin yerine konulması çoğu zaman mümkün olmamaktadır.

Öğretmenler öğrencilerin müzikle olan bağlarının 1 ders saati gibi(40 dk.) kısa bir sürenin dışında devam edebilmesi performans ödevi, proje çalışması, koro çalışmaları vasıtasıyla sağlanmaya çalışılmaktadır. İstanbul-Anadolu yakasında bulunan Beykoz-Rüzgarlıbahçe İlköğretim Okulu ve Kartal-Mehmet Hilmi Altay İlköğretim Okulu'nda yapmış olduğumuz gözlemlerde müziğin öğrenciler tarafından uygulanabilirliği incelenmiştir. İlk alanımızda 1 ders saati olan müzikle ilgili bağ, koro çalışmalarıyla sürdürülmeye çalışılmakta, ancak ders içinde birlikte şarkı söyleme, müzik dinleme, çalgı performansları tam anlamıyla yerine getirilememektedir. Ancak ikinci gözlem alanımızda 4.5. sınıflara idari inisiyatifle 1 ders saati müzik dersine ek olarak 2 ders saati çalgı dersi eklenmesi sonucunda ebeveynlerin ve öğrencilerin yaklaşımı olumlu anlamda değişmiştir. Yapılan uygulamalar şu şekildedir;

- Yaş grubuna ve amaca uygun özenle seçilmiş eserler dinleme-söylemenin yanı sıra, müziğin ritmi ve söz unsuruna bağlı olarak beden hareketleriyle eşlik etme,
- İlk aşamada nota isimleri söylemeden iki sesten oluşan ezgilerin blok flütle seslendirilmesi,
- Nota yer, isim ve seslerinin "dizek köyü" masalı ile aşamalı olarak aktarımı,(dizek köyü masalı ile ilgili detaylı bilgi verilecektir.)
- 1. senenin sonunda blok flüte ek olarak glockenspiel (1 oktav) veya ksilefon çalgısı eklenmiş, ders içinde değişimli olarak kullanılmıştır. Hem ritim tutma, melodiyi çıkarma hem de şarkıyı söyleme uygulaması ilk aşamada yoğunlaşma açısından öğrencileri zorlamıştır. Ancak blok flüte göre daha yoğun biçimde yoğunlaşmalarını toplamayı öğrenmişlerdir.





Resim 1: glockenspiel ve ksilefon

- Performans ödevleri sayesinde müziğin içselleştirilmesi sağlanabilmektedir. Ancak bu durum yukarıda değindiğimiz üzere 1+2 ders saati içinde mümkün olmuştur.
- Performans ödevleri ön çalışma ve sınıf içi sunum biçiminde uygulanmıştır.
- Performans ödev konuları "Kendi ritim çalgımızı basit malzemelerden yapma ve sevdiği bir şarkıyı çalgısıyla seslendirme", "Halk türküsünün hikayesini, türkünün seslendirmesiyle birlikte oyunlaştırma" gibi yaratıcılık, içselleştirme, halk müziğiyle ilgili fikir edinme şeklinde sonuçları amaçlanmıştır.

" Dizek köyü masalı" anlatımında öğrencilere dizek köyünün dünyanın hiçbir yerinde bulunana köylere benzemediği belirtilerek sadece 5 yatay çizgiden oluşan notaların köyü olduğunu hayal

etmeleri anlatım ile sağlanmaya çalışılır. Köye girmek için bir anahtara ihtiyacımız olduğu belirtilir. Sol anahtarı kullanılacağı için köyün anahtarının adının sol anahtarı olduğu ve köyün alttan ikinci çizgisinde anahtar deliği olduğu tahtaya resmedilerek anlatılır. Artık köye girilmiş ve anahtar deliğinin bulunduğu çizginin adının sol çizgisi, bu çizginin tam üzerinde oturanın adının da sol olduğu tekrar çizilerek gösterilir. Ve sol sesi çalgı ile duyurulur. Diğer sesler ise sol'un alt komşusu, üst komşusu şeklinde alt komşusunun sesinin daha kalın, üst komşusunun ise daha ince ses sahip olduğu söylenir ve sesleri duyurulur. Bağlantılı olarak ilgili ezgiler seslendirilir. Anlatım aşamalı olarak ezgilerin yapısına göre geliştirilmektedir. Tasarımını ve uygulamasını 2005–2009 arasında yaptığımız ve olumlu çıktılarını aldığımız bir yöntem olmuştur.

Çalışmamızın ikinci bölümünü oluşturan konservatuarlar üzerine karşılaştırmalı analizde, müzik eğitiminin daha çok mesleki boyutta verilemesi üzerine durmaktayız. İlköğretim çağında yarı-zamanlı, liseden itibaren tam zamanlı olarak eğitim verilmesinin yanı sıra lisans aşamasındaki eğitim sürecinin ağırlıklı olarak işlendiği bu bölümde, konservatuarlara genel bir bakışı takiben geleneksel müzik eğitiminin ağırlıklı olduğu konservatuar modelleri ve uygulama biçimleri analiz edilecektir.

KONSERVATUAR TARİHÇESİ

Konservatuar müzik eğitimi yapan okul, Kökü İtalyanca (Conservatorio) kelimesine dayanmakta ve çalışma evi manasına gelmektedir. Rönesans devrinde hastanelere veya bakımevlerine bağlı yetimler okulunda kilise müziği çalışmaları yapan konservatuarlar meydana çıkmaya başladı.

İlk ciddi konservatuar; Paris'te 1795 senesinde Belediye Bando Şefi Bernard Sarratte tarafından kuruldu. Kurulan bu müzik evinin ismi, İnstitut National de Musique idi. Sonraları bu isim İtalyancadan etkilenerek Conservatoire de Musique halini aldı.
On dokuzuncu yüzyılda Fransa'da kurulan ve faaliyet gösteren konservatuarlar, diğer Avrupa devletleri ve Amerika Birleşik Devletleri tarafından da örnek alındı. 1807'de Milano, 1811'de Prag, 1817'de Viyana, 1843'te Leipzig konservatuarları faaliyete geçti. ABD'de Boston Konservatuarı 1867'de, New York Milli Konservatuarı 1885'te kuruldu.

Türkiye'de ilk konservatuar İstanbul'da Darülelhan adıyla 1913'te İttihat ve Terakki tarafından kuruldu. Daha sonra 1927'de bu kuruluş Belediye Konservatuarı haline dönüştü. 1936'da ise Ankara'da Milli Eğitim Bakanlığına bağlı olarak Devlet Konservatuarı faaliyetine başladı. 1958'de İzmir'de 1971'de İstanbul'da devlet konservatuarları kuruldu. Ayrıca 1976'da ilki İstanbul'da kurulan Türk Müziği devlet konservatuarı yapılandırıldı. Günümüzde ise adı sadece devlet konservatuarı ve Türk müziği devlet konservatuarı olmak üzere Haziran 2010 tarihi itibariyle 35 konservatuar bulunmaktadır.

KONSERVATUAR YAPILANMALARI VE YENİ YAKLAŞIMLAR

Konservatuar yapılarını incelediğimizde sadece batı müziği eğitimi veren, Türk müziği ve her iki türü de eşit ağırlıkta aktarmak üzere oluşturulmuş yapılar ile karşılaşırız. Ancak bugüne değin kuruluşu en eski olan okulların örnek alınarak oluşturulduğu modeller, (bölüm isimlendirmeleri ve ders içerikleri açısından) *Bologna* süreci kapsamında farklılaşmak zorunda kalmışlardır. Avrupa ile akreditasyon ihtiva eden söz konusu sürecin hazırlık aşamalarının her okul tarafından 2012'ye değin tamamlanması zorunluluğunun, konservatuarlardaki müzik eğitimi anlayışına ve uygulamalarına yeni yaklaşımlar getireceği düşünülmektedir.

Günümüzde Türkiye'de adında konservatuar kelimesi geçen başlıca iki yapıdan söz edebiliriz. Söz konusu yapılar Devlet Konservatuarı ve Türk Müziği (Musikisi) Devlet Konservatuarı şeklindedir. Çoğu Devlet Konservatuarlarında ağırlıklı olarak Klasik Batı müziği eğitimi verilmektedir ve geleneksel müziklere yüzeysel olarak değinilmektedir. Türk Müziği Devlet Konservatuarlarında ise geleneksel müziklere yakın düzeyde klasik batı müziğine yer verilmektedir. Devlet Konservatuarlarındaki yapılandırmalar ve ders içerikleri yurtdışında klasik batı müziği eğitimi veren konservatuarlardan esinlenerek oluşturulmuştur fakat yurtdışında eğitim alanında yaşanılan değişimlere ayak uydurmakta zorlanıldığı gözlenmektedir. Türk müziği devlet konservatuarlarında ise başlangıçta bu alanda yetişmiş akademisyen kadrolar bulunmadığından, geleneksel müzik icracılarının eğitmenliğinde ve geleneksel öğretim metotlarına yakın metotlarla(Meşk ve Usta-Çırak gibi) eğitim öğretim yapılmıştır. Üniversite

çatısı altında bulunmanın yarattığı akademisyen eğitimcilerle ve bilimsel metotlarla eğitim verme isteği ve arzusunun bir sonucu olarak, günümüzde Türk müziği devlet konservatuarlarında eğitimci olarak geleneksel sanatçı kimliği taşıyan eğitimci neredeyse kalmamıştır. İlk kurulan Türk Müziği Devlet Konservatuarı olan İTÜ TMDK temel alındığında başlangıçta ders veren kadrolar çok büyük oranda geleneksel icracılardan ve ders yöntemleri de geleneksel eğitim öğretim yöntemlerinden oluşan eğitmen kadrosundan bahsetmek mümkündür. O dönemdeki anlayışın ürünleri olan mezunlar da geleneksel icralar konusunda başarılı ve diğer müzikler hakkında fikir sahibi olan, Türk Müziği Devlet Konservatuarı amacına uygun çıktılar olarak gözlemlenebilmektedir. Sonraki süreçlerde eğitici kadrolarda geleneksel icracıların yerini gittikçe mezunlardan oluşan, akademisyen kimliği taşıyan eğitimcilerin almaya başlamış ve metoda dayalı eğitimin yöntemleri kullanılır hale gelmiştir. Geleneksel icradan gittikçe uzaklaşan bir eğilimin rahatlıkla gözlenebildiği mezunların verilmeye başlandığı bir dönem olarak bahsedebileceğimiz süreç, yakın zamanlarda geleneksel icracılarla ve geleneksel yöntemlerle ders işlenmeye başlanması fikirlerini canlandırmış ve sözü geçen okulda usta sınıflarında geleneksel icracılar ve öğrenciler ders yapma olanağına tekrar kavuşmaya başlamıştır. Günümüzde geleneksel müzik eğitiminin ne şekilde olması gerektiği konusunda fikirler tüm dünyada tartışılmaktadır. Son zamanlarda ağırlık kazanan en belirgin görüş geleneksel icracılar üzerinden ve geleneksel yöntemlerle yapılması gerekliliğidir fakat üniversitelerin böylesi bir eğitimin maddi koşullarını oluşturmaları ve resmi prosedürler açısından ciddi sorunlar bulunmaktadır. Bu sorunların aşılabilmesi için gerekli çalışmaların zaman alsa da tamamlanacağı düşünülmektedir. Daha önce de değindiğimiz Bologna sürecinin yarattığı büyük değişim ortamı, bu anlamda büyük bir fırsat olarak düşünülebilecek bir süreç olabilecektir. Tüm üniversitelerin katıldığı bu büyük değişim sürecinde Konservatuarlar da yeniden yapılanırken, dünyadaki en son eğilimleri model alma şansına sahip olacaklardır ki bu fırsat özellikle TMDK lar için bulunmaz bir fırsata dönüşebilecektir. Bologna sürecinde öne çıkan hedeflerin başlıca larından biri aynı alanda eğitim veren okulların öğrencilerinin yurtiçi ve yurtdışı okul değişimlerinin kolaylaşması ve standart prosedürlerin takip edilmesidir. Böylece bu süreç kapsamında bulunan tüm ülkelerdeki okullarda eğitim standardı birbirine yaklaşmış olacak ve yaşanılan değişimler ve gelişmeler eş zamanlı olacaktır. Bahsedilen sürecin diğer bir hedefi eğitimin ilköğretimden-doktoraya kadar birlikte ele alınıp planlanmasıdır. Dolayısıyla müzik eğitimi alanında yaşanılacak değişimlerin sadece yüksek öğretimde değil öğretim sürecinin tamamında gözlenebileceği düşünülmektedir. Eğitim sürecinin başından itibaren bireylerin eğilimleri doğrultusunda esnek yapılı bir eğitim sisteminde, müziğe eğilimi tespit edilen öğrencilerin gerekli yönlendirmelerin de yapılmasıyla, günümüzdeki lisans öğrencilerine oranla alt yapı bilgileri bakımından daha donanımlı öğrenciler olarak lisans eğitimine başlayacakları düşünülmektedir.

SONUÇ VE ÖNERİLER

Geçmişten bu güne okul öncesini de kapsayan ilköğretim çağında müzik eğitiminde hangi yöntemlerin kabul gördüğü, uygulama biçimlerinin ne şekilde olduğunu açıklamaya çalıştığımız, incelememizin ilk bölümünde görülmüştür ki, öngörülen yaklaşım/metot/yöntemlerin gerçekleşebilmesi için uygulama alanları, sınıf mevcutları, ebeveyn yaklaşımı, ders saatlerinin makul sürelerde olması ile mümkün olabilir. Müzik eğitimi bireyin müzikal becerilerini geliştirmenin yanı sıra kendini ifade etme, yoğunlaşma sağlamayı becerme, sosyal ilişki kurma becerisi kazanma, bir arada şarkı söylemede bir birini dinleme gibi kişisel gelişim açısından oldukça önemlidir. Bu önemin yönetim kademeleri tarafından birçok ülkede olduğu gibi fark edilerek, orta öğretimde müzik dersinin bir nevi kaldırılması şeklinde değil, ağırlığının arttırılması biçiminde uygulamaya sokulması gerektiğini düşünmekteyiz. Bunun için ders programlarını, seçmeli olan ancak zorunlu olarak seçilen, derse ait öğretmenin bulunmadığı derslerin müzik dersi için kullanılmasıyla uygun görmekteyiz.

Konservatuarlardaki müzik eğitimine yeni yaklaşımlar paralelinde açıkladığımız Bologna süreci ve usta sınıfları projelerinin, müziği profesyonel bağlamda öğrenen öğrenciler için mantık çerçevesinde önemli oldukları sonucuna varılmıştır. Fiziki koşulların, eğitimi kadroları ve alt yapıların doğru biçimde oluşturulmuş ders programları ve uygulama, gözlem alanlarının desteği ile birlikte tatbik edilmesi, amaçlanan yeni müzik eğitimi yaklaşımlarını başarıya ulaştıracağı düşünülmektedir.

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MÜZİK ÖĞRETMENİ ADAYLARININ PİYANO REPERTUARININ ÖĞRENİLMESİNE YÖNELİK ÖĞRENME STRATEJİLERİNİ KULLANMA DÜZEYLERİNİN İNCELENMESİ

THE INVESTIGATION OF THE LEVELS OF MUSIC TEACHERS' USING THE LEARNING STRATEGIES TO LEARN PIANO REPERTOIRE

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Özet

Bu araştırma, müzik öğretmeni adaylarının piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerin kullanma düzeylerinin incelenmesi ve öğrenme stratejilerini kullanım düzeylerinin çeşitli değişkenler açısından farklılaşıp farklılaşmadığının belirlenmesi amacıyla gerçekleştirilmiştir. Araştırmanın çalışma grubunu Marmara Üniversitesi, Uludağ Üniversitesi ve Gaziosmanpaşa Üniversitesi Eğitim Fakültelerinde 2009-2010 eğitim döneminde öğrenim gören toplam 116 müzik öğretmeni adayı oluşturmaktadır. Araştırmanın amacı doğrultusunda, müzik öğretmeni adaylarının öğrenme stratejilerini kullanma düzeylerini saptamak ve demografik özellikleri ile ilgili bilgi toplamak için araştırmacı tarafından geliştirilen anket kullanılmıştır. Elde edilen veriler aritmetik ortalama, standart sapma ve ilişkisiz grup t testi ile değerlendirilmiştir. Araştırma sonucunda, alt boyutlar açısından Dikkat, Kısa Süreli Bellekte Depolamayı Arttırma, Kodlamayı Arttırma ve Geri Getirmeyi Arttırma Stratejilerinin "orta" düzeyde; İzleme-Yönetme Stratejilerinin "sıklıkla"; bütünsel boyutta ise tüm stratejilerin "orta" düzeyde kullanıldığı belirlenmiştir. Buna ek olarak, cinsiyet değişkenine göre öğrenme stratejilerinin kullanılma düzeyinde istatistiksel açıdan anlamlı bir fark olduğu saptanmış; sınıf değişkenine göre ise istatistiksel açıdan anlamlı bir fark bulunamamıştır.

Anahtar sözcükler: Müzik Öğretmenliği Eğitimi, Piyano Eğitimi, Öğrenme Stratejileri, Piyano Repertuarı.

Abstract

This study was carried out with an aim of investigating the levels of music teachers' using learning strategies to learn piano repertoire and determining whether they vary depending on various variables or not. The study group was composed of 116 music teachers enrolled in at Faculties of Education at Marmara University, Uludağ University and Gaziosmanpaşa University in 2009-2010 educational year. Within the scope of this study, a survey developed by the researcher was utilized in order to collect data about demographic characteristics and determine the levels of music teachers' using learning strategies. The obtained data was evaluated by means of mean, standard deviation and independent group *t*-test. At the end of the study, it was determined that the sub-dimensions Attention, Increasing to Store in Short-term Memory, Increasing to Code and Increasing to Bringing Back were used at "medium" level; Observation-Managing Strategies were used "frequently"; and in the whole, all strategies were used at "medium" level. In addition to this, it was determined that there was a statistically significant difference in the use of learning strategies in terms of the gender; however, there was no statistically significant difference in terms of the grade variable.

Keywords: Music Teaching Education, Piano Training, Learning Strategies

Giriş

Çalgı eğitiminde, çalışmaya ayrılan zamanla birlikte çalışmanın etkililiği de öğrenme hedeflerinin gerçekleştirilmesinde ve başarıda önemli bir faktör olarak kabul edilmektedir (Cope ve Smith, 1997; Hallam, 2001a). Çalışmanın etkililiğinde rol oynayan faktörlerden biri olarak öğrenmede kullanılan stratejiler gösterilebilir. Günümüzde öğrenme üzerine yapılan araştırmaların öğrenmede strateji kullanımı ve bu stratejilerin etkililiği üzerine odaklandığı görülmektedir (Bedir, 1998; Neilsen, 2001; Ertem, 2003; Molumby, 2004; Bayındır, 2006; Kurtuldu, 2007; Tunçer, 2007; Nordell, 2009; Yokuş, 2009a; Yokuş, 2009b).

Öğrenme, genel olarak bireyde yaşantılar sonucu kalıcı davranış değişikliği meydana getirme süreci olarak tanımlanmaktadır (Erden ve Altun 2006). Öğrenme; öğretim kuram, strateji, taktik vb. araçların bir bütünlük içerisinde etkili olarak kullanımı yoluyla kalıcı ve anlamlı olabilir (Duman, 2004).

Strateji (izlem), en genel anlamıyla "önceden belirlenen bir amaca ulaşmak için tutulan yol" olarak tanımlanmaktadır (TDK, 2010). Öğrenme stratejileri ise, öğrenme sırasında uygulanan, öğrenmeyi artırıcı faaliyetler; buna ek olarak, öğrencilerin bağımsız olarak kendi öğrenme görevlerini gerçekleştirmelerini sağlayan teknikler, ilkeler ya da alışkanlıklardır (Demirel, 2007). Öğrenme stratejileri yoluyla bilginin seçilmesinde, edinilmesinde, düzenlenmesinde ya da bütünleştirilmesinde etkili yolların izlemesini sağlamak amaçlanmaktadır (Duman, 2004). Bununla birlikte, bu stratejik yaklaşımları etkili olarak kullanabilen ve öğrenmesini bu doğrultuda düzenleyebilen öğreniciler öğrenme hedeflerine daha kısa sürede ulaşabilir (Zimmerman, Banner ve Kovach, 1996).

Öğrenme stratejileri araştırmacılar tarafından farklı şekillerde sınıflandırılmıştır. Malley ve arkadaşları genel bir sınıflandırma altında öğrenme stratejilerini üç ana başlıkta ele almışlardır. Bunlar; (1-) Bilişi yönetme stratejileri, (2-) Bilişsel stratejiler, (3-) Sosyal stratejilerdir (akt. Öztürk, 1995). Gagne ve Driscoll ise öğrenme stratejilerini; (1-) Dikkat stratejileri, (2-) Kısa süreli bellekte depolamayı arttırma stratejileri, (3-) Kodlamayı arttırma stratejileri, (4-) Geri getirmeyi arttırma stratejileri, (5-) İzleme-yönetme stratejileri olmak üzere beş ana başlık altında değerlendirmiştir.

Öğrenme stratejileri öğretiminin temel amacı öğrencilerin kendi öğrenmelerini kendilerinin sağlamasına yardım etmektir. Piyano eğitiminde öğrencilerin öğrenme stratejilerini kendi öğrenmelerinde etkili olarak kullanabilmeleri için, bu stratejilerin neler olduğu, hangi durumda ve niçin kullanmaları gerektiği konularında bilgilendirilmeleri gerekmektedir (Yokuş, 2009a).

Müzikte öğrenme işlemi iki yönde olmaktadır. Bunlar, müzik bilgisi ve deneyiminin kazanılması, akılda tutulması ve müzik becerisinin gelişmesidir (Otacıoğlu, 2008). Hallam (2001b)'a göre, müzik eğitiminde öğrenme birimlerine ilişkin zorlukları tanımlamak, bu zorlukların çözümüne ilişkin kullanılabilecek stratejileri bilmek, sıralamak ve her bir stratejinin işi başarmaya özgü verimliği ile ilgili değerlendirme yaparak gerektiğinde alternatif stratejileri kullanmak müziksel becerilerin ve performansın geliştirilmesinde gereklidir.

Eğitim alanındaki yeni anlayışlar doğrultusunda piyano eğitiminde de 20. yüzyılın başlarından itibaren piyano eğitimi ve öğretimine yönelik yaklaşımlarda önemli gelişmeler olmuştur. Örneğin; Avrupa'da Deppe, Breithaupt, Lescetizsky, Matthay ve Amerika'da William Mason, George Foote, Albert Ross Parsons ve William Hall Sherwood, hepsi birlikte 19. yüzyıla yerleşik, öğretim felsefesini sorgulamaya başlamışlar ve bu öğretmenler, öğrencilerinde müzikal zekâyı, müzikal bağımsızlığı, piyano performansının zihni ve işitsel denetimini geliştirmeye çalışmışlardır (Sturm, James ve Jackson, 2000). Piyano eğitimi sürecinde piyano çalmaya yönelik gerekli bu temel becerilerin kazanılması, büyük ölçüde öğrencilerin kendi öğrenme yollarının farkında olmasına ve kendi öğrenmelerini yönlendirebilmelerine bağlı olduğu söylenebilir. Zimmerman (1998) iyi bir akademik performansa ulaşmak için öğrencilerde zihinsel becerilerin geliştirilmesinin ve çeşitli öğrenme stratejilerinin kullanımının gerekli olduğunu belirtmektedir.

Piyano eğiminde, Türkiye'de yapılmış araştırmalar incelendiğinde, öğrenme stratejilerinin kullanımı ve etkililiği ile ilgili çok az sayıda araştırmanın yapıldığı görülmektedir (Ertem, 2003; Kurtuldu, 2007; Yokuş, 2009a). Yokuş (2009a) araştırmasında, öğrenme stratejilerinin, piyano eğitiminde programlandırılmış öğretim yolu ile etkililiğini sınamış; öğrencilerin, piyano eğitiminde kullanılabileceği geniş bir strateji repertuarı kazanmalarına ve bu yolla performans başarılarını arttırmaya yönelik deneysel bir çalışma yürütmüştür. Çalışma sonucunda, piyano eğitiminde öğrenme stratejilerinin kullanımının öğrencilerin performans başarılarını arttırdığını ve üstbilişsel farkındalık düzeylerinin arttırılmasında etkili olduğunu ortaya koymuştur.

Yukarıdaki görüşlerden hareketle, piyano eğitiminde öğrenme stratejilerinin kullanımının öğrencilerin piyano performans başarılarını arttırmada etkili olduğu göz önüne alınarak; bu araştırmada, müzik öğretmeni adaylarının piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini kullanma düzeylerinin incelenmesi ve öğrenme stratejilerini kullanım düzeylerinin çeşitli değişkenler açısından farklılaşıp farklılaşmadığının belirlenmesi amaçlanmıştır.

Araştırmanın amaçları doğrultusunda aşağıdaki şu sorulara yanıtlar aranmıştır:

Müzik Eğitimi Ana Bilim Dalı öğretmen adaylarının;

i. Piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini kullanma düzeyleri nedir?

ii. Piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini kullanma düzeyleri "cinsiyet ve sınıf" bağımsız değişkenleri açısından farklılaşmakta mıdır?

Yöntem

Araştırmanın Yöntemi

Bu araştırma tarama yöntemi olarak da bilinen survey yöntemi ile yapılan bir alan araştırmasıdır. Bu yöntem herhangi bir konu üzerinde var olan bir durumun tespit edilmesi, ortaya konması ve bilgi oluşturması bakımından uygun ve yararlı bir desendir (Erözkan, 2007).

Evren-Örneklem

Araştırmanın evrenini Eğitim Fakülteleri Güzel Sanatlar Eğitimi Bölümleri Müzik Eğitimi Anabilim Dallarında öğrenim gören 3. ve 4. sınıf öğrencileri; araştırmanın örneklemini ise Uludağ Üniversitesi Eğitim Fakültesi (EF) Güzel Sanatlar Eğitimi Bölümü (GSEB) Müzik Eğitimi Anabilim Dalı (MEABD) (n=38), Marmara Üniversitesi Atatürk EF GSEB MEABD (n=40) ve Gaziosmanpaşa Üniversitesi EF GSEB MEABD'de (n=38) öğrenim gören 3. (n=52) ve 4. (n=64) sınıf öğrencileri oluşturmaktadır (N=116). Araştırma kapsamındaki öğrencilerin %62,9'unun (n=73) kız, %37,1'inin (n=43) erkek olduğu belirlenmiştir.

Veri Toplama Aracı

Araştırma kapsamında ilgili alan yazında yer alan öğrenme stratejileri incelenerek piyano repertuarının öğrenilmesine yönelik kullanılabilecek öğrenme stratejileri belirlenmiştir. Bu doğrultuda, müzik öğretmeni adaylarının piyano repertuarına yönelik öğrenme stratejilerini kullanma düzeylerinin belirlenmesine amacıyla anket tekniğinden yararlanılmıştır.

Araştırmacı tarafından geliştirilen anket iki bölümden oluşmaktadır. Birinci bölüm öğrenme stratejilerinin kullanım düzeyini belirlemek amacıyla her bir stratejiye yönelik hazırlanan toplam 45 maddeden oluşmaktadır. Bu bölüm toplam beş alt boyutu içermektedir. Bu alt boyutlar "dikkat stratejileri *(madde: 1, 2, 3, 4, 5, 6, 9, 24, 30),* kısa süreli bellekte depolamayı arttırma stratejileri *(madde: 10, 11, 12, 13, 34),* kodlamayı arttırma stratejileri *(madde: 14, 15, 16, 17, 20, 21, 22, 25, 26, 27, 28, 29, 31),* geri getirmeyi arttırma stratejileri *(madde: 19, 32, 33, 36, 37)* ve izleme-yönetme stratejileri *(madde: 7, 8, 18, 23, 35, 38, 39, 40, 41, 42, 43, 44, 45)"*dir. Anketin geçerliğine ilişkin uzman görüşü yeterli görülmüştür. Ölçekte yer alan 45 maddenin Cronbach Alpha güvenirlik katsayısı .94 olarak bulunmuştur. Ayrıca ölçeğin alt boyutlarının güvenirlik katsayıları; dikkat stratejileri .85, kısa süreli bellekte depolamayı arttırma stratejileri .77, kodlamayı arttırma stratejileri .85, geri getirmeyi arttırma stratejileri.72, izleme-yönetme stratejileri .85 olarak bulunmuştur. Ölçekte yer alan maddeler 5'li likert biçimindedir. Her bir ifadenin sıklık derecesini saptamak amacıyla 1'den 5'e kadar puanlama yapılmıştır [(1) Hiç, (2) Çok az, (3) Orta, (4) Sıklıkla, (5) Her zaman]. Olumsuz madde bulunmayan ölçekten alınan puanlar yüksek düzeyde piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerinin kullanılma düzeyini göstermektedir.

Anketin ikinci bölümü müzik öğretmeni adaylarının demografik özellikleri ile ilgili bilgi toplamak amacı ile oluşturulan toplam 7 kişisel sorudan oluşmaktadır. Bu sorulardan araştırma için gerekli olanlar seçilip kullanılmıştır.

Verilerin Çözümlenmesi

Araştırmada belirlenen değişkenler yönünden örneklem grubunun demografik özelliklerini belirlemek amacıyla, "frekans ve yüzdelik" hesaplamalar yapılmıştır. Anket formundaki alt ölçekler için belirlenen dereceler ve sayısal değerler temel alınarak elde edilen aritmetik ortalamalar hesaplanmış ve bu ortalamalara göre; 5 ile 4.3 arası "Her zaman", 4.2 ile 3.4 arası "Sıklıkla", 3.3 ile 2.6 arası "Orta" derecede, 2.5 ile 1.7 arası "Çok az", 1.6 ile 0.9 arası "Hiç" olarak belirlenmiştir. Öğrenme stratejilerinin kullanılma düzeyleri ile ilgili elde edilen verilerin analiz sonuçları aritmetik ortaklama ($\overline{X}$) ve standart sapma (S) olarak sunulmuştur. Ölçeğin bütününe ve her bir alt boyuta ilişkin toplam puanlar alınarak "cinsiyet" ve "sınıf" değişkenine göre "Öğrenme stratejilerini kullanma düzeyleri" için anlamlı farkın olup olmadığını belirlemeye yönelik ilişkisiz grup "t" testi kullanılmıştır. Analiz sonucunda elde edilen bulgular, tablolara dönüştürülmüş ve yorumlanmıştır.

Bulgular

Bu bölümde, araştırmanın belirlenen alt problemleri doğrultusunda elde edilen veriler tablolaştırılmış ve yorumlanmıştır.

Alt problem 1: Müzik öğretmen adaylarının; piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini kullanma düzeyleri nedir?

Müzik öğretmen adaylarının piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini kullanma düzeylerine ilişkin alt ölçeklerden elde edilen ortalamalara ilişkin analiz sonuçları Tablo1'de sunulmuştur.

Tablo 1: Müzik öğretmen adaylarının piyano repertuarının öğrenilmesine yönelik kullandıkları öğrenme stratejileri analiz sonuçları

Öğrenme Stratejileri	N	$\bar{X}$	S
Dikkat Stratejileri	116	3.29	.81
Kısa Süreli Bellekte Depolamayı Arttırma Stratejileri	116	3.21	.79
Kodlamayı Arttırma Stratejileri	116	3.26	.70
Geri Getirmeyi Arttırma Stratejileri	116	3.18	.82
İzleme-Yönetme Stratejileri	116	3.55	.64
Tüm stratejiler	116	3.34	.62

Tablo 1'de görüldüğü gibi, alt ölçek ortalamalarında müzik öğretmeni adaylarının Dikkat Stratejilerini (3.29), Kısa Süreli Bellekte Depolamayı Arttırma Stratejilerini (3.21), Kodlamayı Arttırma Stratejilerini (3.26) ve Geri Getirmeyi Arttırma Stratejilerini (3.18) "orta" düzeyde; İzleme-Yönetme Stratejilerini (3.55) "sıklıkla" kullandıkları belirlenmiştir. Ölçekte yer alan tüm stratejilerin ise (3.34) "orta" düzeyde kullanıldığı saptanmıştır.

Alt problem 2: Müzik öğretmen adaylarının; piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini kullanma düzeyleri "cinsiyet ve sınıf" bağımsız değişkenleri açısından farklılaşmakta mıdır?

Tablo 2: Müzik öğretmen adaylarının cinsiyet değişkenine göre "Öğrenme stratejilerini kullanım düzeyi" için yapılan ilişkisiz grup "t" testi sonuçları

Öğrenme Stratejileri	Cinsiyet	N	$\bar{X}$	S	sd	t	p
Dikkat Stratejileri	Kız	73	31.15	6.71	114	2.937	.004
	Erkek	43	27.12	7.83			
Kısa Süreli Bellekte Depolamayı Arttırma Stratejileri	Kız	73	16.52	3.28	114	1.606	.111
	Erkek	43	15.30	4.87			
Kodlamayı Arttırma Stratejileri	Kız	73	42.95	8.13	114	.778	.438
	Erkek	43	41.58	10.58			
Geri Getirmeyi Arttırma Stratejileri	Kız	73	16.10	3.57	114	.546	.586
	Erkek	43	15.67	4.96			
İzleme-Yönetme Stratejileri	Kız	73	47.45	7.40	114	2.077	.040
	Erkek	43	44.13	9.63			
Tüm stratejiler	Kız	73	154.52	23.06	114	2.017	.046
	Erkek	43	143.84	33.89			

Tablo 2'de görüldüğü gibi, öğrenme stratejilerinin kullanılma düzeyi alt boyutlar açısından incelendiğinde cinsiyet değişkenine göre yapılan ilişkisiz "t" testi sonuçlarına göre; alt boyutlara ilişkin Dikkat stratejileri [$t_{(114)}$=2.937, p<.05], İzleme-Yönetme stratejileri [$t_{(114)}$=2.077, p<.05] ve "Tüm Stratejiler"de istatistiksel açıdan anlamlı bir fark olduğu belirlenmiştir [$t_{(114)}$=2.017, p<.05]. Aritmetik ortalamalar bakıldığında alt boyutlarda "kız" öğrencilerin Dikkat stratejilerinde ($\bar{X}$=31.15), İzleme-Yönetme stratejilerinde ($\bar{X}$=47.45) ve "Tüm Stratejiler"de ($\bar{X}$=154.52) erkek öğrencilere göre öğrenme stratejileri kullanım düzeylerinin daha yüksek olduğu görülmektedir.

Tablo 3: Müzik öğretmen adaylarının sınıf değişkenine göre "Öğrenme stratejilerini kullanım düzeyi" için yapılan ilişkisiz grup "t" testi sonuçları

Öğrenme Stratejileri	Sınıflar	N	$\bar{X}$	S	t	p
Dikkat Stratejileri	3. Sınıf	52	28.85	7.70	-1.065	.289
	4. Sınıf	64	30.31	7.10		
Kısa Süreli Bellekte Depolamayı Arttırma Stratejileri	3. Sınıf	52	15.44	3.90	-1.540	.126
	4. Sınıf	64	16.58	3.98		
Kodlamayı Arttırma Stratejileri	3. Sınıf	52	42.13	8.76	-.324	.746
	4. Sınıf	64	42.69	9.43		
Geri Getirmeyi Arttırma Stratejileri	3. Sınıf	52	15.51	4.40	-1.009	.315
	4. Sınıf	64	16.29	3.89		
İzleme-Yönetme Stratejileri	3. Sınıf	52	46.73	6.68	.583	.561
	4. Sınıf	64	45.81	9.62		
Tüm stratejiler	3. Sınıf	52	149.00	25.94	-.541	.590
	4. Sınıf	64	151.83	29.57		

Tablo 3'de görüldüğü gibi, sınıf değişkenine göre yapılan ilişkisiz "t" testi sonuçlarına göre istatistiksel açıdan alt boyutlarda ve tüm stratejilere ilişkin anlamlı bir farklılık bulunamamış; 3. ve 4. sınıfların öğrenme stratejilerini kullanma düzeyi birbirinden farklılaşmamıştır.

Sonuç ve Tartışma

Araştırmada öğrenme stratejilerinin alt ölçek ortalamaları incelendiğinde; müzik öğretmeni adaylarının piyano repertuarının öğrenilmesine yönelik, Dikkat, Kısa Süreli Bellekte Depolamayı Arttırma, Kodlamayı Arttırma ve Geri Getirmeyi Arttırma Stratejilerini "orta" düzeyde; İzleme-Yönetme Stratejilerini "sıklıkla" kullandıkları; ölçekte yer alan tüm stratejileri ise "orta" düzeyde kullandıkları belirlenmiştir.

Öztürk (1995) genel öğrenme stratejilerinin kullanılma durumlarına ilişkin gerçekleştirdiği araştırmasında öğrencilerin en fazla bilişi yönetme stratejisini kullandıklarını saptamıştır. Tok (2007) öğretmen adaylarının yabancı dil öğrenimine yönelik kullandıkları öğrenme stratejilerini belirlemeye yönelik yaptığı araştırmasında öğretmen adaylarının bilgiyi kullanma stratejisini yüksek oranda kullandıklarını ortaya koymuştur. Diğer taraftan Karakış ve Çelenk (2007) farklı fakültelerde öğrenim gören öğrencilerin genel öğrenme stratejilerini kullanma düzeylerini belirlemek üzere gerçekleştirdikleri araştırmalarında öğrencilerin, bilişi yönetme stratejilerinden "sıklıkla" yararlandıklarını belirtmektedir. Araştırmalardan elde edilen sonuçlar, bu araştırmanın öğrencilerin İzleme-Yönetme stratejilerini "sıklıkla" kullandıkları bulgusunu desteklemektedir.

Diğer taraftan öğrenme stratejilerinin kullanım düzeyi ile ilgili eğitimin çeşitli alanlarında yapılmış araştırmalar incelendiğinde öğrenciler tarafından Dikkat stratejilerinin "sıklıkla" kullanıldığı belirtilmektedir (Karakış ve Çelenk, 2007; Çağlayan, Şirin ve Yıldız, 2008; Dikbaş ve Hasırcı, 2008). Bu araştırmadan elde edilen sonuçlarda ise piyano repertuarının öğrenilmesine yönelik Dikkat Stratejilerini öğrencilerin "orta" düzeyde kullandıkları saptanmıştır. Bunun nedeni olarak, öğrencilerin piyano çalmada daha çok motor becerileri geliştirmeye odaklanması nedeniyle zihinsel süreçlerini harekete geçirecek ön okuma (çalmadan okuma) yaparak altını çizme, metnin kenarına not alma vb. stratejileri göz ardı ettikleri söylenebilir. Eğitimin çeşitli alanlarında genel olarak öğrenme stratejilerinin tümünün kullanım düzeyi incelendiğinde ise öğrencilerin öğrenme stratejilerinden "orta" ve "yüksek" düzeyde yararlandıkları görülmektedir (Öztürk, 1995; Güven, 2004; Karakış, 2006; Dikbaş ve Hasırcı, 2008).

Araştırmada öğrenme stratejilerinin kullanılma düzeyi alt boyutlar açısından incelendiğinde cinsiyet değişkenine göre yapılan ilişkisiz "t" testi sonuçlarına göre; alt boyutlara ilişkin Dikkat, İzleme-Yönetme stratejilerinde ve "Tüm Stratejiler"de istatistiksel açıdan .05 düzeyinde anlamlı bir fark olduğu belirlenmiştir. Aritmetik ortalamalar bakıldığında "kız" öğrencilerin "erkek" öğrencilere göre öğrenme stratejileri kullanım düzeylerinin daha yüksek olduğu görülmektedir. Öğrenme stratejilerinin kullanım düzeyinin cinsiyet değişkenine göre farklılaşıp, farklılaşmadığına yönelik yapılan araştırmalar incelendiğinde, bu araştırmadan elde edilen sonuçlarla paralellik gösteren pek çok araştırmaya rastlanmaktadır. Güven (2004) öğrenme stilleri ile öğrenme stratejileri arasındaki ilişkiyi belirlemek üzere gerçekleştirdiği araştırmasında, kız öğrencilerin tekrar ve anlamlandırma stratejilerini erkek öğrencilere göre daha yüksek seviyede kullandıklarını ortaya koymuştur. Tok (2007) cinsiyete göre strateji kullanımında kız öğrencilerin erkek öğrencilere göre yabancı dil öğrenimine yönelik öğrenme stratejilerinden daha yüksek derecede yararlandıklarını belirtmektedir. Diğer taraftan Karakış ve Çelenk (2007) araştırmalarında öğrencilerin kullandıkları genel öğrenme stratejileri kapsamında cinsiyet değişkenine göre Tekrar, Anlamlandırma, Zihne Yerleştirme ve Hatırlama Stratejileri boyutlarında kız öğrencilerin lehine anlamlı fark olduğunu saptamışlardır. Benzer şekilde Özdemir (2004) araştırmasında ele aldığı tüm öğrenme stratejilerini, kız öğrencilerin erkek öğrencilere göre daha çok kullandığını belirlemiştir.

Araştırmada, sınıf değişkenine göre yapılan ilişkisiz "t" testi sonuçlarına göre istatistiksel açıdan alt boyutlarda ve tüm stratejilere ilişkin anlamlı bir farklılık bulunamamış; 3. ve 4. sınıfların öğrenme stratejilerini kullanma düzeyi birbirinden farklılaşmamıştır. Çağlayan, Şirin ve Yıldız (2008) Beden Eğitimi ve Spor Yüksekokulu öğrencilerinin genel öğrenme stratejilerini kullanma düzeylerini çeşitli değişkenler açısından incelemiş; genel öğrenme stratejilerini kullanma sıklıklarının sınıf değişkenlerine göre anlamlı düzeyde farklılaşmadığını belirlemiştir. Araştırmadan elde edilen sonuçlar, bu araştırmadan elde edilen sonuçlarla paralellik göstermektedir. Diğer taraftan Ellez ve Sezgin (2002) öğretmen adaylarının öğrenme yaklaşımlarını belirlemeye yönelik yaptıkları araştırmalarında sınıf değişkeni açısından dördüncü sınıf öğretmen adaylarının, birinci sınıf öğretmen adaylarına göre öğrenme yaklaşımları düzeylerinin yüksek olduğunu saptamışlardır. Sınıf düzeyi açısından bu araştırmada anlamlı bir farklılık belirlenmesinin nedeni olarak sınıf düzeylerinin birbirine yakın olması gösterilebilir. Kochevitsky (1967) piyanoda notanın piyanoda çalmadan zihinsel olarak çalışılmasının nota üzerinde çalarken görmediğimiz ya da daha az dikkat ettiğimiz öğelerin daha kolay fark edilebileceğini belirtmektedir. Ayrıca, en başından itibaren bir müzikal kompozisyonu doğru olarak çalabilmek için müzikal kompozisyonun analiz edilmesinin ve tüm bileşenlerinin açıkça algılanmasının gerekli olduğunu ifade etmektedir. Bu doğrultuda, piyano çalışmalarında çeşitli öğrenme stratejilerinden faydalanmak piyano repertuarına yönelik çalışmaların anlamlı bir temele oturtulmasına ve bilişsel süreçlerin harekete geçirilmesine katkı sağlayabilir.

Sonuç olarak, bu araştırmada müzik öğretmeni adaylarının piyano repertuarının öğrenilmesine yönelik öğrenme stratejilerini "orta" düzeyde kullandıkları belirlenmiştir. Buna karşın öğrenme stratejilerinin öğrenme üzerindeki etkililiği göz önüne alındığında piyano eğitiminde öğrenme stratejilerinden daha fazla yararlanılması gerektiği düşünülmektedir.

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INTE 2010

MÜZİK ÖĞRETMENİ ADAYLARININ ÜSTBİLİŞSEL FARKINDALIK DÜZEYLERİ VE AKADEMİK BAŞARI PUANLARI ARASINDAKİ İLİŞKİNİN İNCELENMESİ

AN ANALYSIS OF THE RELATIONSHIP BETWEEN THE METACOGNITIVE AWARENESS LEVELS AND THE ACADEMIC GRADE POINT AVERAGES OF MUSIC TEACHER CANDIDATES

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Özet

Bu araştırmanın amacı müzik öğretmeni adaylarının Üstbilişsel Farkındalık düzeyleri ve Akademik Başarı puanları arasındaki ilişkiyi sınamaktır. Araştırmanın çalışma grubunu Gaziosmanpaşa Üniversitesi Eğitim Fakültesinde 2009-2010 eğitim döneminde öğrenim gören toplam 80 müzik öğretmeni adayı oluşturmaktadır. Araştırmanın amacı doğrultusunda müzik öğretmeni adaylarının akademik başarı puanları transkriptlerinden, Üstbilişsel Farkındalık Düzeylerini saptamak için Üstbilişsel Farkındalık Envanterinden (Metacognitive Awareness Inventory) ve ayrıca demografik özellikleri ile ilgili bilgi toplamak için kişisel bilgi formundan yararlanılmıştır. Elde edilen veriler "Pearson Çarpım Momentler Korelâsyon Katsayısı", "Tek Faktörlü Anova" ve "İlişkisiz Grup t Testi" ile değerlendirilmiştir. Araştırma sonucunda müzik öğretmeni adaylarının üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasında anlamlı bir ilişki olduğu belirlenmiştir. Buna ek olarak, müzik öğretmeni adaylarının sınıf değişkenine göre akademik başarı puanlarında, cinsiyet değişkenine göre ise üstbilişsel farkındalık düzeylerinde istatistiksel açıdan anlamlı derecede fark olduğu saptanmıştır.

Anahtar sözcükler: Müzik öğretmeni adayları, üstbilişsel farkındalık, akademik başarı

Abstract

This study aims to test the relationship between the Metacognitive Awareness levels and the Academic Grade Point averages of music teacher candidates. The sample for the study consists of a total of 80 music teacher candidates who were receiving education in Gaziosmanpaşa University Faculty of Education in 2009 2010 academic year. The academic grade point averages of the music teacher candidates were acquired from their transcripts, Metacognitive Awareness Inventory was used to measure their Metacognitive Awareness Levels, and a personal information form was used to gather demographic information. The data acquired were analyzed using the "Pearson Product-Moment Correlation Coefficient", "Single Factor ANOVA", and the "Independent Group t Test". The results showed that there was a significant relationship between the metacognitive awareness levels and the academic grade point averages of music teacher candidates. In addition, there were statistically significant differences in the academic grade point averages of music teachers on the basis of class variable, and in the metacognitive awareness levels on the basis of gender variable.

Keywords: Music education, metacognitive awareness, academic success

Giriş

Günümüzde bilişsel psikoloji alanında birçok araştırmacı, bireyin kendi öğrenmesinin ve düşünmesinin farkında olması ve bunu bilinçli olarak kontrol etmesi üzerinde çalışmaktadır. Üstbiliş (yürütücü biliş, bilişötesi, bilişüstü; *ing:* metacognition) en geniş anlamıyla, bireyin kendi öğrenme süreçlerinin farkında olması; bu süreçleri yönetmesi ve kontrol edebilmesidir (Brown, 1978; Flavel, 1979; Stenberg, 1981; Jakops ve Paris, 1987). Diğer bir ifadeyle üstbiliş, herhangi bir şeyi nasıl öğrendiğinin farkında olma, nasıl öğrendiğini bilmektir (Senemoğlu, 2005). Üstbilişin bilişten farkı, bilişin farkında olunması ve buna bağlı olarak bireylerin öğrenme sürecinde üstbilişsel becerileri görev ya da işle ilgili durumlara uygun biçimde kullanılabilmesidir (Brown, 1978).

Araştırmacıların çoğu, üstbilişin temel unsurlarını bilişin bilgisi ve bilişin düzenlemesi olarak iki temel kategoriye ayırmaktadır (Flavell, 1979; Brown, 1978; Schrow ve Dennison, 1994; Schraw ve Moshman, 1995; Pintrich, 2002; Nietfeld, Cao ve Osborne, 2005).

Üstbilişin birinci temel unsuru olan bilişin bilgisi, bireylerin kendi bilişleri hakkındaki bilgisini ifade eder. Bilişin bilgisi, genel olarak bireyin ne bildiği ve ne bildiğinin farkındalığı ile ilgilidir. Üstbilişsel bilgiye sahip bireyler kendi öğrenmelerini denetleyebilir ve yönlendirebilirler (Schraw ve Moshman, 1995; Pintrich, 2002).

Üstbilişsel bilgi; açıklayıcı bilgi, prosedürel bilgi ve durumsal bilgi olmak üzere üç boyutta ele alınmaktadır. Açıklayıcı bilgi, bireyin sahip olduğu yeterlilikler ya da öğrenmede kullanabileceği stratejilere ve performansını etkileyecek faktörlere ilişkin bilgisidir (Schraw, 2002). Prosedürel bilgi ise, bireyin bir şeyleri yapma hakkındaki bilgisini ifade eder. Bu bilginin çoğu stratejik ve sezgisel olarak temsil edilir. Diğer bir deyişle, prosedürel bilgi bireyin öğrenme durumlarına göre hangi stratejileri kullanacağı ve stratejinin nasıl uygulanacağı ile ilgili bilgisidir (Jacobs ve Paris, 1987; Pintrich, 2002; Schraw, 2002). Durumsal bilgi, bireyin açıklayıcı ve prosedürel bilginin her ikisine de sahip olmasını gerektirir ve bilgiyi ne zaman, niçin ve işlevsel olarak nasıl kullanacağını ifade eder. Durumsal bilgi, bireyin öğrenmesine yönelik etkili olarak kullanabileceği stratejileri seçmesine, öğrenme durumlarının getireceği talepleri değerlendirmesine ve ayırt etmesine olanak sağlar. Durumsal bilgisi üst düzeyde olan öğrenciler farklı öğrenme durumlarına göre en uygun stratejiyi belirleme konusunda daha yetkindir.

Bilişin düzenlenmesi bireyin kendi öğrenmesini kontrol etmesine yardımcı olan üstbilişsel aktiviteleri içerir. Bu düzeyde, birey herhangi bir öğrenme birimine ilişkin hangi öğrenme stratejilerini kullanması gerektiğine karar verir ve uygular. Uygulama sonucunda amaçlara ulaşılmış ise üstbilişsel bilgi doğrulanır. Bu durumda birey uyguladığı stratejilerin kendini amaca ulaştırıp ulaştırmadığına karar verir ve gerektiğinde başka bir stratejiyi yürürlüğe koyar. Birey ne kadar çok üstbiliş yaşantısı kazanırsa, üstbilişsel becerisi de o derecede artar. Böylece kendi öğrenmesini kendi düzenleyen etkili öğrenici haline gelebilir (Senemoğlu, 2005).

Brown (1978) üstbilişi, öğrencilerin önceden planlanmış öğrenme hedeflerine yönelik kullandıkları düşünme süreçlerinin farkındalığı ve düzenlemesi olarak tanımlamıştır. Hartman (2002)'a göre birey ne kadar çok üstbiliş yaşantısı kazanırsa üstbilişsel farkındalığı ve becerisi de o denli artar ve buna bağlı olarak hangi durumda hangi stratejiyi kullanarak amacına ulaşacağına doğru olarak karar verme olasılığı da yükselir. Üstbilişsel farkındalık, bireylerin kendi öğrenmelerine ilişkin bilişsel süreçlerinin farkına vararak; sahip oldukları düşünme süreçlerini gözlemlemelerine, izlemelerine, değerlendirmelerine ve düzenlemelerine olanak sağlamaktadır (Zulkiply, Kabit & Ghani , 2008).

Üstbiliş, bir amacı başarmaya yönelik stratejilerin repertuarını ve güncel kullanımını koordine etmek için öğrencilere imkân vermektedir (Demircioğlu, 2008). Yapılan pek çok araştırmada, üstbilişsel farkındalık düzeyleri gelişmiş öğrencilerin daha stratejik davrandıkları ve alanlarında daha iyi bir performans gösterdikleri ortaya konmuştur (Hallam, 2001; Coutinho, 2008; Joseph, 2009, Yokuş,2009a Yokuş, 2009b).

Buna ek olarak, yapılan araştırmalarda üstbilişsel becerilerin akademik başarı üzerinde önemli bir etkisinin olduğu, aynı zamanda akademik başarısı yüksek öğrencilerin üstbilişsel farkındalık düzeylerinin de daha yüksek olduğu belirtilmektedir (akt. Zulkiply, Kabit & Ghani, 2008). Tüm bu unsurların üstbilişsel farkındalıkla ilişkili olduğu dikkate alındığında, müzik öğretmeni adaylarının üstbilişsel farkındalık düzeylerinin belirlenmesinin kritik bir öneme sahip olduğu söylenebilir.

Yukarıdaki görüşlerden yola çıkılarak yapılan bu araştırmada, müzik öğretmeni adaylarının "üstbilişsel farkındalık" düzeyleri ve "akademik başarı" puanları arasındaki ilişki, bununla birlikte üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasındaki ilişkiye farklı değişkenlerin etki edip etmediği incelenmiştir. Araştırma, ele alınan boyutlar ile müzik öğretmeni adaylarının üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasındaki ilişkinin belirlenmesi ve buna ek olarak olan müzik öğretmeni adaylarının üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasındaki ilişkinin sınıf ve cinsiyet değişkenine göre farklılaşıp farklılaşmadığının anlaşılması açısından önem taşımaktadır.

Araştırmanın amaçları doğrultusunda aşağıdaki şu sorulara yanıtlar aranmıştır:

Müzik Eğitimi Ana Bilim Dalı öğretmen adaylarının;

1. Üstbilişsel farkındalık düzeyleri ve akademik başarı puanları " Sınıf ve cinsiyet bağımsız değişkenleri " açısından farklılaşmakta mıdır?
2. Üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasında istatistiksel olarak anlamlı bir ilişki var mıdır?

Yöntem

Araştırma Modeli

Bu araştırma Survey yöntemi ile yapılan bir alan araştırmasıdır. Bu tür araştırmalar bazı değişkenler bakımından var olan durumun ortaya konması açısından, uygun ve yararlı bir desendir (Balcı,

2005). Bu araştırma, müzik öğretmeni adaylarının üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasında ilişki olup olmadığının incelenmesi; bununla birlikte müzik öğretmeni adaylarının üstbilişsel farkındalık ve akademik başarı düzeyleri arasındaki ilişkiye farklı değişkenlerin etki edip etmediğinin belirlenmesi amacı ile tasarlanmıştır.

Çalışma Grubu

Araştırmanın çalışma grubu, Gaziosmanpaşa Üniversitesi Eğitim Fakültesi Güzel Sanatlar Eğitimi Müzik Eğitimi Anabilim Dalında öğrenim gören 1. (n=20), 2. (n=20), 3. (n=17) ve 4. sınıf (n=23) müzik öğretmeni adayları arasından random (N=80) yoluyla seçilmiştir. Araştırmaya katılan öğrencilerin %52,5'i kız, %47,5'i erkektir. Diğer taraftan, müzik öğretmen adaylarının %58,8'i AGSL (müzik alanı), %41,3'ü ise diğer lise türlerinden (müzik alanı olmayan) mezundur.

Veri Toplama Araçları

Araştırma kapsamında kullanılan kişisel bilgi formu müzik öğretmeni adaylarının demografik özellikleri ile ilgili bilgi toplamak amacı ile araştırmacı tarafından hazırlanmıştır. Bu formda, araştırmaya katılan müzik öğretmeni adayları ile ilgili toplam 6 kişisel soru bulunmaktadır. Bu sorulardan araştırma için gerekli olanlar seçilip kullanılmıştır. Buna ek olarak müzik öğretmeni adaylarının akademik başarıları puanları transkriptlerinden elde edilmiştir.

Müzik Öğretmeni Adaylarının Üstbilişsel Farkındalık Düzeylerini tespit etmek için Schraw ve Dennison (1994) tarafından geliştirilen; Akın, Abacı ve Çetin (2007) tarafından Türkçe formuna çevrilerek geçerlik ve güvenirlik çalışması yapılan Üstbilişsel (Bilişötesi) Farkındalık Envanteri (Metacognitive Awareness Inventory) kullanılmıştır. Testin puanlamasında Likert tipi ölçek kullanılmıştır. Maddeler 5'li likert ölçek şeklindedir. 1'den 5'e kadar puanlama yapılmıştır. (1- Kesinlikle katılmıyorum, 2-Katılmıyorum, 3- Kararsızım, 4- Katılıyorum, 5- Tamamen katılıyorum). Testin uygulaması yaklaşık 20-25 dakikadır. Olumsuz madde bulunmayan envanterden alınan puanlar yüksek düzeyde üstbilişsel farkındalığı göstermektedir.

Verilerin Çözümlenmesi

Araştırmada belirlenen değişkenler yönünden müzik öğretmeni adaylarının demografik özelliklerini belirlemek amacıyla, "frekans ve yüzdelik" hesaplamalar yapılmış; sınıf değişkenine göre "Üstbilişsel farkındalık ve akademik başarı" düzeyleri için tek faktörlü "Anova" cinsiyet değişkenine göre "Üstbilişsel farkındalık ve akademik başarı" düzeyleri için ilişkisiz grup "t" testi kullanılmıştır. Bununla birlikte müzik öğretmeni adaylarının "Üstbilişsel farkındalık düzeyleri ve akademik başarı puanlarının birbirleri ile ilgili ilişkisini belirlemek ile ilgili Pearson Çarpım Momentler Korelâsyon Katsayısı" testi uygulanmıştır.

Bulgular

Bu bölümde, araştırmanın belirtilen alt problemleri doğrultusunda elde edilen veriler tablolaştırılmış ve yorumlanmıştır.

Alt problem 1: Müzik Eğitimi Ana Bilim Dalı öğretmen adaylarının; Üstbilişsel farkındalık düzeyleri ve akademik başarı puanları " Sınıf ve cinsiyet bağımsız değişkenleri "açısından farklılaşmakta mıdır?

Tablo 1: Müzik öğretmen adaylarının sınıf değişkenine göre "Üstbilişsel farkındalık düzeyi ve akademik başarı" puanları için yapılan tek faktörlü Anova sonuçları

Üstbilişsel Farkındalık Düzeyi	Kareler Toplamı	sd	Kareler Ortalaması	F	p	Anlamlı Fark
Gruplar Arası	3907.05	3	1302.35			
Gruplar İçi	74177.14	76	976.01	1.33	.269	
Toplam	78084.2	79				
Akademik Başarı	Kareler Toplamı	sd	Kareler Ortalaması	F	p	Anlamlı Fark
Gruplar Arası	5959.62	3	1986.54			
Gruplar İçi	5826.59	76	76.66	25.91	.000	2-1, 3-1, 4-1
Toplam	11786.22	79				

Tablo 1'de, sınıf değişkenine göre "Üstbilişsel farkındalık düzeyi ve akademik başarı" puanları için yapılan tek faktörlü Anova sonuçlarına göre; "Akademik Başarı" puanlarının istatistiksel açıdan .01 düzeyinde anlamlı bir farklılık gösterdiği görülmektedir [$F_{(3-76)}$=25.91, p<.01]. Scheffe sonuçlarına göre, 1. sınıf akademik başarı puanı ortalaması ($\overline{X}$= 58.46), 2. ($\overline{X}$= 74.80), 3. ($\overline{X}$= 76.74) ve 4. sınıf ($\overline{X}$= 80.88) akademik başarı ortalama puanlarına göre daha düşüktür. Sonuç olarak bu bulgu birinci sınıf öğrencilerinin akademik başarı düzeylerinin diğer sınıflara göre daha düşük olduğunu göstermektedir. Öte yandan, "üstbilişsel farkındalık düzeyi" açısından sınıf değişkenine göre istatistiksel olarak anlamlı bir fark bulunamamıştır.

Tablo 2: Müzik öğretmen adaylarının cinsiyet değişkenine göre "Üstbilişsel farkındalık düzeyi ve akademik başarı" puanları için yapılan ilişkisiz grup "t" testi sonuçları

Üstbilişsel Farkındalık Düzeyi	N	$\bar{X}$	S	sd	t	p
Kız	42	80.76	7.99	78	3.201	.002
Erkek	38	72.56	14.32			
Akademik Başarı	N	$\bar{X}$	S	sd	t	p
Kız	42	71.89	12.38	78	.759	.450
Erkek	38	73.97	12.09			

Tablo 2'de görüldüğü gibi, cinsiyet değişkenine göre üstbilişsel farkındalık düzeyleri için yapılan "t" testi sonuçlarında istatistiksel açıdan anlamlı bir fark olduğu belirlenmiştir [$t_{(78)}$=3.201, p<.05] Aritmetik ortalamalara bakıldığında ise kız öğrencilerin (Xort=80.76) erkek öğrencilere göre üstbilişsel farkındalık düzeylerinin daha yüksek olduğu anlaşılmıştır. Diğer taraftan, cinsiyet değişkenine göre akademik başarı puanları için yapılan ilişkisiz "t" testi sonuçlarına göre istatistiksel açıdan anlamlı bir farklılık bulunamamış; kız ve erkek öğrencilerin akademik başarı puanları birbirinden farklılaşmamıştır.

Alt problem 2: Müzik Eğitimi Ana Bilim Dalı öğretmen adaylarının; Üstbilişsel farkındalık düzeyleri ve akademik başarı puanları arasında istatistiksel olarak anlamlı bir fark var mıdır?

Tablo 3: Müzik öğretmen adaylarının "Üstbilişsel Farkındalık Düzeyi ve Akademik Başarı" puanları arasındaki ilişki ile ilgili "Pearson Çarpım Momentler Korelasyon Katsayısı" sonuçları

	N	$\bar{X}$	S	r	p
Üstbilişsel Farkındalık Düzeyi	80	199.85	31.43	.404	.000
Akademik Başarı	80	72.88	12.21		

Tablo 3 incelendiğinde, " Üstbilişsel Farkındalık Düzeyi ve Akademik Başarı " puanları arasında istatistiksel açıdan .01 düzeyinde anlamlı bir ilişki olduğu görülmektedir. Sonuç olarak öğrencilerin üstbilişsel farkındalık düzeyleri ve akademik başarı puanlarının birbirine etki ettiği anlaşılmaktadır. Bununla birlikte determinasyon katsayısı (r^2=0.16) dikkate alındığında, üstbilişsel farkındalık düzeyi toplam varyansın (değişkenliğin) %16'sının akademik başarıdan kaynaklandığı ya da tersi de söylenebilir.

Sonuç ve Tartışma

Akademik başarıyı etkileyen en önemli faktörlerden biri öğrenmede stratejik çalışma eksikliğidir (Ganz ve Ganz, 1990). Yapılan araştırmalarda kabul edilmektedir ki üniversite öğrencilerinin çoğu öğrenme süreçleri ve yöntemleri hakkında düşünmeyi öğrendiklerinde performanslarını önemli ölçüde geliştirebilir. Günümüz eğitiminde artık üstbilişsel stratejilerin geliştirilmesi zorunludur, çünkü üstbilişsel düşünme ve üstbilişsel stratejilerin kullanımı, öğrencilerin yeni öğrenme durumlarının üstesinden başarılı bir şekilde gelmesine ve akademik başarılarının yükselmesine imkân tanımaktadır (Elawar, 1992; Maqsud, 1997; Baker ve Cerro, 2000; Downing ve diğerleri, 2007).

Öğrencilerde üstbilişsel farkındalık düzeyinin çeşitli değişkenler açısından farklılaşıp farklılaşmadığına ilişkin yapılmış pek çok araştırma vardır. Zulkiply, Kabit ve Ghani (2008) araştırmalarında, öğrencilerin üstbilişsel farkındalık düzeylerini demografik değişkenler açısından karşılaştırmış, akademik yıl arttıkça öğrencilerin üstbilişsel farkındalık düzeylerinde de artış olduğunu belirtmişlerdir. Bununla birlikte araştırmada öğrencilerin cinsiyet değişkeni açısından üstbilişsel farkındalık düzeylerinde istatistiksel olarak anlamlı bir fark bulunamamıştır.

Diğer taraftan Stewart, Cooper ve Moulding (2007) araştırmalarında, öğretmen adaylarının, öğretme deneyimi ve yaş değişkenleri açısından üstbilişsel farkındalık düzeylerinde anlamlı farklılıklar olduğunu ortaya koymuşlar; bununla birlikte cinsiyet ve sınıf değişkenleri açısından öğretmen adaylarının üstbilişsel farkındalık düzeylerinde istatistiksel olarak anlamlı bir fark saptamamışlardır. Bu araştırmada elde edilen sonuçlarda, müzik öğretmeni adaylarının üstbilişsel farkındalık düzeylerinde sınıf değişkeni açısından istatistiksel olarak anlamlı bir fark bulunamamıştır. Araştırmada bu kapsamda elde edilen sonuçların, Stewart, Cooper ve Moulding (2007)'in araştırmalarından elde edilen sonuçlarla paralellik gösterdiği söylenebilir. Diğer taraftan; müzik öğretmeni adaylarının sınıf değişkeni açısından akademik başarı puanları arasında .01 düzeyinde anlamlı bir fark bulunmuş; birinci sınıf öğrencilerinin akademik başarı puanlarının diğer sınıflara oranla daha düşük olduğunu saptanmıştır. Bunun nedeni olarak birinci sınıf öğrencilerinin eğitim- öğretim ortamlarına uyum süreci gösterilebilir.

Araştırmada, müzik öğretmeni adaylarının cinsiyet değişkeni açısından akademik başarı puanları arasında istatistiksel olarak anlamlı bir farklılık bulunamamış; kız ve erkek öğrencilerin akademik başarı puanları birbirinden farklılaşmamıştır. Diğer taraftan cinsiyet değişkenine göre öğrencilerin üstbilişsel farkındalık düzeylerinde .05 düzeyinde anlamlı bir fark olduğu saptanmış; aritmetik ortalamalara bakıldığında ise bu farkın kız öğrencilerin (xort=80.76) lehine olduğu belirlenmiştir.

Saracaloğlu, Varol ve İlke (2006) çeşitli kurumlarda öğrenim gören üniversite öğrencileri üzerinde gerçekleştirdikleri araştırmalarında öğrenme ve ders çalışma stratejileri puanlarında istatistiksel

olarak cinsiyet değişkeni açısından kızların lehine anlamlı fark olduğunu saptamışlardır. Diğer taraftan, Somuncuoğlu ve Yıldırım (2000) tarafından yapılan çalışmada da, anlamlı ve yönlendirici bilişsel stratejilerin kullanımına yönelik cinsiyete göre kızlar lehine anlamlı fark bulunmuştur. Üstbilişsel farkındalığın, öğrenme stratejilerinin etkili kullanımı ile ilişkili olduğu göz önüne alındığında, araştırmalardan elde edilen sonuçlar, bu araştırmadan elde edilen sonuçları destekler niteliktedir.

Vadhan ve Stander (1993) kolej öğrencilerinin üstbilişsel becerileri ve sınav performansları arasındaki ilişkiyi araştırmış; üstbilişsel becerileri gelişmiş öğrencilerin sınav performanslarında da yüksek olduğunu ortaya koymuşlardır. Yüksek üstbilişsel becerilere sahip olan öğrencilerin sınav performans başarıları da daha yüksektir. Üstbilişsel becerileri daha düşük olan öğrencilerin ise sınav performansları daha düşüktür. Zulkiply, Kabit ve Ghani (2008) araştırmalarında, orta dereceli okullarda üstbilişsel farkındalık ve akademik başarı düzeyi arasındaki ilişkiyi incelemiş; Sonuç olarak, üstbilişsel farkındalık ve akademik başarı arasında anlamlı bir ilişki olduğunu saptamışlarıdır.

Masqud (1997) araştırmasında, lise öğrencilerinin matematik performanslarının üstbilişsel farkındalıkları ile ilişkili olduğunu belirtmiş; başarılı performans gösteren öğrencilerin, üstbilişsel farkındalıklarınında yüksek olduğunu saptamıştır. Diğer taraftan Everson ve Tobias (2001) üniversite öğrencilerine yönelik yaptıkları araştırmalarında, üstbiliş becerileri gelişmiş öğrencilerin daha iyi öğreniciler olduklarını ve üstbilişsel becerileri gelişmiş öğrencilerin akademik başarılarının da yüksek olduğunu ortaya koymuşlardır. Yapılan bu çalışmalara paralel olarak Yokuş (2009a) gitar eğitiminde üstbilişsel becerilerin geliştirilmesinin performans başarısına etkisine yönelik gerçekleştirdiği araştırmasında; üstbilişsel becerilerin geliştirilmesine yönelik etkinlerin, öğrencilerin üstbilişsel farkındalık düzeylerini ve buna bağlı olarak gitar performans başarılarını arttırdığını saptamıştır.

Bu araştırmadan elde edilen sonuçlarda, müzik öğretmeni adaylarının " üstbilişsel farkındalık ve akademik başarı" puanları arasında istatistiksel açıdan .01 düzeyinde anlamlı bir farklılık olduğu belirlenmiştir. Araştırmadan elde edilen sonuçlar, yukarıdaki araştırmalardan elde edilen sonuçlarla genel olarak paralellik göstermektedir.

Sonuç olarak, öğrencilerin üstbilişsel farkındalık düzeyleri ve akademik başarı puanları birbirlerini anlamlı derecede etkilemektedir.

Araştırmadan elde edilen sonuçlara dayalı olarak şu önerilerde bulunulabilir:

-Akademik başarı ve üstbilişsel farkındalık düzeyi arasındaki anlamlı ilişki göz önüne alındığında; öğretim süreçleri içerisinde müzik öğretmeni adaylarına, üstbilişsel farkındalığın geliştirilmesini destekleyici öğretim yapılmalıdır.

- Müzik eğitimcileri üstbiliş ve üstbilişsel stratejiler hakkında hizmet içi bir program kapsamında bilgilendirilmeli; öğrencilerin üstbilişsel becerileri kazanmalarına ilişkin rehberlik etmelidir.

- Müzik öğretmenliği programları incelendiğinde, müzik öğretmeni adaylarının üstbilişsel becerilerini geliştirmeye yönelik program örneklerine rastlanmamaktadır. Bu kapsamda program geliştirme çalışmalarında öğrencilerin kendi öğrenmesini kendi düzenleyebilen etkili öğreniciler haline gelebilmesi için üstbilişsel gelişimlerini destekleyici etkinliklere yer verilmelidir.

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OKUL ÖNCESİ EĞİTİM KURUMLARINA DEVAM EDEN VE DEVAM ETMEYEN 6 YAŞ ÇOCUKLARIN RESİMLERİNDEKİ FARKLILIKLAR

THE DIFFERENCES IN REGISTRATED PRESCHOOLERS AND UNREGISTRATED PRESCHOOLERS' DRAWING APPLICATIONS

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Özet

Okul öncesi öğrencilerinin kendilerini ifade etme yollarından biri resim çizmektir. Resim çizmek başlı başına çocukların bilişsel, sosyal, ahlaki, psikomotor, duygusal ve kişilik gelişimlerinin göstergesidir. Resimler çocukların hayat şartlarını, kişisel imkânlarını ve geleceklerini yansıtmaktadır. Bu çalışmanın amacı okul öncesi eğitim kurumlarına devam eden çocukların çizdiği resimler ile okul öncesi eğitim kurumlarına devam etmeyen çocukların çizdiği resimler arasındaki farklılıkları incelemektir. Bu çalışmada Ağrı şehir merkezinde yaşayan 2009-2010 eğitim-öğretim yılında okul öncesi eğitim kurumuna devam eden ve devam etmeyen 6 yaşındaki çocukların serbest resim uygulamaları karşılaştırmalı olarak gözden geçirilmiştir.

Anahtar Kelimeler: Okul Öncesi Resim Eğitimi, Şema Öncesi Dönem.

Abstract

The preschoolers' self expression language is drawing. The drawing itself, is the messenger of improvement of childrens' cognitive, social, moral, motor, emotional and their personality. They reflect their life conditions, their personal fecilities and their culture. The aim of this study is to research the significant differences in registrated preschoolers and unregistrated preschoolers' drawing applications, if any. In this study 5-6 aged registrated preschoolers and 5-6 aged registrated preschoolers' free drawing activities have been reviewed by being compared. Findings of this study were obtained from the results of drawing applications that registrated preschoolers and unregsitrated preschoolers Livin in Agri city centrum were drawn in 2009- 2010 school year.

Keywords: Presschool, Art Education, Artsitic improvement, Preschoolers, scratching period.

1.GİRİŞ

Resmin çocukların kendilerini ifade edebildiği en önemli yollardan biri olduğu inkâr edilemez. Kişiliğin, duyguların ifadesi ile sürekli ilintili olmuştur. Çocuklar resim yapmayı keşfetmek, problem çözmek ya da fikir ve gözlemlere görsel bir biçim vermek için kullanabileceği gibi; genel anlayışa göre resimle anlatımlar, içlerinde hem bilinçli hem de bilinçsiz anlamlar taşıyan benzersiz kişisel beyanlardır ve onları yaratan çocukların birçok farklı yönünü temsil ederler.

Çocuklar için resim yapmak, kişisel, benzersiz ve yepyeni bir şey yaratmak amacıyla farklı deneyimleri bir araya getiren bir süreçtir. Resim yapma süreci, çocuğun bir düşünceyi, duyguyu, olayı veya gözlemi iletebilmek için, içerik, stil, biçim ve kompozisyon gibi birçok bileşeni sentezleyerek renkleri, biçimleri, çizgileri seçip düzenlemesini gerektirir. Çocukların resimlerinde pek çok farklı unsur ve deneyim bir araya geldiğinden onların bu yaratıcı çalışmalarının basitçe açıklanması ve yorumlanması her zaman mümkün değildir (Malchiodi,1998).

Çocuk resmiyle ilgili önemli görüşlerin başında gelişim aşamalarına göre çocuk resmini sınıflandıran görüşler gelir.

On dokuzuncu yüzyılla birlikte çocukların resimle anlatımına ilgi duyan araştırmacılar, resim yapma gelişimine ilişkin bazı evreler olduğunu ileri sürmüşlerdir. A.B. Бакушинский (A.V.

Bakushinskiy) çocuk resimlerinin gelişimini 3 ayrı evrede incelemişti. Birinci evre 0-6 yaş arasıdır. Bu evrenin özellikleri: aktiflik, işin sonucuna ilgisizlik ve kayıtsızlık olarak belirtmiştir. İkinci evre 6-12 yaş arasıdır. Bakuşinsky'ye (1915) göre çocukların sanatsal yaratıcılığın başlangıcıdır. Çocukların resim çizimlerindeki tekniklerin daha gelişmiş olması, dekoratiflere ilgi duymaları, resme daha detaylı yaklaşımları ve süslemeleri, bu evrenin sanatsal ve duygusal açıdan bilişsel gelişimi üzerinde bir hâkimiyet gösterdiğini belirtmiştir. Üçüncü evre 12-15 yaş olarak belirtir ve renklerde solukluk daha natüralisttik bir özellik taşıdığını, sanatsal yaratıcılığında bir düşüş olduğunu vurgular (Akt. Moçalova, 2005).

Çocuk resimleri üzerinde araştırmalar yapan Plested (Plested, 1915) çocukların sanatsal gelişimini 3 evrede incelemiş ve 6-10 yaş arası çocukların merak, taklit ve yapıcılığın "parlak devri" adını vermiştir.

Çocuk resmini gelişimci yaklaşımla açıklayan Cyril Burt, çocuk resmindeki aşamaları: Karalama Evresi, Çizgi Evresi, Betimleyici Simgesellik, Betimleyici Gerçekçilik, Görsel Gerçekçilik, Gerileme Evresi, Sanatçı Yanın Yeniden Canlanma Evresi olarak sıralamıştır (Yavuzer, 1995).

Rhoda Kellogg (1969), Amerika Birleşik Devletleri ve otuz kadar ülkeden, milyonun üzerinde çocuk resmi inceleyerek, karalamadan dairesel hareketlerin keşfine kadar olan evrede (karalama evresi) yirmi adet şekil olduğunu saptamıştır (Tablo 1), (Kırışoğlu, 2002).

Tablo 1. Kellogg'un çizim evreleri

1. Karalama		Nokta vuruşlar
2. Karalama		Tek dikey çizgi
3. Karalama		Tek yatay çizgi
4. Karalama		Tek sağa sola yatay çizgi
5. Karalama		Tek kavisli çizgi
6. Karalama		Çok sayıda dikey çizgi
7. Karalama		Çok sayıda yatay çizgiler
8. karalama		Çok sayıda çapraz çizgiler
9. Karalama		Çok sayıda eğri çizgiler
10.Karalama		Yarım eğri çizgi
11.Karalama		Eğri, bükük kapalı çizgi
12.Karalama		Zig zag veya dalgalı çizgi
13.Karalama		Tek ilmik çizgi
14.Karalama		Çok sayıda ilmik çizgi
15.Karalama		Spiral çizgi
16.Karalama		Üst üste bınmış dolgu çember çizgiler
17.Karalama		Üst üste bınmış çember çizgiler
18.Karalama		Ayrık dairesel çizgiler
19.Karalama		Tek kesilmiş çember
20.Karalama		Hatalı çember

Çocukların sanatsal gelişimi, onların bedensel, duygusal, sosyal ve düşünsel gelişimleriyle sıkı sıkıya bağlantılıdır. Lowenfeld'e göre çocukların gelişim özellikleri dikkate alındığında, onların sanatsal gelişim evreleri, bulundukları yaşlardaki durumlarına göre beşe ayrılır (Artut, 2002).

- Karalama Dönemi (2-4 yaş)
- Şema Öncesi Dönem (4-7 yaş)
- Şematik Dönem (7-9 yaş)
- Gerçekçilik Dönemi (9-12 yaş)
- Mantık Dönemi (12-14 yaş)

Araştırma konusuyla ilgili olarak sadece şema öncesi dönem incelenecektir.

Şema Öncesi Dönem (4-7 yaş):

Bu dönemde çocuklarda mekân kavramı oluşmaya başlar. Daha önce çizdiği nesne ya da figür bir zemine oturmazken, çevresinde gördüğü her şeyin havada uçmadığını, bir yere bastığını algılamasıyla mekânı keşfeder. Bu mekân genellikle şema öncesi döneminin başlarında kâğıdın alt kenarıdır. Çocuğun yapmak istediği her şey yer olarak kabul ettiği alt kenara sıralanır (San, 1977).

Bu yaş çocukları, resmin renginden çok figürler ve objeler çizmeye daha çok ilgi duyarlar. Resim yapma serbesttir genellikle keyfi ve yaratıcıdır, kurallar yoktur ve güneş mor, inek sarı olabilir (Malchiodi, 2005).

6-7 yaşlarında görülen tipik özellikte saydam (röntgen) resim özelliğidir. Örneğin, çocuk şeffaf bir masa çizerek arkasındaki kişinin görünmesini sağlar.

Bu dönemde çocuklar, canlandırmak istedikleri nesne ya da kavramla, düşünceleri arasında ilişki kurma kaygısını yaşamaya başladıklarından dolayı kendilerine özgü biçimler yaratmaya başlarlar. Bunlar ilk benzetme çabalarıdır (Abacı, 2005).

Şema öncesi dönemdeki çocuklar genellikle yaptıkları resimleri göstermek ve açıklamak arzusundadır. Çocukla sağlıklı bir iletişim kuran ve onu iyi gözlemleyen bir yetişkin, çocuğun düşünceleri, ilgileri ve faaliyetlerinin anlamı hakkında pek çok şey öğrenebilir (Yavuzer, 1995).

Okullarda resim-iş eğitimi genel eğitimin bir parçası olarak görülmekle birlikte kendine özgü özel eğitimi, yöntemi ve teknikleri olan bir alandır. Öğrenciler için bu ders, düşünsel, bilişsel, duyuşsal ve bedensel etkinlikler içinde bulunarak kendilerini ifade etmelerine olanak sağlayan çok yönlü önemli sanatsal bir araçtır (Artut, 2007).

Okul öncesi sanat eğitiminde, ilköğretimin planlı, programlı formal eğitim sistemine göre daha özgür, daha bağımsız çalışmalara yer verilir. Çünkü bu dönemde kendilerine özgü, son derece özgür, özel anlatım biçimleri vardır.

2. YÖNTEM

Betimsel olan bu çalışma da, okul öncesi eğitim kurumlarına devam eden ve okul öncesi eğitim kurumlarına devam etmeyen 6 yaş grubundaki çocukların resimsel uygulamalarında fark olup olmadığı araştırılmıştır.

Çalışma Grubu

Araştırmanın çalışma grubunu, Ağrı il merkezinde Milli Eğitim Müdürlüğü'ne bağlı İbrahim Çeçen İlköğretim Okulu Anasınıfları öğrencileri, 15 Nisan İlköğretim Okulu Anasınıfı Öğrencileri ve okul öncesi eğitim kurumlarına devam etmeyen Ağrı Merkezinin Ozanlar Köyü ve Ağrı ilinin Hamur, Eleşkirt ilçelerinden 6 yaş çocukları oluşturmuştur. Bu araştırmada anasınıflarına devam eden kız çocukların sayısı 28, erkek çocukların sayısı 22'dir. Anasınıfına devam etmeyen kız çocukların sayısı 32, erkek çocukların sayısı 18'dir. Okul öncesi eğitim kurumlarına devam eden çocukların sayısı 50, devam etmeyenlerin sayısı da 50 olmak üzere toplam 100 çocuk araştırmanın çalışma grubunu oluşturmuştur.

Veri Toplama Araçları

Çalışma grubunu oluşturan çocuklara renkli kuru boya, pastel boya ve kurşun kalem sunulmuştur. Ayrıca çocuklara serbest bir konuda resim çizmeleri ***"senden bir resim yapmanı istiyorum, istediğin resmi çizebilirsin"*** yönergesi verilerek resim yapmaları istenmiştir.

Verilerin Analizi

Araştırmada, çocukların resimlerini analiz edebilmek amacı ile Lowenfeld'in "Sanatsal Gelişimin Altı Ana Evresinin" Karalama ve Şema Öncesi Dönemlerinin gelişimsel kriterleri temel alınmıştır.

3. BULGULAR

Okul öncesi eğitim kurumuna devam eden ve devam etmeyen 6 yaş grubu çocukların resim uygulamalarındaki farklılıkları araştırmak amacı ile yapılan bu çalışmanın bulguları karşılaştırılarak değerlendirilmiştir. Değerlendirmeye ölçüt olarak sanat ilkeleri ve şema öncesi dönemin resim özellikleri alınmıştır.Yapılan bu çalışmanın bulguları bu bölümde tablo şeklinde sunulmuştur.

Tablo 2. Okul öncesi eğitim kurumlarına devam eden ve devam etmeyen çocukların resimlerinin karşılaştırılması

Okul Öncesi Eğitime Devam Eden Çocukların Resimleri	Okul Öncesi Eğitim Kurumlarına Devam Etmeyen Çocukların Resimleri
• Görsel algıdaki gelişim diğer gruba göre çok daha belirgindir. • Çizgileri güçlü, form ve biçimleri belirgin, • Tüm resim kâğıdını kullanmaktadırlar, resim bir kompozisyon özelliğini taşımaktadır (objeler oldukça yoğun çizilmektedir), • Figürler ve objeler zemine basmaktadır, • Canlı, sıcak ve soğuk renkler kullanılmaktadır, • Çizdikleri objelerin gerçek renkleri kullanılmaktadır, • Sınırlı boyamaya dikkat edilmiştir, • İnsan figürü gerçekçidir, vücut	• Görsel algıdaki gelişim zayıftır. • Çizgileri zayıf, form ve biçimler karışık. net değil, • Kullandığı kâğıtta boş alan çoğunluktadır, dolayısıyla resim kompozisyon özelliğini taşımamaktadır (tek obje yada figür çizilmektedir), • Mekân olgusunu göremediğimizden dolayı figürler ve objeler havada uçuşmaktadır, • Tek kalemle çizilmiş, yarı boyanmış veya hiç boyanmamış figürler, • Dekoratif renkler daha çok kullanılmaktadır (kırmızı bulutlar, mavi fil, mavi ağaç), • Boyama zayıftır, daha çok karalamadır, • Çöp adam çizimleri etkindir, çizgiler

orantılıdır (küçük kafa, büyük gövde), • İnsan figürü ayrıntılıdır (kafa, gövde, kollar, ayaklar, saçlar, kulaklar, gözler, burun, ağız), • Resimdeki objeler orantılıdır.	orantılı değildir, • İnsan figürü eksiktir (kollar yoktur veya bir kol çizilmiştir, burun, saçlar yoktur), • Resimdeki objeler orantılı değildir (küçük ev büyük insan).

4. TARTIŞMA

Serbest resim faaliyetinde çocuğun kâğıdı kullanış biçimi, resimdeki kompozisyon ve kullanılan renkler, uzman gözlemciler için anlamlıdır. Çünkü çocuk, "resim" yaparken kendini özgür bir *"oyun"* ortamında hissettiğinden tüm davranışları kendiliğinden doğal gerçekleşmektedir. Bu doğal ortam, gözlemci uzmana, çocuğun gerçek duygularından haberdar olma olanağı vermektedir. Çocuk resimlerinin başlıca önemi, çocuğun düşünce şeklini ve içeriğini yansıtmasıdır. Resim bize konu ve figür seçiminde rol oynayan kültürel ve sosyal belirleyicileri değerlendirme olanağı verir; böylelikle yaşın ve diğer faktörlerin etkisi görülebilir (Yavuzer, 1995).

Çocukların sanatsal anlatımlarındaki gelişim evreleri onların resimlerini anlamanın temelini oluşturmaktadır. Belli yaş grubu için neyin normal ya da beklenir olduğunu bilmek, çocukların resimlerinde neyin olağandışı veya beklenmedik olduğunu görebilmek için bize önemli ipuçları sağlamaktadır. Gelişimsel gözle çocukların resimlerini anlamak, sadece değerlendirme için önemli olan bilgiyi sağlamakla kalmaz, aynı zamanda etkin müdahaleler yapılması için eşsiz ipuçları verebilir. Okul öncesi dönem çocuklarının gelişimsel özelliklerini belirlemede uygulanan ölçme araçları ne kadar çeşitli olursa, çocuklar hakkında o ölçüde fazla bilgi elde etmek mümkün olmaktadır. Bu noktada çizimler, okul öncesi dönem çocuklarının kendilerini ve çevrelerini algılayışları, yetenek ve ilgi alanları ve bunlarla ilgili yaptıkları gözlemler, aynı zamanda, küçük kas motor becerileri hakkında bilgi edinmemizi sağlamaktadır.

Gelişim ve resim açısından önemli olan şey, çocukların sanatsal gelişimi kesin bir dikey süreç olmadığı ve bu gelişmeyi çocukların yaşamındaki pek çok faktörün etkileyebileceğidir. Sanatsal gelişimi duygusal, bilişsel, sosyal ve bedensel büyüme gibi pek çok faktör biçimlendirdiğinden, resim tarzındaki ilerleme ve gerileme bu etkilerden bir veya birkaçının sonucu olabilir. Çocuklar ana babaları, kardeşleri ve öğretmenleri ile olan kişilerarası ilişkilerinden çok etkilenirler ve bu etkileşimlerin izlenimleri onların resimle anlatımlarına yansır. Mahalle, okul ve cemiyet imgeleri çocukların resimlerindeki yansıtması olarak kabul edilebilir (Malchiodi, 2005).

Resim eğitimi programlarının yürütücüsü olan okul öncesi öğretmenlerinin sanata ilişkin bakış açılarında bazı farklılıklar gözlenebilir. Bu anlamda onların uyguladıkları sanat programlarının içeriğinde öğretmenlerin aldıkları sanat eğitimi, sanata bakış açıları, yaklaşımları ve diğer kişisel özellikleri uygulanacak olan sanat eğitiminin niteliğini belirleyebilmektedir (Artut, 2007).

Okul öncesi çocuk eğitimi ilköğretime göre eğitimsel açıdan daha özel bir durumu gerektirmektedir. Doğal olarak okul öncesi öğretmenlerinin çocuk eğitimine yaklaşımları, anlayışları, görev ve sorumlulukları da kendi içinde de özel bir anlam taşır. Dolayısıyla okul öncesi eğitimi almayan çocukların bu eğitimden yararlanmaması duygusal, bilişsel, sosyal ve fiziksel gelişimlerini aynı zamanda okul öncesi eğitim kurumlarında yapılan sanat eğitimi etkinliklerinden yararlanmaması okul öncesi eğitim kurumlara devam eden çocuklarla göre gelişim faklılıkları göstermektedir.

Genellikle sosyoekonomik düzeyi düşük otoriter, geleneksel ailelerde çocuğun yaratıcı düşünce ve eylemleri önemsenmez, kabul görünmez, desteklenmez (Artut, 2007).

5. SONUÇ VE ÖNERİLER

Araştırmaya katılan okul öncesi eğitim kurumlarına devam eden ve devam etmeyen 6 yaş çocukların resimleri arasında belirgin farklılıklar bulunmaktadır. Okul öncesi eğitim kurumlarına devam eden çocukların resimlerinin özellikleri şema öncesi dönemin özellikleri belirgin iken, okul öncesi eğitim kurumlarına devam etmeyen aynı yaş çocukların daha karalama döneminin özelliklerinin taşıdığı gözlemlenmiştir.

Ayrıca okul öncesi eğitim kurumlarına devam eden çocukların resimlerini ayrıntılı olarak anlatabildikleri, resimlerinde bir kompozisyon oluşturdukları ve daha çok resim çizme istekleri olduğu gözlemlenmiş iken, okul öncesi eğitim kurumlarına devam etmeyen çocukların resimlere fazla ilgileri olmadığı, biran önce resimlerini tamamlamak istedikleri, resimleri ile ilgili kısa kısa açıklama yaptıkları dikkat çekmektedir.

Sosyokültürel etkiler dikkate alındığında genelde çocukların resim yapmaya karşı tavır ve motivasyonlarını etkilediği görülmektedir. Sosyokültürel düzeyleri yüksek olan çevrede yetişen çocukların sanatsal gelişimi, sosyokültürel düzeyi düşük çevrede yetişen çocuklardan daha ileride olduğu göze çarpmaktadır.

Okul öncesi eğitim kurumlarına devam etmeyen çocuklar için araştırmada elde edilen bu sonuçlar ışığında aşağıdaki öneriler sunulabilir;

- Ebeveynlerin çocukların gelişim evreleri hakkında bilgi edinmeleri,
- Ebeveynlerin iyi bir model olmaları ve çocukları ile birlikte resim çizerek onların motivasyonunu arttırmaları,
- Çocukların ince motor gelişimi ile ilgili becerilerini geliştirecek etkinliklere daha çok yer verilmesi,
- Evde çocuğun yaratıcılığının geliştirilmesine yönelik ortam sağlanması,
- Çocukların gelişim düzeylerine göre resimler, fotoğraflar vererek inceleme fırsatı verilmesi,
- Çizim, boyama için fırsatlar yaratılmalı, uygun materyaller (kâğıt, kalemler, boya, fırça vs.) sunulması,
- Çocuğun resimleri önemsenmeli, resim hakkında konuşturulmalı, güdülenmeli.

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EKLER

Okul Öncesi Eğitim Kurumlarına Devam Eden Çocukların Çalışmaları










Okul Öncesi Eğitim Kurumlarına Devam Etmeyen Çocukların Çalışmaları

















OKULÖNCESİ EĞİTİMİ ALMIŞ VE ALMAMIŞ İLKÖĞRETİM 1.SINIF ÖĞRENCİLERİNİN BAŞARILARININ DEĞERLENDİRİLMESİ

THE EVAULATION OF THE FIRST GRADE PRIMARY SCHOOL STUDENTS'S SUCCESS WHO HAVE PRE-SCHOOL EDUCATION AND WHO HASN'T

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ÖZET

Bu araştırmada, okulöncesi eğitimi almış öğrencilerle almamış öğrencilerin başarılarının karşılaştırılması (belirlenmesi) amaçlanmıştır. Araştırmanın evrenini, 2008–2009 eğitim öğretim yılında, Hatay'daki tüm ilköğretim okullarının 1.sınıfları oluşturmaktadır. Örneklem ise evrenin %50'si alınarak 20 ilköğretim okulu olarak belirlenmiştir. Bu okulların içerisinden de her okuldan 2 öğretmen örnekleme alınmıştır. Araştırmada veriler araştırmacı tarafından hazırlanan öğretmen görüşme formu yoluyla toplanmıştır. Açık uçlu 5 sorudan oluşan görüşme formu ile toplanan verilerin analizinde içerik analizi yöntemi kullanılmıştır. Araştırma sonuçlarına göre okulöncesi eğitimi almış öğrencilerin akademik başarıları, temel beceri düzeyleri, öğretmenleri ile iletişim becerileri, arkadaşlarıyla iletişim becerileri ve diğer bazı becerileri okul öncesi eğitim almamış öğrencilere göre daha iyi çıkmıştır, üstün çıkmıştır. Öğretmenler okulöncesi eğitimi almış öğrencilerin ders notlarının daha yüksek olduğunu, kavrama yeteneklerinin daha üstün olduğunu, öğretmen ve arkadaşları ile iletişimlerinin daha rahat ve etkili olduğunu, temel becerilerinin daha yüksek seviyede olduğunu belirtmişlerdir.

Anahtar kelimeler: Okulöncesi Eğitim, Anaokulları, Öğretmen Görüşleri

ABSTRACT:

This study aimed to compare the students who had pre-school education with those that did not. The universe of the study involved all the primary schools' students in the first grade in Hatay in the years of 2008-2009. The sample included 20 primary schools, which was 50% of the universe. The sample further involved two teachers from each of those schools. The data was gathered through an interview protocol prepared by the researcher. The data gathered via an interview protocol with five open-ended questions was analyzed. The results indicated that concerning academic achievement, basic level skills, communication skills with their teachers, communication skills with their peers, and some other skills, the students that had pre-school education outperformed those who had not. To the teachers, the students that had pre-school education achieved higher scores, had greater comprehension, had better and more effective communication ability, and superior basic skills than those of their counterparts.

Key words: Pre-school education, kindergarten, teachers' opinions.

1. GİRİŞ

Okulöncesi dönem, öğrenmenin en yoğun olduğu, temel alışkanlıkların kazanıldığı ve bilişsel yeteneklerin hızlı gelişip biçimlendiği 0–6 yaş (0–72 ay) çocuklarını kapsayan bir dönemdir. Bu dönem çocuğunun eğitimini üstlenen okulöncesi eğitim kurumları, bebeklerin/çocukların gelişimlerini, sağlıklı ve düzenli fiziksel koşullar içinde, toplumsal/kültürel açıdan en doğru biçimde yönlendiren, onlarda sağlam bir kişiliğin, sosyal duyarlılığın ve yaratıcı zekânın temellerini atan, uzman eğitimci kadroya sahip, temel işlevinin eğitim olması amaçlanan kuruluşlardır (Ömeroğlu, 2000; Poyraz ve Dere, 2003).

Okulöncesi kurumları, çocukların sözel faaliyetlerine önem veren ve onlara hareket imkânı sağlayan kurumlar olmalıdırlar. Bu kurumlarda renk, sayı ve kavramlar çocuğun düşüncesine uygun bir biçimde somuta indirgenerek verilir. Çocuk, en iyi ve örgütlü oyun ortamını okulöncesi eğitim

kurumlarında bulur. Böyle özgür ve duyguların rahatlıkla ifade edildiği ortamda da çocuğun gizil güçleri kolayca ortaya çıkar (Yavuzer, 1995, s.152). Bu dönemde çocuğa sağlanacak deneyimlerle kazanacağı bilgi, beceri ve alışkanlıklar, onun sonraki öğrenim yaşamının yanı sıra sosyal ve duygusal yaşamını da biçimlendirecek güçtedir. Nitekim yapılan bilimsel araştırmalar ile çağdaş eğitim alanındaki uygulamalar, nitelikli, sağlıklı ve istenen davranışlara sahip bireyleri yetiştirmek için eğitime erken yaşlarda başlanması gereğini ortaya koymuştur (Zembat, R,1994). Son yıllarda yapılan araştırmalar altı yaşına kadar çocukların belirli bir düzeyde sosyal becerileri edinemedikleri takdirde hayatları boyunca risk altında olma olasılığının yüksek olduğunu göstermektedir (Katz ve McClellan, 1997; Merrell ve Gimpel, 1998).

Aral ve arkadaşları (2000) okul öncesi eğitimi, çocuğun doğduğu günden temel eğitime başladığı güne kadar geçen yılları kapsayan ve çocukların daha sonraki yaşamlarında önemli roller oynayan; bedensel, psikomotor, sosyal-duygusal, zihinsel ve dil gelişimlerinin büyük ölçüde tamamlandığı, ailelerde ve kurumlarda verilen eğitimle kişiliğin şekillendiği gelişim ve eğitim süreci olarak tanımlamışlardır.

Gürkan (1988), ise okul öncesi eğitimi, "0–6 yaşlarındaki çocukların bedensel, zihinsel, duygusal ve sosyal yönlerden gelişmelerini, sistemli bir ortam içinde daha iyi sağlayan, yeteneklerinin gelişmesine yardım eden, onları ilköğretime hazırlayan ve temel eğitim bütünlüğü içinde yer alan bir eğitimdir" diye tanımlamıştır.

Bu tanımlardan da anlaşılacağı gibi okul öncesi eğitim, doğumdan ilköğretim yıllarına kadar yani bireyin sadece zihinsel değil fiziksel ve fizyolojik olarak gelişmesinin en yoğun ve hızlı olduğu dönemleri kapsayan, çocukların temel bilgi ve becerilerini kazanmalarını sağlayan aynı zamanda onların bedensel, duygusal, zihinsel ve sosyal açıdan gelişimlerini destekleyen bir eğitim sürecidir.

0-72 aylar arasını kapsayan okulöncesi dönem yılları; bilişsel, sosyal –duygusal, psikomotor ve dil gelişiminin hızlı olması, bilgi, beceri ve alışkanlıkların kazanılması açısından yaşamın en kritik dönemlerinden biridir. Çocukların bu dönemde edindiği tüm bilgi, beceri ve alışkanlıklar yaşantısını etkileyecek güçtedir. Bu bağlamda okulöncesi eğitim, tüm eğitim basamaklarının temelini oluşturur. Okul öncesi dönemde çocukların aldığı eğitimin, gelecek yaşamlarındaki sosyal beceri ve akademik başarıları edinme bağlamında önemi büyüktür (Zigler ve Muenchow, 1992; akt. Niles,2004:1).Okul öncesi eğitim döneminde yapılan küçük hatalar çocukların ileriki yaşamlarında önü kesilemez problemlere yol açabileceği gibi bu kritik dönemde okul öncesi eğitimi ile çocukların ileriki yaşamlarındaki yapacakları yararlı işlerin tohumları atılmaktadır.

İlk ve en iyi öğretmenin, anne olduğu bir gerçektir. Ancak, anne-baba ne kadar kültürlü, çevre ne kadar elverişli olursa olsun, çocuğun okulöncesinde muhtaç olduğu eğitimin okuldan uzak bir ortamda, yeterince verilebileceği söylenemez. Çünkü okulun taşıdığı bazı özellikleri ailede bulmamız mümkün değildir. İnsan hayatının en önemli dönemi olduğuna inanılan okulöncesi döneminde, çocukların yaşadıkları, yetiştikleri ve büyüdükleri ortam çok önemlidir. Çocuk ailesinden bekleneni alamıyor, çevresi de çocuğa bekleneni veremiyorsa ve çocuk okulöncesi eğitim kurumundan da yoksun ise o çocuğun yetişmesinde ve gelişmesinde büyük eksiklikler meydana gelir. Böyle bir ortamda çocuğun sağlıklı ve normal bir insan olarak yetişmesi güçtür ve tamamen tesadüflere kalmıştır (Yangın,1991, s:9).

Bu araştırmada, ilköğretim 1. kademe 1. sınıf öğretmenlerine yönelik hazırlanmış olan "öğretmen görüşme formu" kullanılarak okulöncesi eğitimini almış ve almamış 1. sınıf öğrencilerinin akademik başarı, temel beceri, iletişim ve diğer bazı özellikleri arasındaki farklılıkların değerlendirilmesi amaçlanmıştır. Bir başka ifade ile bu çalışmada aşağıda belirtilen araştırma sorularına cevaplar aranacaktır.

1. Okulöncesi eğitimi almış ve almamış öğrencilerin akademik başarıları arasında fark var mıdır?
2. Okulöncesi eğitimi almış ve almamış öğrencilerin öğretmenle iletişimleri arasında fark var mıdır?
3. Okulöncesi eğitimi almış ve almamış öğrencilerin arkadaşları ile iletişimleri arasında fark var mıdır?
4. Okulöncesi eğitimi almış öğrencilerin temel becerileri arasında fark var mıdır?

2. YÖNTEM

2.1. Örneklem: Bu araştırma, genel tarama türlerinden betimsel araştırma modelindedir. Araştırmanın evrenini Hatay il merkezindeki 2008-2009 eğitim öğretim yılında ilköğretim okullarında görev yapan ilköğretim 1.kademe 1.sınıf öğretmenleri oluşturmaktadır. Araştırmanın örneklemini ise il merkezindeki ilköğretim okulları arasından uygun örneklem yöntemi ile seçilen 40 öğretmen oluşturmaktadır.

2.2. Veri Toplama Aracı ve Verilerin Toplanması: Bu araştırmada, veri toplama aracı olarak yarı yapılandırılmış öğretmen görüşme formu hazırlanmıştır. Toplam açık uçlu 5 sorudan oluşan bu form, MEB'in okulöncesi eğitim amaçları doğrultusunda soru havuzu oluşturularak MKÜ Eğitim Fakültesi Öğretim üyelerine ve ilköğretimde görev yapan öğretmenlere sunulmuştur. Gelen eleştiriler ve öneriler doğrultusunda gerekli düzenlemeler yapılarak görüşme formu son halini almıştır. Verilerin toplanması sırasında öğretmenlerle yüz yüze görüşmeler yapılarak görüşme formu sorularına verdikleri cevaplar araştırmacı tarafından kaydedilmiştir. Örnekleme alınan okullar araştırmacının kolay ulaşabileceği uygun örnekleme yöntemi ile seçildiği için, örneklemdeki bütün okullar ziyaret edilmiş ve görüşme formları yerinde doldurulmuştur.

2.3. Verilerin Çözümlenmesi: Örneklemde bulunan öğretmenlerden görüşme formu vasıtasıyla toplanan nitel veriler içerik analizi yöntemi ile değerlendirilmiştir. Değerlendirme sırasında her görüşme formunun birinci sorularına verilen cevaplar tek tek okunmuş ve her formdan soruya ilişkin ifadeleri gösteren cümleler çıkarılmıştır. Bu cümleler daha sonra değerlendirilerek daha anlaşılır olması için benzer cümleler birleştirilmiş ve anlamını bozmadan bazı ifadeler değiştirilmiştir. Daha sonra frekansları belirlenerek tablolaştırılmıştır. Her formda birden fazla görüş bulunduğundan ve her görüş bir frekans olarak değerlendirildiğinden dolayı toplam frekans örneklem sayısından fazla çıkmıştır.

3. BULGULAR VE YORUM

Elde edilen bulgular şu şekildedir;

Tablo 1. Okulöncesi Eğitimi Almış ve Almamış Öğrencilerin Akademik Başarıları Hakkında Öğretmen Görüşleri

Sıra	Öğretmen Görüşleri	Frekans
1	Akademik başarıları arasında fark vardır.	39
2	Okulöncesi eğitim alan öğrencilerin notları daha yüksektir.	30
3	Okulöncesi eğitim alan öğrenciler daha çabuk ve iyi kavrıyor.	18
4	Okulöncesi eğitim alan öğrencilerin derslere hazır olma düzeyleri daha yüksektir.	5
5	Okulöncesi eğitim almayanlar daha yavaş öğreniyor.	3
6	Okulöncesi eğitim alanlar öğrenmeye daha isteklidir.	2
7	Okulöncesi eğitim almayanlar daha geç kavrıyor.	2
8	Akademik başarıları arasında fark yoktur.	1
9	Okulöncesi eğitim alanlar öğrenmeye daha istekli ve hazır oluyorlar.	1
10	Okula ilk başladığında fark oluyor.	1
11	Okulöncesi eğitim almayan öğrenciler okuldan korktuğu için derslerden de korkuyor bu yüzden başarısız olabiliyorlar.	1

Tablo 1'e göre okulöncesi eğitim almış ve almamış öğrencilerin akademik başarıları arasında farkın olduğu öğretmenlerin neredeyse tamamı tarafından belirtilmektedir (f=39). Bu farkın okulöncesi eğitim almış öğrencilerin lehine olduğu görülmektedir. Öğretmenlerin çoğu, okulöncesi eğitim almış öğrencilerin notlarının diğerlerine oranla daha yüksek olduğu (f=30), bir takım öğretmenler ise okulöncesi eğitim almışların kavrama yeteneğinin daha çabuk ve hızlı olduğu (f=18) yönünde görüş bildirmişlerdir. Araştırmaya katılan öğretmenlerin görüşleri dikkate alındığında okulöncesi eğitim almış öğrencilerin derslerdeki başarıları diğerlerine nazaran olumlu yöndedir. Aynı öğretmenler okulöncesi eğitim almamışlar hakkında ise daha yavaş öğrendiklerini (f=3), dersleri geç kavradıklarını (f=2) ve ilk günlerde okul ortamına alışamadıkları için bir korkunun oluştuğunu ve bu korkunun derslerde de görüldüğünü bu yüzden de başarısız olabildiklerini (f=1) belirtmişlerdir.

Tablo 2. Okulöncesi Eğitimi Almış ve Almamış Öğrencilerin Öğretmenleriyle İletişimleri Konusunda Öğretmen Görüşleri

Sıra	Öğretmen Görüşleri	Frekans
1	Öğrencilerin öğretmenleriyle iletişimleri arasında fark vardır.	33
2	Okulöncesi eğitim almışlar kendilerini öğretmelere karşı daha rahat ve açık ifade ediyorlar.	25
3	Okulöncesi eğitim almamış öğrenciler çekingen ve utangaç davranıyorlar.	9
4	Okulöncesi eğitim almışlar konuşurken nezaket kurallarına daha duyarlıdır.	5
5	Öğretmelerle iletişimleri öğretmenin tutumuna bağlıdır.	3
6	Okulöncesi eğitim almışlarda öğretmen korkusu olmuyor.	3
7	Okulöncesi eğitim almışlar öğretmenle daha samimi oluyor.	2
8	Okulöncesi eğitim almışlar öğretmene daha çok soru soruyor.	2
9	Okulöncesi eğitim almışlar söz alarak konuşuyor.	1
10	Okulöncesi eğitim almışların okula adaptasyonu daha kolay oluyor.	1

Tablo 2 incelendiğinde okulöncesi eğitim almış ve almamış öğrencilerin öğretmenleriyle iletişimleri konusunda fark olduğu öğretmenlerin büyük çoğunluğu tarafından dile getirilmektedir (f=33). Buradaki farkın eğitim almışlar lehine olduğu öğretmenlerin diğer görüşleriyle örtüşmektedir. Öğretmenler, okulöncesi eğitim almış öğrencilerin kendilerini daha rahat ve açık bir şekilde ifade ettiklerini (f=25), almamışların ise çekingen ve utangaç davrandıklarını (f=9) belirtmektedirler. Bazı öğretmenler ise öğrencilerin öğretmenlerle iletişimlerinin öğretmenlerin tutumlarına bağlamaktadırlar (f=3). Ayrıca okulöncesi eğitim almış öğrencilerin nezaket kurallarına diğer öğrencilere oranla daha duyarlı olduklarını (f=5) belirtmektedirler.

Tablo 3. Okulöncesi Eğitimi Almış ve Almamış Öğrencilerin Arkadaşlarıyla İletişimleri Konusunda Öğretmen Görüşleri

Sıra	Öğretmen Görüşleri	Frekans
1	Öğrencilerin arkadaşlarıyla iletişimleri arasında fark vardır.	39
2	Eğitim almış öğrenciler daha rahat iletişim kuruyorlar.	14
3	Eğitim almışlar sosyal aktivitelere çekinmeden katılıyor.	7
4	Eğitim almışlar daha paylaşımcıdır.	7
5	Eğitim almamışlar içe kapanıktır.	7
6	Eğitim almışların liderlik vasıfları daha baskındır.	5
7	Eğitim almışlar yardım severdir.	3
8	Eğitim almışlar almamışları dışlayabiliyor.	2
9	Eğitim almışlar arkadaşlarını birbirlerine düşürüyor.	2
10	Eğitim almamışlar daha kavgacı oluyor.	2
11	Arkadaşlarıyla iletişimleri arasında fark yoktur.	1
12	Arkadaşlarıyla ilişkileri çevre ve öğretmene bağlıdır.	1

Tablo 3 incelendiğinde okulöncesi eğitim almış ve almamış öğrenciler arasında arkadaşlarıyla iletişimleri konusunda farkın olduğu öğretmen görüşleriyle ortaya çıkmış (f=39) ve farkın eğitim almışlar lehine olduğu öğretmen görüşleriyle belirtilmiştir. Bu görüşlere örnek olarak eğitim almışların diğerlerine oranla daha rahat iletişim kurdukları(f=14), sosyal aktivitelere çekinmeden katıldıkları (f=7), daha paylaşımcı oldukları (f=7), liderlik vasıflarının daha baskın olduğu(f=5), almamışların ise içe kapanık oldukları (f=7) öğretmenler tarafından belirtilmektedir. Fakat bazı öğretmenler aksi durumdan da bahsetmektedir. Mesela eğitim almış öğrencilerin arkadaşlarını birbirine düşürdükleri (f=2) ve almamışları ortamdan dışlayabildikleri (f=2) öğretmenler tarafından belirtilmiştir.

Tablo 4. Okulöncesi Eğitimi Almış ve Almamış Öğrencilerin Temel becerileri (eleştirel düşünme, yaratıcı düşünme, problem çözme) Hakkında Öğretmen Görüşleri

Sıra	Öğretmen Görüşleri	Frekans
1	Öğrencilerin temel beceriler yönünden birbirleri arasında fark vardır.	36
2	Eğitim almışların kendi başlarına iş yapabilme becerileri daha gelişmiştir.	10
3	Eğitim almışlar daha eleştirel düşünebiliyor.	8
4	Eğitim almışlar bir problem karşısında daha çabuk ve kolay çözüm üretebiliyor.	7
5	Eğitim almışlar sınıf içerisinde yeni ve özgün fikirlere sahip.	6
6	Eğitim almışlar canları sıkıldığında oyun üretebiliyorlar ya da anaokulunda öğrendiklerini uyguluyorlar	5
7	Eğitim almamışların kendilerine güvenleri daha az	5
8	Eğitim almışlar daha yaratıcı.	5
9	Eğitim almışlar daha girişimci.	4
10	Öğrenciler arsında belirgin bir fark göremedim.	4
11	Eğitim almamışlar problemleri kendileri aşamıyor öğretmene daha bağımlı oluyor	3
12	Eğitim almışların hayal dünyaları çok geniş.	2
13	Eğitim almışlar kendilerine daha çok güveniyor.	1
14	Eğitim almamışlar boş vakitlerini nasıl dolduracaklarını tam olarak bilmiyor.	1

Tablo 4'e göre okulöncesi eğitim almış ve almamış öğrencilerin temel beceriler açısından aralarında fark olduğu (f=36) öğretmenler tarafından belirtilmektedir. Bu farkın eğitim almışlar lehine olduğu öğretmenlerin diğer görüşleriyle de desteklenmektedir. Örneğin okulöncesi eğitim almış öğrencilerin kendi başlarına iş yapabilme becerileri daha gelişmiş oldukları (f=10), diğerlerine oranla daha eleştirel düşündükleri (f=8), herhangi bir problemle karşılaştıklarında daha çabuk ve kolay çözüm ürettikleri (f=7), sınıf içerisinde orijinal fikirler ortaya kayabildikleri (f=6) ve daha yaratıcı oldukları (f=5) öğretmenler tarafından bildirilmiştir. Ayrıca eğitim almamış öğrencilerin kendilerine güvenlerinin az olması (f=5) ve herhangi bir probleme karşı öğretmene bağımlı olması (f=3) öğretmenlerin eğitim almamış öğrenciler hakkındaki görüşleri olarak ortaya çıkmıştır.

Tablo 5. Okulöncesi Eğitimi Almış ve Almamış Öğrenciler Hakkında Öğretmenlerin Diğer Görüşleri

Sıra	Öğretmen görüşleri	Frekans
1	Eğitim almışların kas sistemi daha gelişmiş olduğundan el becerileri daha gelişmiştir	40
2	Eğitim almışlar okul kurallarına daha fazla özen gösteriyor.	27
3	Eğitim almışlar Türkçeyi daha doğru ve etkili kullanıyorlar.	26
4	Eğitim almamışlar argo ve küfürlü konuşabiliyor.	4
5	Eğitim almışlarda disiplinsizlik görülebiliyor.	2
6	Eğitim almışlar problemler karşısında daha iyimser.	1

Tablo 5 incelendiğinde öğretmenlerin tamamı okulöncesi eğitim almış öğrencilerin el kaslarının diğerlerine oranla daha gelişmiş olduğunu söylemektedirler (f=40). Öğretmenler okulöncesi eğitim almış öğrencilerin daha olumlu tutum içinde olduklarını belirtmişlerdir. Mesela, eğitim almışlar okul kurallarına daha fazla özen gösteriyor (f=27) ve Türkçeyi daha etkili ve doğru kullanıyorlar (f=26) diye görüş bildirmişlerdir. Fakat eğitim almış öğrencilerin bazılarında disiplinsiz davranışların görüldüğünü de belirtmişlerdir. Ayrıca eğitim almamış öğrencilerin argo ve küfürlü konuşabildiği bazı öğretmenler tarafından belirtilmiştir.

4. TARTIŞMA

Bu araştırmada, okulöncesi eğitim almış ve almamış öğrencilerin akademik başarıları arasında farkın olduğu öğretmen görüşleriyle ortaya çıkmıştır. Bu farkın okulöncesi eğitim almışların lehine olduğu ve okulöncesi eğitim almış öğrencilerin notlarının yüksek olduğu ve daha çabuk ve hızlı kavradıkları öğretmenler tarafından belirtilmektedir. Okulöncesi eğitimin çocuğu ilköğretime hazırlamak amacı göz önüne alındığında, okulöncesi eğitim almış öğrencilerin, ilköğretim 1. sınıfta kazandırılması

gereken bilgi ve becerilerin temelini okulöncesinde almış olması olabilir. Çünkü okulöncesinden gelen öğrenciler hazır bulunuşluk düzeyi itibari ile ilköğretime daha hazır gelmektedir. Gürkan (1979) okul öncesi eğitimin çocuğun gelişimine etkileri konusunda yaptığı " Okul Öncesi Eğitimin İlkokuldaki Etkileri" konulu araştırmasında, okul öncesi eğitim alan birinci sınıf öğrencilerinin okul öncesi eğitim almayan öğrencilere göre zihinsel gelişimlerinin daha üstün olduğunu belirtmiştir. Dağlı (2007)'nın yaptığı çalışmanın bulguları da bu sonucu destekler niteliktedir. Okulöncesi eğitim almış ve almamış öğrencilerin Türkçe ve matematik dersleri akademik başarı puanları arasında anlamlı bir fark vardır ve bu fark aritmetik ortalamalara baktığımızda okulöncesi eğitim almışların lehinedir (Dağlı, 2007,67). Bazı öğretmenler ise okulöncesi eğitim almamış öğrencilerin daha yavaş öğrendiklerini belirtmişlerdir ve bu da yukarıdaki görüşü destekler niteliktedir.

Öğretmenlerin büyük çoğunluğu öğrenciler arasında öğretmeniyle iletişimi konusunda fark olduğunu belirtmişlerdir. Örneğin okulöncesi eğitim almış bir öğrencinin öğretmenlerine karşı kendilerini daha rahat ve açık ifade ettikleri ortaya çıkmıştır. Bunun nedeni okulöncesi eğitim almış olan öğrencinin daha önceden öğretmen fobisini yenmiş olması olabilir. Çünkü öğretmenle daha önceden birçok aktivitede yer almış olması ona nasıl yaklaşması gerektiğini ve kendini nasıl ifade etmesi gerektiğini okulöncesi dönemde kazanmıştır. Okulöncesi eğitimi almamış öğrenci ise öğretmenlerine karşı daha çekingen ve utangaç davranmaktadır. Bunun nedeni bireyin aile ortamından bambaşka bir ortama girmesi, bu ortama alışması belli bir zaman alacaktır. Çünkü birey çoğunlukla kendi aile fertleriyle iletişim içerisindedir ve başkasına kendini ifade etmede zorluk yaşaması normal karşılanabilir. Erbay (2008)'ın yaptığı çalışma bu sonucu destekler niteliktedir. Erbay okulöncesi eğitim almış ve almamış öğrencilerin duygulara yönelik bulgularında "duygularını ifade etme" becerisi eğitim almış öğrencilerde gelişmiş, almamış öğrencilerde ise az gelişmiş olarak ortaya çıkmıştır (Erbay,2008,55–56). Bazı öğretmenler de okulöncesi eğitim almış öğrencilerin diğerlerine oranla nezaket kurallarına duyarlı olduğu görüşünü belirtmişlerdir. Burada çocuğun okulöncesi eğitimde kazanması gereken ahlaki davranışları kazandığı sonucuna varılabilir.

Araştırmaya katılan öğretmenlerin tamamına yakını okulöncesi eğitim almış ve almamış öğrenciler arasında arkadaş ilişkisi bakımından fark olduğunu belirtmişlerdir. Okulöncesi eğitim almış öğrenciler arkadaşlarıyla daha rahat iletişim kurdukları ve sosyal aktivitelere çekinmeden katıldıkları öğretmenlerin görüşleri olarak ortaya çıkmıştır. Çünkü okulöncesi eğitimin temel ilkelerinden olan çocukların sevgi, saygı, işbirliği, sorumluluk, hoşgörü, yardımlaşma, dayanışma ve paylaşma duygu ve davranışları geliştirilmelidir ilkesi doğrultusunda eğitim verilmesi çocuğun bu dönemde sosyalleşmesi açısından oldukça önemlidir. Bu dönemde kazandırılan işbirliği, dayanışma ve yardımlaşma çocuğun ilköğretimde arkadaş ilişkisini büyük ölçüde etkilemektedir. Okulöncesi eğitim almamış öğrencilerin ise içe kapanık ve kavgacı oldukları bazı öğretmenler tarafından belirtilmektedir. Apartman kültürü ortamında yetişen çocuk okul çağına kadar aile dışında herhangi bir sosyal ortamda bulunmamaktadır. Mahalle oyunlarının da tükenmeye yüz tuttuğu günümüzde çocuk dört duvar arasında yalnızdır. Kendi akranlarıyla kavga etmeden, işbirliği içerisinde oynaması gerektiğini kavrayamamıştır. Çünkü akranlarıyla oyun oynamanın, bir şeyler paylaşmanın, zorda kaldığı durumda bir arkadaşının ona yardım etmesinin hazzını yaşayamamaktadır. Bazı öğretmenler de okulöncesi eğitim almış öğrencilerin eğitim almamış öğrencileri dışlamak ve arkadaşlarını birbirine düşürmek gibi olumsuz tutumlarında bahsetmektedir. Bunun nedeni ise bazı öğretmenlerinde belirttiği gibi eğitim almış öğrencilerin liderlik vasıflarının baskın olması olabilir. Bu tip özellik gösteren öğrenciler de dünyanın merkezinde kendisi vardır ve her şey kendi etrafında dönmesini ister. Bundan dolayı da eğitim almamış içe kapanık ve dayanışma kavramını tam olarak kazanamamış öğrenciyi kendi ortamlarından uzak tutmak isteyebilirler.

Araştırmanın sonuçlarından birisi de temel becerileri yönünden aralarında belirli bir farkın olduğu öğretmen görüşleriyle ortaya çıkmıştır. Bu farkın okulöncesi eğitim almış öğrenciler lehine olduğu yine öğretmen görüşleriyle ortaya çıkmaktadır. Örneğin okulöncesi eğitim almış öğrencilerin, kendi başlarına iş yapabilme becerileri, eleştirel düşünme becerileri ve problem karşısında daha çabuk ve kolay çözüm üretebilme becerileri daha gelişmiş olmaktadır. Erbay (2008)'ın yaptığı bir çalışmada da öğrencilerin problem çözme becerilerinin eğitim almış ve almamış öğrenciler arasında farklılaştığını bulmuştur. Yani eğitim almış bir öğrencinin problem çözme becerileri gelişmişken eğitim almamış öğrencinin problem çözme becerileri az gelişmiş durumdadır (Erbay,2008,59–60). Okulöncesi eğitimin öğrenciye kazandırmış olduğu bu beceriler öğrencinin ilköğretimde uygulamaya dönüştürdüğü görülmektedir. Çünkü okulöncesi eğitimin temel ilkelerinden olan çocukların yaratıcı ve eleştirel düşünme becerileri geliştirilmelidir ilkesi öğrenciye kazandırılmış olduğu görülmektedir. Bazı

öğretmenler ise sınıf içerisinde eğitim almış olan öğrencilerin orijinal fikirlere sahip olduğunu ve canları sıkıldıkları zaman yeni bir oyun üretebildiklerini belirtmişlerdir. Burada okulöncesi eğitimin öğrencilerin yaratıcılığı konusunda ne kadar yararlı olduğu görülmektedir.

Okulöncesi eğitim almış öğrencilerin küçük kasları geliştiğinden el becerileri de gelişmiştir diye araştırmaya katılan öğretmenlerin tamamı bu konuda hem fikirdir. Çünkü okulöncesi eğitim döneminde öğrencinin küçük kaslarını geliştirecek birçok faaliyet yaptırılmaktadır. Gerek kalemle yapılan aktiviteler gerek makasla yapılan aktiviteler çocuğun küçük kaslarının gelişmesine yol açmaktadır. Bu da diğerlerine oranla eğitim almış öğrencileri avantajlı kılar. Okulöncesi kurumların öğrenciyi bir yandan sosyalleştirirken diğer yandan da birlikte yaşamanın olmazsa olmazı kurallara uymayı öğretmektedir. Araştırmaya katılan öğretmenlere göre okulöncesi eğitim almış öğrencilerin sınıf ve okul kurallarına uymakta diğerlerine oranla sıkıntı yaşamamaktadırlar. Yine öğretmenlere göre okulöncesi eğitim almış öğrenciler Türkçeyi doğru ve etkili kullandıklarını ifade ederken eğitim alamamış olan öğrenciler argo ve küfürlü konuştuklarını ifade etmektedirler. Bunun sebebi okulöncesi eğitimin temel ilkelerinden olan Türkçeyi doğru ve etkili kullanabilme ilkesinin okulöncesi eğitim kurumlarında öğrencilere kazandırıldığı yargısına varılabilir.

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OKUMA GÜÇLÜKLERİNİN TEKRARLI OKUMA YÖNTEMİYLE GİDERİLMESİNE YÖNELİK BİR META ANALİZ ÇALIŞMASI

A META ANALYSIS STUDY ABOUT ELIMINATING READING DIFFICULTIES BY REPEATED READING METHOD

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ÖZET

Bu çalışmanın amacı okuma güçlüklerinin giderilmesinde tekrarlı okuma yönteminin yararlarının neler olduğunu ve nasıl uygulanacağını ortaya koymaktır. Okuma güçlüğü; zekâ düzeyi bakımından normal, öğretim koşulları ve sosyoekonomik düzey açısından uygun fırsatlara rağmen okumayı öğrenmede yaşanılan güçlük olarak ifade edilebilir. Ülkemizde okuma güçlüğü yaşayan öğrenciler Rehberlik Araştırma Merkezlerinde uzmanlar tarafından uygulanan zekâ testi sonuçlarına göre kaynaştırma sınıflarına alınmaktadır. Ancak zekâ düzeyi normal olanlar kaynaştırma sınıflarına alınmamaktadırlar. İlköğretimde zekâ düzeyi normal olan ve okumaya engel teşkil eden herhangi bir engeli bulunmamasına rağmen okuma güçlüğü yaşayan birçok öğrencinin olduğu tahmin edilmektedir. Bu araştırma 1979 ile 2006 yılları arasında okuma güçlüklerinin tekrarlı okuma yöntemiyle giderilmesiyle ilgili yapılmış çalışmalara yönelik bir meta analiz çalışmasını içermektedir. Araştırma okuma güçlüklerinin giderilmesinde hem öğretmenlere hem de öğrenci ve velilere pratiğe yönelik öneriler içermektedir.

Anahtar kelimeler: Okuma, Okuma Güçlüğü, Tekrarlı Okuma Yöntemi.

ABSTRACT

This study aims to exert what benefits repeated reading method brings and how it is going to be applied. Reading difficulty can be explained as difficulty in learning reading although being normal in terms of intelligence, and having proper learning conditions and suitable opportunities in the way of socio-economic level. In our country, the students who have reading difficulty are admitted to the coalescence classes according to the results of intelligence test applied by the experts in Guidance Research Centers. However, those who have normal intelligence level are not accepted to these classes. It is estimated that there are many students who have reading difficulty in primary schools despite having normal intelligence level and not possessing any hindrance to read. This research includes a meta analysis study about works done between 1979 and 2006 for eliminating reading difficulties by repeated reading method. The research involves practical advices on eliminating reading difficulties for both teachers and parents and students.

Key Words: Reading, Reading Difficulty, Repeated Reading Method.

GİRİŞ

Okuma kişinin günlük yaşam içerisinde sürekli olarak kullandığı bir faaliyettir. Kişi otobüse binerken, hastaneye giderken, alış veriş yaparken zorunlu olarak hep okuma işleriyle karşılaşmaktadır. Bilginin hızlı bir şekilde ilerlediği günümüz, basit okuma becerilerini değil, seri bir şekilde okuyup anlamayı gerekli kılmaktadır. Artık öğretmen ve öğrencilerin sahip oldukları roller de değişmiştir. Öğretmen bilgi aktaran olmaktan, öğrenci de aktarılan bilgiyi sorgulamaksızın ezberleyen olmaktan çıkmıştır. Günümüzde öğretmen öğrenciye bilgiye ulaşma yollarını gösteren bir rehber, öğrenci ise elde ettiği bilgiyi eski bilgilerle birleştiren üretken bir kişiliğe sahip olmuştur. Bilgiyi yapılandıran öğrenci olduğundan, öğrencinin okumayla ilgili becerileri kazanmış olması gerekmektedir. Ancak ilköğretimde gerek fiziksel (işitsel, görsel) gerekse zekâ yönünden okumaya engel teşkil edecek herhangi bir sorunu olmamasına rağmen okuma güçlüğü yaşayan birçok öğrencinin olduğu düşünülmektedir.

Okuma güçlüğü; zekâ düzeyi bakımından normal, öğretim koşulları ve sosyoekonomik düzey açısından uygun fırsatlara rağmen okumayı öğrenmede yaşanılan güçlük olarak ifade edilebilir (Bruck, 1988). Okuma güçlüğü yaşayan öğrenciler okuma sırasında çok fazla sesli okuma hatası yapmaktalar ve okuduklarının çoğunu anlayamamaktadırlar. Sesli okuma hatası; sesli okuma sırasında yapılan ve anlamayı olumsuz yönde etkileyen; kelimeyi yanlış okuma, kelime ekleme, kelime atlama, kelimeyi ters

çevirme ve kelimeyi tekrar etme gibi hatalardır (Yılmaz, 2006). Yanlış okuma hatası; öğrencinin kelimeyi doğru olarak seslendirememesini ifade eder (Akyol, 2003). Ekleme hatası; okurken metne, metin içinde olmayan kelimeler veya heceler eklemeler şeklinde yapılan hata olarak tanımlanabilir (Harris ve Sipay, 1990). Tekrar hatası; bir kelime ya da cümleyi geriye dönerek okumayı ifade etmektedir (Salvia ve Ysseldyke, 1978). Atlama hatası; çocuğun okurken kelimelerin tamamını, hecelerini ya da kelime gruplarını okumaması şeklinde yapılan hatalardır (Harris ve Sipay, 1990). Duraklama hatası; çocuğun bir kelimeyi okumak için 2 saniye beklemesi durumudur (Dechant, 1968). Ters çevirme hatası; kelimenin tamamını, hecelerini ya da harflerini geriye çevirme şeklinde görülen okuma hatasıdır (Harris ve Sipay, 1990). Telaffuz hatası ise fonetik hatalar olarak tanımlanabilir (Salvia ve Ysseldyke, 1978). Türkiye'de okuma güçlüğü yaşayan öğrenciler Rehberlik Araştırma Merkezlerinde uzmanlar tarafından uygulanan zekâ testi sonuçlarına göre kaynaştırma sınıflarına alınmaktadır. Ancak zekâ düzeyi normal olanlar kaynaştırma sınıflarına alınmamaktadırlar. Aileler çocuklarının okuma güçlüğü çekmesinden şikâyet etmektedirler. Öğretmenler ise bu tür çocukların okuma güçlüklerini nasıl ve hangi yöntemle giderecekleri konusunda çok fazla bilgiye sahip değildirler. Bu çalışmada, okuma güçlüğü yaşayan öğrencilerin sesli okuma hatalarını düzeltmede, okuduğunu anlama becerilerini geliştirmede ve akıcı okumaya ulaşmada etkili olan tekrarlı okuma yönteminin ne olduğu, nasıl uygulandığı ve konuyla ilgili 1979 ile 2006 yılları arasında yapılmış araştırmalar ele alınmıştır.

TEKRARLI OKUMA YÖNTEMİ NEDİR?

Tekrarlı okuma yöntemi, literatürde "Repeated Reading Method" olarak geçmektedir. Okuma güçlüklerini gidermede kullanılan bir yöntemdir. Tekrarlı okuma yöntemi; öğrencinin bir metni akıcı okumaya ulaşılıncaya kadar birkaç kere tekrar ederek okumasını ifade eder (Yılmaz, 2006). Jay Samuels ve Carol Chomsky tarafından ortaya konulan bu yöntem daha sonra Samuels ve Dahl (Samuels, 1979; Dahl, 1979) tarafından geliştirilmiştir. Tekrarlı okuma yöntemi, metnin bağımsız bir şekilde okunması üzerinde etkili bir yöntemdir. Samuels ve Dahl, öğrencilerin yeni bir metni günlük sık sık okumaları neticesinde kelime tanıma becerilerinde iyileşme olacağını belirtmişlerdir. Verilen bir okuma parçasının birden fazla tekrar edilerek okunması, öğrencilerin sadece kelimeyi doğru okuma becerilerinin iyileşmesini sağlamadığını, aynı zamanda onların akıcı bir şekilde okumalarına da katkıda bulunduğunu ifade etmişlerdir (Kuhn ve Stahl, 2000).

Tekrarlı okuma yöntemi, okuma-yazma öğretim yöntemlerinden biri değildir. Okumayı geliştirmede kullanılan bir yöntemdir. Öğrenme problemleri olan öğrenciler için uygun olduğu kadar normal öğrenciler için de uygundur (Samuels, 1997). Bu yöntemde okuma güçlüğü olan öğrenciler, bir yetişkinin rehberliğinde ilgili metinleri kolaydan zora doğru sistematik bir biçimde birden fazla tekrar ederek okumaktadırlar. Sistemli olarak yapılan tekrarlar neticecinde okuma güçlüğü olan öğrencilerin, okuma hatalarında azalma, okuduğunu anlama becerilerinde gelişme ve motivasyonlarında bir artma olmaktadır. Bunun sonucu olarak, öğrenciler akıcı okuma becerisi kazanmaktadırlar (Yılmaz, 2006). Öğrenci yetişkin eşliğinde tekrarlı okuma yaparken anlamını bilmediği kelimelerin manası açıklanmalı, sıkıldığı zaman ise hemen ara verilmelidir. Yetişkinle beraber metindeki her bir kelimenin birkaç kere tekrarlı okunması sonucunda, bir kere de öğrencinin kendi başına okuması sağlanmalıdır. Bu yöntem gerek öğretmenler, gerekse aileler tarafında kolaylıkla uygulanabilmektedir.

Samuels (1979), yaptığı deneysel araştırmada tekrarlı okuma yöntemini kullanmış, araştırma sonucunda öğrencinin akıcı okumasında ve okuduğunu anlamasında büyük oranda gelişme olduğu görülmüştür (May, 1986). Tekrarlı okuma yöntemi, sınıf öğretmenleri tarafından başarılı bir şekilde kullanılabilen bir yöntemdir (Lauritzen, 1982). Rashotte ve Torgesen'in (1985) araştırma sonuçları tekrarlayıcı okumanın bilhassa okuma yetersizliği olan öğrencilerde hem doğru okumayı geliştirdiği hem de okuma hızını %50 artırdığını göstermektedir. Ayrıca yapılan bu okuma çalışması çocuklarda kendine güveni geliştirmekte ve okumaya ilgiyi artırmaktadır (Akyol, 2005).

Okuma güçlüğünün temel nedeni öğrencinin kelime tanıma becerisinin gelişmemiş olmasıdır. Gates'e göre (1931) okuma güçlüğü olan bir öğrencinin bir kelimeyi kavraması için o kelimeyle en az 35 kez karşı karşıya helmesi gerekmektedir. Bu rakam başarılı öğrencilerin ihtiyacının yaklaşık üç katıdır (Akt. Akyol, 2005). Sistematik bir şekilde çocuğun sevdiği metinlerle yapılanan tekrarlı okumalar neticesinde, çocukta akıcı okuma becerisi gelişmektedir.

TEKRARLI OKUMA YÖNTEMİNİN YARARLARI

Tekrarlı okuma yönteminin sağladığı faydalar şöyle sıralanabilir:

1. Çocuğun okumaya karşı motivasyonunun artmasına katkı sağlamaktadır.
2. Tekrarlı okuma yöntemi doğru okumada fayda sağlamaktadır (Dahl, 1974; Samuels, 1979/1997; Chomsky, 1976; Rashotte ve Torgesen, 1985; Dowhower, 1987; Hoffman Isaaes ve 1991).

3. Okuduğunu anlama becerilerinin gelişmesini sağlamaktadır (Sindelar, Monda ve O'Shea, 1990; Weinstein ve Cooke, 1992; Chard, Simmons ve Kameenui, 1998).
4. Okuma hızının artmasına yol açmaktadır (Dowhover, 1989).

TEKRARLI OKUMA YÖNTEMİNİN UYGULANMASI

Tekrarlı okuma yönteminde metindeki her bir kelime yetişkin eşliğinde okuma güçlüğü yaşayan çocukla birlikte tekrar edilmektedir. Önce yetişkin okumakta, ardından çocuk kelimeye bakarak tekrar etmektedir. Sonra diğer bir metne geçilmektedir. Tekrarlı okuma yönteminin uygulanması sırasında dikkat edilmesi gerekli hususlar şunlardır:

a) Okuma Eğitiminin Yapılacağı Yer: Öğrenci konforlu ve sessiz bir yere oturtulmalı (Rasinski, 20003). Okuma esnasında rahatsız edici ve dikkat dağıtıcı unsurların olmamasına özen gösterilmelidir.

b) Kısa ve İlginç Parçaların Seçimi: Öğrencilerin yardımcı kişilerle birlikte okuyabileceği 50 ya da 75 kelimeden oluşan ve 10-15 dakikadan fazla zaman almayacak kısa okuma parçaları seçilmelidir. Uzun parçalar seçilirse dinleyicinin ve okuyucunun dikkati dağılabilir. Sesli okumaya uygun parçaların seçilmesi öğrencileri okumaya karşı cesaretlendirir. Öğrenciler kısa bir parçayı yetişkin eşliğinde sesli olarak 3 kere okumalıdırlar. Her okumadan sonra okuyucular, okuduğunu anlama sorularını cevaplandırmalıdırlar (Koskinen ve Blum, 1986).

c) Materyalin Okuyucu Seviyesine Uygun Olması: Tekrarlı okumanın amaçlarından birisi de okuyucuya akıcı okuma hissi vermektir. Bu bakımdan materyalin zorluk düzeyi okuyucunun seviyesine uygun olmalıdır. Eğer materyal çok zor olursa bu durumda okuyucu istenilen hedefe ulaşamaz, dikkatini yoğunlaştıramaz (Koskinen ve Blum, 1986). Öğrenciler ilk önce hedef olarak belirlenen seviyeye ulaşmalıdırlar. Sonra okuma seviyelerine göre yeni bir metin okutulmalıdır (Rasinski, 20003).

d) Dikkatli Dinlemeye Teşvik Etme: Dinleme aktivitelerinin birçok yararı vardır. Dinleyiciler farkına varmayı öğrenirler. Bu yüzden tekrarlı okuma yöntemi uygulanırken öğrenci dinlemeye teşvik edilmelidir.

e) Okuyucu Çiftlerinin Çalışmalarına Rehberlik Etme: Birlikte öğrenmede rehberlik etme önemlidir. Rehber, yapılan işi kontrol eder. Tekrarlı okuma yöntemi uygulanırken öğrencinin okuması ve ilerlemesi değerlendirilmelidir (Koskinen ve Blum, 1986). Öğrencinin okumadaki ilerleme durumu, öğretmen tarafından haftalık, iki haftada bir ya da aylık olarak değerlendirilebilir (Rasinski, 20003). Okuma çalışmaları öğrenci akıcı okuma seviyesine ulaşıncaya kadar devam etmelidir.

Tablo

Okuma Güçlüklerini Gidermede Tekrarlı Okuma Yönteminin Etkililiğini Ortaya Koyan Araştırmalar (1979-2006 Yılları Arası)

Araştırmacılar	Araştırma Yılı
SAMUELS, S. Jay	1979
JENKINS, Joseph R. ve LARSON Katy	1979
COHEN, Andrew L.	1986
ROSENBERG, Mchael S.	1986
DOWHOWER, Sara Lynn	1987
SINGH, Nirbhay N. ve SINGH Judy	1988
KNUPP, Richard	1988
SELVEY, Anne Smith	1989
SINDERAL, Paul T., MONDA Lisa E. ve O'SHEA Lawrence J.	1990
RASINSKI, Timothy V.	1990
ROKICKI, Anne L.	1990
WEINSTEIN, Gloria ve COOKE Nancy L.	1992
SIMONS, Herbert D.	1992
HOMAN, Susan P., KLESIUS Janell P. ve HITE, Clare	1993
TURPIE, Joy J. ve PARATORE Jeanne R.	1994
SAMUELS, S. Jay	1997
MCGRAW, Laura Kibler	1999
FREELAND, Jennifer T. ve Başk.	2000
COMPAN, Boolert, IAMSUPASIT Sompoch ve SAMUELS, S. Jay	2001

SEMONICK, Marjorie Ann	2001
THOMPSON, Sylvia Linan ve DAVIS, Peggy Hickman	2002
WEINSTEIN, Kristen Suzanne	2004
THERRIEN, William J.	2004
PATTILLO, Suzan Trefry, HELER Kathryn Wolf ve SMITH Maureen.	2004
CHAFOULEAS, Sandra M. ve Başk.	2004
DEVAULT, Rebacca ve JOSEPH Laurice M.	2004
STRONG, Amanda C. ve Başk.	2004
YILMAZ, Muamber	2006

Yukarıdaki tabloda okuma güçlüklerini gidermede tekrarlı okuma yönteminin etkili olduğuyla ilgili 1979-2006 yılları arasında yapılmış araştırmaların kronolojik sıralaması yer almaktadır. Tabloda yer alan bilim insanlarının yapmış oldukları araştırmalarda sesli okuma hatalarının giderilmede, okuduğunu anlama becerilerini geliştirilmede ve akıcı okumaya ulaşmada tekrarlı okuma yönteminin etkili olduğu ortaya konulmuştur. Tekrarlı okuma yönteminin okuma güçlüklerini gidermedeki etkisiyle ilgili yapılan araştırmalara birkaç örnek:

Dowhower (1987), yaptığı çalışmada tekrarlı okuma yönteminin akıcı okuma ve anlama üzerindeki etkisini araştırmıştır. Araştırma, ilköğretim 2. sınıf öğrencilerinden seçilen 70 öğrenci üzerinde yapılmıştır. Seçilen öğrenciler özel okuma problemi olmayan ancak kelime kelime okumaya sahip, okuması zayıf öğrencilerdir. Seçilen öğrencilerin 52'si kelime kelime okuyan, 18'i ise dakikada 50 kelimenin altında okuma oranına sahip öğrencidir. Araştırmada öğrenciler iki gruba ayrılmış, bir gruba yardımlı tekrarlı okumalarla öğretim sunulurken, diğerine yardımsız tekrarlı okumalarla öğretim sunulmuştur. Araştırmanın sonucunda yardımlı (eşli) olarak yapılan tekrarlı okumaların, yardımsız (eşsiz) olarak yapılan tekrarlı okumalardan daha etkili olduğu görülmüştür. Tekrarlı okumaların, okumayı iyileştirdiği, yanlış okumaların sayısını azalttığı, okuduğunu anlama becerisini geliştirdiği ortaya çıkmıştır.

Selvey (1989) çalışmasında, tekrarlı okuma yönteminin okuma hızı, doğru okuma ve okuduğunu anlama üzerindeki etkisini araştırmıştır. Araştırma, 6 ilköğretim okulundan 3, 4 ve 5. sınıflarda öğrenme güçlüğü yaşayan 6'sı kız, 22'si erkek olmak üzere toplam 28 öğrenci üzerinde yapılmıştır. Öğrencilere çalışmanın başında ön test uygulanmıştır. Öğrencilere tekrarlı okuma yöntemi kullanılarak 16 oturumdan oluşan bir öğretim sunulmuştur. Öğretim 100 kelimeden oluşan kısa hikâyelerle yapılmıştır. Öğretimin sonunda öğrencilere son test uygulanmış, öğrencilerin ön test ve son test puanları karşılaştırılmıştır. Karşılaştırma sonucunda tekrarlı okuma yönteminin öğrencilerin okuma hızını artırdığı, doğru okuma ve okuduğunu anlama üzerinde olumlu etkisinin olduğu görülmüştür.

Weinstein ve Cooke (1992), yaptıkları araştırmada tekrarlı okuma yönteminin üstün yanlarını incelemişlerdir. Araştırma, öğrenme yetersizliği olan 4 erkek öğrenci üzerinde yapılmıştır. Yaşları 7 ila 10 arasında olan bu çocukların uygulanan zekâ testine (WISC-R) göre IQ ortalaması 84.8'dir. Seçilen 4 öğrencinin de okuma seviyesi, okumaya başlangıç düzeyindedir. Araştırmada her bir öğrenciye günlük 10 dakikalık öğretim sunulmuştur. Araştırmanın sonunda öğrencilerin okumalarında %62 oranında bir iyileşme olduğu, okuduğunu anlamalarında ise %58 oranında bir ilerleme olduğu görülmüştür.

Strong, Wehpy, Falk ve Lane (2004) tarafından yapılan araştırmada tekrarlı okuma yönteminin, zayıf okumaya sahip öğrencilerin akıcı okumalarını sağlamadaki etkisi incelenmiştir. Araştırma, 7. sınıftan 2, 8. sınıftan 4 olmak üzere toplam 6 öğrenci üzerinde yapılmıştır. Deneklerin yaş ortalaması 13'tür. Araştırmaya katılan denekler özel eğitim hizmeti almış, okumaları zayıf öğrencilerdir. Bu öğrencilere tekrarlı okuma yöntemi kullanılarak okumayı düzeltici bir program uygulanmıştır. Araştırma yaklaşık 12 hafta devam etmiştir. Araştırmanın sonucunda tekrarlı okuma yönteminin okumadaki akıcılığı artırdığı görülmüştür.

Yılmaz (2006) tarafından yapılan araştırmada sesli okuma hatalarını düzeltmede ve okuduğunu anlama becerilerini geliştirmede tekrarlı okuma yönteminin etkisi araştırılmıştır. Araştırma ilköğretim 3. sınıf öğrencilerinden okuma güçlüğü yaşayan 4 öğrenci üzerinde yapılmıştır. Öğrencilerin zekâ yönünden herhangi bir problemi olmadığı Wechsler Çocuklar İçin Zekâ Testi (WISHC-R) sonuçlarına göre, görsel problemi olmadığı göz tarama testi sonuçlarına göre, işitmeyle ilgili problemi olmadı ise devlet hastanesinin kulak-burun-boğaz bölümünden alınan raporla tespit edilmiştir. Öğrencilere 2. sınıf (alt sınıf seviyesi) Türkçe ders kitabından seçilen hikâye türü metinlerle tekrarlı okuma yöntemi kullanılarak öğretim yapılmıştır. Tekrarlı okuma yöntemiyle haftada 4 saatlik yapılan ve 3 ay devam eden okuma eğitimi sonucunda öğrencilerin sesli okuma hatalarında ciddi bir azalma, okuduğunu anlama ve akıcı okuma becerilerinde ise gözle görülür nitelikte bir gelişmenin olduğu görülmüştür.

SONUÇ ve ÖNERİLER

Tekrarlı okuma yöntemiyle ilgili 1979-2006 yılları arasında yapılan araştırmalar incelendiğinde, tekrarlı okuma yönteminin okuma hatalarını düzeltmede, okuduğunu anlama ve akıcı okuma becerilerini geliştirmede etkili olduğu görülmüştür. Bu bulgular ışığında şu önerilerde bulunulabilir:

- ✓ Tekrarlı okuma yönteminin ne olduğu ve nasıl uygulanması gerektiği ile ilgili öğretmenlere seminerler verilebilir.
- ✓ Okuma güçlüğüne sahip öğrenciler, evde aileleriyle birlikte kolaylıkla tekrarlı okuma yöntemiyle okuma çalışmaları yapabilir. Bunun için okuma güçlüğüne sahip çocukların ailelerine tekrarlı okuma yöntemiyle ilgili bilgiler verilmelidir.
- ✓ Okumayı olumsuz yönde etkileyecek herhangi bir zihinsel ve fiziksel (görsel, işitsel) engeli olmamasına rağmen okuma güçlüğü yaşayan öğrencilere, özel eğitim kurumlarında ya da bu tür öğrenciler için açılacak kurumlarda eğitim imkânı verilmelidir. Çünkü kaynaştırma eğitimine alınan öğrenciler Rehberlik Araştırma Merkezinde uygulanan zekâ testine göre belirlenmektedir. Zekâ seviyesi normal olan öğrenciler kaynaştırma sınıflarına ya da özel eğitime alınmamaktadır.

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ORTAÖĞRETİM OKULU YÖNETİCİLERİNİN ÖĞRETMENLER TARAFINDAN ALGILANAN ETİK LİDERLİK UYGULAMALARI İLE ÖĞRETMENLERİN ÖRGÜTSEL BAĞLILIKLARI ARASINDAKİ İLİŞKİ

RELATION BETWEEN TEACHERS' ORGANIZATIONAL COMMITMENT AND PRACTICES OF SECONDARY SCHOOL ADMINISTRATORS' ETHICAL LEADERSHIP PERCEIVED BY TEACHERS

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Özet

Bu araştırmanın amacı okul yöneticilerinin öğretmenler tarafından algılanan etik liderlik rolleri ile öğretmenlerin örgütsel adanmışlık boyutları arasında bir ilişkinin olup olmadığını saptamaktır. Araştırma ilişkisel tarama modelinde düzenlenmiştir. Betimsel nitelikteki araştırmada nicel veri toplama araçlarından anket kullanılmıştır. Araştırmanın evrenini, 2009-2010 eğitim-öğretim yılında Siirt il ve ilçe merkezindeki tüm ortaöğretim kurumlarında görev yapan 590 branş öğretmeni oluşturmaktadır. Evrenin % 62'sinden (365) kullanılabilir veri elde edilmiştir. Araştırma sonucunda elde edilen bulgulara göre; okul müdürlerinin etik liderliğin tüm alt boyutlarınki uygulamalarına ilişkin öğretmenlerin algıları ile öğretmenlerin uyum boyutundaki örgütsel bağlılıkları arasında ters yönde ve düşük düzeyde anlamlı bir ilişkinin olduğu tespit edilmiştir. Öğretmen algılarına göre, okul müdürlerinin etik liderlik uygulamalarının hoşgörü, adalet, sorumluluk, demokrasi boyutundaki öğretmen algıları ile özdeşleşme boyutundaki örgütsel bağlılık düzeyleri arasında doğrusal ve orta düzeyde bir ilişkinin olduğu saptanmıştır. Okul müdürlerinin etik liderlik uygulamalarının dürüstlük boyutuna ilişkin öğretmen algıları ile öğretmenlerin özdeşleşme boyutundaki örgütsel bağlılıkları arasında ise orta düzeye yakın anlamlı bir ilişkinin olduğu görülmüştür. Okul müdürlerinin etik liderliğin tüm alt boyutlarına ilişkin öğretmen algıları ile içselleştirme boyutundaki örgütsel bağlılıkları arasında pozitif yönde ve düşük düzeyde bir ilişkinin olduğu saptanmıştır.

Anahtar Sözcükler: Etik, liderlik, etik liderlik, örgütsel bağlılık.

Abstract

The purpose of this research is to determine teachers' expected ethical leadership role and organizational commitment in respect to school administrators. The research has been designed according to a correlative and comparative investigation model. In this descriptive quantitative research data was used in collecting data. The scope of the research was consisted of 590 branch teachers working in all education organizations, located Siirt centre and its districts in 2009-2010. Applicable data was collected from % 62 of scope. As result of analysis obtained data a significant difference was realized a reverse and low relation was seen between of teachers' organizational commitment in respect of compliance and perception of teachers concerning application linked to all sub-dimension of ethical leadership of school administrations. Regarding perception of teachers about school managers' practices of ethical leadership, a linear and medium level relation was noticed between perception of teachers' linked to tolerance, justice, responsibility, democracy and organizational commitments in terms of identification. Considering perception of teachers about school mangers' practices of honesty dimension of ethical leadership and organizational commitment of teachers in the dimension of identification, a meaningful relation was seen that is close to medium level. Considering perception of teachers about practices of all sub-dimensions of ethical leadership of school managers', and positive

direction and low level relation was seen between teachers' opinion related to organizational commitments of internalization

Key Words: Ethics, leadership, ethics, leadership, organizational commitment.

Giriş

Etik sözcüğü, Yunanca "karakter" anlamına gelen "ethos" sözcüğünden türetilmiştir. Etik kavramı ideal ve soyut olana işaret ederek, ahlak kurallarının ve değerlerin incelenmesi sonucu ortaya çıkmıştır. Bu anlamda etik, toplumda yaygın olan ahlak kurallarından daha özel ve felsefidir (Aydın, 2002, 5). Etik, insan davranışında neyin doğru, neyin yanlış olduğuyla ve davranışın kontrolüyle ilişkilidir. İnsanın ya da onun davranışının iyi, kötü, doğru ya da yanlış olduğuna karar vermenin neye göre algılandığı ile ilgili sorulara yanıt arar. Ahlaki karar ve yargılarda kişisel ilginin veya diğer insanların ilgilerinin ne derecede etkili olduğunu araştırır (Thiroux, 1998; Akt. Yılmaz, 2006). Ahlakla etik arasında temel farklılık, etiğin ahlaka göre daha evrensel ilkeler üzerinde durmasıdır. Ahlak kavramına çeşitli açılardan bakıldığında, çeşitli gruplarda geçerli olan ilke ve değerlerin toplumdan topluma, hatta aynı toplumun farklı bölgelerinde bile farklılaşabildiği görülmektedir. Ancak özellikle meslek etiğine ilişkin ilkelerin evrensel olma arayışı vardır ve kolay kolay değişmezler (Aydın, 2006, 17). Etik kurallar bir insanın ahlak öğretilerinin hepsini vermez, fakat onun gerçek davranışlarını açıklar (Schultz & Werner, 2005;Akt. Karaköse, 2007). Hangi davranışların etik, hangilerinin etik olmadığının belirlenmesinde adalet, insan hakları, bireyselcilik ve faydacılık ilkeleri önemli rol oynar. Bununla birlikte toplumun sahip olduğu ve yaşattığı kültür, inanç ve normlar insanların etik standartlarını etkilemektedir (Gözütok, 1999; Cemaloğlu ve Kılınç, 2009). Bu bağlamda etik değerler sadakat, dürüstlük, adalet, doğruluk, saygı, demokrasi, hoşgörü, sorumluluk, cesaret olarak açıklanabilir (Moorhouse, 2002; Akt. Karaköse, 2007).

Etik Liderlik ve Okul yöneticilerinin Etik liderlikle İlgili Rolleri

Değişen dünyada sadece örgütler değil; örgütleri yöneten insanların beklenti, algı ve inançları da değişmektedir. Dolayısıyla değişen dünyada bu değişimi destekleyecek etik kuralların oluşturulması gerekir (Özden, 2004, 201). Örgütlerin etik sorunlarının artmasına paralel olarak, güçlü etik liderlere duyulan ihtiyaç da artmaktadır. Etik değerlerin aşınmasıyla yerine konulacak yeni etik değerler ve bu değerlerin içselleştirilmesi, gelecekteki liderlik çalışmalarına yön verecektir (Çelik, 2003, 228). Liderin etik ve ahlaki açıdan doğru kararları verebilmesi gerek bireysel, gerek örgütsel ve gerekse evrensel bir sorumluluktur. 21. yüzyılın sosyal ortamının karmaşıklığı ve insan ilişkilerindeki açmazlar, liderlere yeni ve oldukça zor bir görev yüklemektedir. Bu rol, liderlerin, etik değerler ve inançlar sistemine sahip olması ve örgütteki çaba ve eylemlerin bu sistemin süzgecinden geçirilmesini gerektirmektedir (Turhan, 2007). İnsan ve insana hizmetin odak nokta olduğu eğitim kurumlarında ve yönetiminde, uygun ve tutarlı kararlar verebilmek, yönetime ilişkin bilgi, beceri ve tecrübeye sahip olabilmek kadar insanlar hakkında iyi, doğru ve güzel düşüncelere sahip olmak da önemlidir. Eğitim alanında çalışan okul yöneticilerin birtakım değer ve etik kurallarla kendilerini donatmış olmaları gerekir (Cemaloğlu ve Kılınç, 2009).

Etik sorumluluklar kurumsal yapı, kurum kültürü ve genel olarak o kuruma ait kuralların içine yerleştirilmelidir (Sayımer, 2006). Böyle olduğu taktirde, bireysel çabanın ötesinde, kurumsal yapı insanları etik davranmaya itecek ve yönlendirecektir. Etik kodların kurumsallaştırılması ve bunun hem örgütsel kültüre ve hem de bireysel davranışlara kazandırılması katılımcı ve şeffaf bir yönetim anlayışını gerektirmektedir (Cooper, 2004).Etik olarak hareket eden lider nihai başarıya ulaşır. Etik temelden yoksun liderse sonuçta başarısızlığa mahkûmdur. Açıkça, liderlerin karakterleri onların işteki etik performanslarını etkiler (Brown, 2007). Geleceğin liderleri insan değerlerine ve etik davranışlara önem verirler. Etik liderler, adil ve dengeli kararlar veren dürüst, düşünceli ve prensipli insanlar olarak karakterize edilirler. Ayrıca, etik liderler standartların takibi ve devamlılığı konusunda çevresindeki insanlara sürekli etik kurallardan bahseden, açık etik kurallar koyan, ödül ve cezalar koyan kişilerdir (Brown & Trevino, 2006; Brown, 2007). Etik liderlik her düzeydeki çalışanları korumak ve onlara saygıyla yaklaşmayı gerektirmektedir. Etik liderlik örgütte yüksek etik standartlar oluşturma sürecini de kapsamaktadır (Hughes, 2008;Akt. Kılınç, 2009). Okul yöneticisi etik lider olarak; mesleki ve kişisel etik değerlere bağlı davranmalı, öğretmenlere ve diğer çalışanlara davranışlarıyla örnek olmalı, okuldaki gelişmeler için sorumluluk almalı, kişisel amaçlara değil eğitim amaçlarına hizmet etmeli, okul çalışanlarına adil, tarafsız, saygılı, değer verici şekilde davranmalı, okul çalışanlarının özel ve kişisel haklarını korumalı, onlardan etik davranışları göstermesini beklemeli, yasal zorunluluklara riayet etmeli

ve kanunlara, doğru bilgilere, adil tarafsız kurallara başvurmalı ve kurallar koymalıdır (Rebore, 2001; Akt. Yılmaz, 2006). Dolayısıyla okul yöneticilerinin, etik uygulamaların davranışsal bir norm olarak yer aldığı etik bir örgüt kültürü yaratmaları gerekmektedir (Besler, 2004, 96-97).

Örgütsel Bağlılık

Örgütsel bağlılık kavramı, örgütlerde etkililik ve verimliliğin arttırılmasına yönelik davranışlar içerisinde yer almakta ve entelektüel sermayenin yönetimi ve korunması açısından önem taşır (Ada ve diğerleri, 2008). Örgütsel bağlılık, kişi ile örgüt arasında gerçekleştirilmiş bir psikolojik sözleşmedir. Psikolojik sözleşme ile bireylerin örgüte bağlılıkları arasında açık bir ilişki vardır (McDonald & Makin, 2000; Sezgin, 2009). Psikolojik sözleşmesi yüksek örgüt ve bireyler etkili bağlılık davranışı göstermektedirler. İçselleştirilen amaç ve değerler bireyin örgüte bağlılığını yükseltir (Uğurlu, 2009). Örgütsel bağlılık genellikle kişinin çalıştığı örgüte karşı hissettikleri (İnce & Gül, 2005, 6) ya da çalışanın örgüte karşı olan sadakat tutumu, çalıştığı örgütün başarılı olması için gösterdiği ilgi ve gayret (Baysal ve Paksoy, 1999) olarak tanımlanmaktadır. Örgütsel bağlılık, işgörenin çalıştığı örgüte karşı hissettiği bağın gücünü ifade etmektedir (Bayram, 2005). Robbins ve Coulter'e göre (2003) örgütsel bağlılık, çalışanların organizasyona katılımsallığı, kendilerini örgütle özdeşleştirmeleri, organizasyon içindeki durumları ve üyelikteki devamlılıklarıdır (Akt. Sezgin, 2009). Farklı tanımlamaların vurgu yaptığı ortak nokta bağlılığın, bireyin çalıştığı örgütle arasındaki ilişkileri özdeşleştiren psikolojik bir durum olmasıdır (Erdheim, Wang ve Zicker, 2006). Ayrıca üç ana temayı yansıttığı görülmektedir, (1) örgüte duygusal olarak bağlı olma, (2) örgütten ayrılmayla ortaya çıkacak kaybın göz önüne alınması ve (3) örgütte kalma zorunluluğu (Meyer & Allen, 1991; Akt. Terzi ve Kurt, 2005).

Tutumsal bağlılıkla ilgili en önemli çalışmalardan birisi Meyer ve Allen'e aittir. Meyer ve Allen (1997), yaptıkları çalışmalarında duygusal bağlılık, devamlılık bağlılığı ve normatif bağlılık diye örgütsel bağlılıkla ilgili üç boyuttan bahsetmektedir (Meyer & Allen, 1997, 11). Tutumsal bağlılıkla ilgili diğer bir önemli bir çalışma ise uyum, özdeşleşme ve içselleştirme (Balay, 2000a, 2000b;Balcı, 2003; Kelman, 1958;O'Reilly & Chatman, 1986) olarak üç boyutta sınıflandırılmakta ve örgütsel bağlılık yaklaşımına psikolojik bir bakış açısı kazandırmaktadır. Bu araştırmada örgütsel bağlılık, bu sınıflandırmaya dayandırılmaktadır. Bağlılığın ilk aşaması uyumdur ve uyum boyutunda örgüte karşı yüzeysel bir bağlılık söz konusudur. Birey uyma davranışını gerçekten istediği ve inandığı için değil, cezadan korktuğu ya da ödül beklediği için gösterir. Ayrıca birey kendisini uyma davranışı göstermek zorunda hisseder. Birey örgüt kurallarını ve çevreden gelen etkileri bir çıkar karşılığında kabul eder ve bu çıkarların gerçekleşme durumuna göre örgüte uyum gösterir (Balcı, 2003, 28-29). Bağlılığın ikinci aşaması özdeşleşmedir ve bu aşamada bireyin örgüte ve diğer örgüt üyelerine yakın olma isteği söz konusudur (Balcı, 2005,146). Özdeşleşme süreci psikolojik bağlılığın oluşmasında önemli bir aşamadır (O'Reilly & Chatman, 1986, 492). Bağlılığın üçüncü ve son aşaması içselleştirmedir. İçselleştirme, bireyin değerlerinin örgütsel değerlere uyum göstermesi ve örgütsel değerlerin bireyin tutum ve davranışlarına egemen olması şeklinde ifade edilebilir (Balcı, 2005, 146). İçselleştirme uzun zaman gerektirir. Birey bu boyutta bir bağlılık gösterdiğinde, örgütün değer ve normlarını, kendi değer ve normları olarak görür. Birey hiçbir zorlama olmaksızın, örgütün değer ve normlarını içtenlikle kabul eder ve benimser. Bu haliyle içselleştirme boyutunda normatif bir bağlılık söz konusudur (Balcı, 2003, 30). Özetle, bir örgüte psikolojik bağlılık üç bağımsız temele dayanmaktadır: (1) var olan ödüller elde etme ve cezadan kaçınma için uyma (2) bağlılık isteğine dayalı olarak özdeşleşme (3) bireysel veya örgütsel değerlere bağlı olarak içselleştirme. Bu ayrımlar uygulamanın farklı boyutlarını belirtmektedir (Kelman, 1958; O'Reilly & Chatman, 1986; Sezgin, 2009).

Örgüte bağlılık duyan çalışanlar, örgütün değerlerine, amaç ve hedeflerine güçlü bir şekilde inanır, örgütün amaçlarını kolayca kabullenir, örgütsel süreçlere yönelik emir ve beklentilere gönüllü olarak uyar. Ayrıca amaçların istenen şekilde gerçekleşmesi için asgari beklentilerin çok üzerinde çaba ortaya koyar ve örgütte kalmada kararlılık gösterir. Örgüte bağlılık gösteren çalışanlar işlerine içsel olarak güdülenirler (Balay, 2000a, 3;Sezgin, 2010). Ortaöğretim kurumlarındaki okul yöneticilerin öğretmenler tarafından algılanan etik liderlik uygulamaları ile öğretmenlerin örgütsel bağlılık düzeyleri arasındaki ilişkiyi inceleyen araştırmaların (Karagöz, 2008;Uğurlu, 2009) azlığı dikkati çekmektedir. Bu nedenle okul yöneticisinin gösterdiği etik liderlikle ilgili davranışlarının, öğretmenler tarafından nasıl algılandığını tespit etmek, hem yöneticilere hem de öğretmenlerin kendilerini değerlendirme fırsatı sağlaması açısından dikkat çekicidir. Ayrıca öğretmenlerin örgütsel bağlılık düzeylerinin yöneticilerin etik liderlik rolleri ile nasıl bir etkileşim içinde olduğunu tespit etmek, eğitimin verimliliğini ve öğretmenlerin etkililiğini arttırması açısından büyük önem taşımaktadır.

Araştırmanın Amacı

Bu araştırmanın amacı ortaöğretim okulu yöneticilerinin, öğretmenler tarafından algılanan etik liderlik rolleri ile öğretmenlerin örgütsel bağlılıkları arasındaki ilişkiyi incelemektir. Bu amaçla aşağıdaki sorulara cevap aranmıştır:

1. Öğretmenlerin görüşlerine dayalı olarak, okul yöneticilerinin etik liderlik uygulamaları (hoşgörü, adalet, sorumluluk, dürüstlük, demokrasi boyutunda) ile öğretmenlerin örgütsel bağlılıkları (uyum, özdeşleşme, içselleştirme boyutunda) arasında bir ilişki var mıdır?
2. Ortaöğretim öğretmenlerinin görüşlerine dayalı olarak, okul yöneticilerinin etik liderliğe (hoşgörü, adalet, sorumluluk, dürüstlük, demokrasi boyutunda) uygun davranışları gösterme düzeyleri nedir?
3. Okul yöneticileri etik liderliğin "hoşgörü", "adalet", "sorumluluk", "dürüstlük", "demokrasi" alt boyutlarına uygun davranış gösterme düzeyleri öğretmenlerin; (a) cinsiyet (b) mesleki kıdem değişkenlerine göre anlamlı farklılıklar arz etmekte midir?
4. Ortaöğretim okullarında görev yapan öğretmenlerin örgütsel bağlılıkları (uyum, özdeşleşme, içselleştirme boyutunda) ne düzeydedir?
5. Ortaöğretim okullarında görev yapan öğretmenlerin örgütsel bağlılık (uyum, özdeşleşme, içselleştirme boyutunda) düzeyleri; (a) cinsiyet ve (b) mesleki kıdem değişkenlerine göre anlamlı farklılıklar arz etmekte midir?

YÖNTEM

Bu araştırma ilişkisel tarama modelindedir. Araştırmanın evrenini, 2009-2010 eğitim-öğretim yılında Siirt İl ve ilçe merkezindeki ortaöğretim kurumlarında görev yapan toplam 590 öğretmen oluşturmaktadır. Araştırma verilerinin daha güvenilir bir biçimde elde edilmesi amacıyla örneklem alma yoluna gidilmeyip çalışma evreni "kendisini örnekleyen evren" (Çilenti, 1984, 137) olarak kabul edilmiştir. Örneklem grubunda yer alan öğretmenlerden toplam 365 anket değerlendirilmeye alınmıştır.

Betimsel nitelikteki araştırmada nicel veri toplama araçlarından anket tekniği kullanılmıştır. Anket formunun ilk bölümünde öğretmenlerin demografik özelliklerinin belirlemeye yönelik 2 adet soru bulunmaktadır. İkinci Bölümünde, okul müdürlerinin etik liderlik uygulamaları hakkında öğretmenlerin görüşlerinin belirlenmesi amacıyla Şimşek ve Altınkurt (2009) tarafından geliştirilen 28 maddelik "Etik liderlik" anketi kullanılmıştır. Öğretmenlerin, okul müdürlerinin etik liderlik uygulamalarına ilişkin görüşlerini belirlemek için beşli Likert tipi derecelendirme ölçeği kullanılmıştır. Veri toplama aracında okul müdürlerinin etik liderlik uygulamaları; hoşgörü (7 madde), adalet (6 madde), sorumluluk (6 madde) dürüstlük (5 madde) ve demokrasi (4 madde) olmak üzere, 5 boyutta toplam 28 önerme yer almaktadır. Bu araştırmada ölçeğin Cronbach alfa katsayısı .97 olarak tespit edilmiştir. Ölçeğin alt boyutlarıyla ilgili olarak yapılan alfa güvenirlik katsayısı hoşgörü boyutu .94, adalet boyutu .92, sorumluluk boyutu .90, dürüstlük boyutu .90 ve demokrasi boyutu ise .82 olarak bulunmuştur. Üçüncü bölümünde ise, Balay (2000b) tarafından geliştirilen ve 27 maddeden oluşan 5'li Likert biçiminde hazırlanmış "Örgütsel Bağlılık Ölçeği" (ÖBÖ) yer almaktadır. Birbirinden bağımsız üç alt ölçek olarak oluşturulan Örgütsel Bağlılık Ölçeği'nin Uyum alt ölçeği 8, Özdeşleşme alt ölçeği 8 ve İçselleştirme alt ölçeği 11 olmak üzere, 3 boyutta toplam 27 önermeden oluşmaktadır. Ölçeğin alt boyutlarıyla ilgili olarak yapılan alfa güvenirlik katsayısı uyum boyutunda .82, özdeşleşme boyutunda .88, içselleştirme boyutunda ise .93 olarak hesaplanmıştır.

Elde edilen anket verileri SPSS 16.0 paket programında verilen cevapların frekans, yüzde, aritmetik ortalama ve standart sapmaları hesaplanmıştır. Ayrıca veriler tek yönlü varyans analizi, ilişkisiz gruplar t-testi yoluyla analiz edilmiştir. Değişkenler arasındaki anlamlı farklılıkları bulmak amacıyla LSD testi kullanılmıştır. Parametrik dağılımlar için Pearson korelasyon analiz tekniği kullanılmış olup, elde edilen verilerin manidarlığı .05 düzeyinde sınanmıştır.

BULGULAR

1. Ortaöğretim Okulu Yöneticilerinin Öğretmenler Tarafından Algılanan Etik Liderlik Uygulamaları İle Öğretmenlerin Örgütsel Bağlılıkları Arasındaki İlişkiye Ait Bulgular

Tablo 1. Yöneticilerinin öğretmenler tarafından algılanan etik liderlik uygulamaları ile öğretmenlerin örgütsel bağlılıkları arasındaki ilişkiyi belirlemek üzere yapılan Pearson korelasyon analiz sonuçları

Faktörler	**Uyum**	**Özdeşleşme**	**İçselleştirme**
Hoşgörü	-.19**	.37**	.27**
Adalet	-.22**	.35**	.26**
Sorumluluk	-.19**	.38**	.28**
Dürüstlük	-.12**	.27**	.21**
Demokrasi	-.17**	.30**	.25**

Okul müdürlerinin etik liderlik uygulamalarının öğretmen görüşlerine ait puanları ile öğretmenlerin örgütsel bağlılıkları arasındaki ilişkiye ait korelasyon analizi sonucunda; hoşgörü ile uyum (r=-.19; p=0.00<0.01), adalet ile uyum (r=-.22;p=0.00<0.01), sorumluluk ile uyum (r=-.19;p=0.00<0.01), dürüstlük ile uyum (r=-.12;p=0.00<0.01), demokrasi ile uyum (r=-.17;p=0.00<0.01) boyutlarına ilişkin puanlar arasında ters yönde ve düşük düzeyde anlamlı bir ilişki olduğu görülmektedir. Yine okul müdürlerinin etik liderlik uygulamalarının öğretmen algılarına göre hoşgörü boyutuna ait puanlar ile özdeşleşme (r=.37;p=0.000<0.01), adalet boyutuna ait puanlar ile özdeşleşme (r=.35;p=0.000<0.01), sorumluluk boyutuna ait puanlar ile özdeşleşme (r=.38;p=0.000<0.01), demokrasi boyutuna ait puanlar ile özdeşleşme (r=.30;p=0.000<0.01) boyutundaki örgütsel bağlılık puanları arasında doğrusal ve orta düzeyde anlamlı bir ilişkinin olduğu saptanmıştır. Okul müdürlerinin etik liderlik uygulamalarının dürüstlük boyutuna ilişkin öğretmen algılarına ait puanlar ile öğretmenlerin özdeşleşme boyutundaki örgütsel bağlılık puanları arasında orta düzeye yakın anlamlı bir ilişkinin (r=.27;p=0.000<0.01) olduğu görülmektedir. Okul müdürlerinin etik liderliğin boyutlarına ilişkin öğretmen algılarına ait puanlar ile örgütsel bağlılığın içselleştirme boyutu arasındaki puanlar incelendiğinde ise; hoşgörü ile içselleştirme boyutu (r=.27;p=0.000<0.01), adalet ile içselleştirme boyutu (r=.26;p=0.000<0.01), sorumluluk ile içselleştirme boyutu (r=.28;p=0.000<0.01), dürüstlük ile içselleştirme boyutu (r=.21;p=0.000<0.01) ve demokrasi ile içselleştirme boyutu (r=.25;p=0.000<0.01) arasında pozitif yönde düşük düzeyde bir ilişkinin olduğu görülmektedir.

2. Okul Yöneticilerinin Etik Liderlik İlkelerine Uygun Davranışları Gerçekleştirme Düzeylerine İlişkin Bulgular

Tablo 2. Okul yöneticilerinin etik liderliğin alt boyutlarına uygun davranış gösterme düzeylerine ilişkin öğretmen algılarına dayalı sonuçlar (N=365)

Boyutlar	$\bar{x}$	S
Hoşgörü	3.75	.970
Adalet	3.83	.992
Sorumluluk	4.09	.857
Dürüstlük	4.32	.809
Demokrasi	4.17	.789

Öğretmenlerin algılarına göre, okul yöneticilerinin, etik liderliğin boyutlarına uygun davranış gösterme düzeylerinin dağılımı incelendiğinde, öğretmenler, okul yöneticilerinin en fazla dürüstlük boyutunda ($\bar{x}$=4.32), en az ise hoşgörü ($\bar{x}$=3.75) ve adalet boyutlarında ($\bar{x}$=3.83) etik ilkelere uygun davranış gösterdiklerini ileri sürmektedirler. Öğretmenler, hoşgörü ($\bar{x}$=3.75), adalet ($\bar{x}$=3.83), sorumluluk ($\bar{x}$=4.085), demokrasi ($\bar{x}$=4.168) boyutlarına ilişkin okul müdürlerinin etik liderlik uygulamalarına "çok katılıyorum" düzeyinde olduğu yani genelde başarılı fakat geliştirilmesi gereken düzeyde olduğu görüşündedirler. Okul müdürlerinin etik liderlik uygulamaları dürüstlük boyutunda ise ($\bar{x}$=4.324) üst düzeyde başarılı bulunmuştur. Başka bir anlatımla, okul yöneticileri öğretmenlere karşı dürüst davranmakta, hoşgörü ve adaletli olma konusunda ise sorunlu davranışları bulunmaktadır.

3. Öğretmenlerin Cinsiyet ve Kıdeme Göre Okul Yöneticilerinin Etik Liderlik İlkelerine Uygun Davranış Gösterme Düzeylerine İlişkin Bulgular

Tablo 3. Okul yöneticilerinin etik liderliğin alt boyutlarına uygun davranış gösterme düzeylerinin, öğretmenlerin cinsiyete göre t-testi dağılımları

Boyutlar	Cinsiyet	N	$\bar{x}$	S.Sapma	Sd	t	p
Hoşgörü	Bay	219	3.77	1.041	363	503	.615
	Bayan	146	3.72	.856			
Adalet	Bay	219	3.82	1.059	363	.355	.723
	Bayan	146	3.86	.887			
Sorumluluk	Bay	219	4.03	.926	363	1.457	.146
	Bayan	146	4.16	.737			
Dürüstlük	Bay	219	4.27	.895	363	1.540	.124
	Bayan	146	4.40	.655			
Demokrasi	Bay	219	4.13	.855	363	1.089	.277
	Bayan	146	4.22	.677			

Tablo 3'de görüldüğü gibi, okul yöneticilerinin etik liderlik ilkelerinin alt boyutlarına uygun davranış gösterme düzeyleri öğretmenlerin cinsiyetlerine göre incelendiğinde, hoşgörü (p=0.615> 0.05), adalet (p=0.723> 0.05), sorumluluk (p=0.146> 0.05), dürüstlük (p=0.124> 0.05) ve demokrasi (p=0.277> 0.05) boyutlarında cinsiyete göre anlamlı bir farklılık bulunmamıştır.

Tablo 4. Okul yöneticilerinin etik liderlik ilkelerinin alt boyutlarına uygun davranış gösterme düzeylerinin, öğretmenlerin kıdemlerine göre ANOVA dağılımları

Boyutlar	Kıdem	N	$\bar{x}$	S.Sapma	Sd	F	P*	LSD
Hoşgörü	1-5 yıl	170	3.68	.916	4 360 364	1.416	.228	
	6-10 yıl	75	3.91	.990				
	11-15 yıl	75	3.79	1.076				
	16-20 yıl	20	3.46	1.084				
	21 yıl ve üzeri	25	3..91	.794				
Adalet	1-5 yıl	170	3.73	.996	4 360 364	1.225	.300	
	6-10 yıl	75	3..92	.995				
	11-15 yıl	75	3.95	1.013				
	16-20 yıl	20	3.65	1.121				
	21 yıl ve üzeri	25	4.01	.728				
Sorumluluk	1-5 yıl	170	3.99	.844	4 360 364	2.035	.089	
	6-10 yıl	75	4.20	.878				
	11-15 yıl	75	4.11	.938				
	16-20 yıl	20	3..96	.872				
	21 yıl ve üzeri	25	4.43	.439				
Dürüstlük	1-5 yıl	170	4.22	.805	4 360 364	2.535	.040*	A-B D-B
	6-10 yıl	75	4..51	.707				
	11-15 yıl	75	4..39	.881				
	16-20 yıl	20	4.09	1.002				
	21 yıl ve üzeri	25	4.48	.608				
Demokrasi	1-5 yıl	170	4.08	.758	4 360 364	2.401	.050	
	6-10 yıl	75	4..35	.740				
	11-15 yıl	75	4.22	.889				
	16-20 yıl	20	3..92	.912				
	21 yıl ve üzeri	25	4..38	.603				

A. 1- 5yıl B. 6-10 yıl C. 11-15 yıl D. 16-20 yıl E. 21 yıl ve üzeri

Tablo 4 incelendiğinde, okul yöneticileri etik liderlik ilkelerine ilişkin uygulamalarıyla ilgili en yüksek değerleri dürüstlük ($\bar{x}$ =4.480), sorumluluk ($\bar{x}$ =4.427), demokrasi ($\bar{x}$ =4.384), adalet ($\bar{x}$ =4.013) ve hoşgörü ($\bar{x}$ =3.914), boyutlarında 21 yıl ve üzeri kıdeme sahip öğretmenlerden; dürüstlük boyutunda ise 11-15 yıl kıdeme sahip öğretmenlerden ($\bar{x}$ = 4.387) ve 21 yıl ve üzeri kıdeme sahip öğretmenlerden ($\bar{x}$ =4.480) almışlardır. Öğretmenlerin kıdemleri ile okul yöneticilerinin etik liderlik ilkelerine ilişkin uygulamalarıyla ilgili yapılan varyans analizi sonucunda etik ilkelerin hoşgörü (p=0.228> 0.05), adalet (p=0.300> 0.05), sorumluluk (p=0.089> 0.05), demokrasi (p=0.050> 0.05) boyutlarında öğretmen algılarına göre anlamlı bir farklılığa rastlanmamıştır. Ancak dürüstlük (p=0.040<0.05) boyutunda öğretmenlerin kıdemine göre aralarında istatistiksel bakımdan anlamlı bir farklılık olduğu görülmektedir. Yapılan LSD testi sonucuna göre; dürüstlük boyutunda 1-5 yıl kıdeme sahip grup ile 6-10 yıl arasında kıdeme sahip öğretmen grubunun ve kıdemi 16-20 yıl arası olan grup ile 6-10 yıl arasında kıdeme sahip öğretmen grubunun algıları arasında anlamlı bir fark olduğu tespit edilmiştir. Bu farklılığın 6-10 yıl kıdeme sahip öğretmen grubunun lehine olduğu görülmektedir.

Örgütsel Bağlılığa İlişkin Bulgular

4. İlköğretim Okullarında Görev Yapan Öğretmenlerin Örgütsel Bağlılık (uyum, özdeşleşme, içselleştirme boyutunda) Boyutlarına İlişkin Algılarına Ait Sonuçlar

Tablo 5. Örgütsel bağlılığın boyutlarına göre öğretmenlerin algılarına İlişkin Sonuçlar (N=365)

Boyutlar	$\overline{x}$	S
Uyum	2.24	.829
Özdeşleşme	3.20	.909
İçselleştirme	3.69	.807

Tablo 5 İncelendiğinde, ortaöğretim öğretmenlerinin okullarına en fazla içselleştirme boyutunda bağlılık duydukları ($\overline{x}$=3.691), bunu özdeşleşmeye dayalı boyutun ($\overline{x}$=3.203) izlediği, uyumun ise en düşük düzeyde ($\overline{x}$=2.244), gerçekleştiği gözlenmiştir.

5. Öğretmenlerin Cinsiyet ve Kıdeme Göre Örgütsel Bağlılık Düzeylerine İlişkin Bulgular

Tablo 6. Öğretmenlerin cinsiyete göre örgütsel bağlılık (uyum, özdeşleşme, içselleştirme boyutunda) düzeyine ilişkin algıları ve t testi sonuçları

Boyut	Cinsiyet	N	$\overline{x}$	S	Sd	t	p*
Uyum	Bay	219	2.28	.802	363	1.115	.265
	Bayan	146	2.18	.867			
Özdeşleşme	Bay	219	3.30	.9103	363	2.600	.010*
	Bayan	146	3.05	.890			
İçselleştirme	Bay	219	3.76	.778	363	1.888	.060
	Bayan	146	3.59	.841			

Yapılan analiz sonuçlarına göre, örgütsel bağlılığın cinsiyete göre öğretmen görüşleri arasında anlamlı bir farklılık uyum boyutunda (p=0.265> 0.05) ve içselleştirme boyutunda (p=0.265> 0.060) yoktur. Özdeşleşme boyutunda (p=0.010< 0.05) ise cinsiyete göre öğretmen görüşleri arasında anlamlı bir farklılık olduğu görülmektedir. Bu farklılık ise bayların lehine bir görünüm arz etmektedir.

Tablo 7. Öğretmenlerin kıdeme göre örgütsel bağlılık (uyum, özdeşleşme, içselleştirme boyutunda) düzeyi ANOVA sonuçları

Boyutlar	Kıdem	N	$\overline{x}$	S	Sd	F	P*	LSD
Uyum	1-5 yıl	170	2.26	.730	4	1.950	.102	
	6-10 yıl	75	2.14	.836				
	11-15 yıl	75	2.25	.912				
	16-20 yıl	20	1.99	.644	360			
	21yıl ve üstü	25	2.61	1.185				
Özdeşleşme	1-5 yıl	170	3.05	.784	4	3.361	.010*	A-D A-E B-D B-E
	6-10 yıl	75	3.17	1.002				
	11-15 yıl	75	3.44	1.019				
	16-20 yıl	20	3.36	.878	360			
	21 yıl ve üstü	25	3.50	.921				
İçselleştirme	1-5 yıl	170	3.62	.668	4	3.522	.008*	A-E B-E C-E
	6-10 yıl	75	3.53	1.036				
	11-15 yıl	75	3.84	.854				
	16-20 yıl	20	3.87	.601	360			
	21 yıl ve üstü	25	3.98	.715				

A. 1- 5yıl B. 6-10 yıl C. 11-15 yıl D. 16-20 yıl E. 21 yıl ve üzeri

Tablo 7'de görüldüğü gibi, uyum boyutundaki örgütsel bağlılığın kıdeme göre öğretmen görüşleri arasında anlamlı bir farklılık (p=0.102> 0.05) olmadığı saptanmıştır. Örgütsel bağlılığın özdeşleşme boyutunda kıdeme göre öğretmen görüşleri arasında anlamlı bir farklılık (p=0.010< 0.05) olduğu saptanmıştır. Anlamlı farklılığın hangi gruplar arasında olduğunu saptamak için yapılan LSD testi sonucunda, 1-5 yıl ile 16-20 yıl hizmet yılı olanlar, 1-5 yıl ile 21 yıl ve üzeri hizmet yılı olanlar, 6-10 yıl ile 16-20 yıl hizmet yılı olanlar, 6-10 yıl ile 21 yıl ve üzeri hizmet yılı olan öğretmenler arasında özdeşleşme boyutundaki bağlılıkları arasında anlamlı farklılık olduğu, bu farklılığın kıdemi fazla olanların lehinde olduğu görülmüştür. Analiz sonuçlarına göre, içselleştirme boyutunda kıdeme göre öğretmen görüşleri arasında anlamlı bir farklılık (p=0.008> 0.05) olduğu saptanmıştır. Anlamlı farklılığın

hangi gruplar arasında olduğunu saptamak için yapılan LSD testi sonucuna göre, 1-5 yıl ile 21 yıl ve üzeri hizmet yılı olanlar, 6-10 yıl ile 21 yıl ve üzeri hizmet yılı olanlar arasında, 11-15 yıl ile 21 yıl ve üzeri hizmet yılı olanlar arasında içselleştirme boyutundaki bağlılıkları açısından anlamlı farklılık olduğu, bu farklılık ise kıdemi fazla olanların lehine bir görünüm arz ettiği görülmektedir.

SONUÇ, TARTIŞMA VE ÖNERİLER

Etik liderlik ile örgütsel bağlılık arasındaki ilişkiye ait sonuçlar

Araştırma sonucunda okul yöneticilerinin etik liderliğin hoşgörü, adalet, sorumluluk, dürüstlük, demokrasi alt boyutlarına ilişkin öğretmenlerin algıları ile öğretmenlerin uyum boyutundaki örgütsel bağlılıkları arasında ters yönde ve düşük düzeyde anlamlı bir ilişkinin olduğu tespit edilmiştir. Okul yöneticilerinin etik liderlik uygulamalarının hoşgörü, adalet, sorumluluk, demokrasi boyutundaki öğretmen algıları ile öğretmenlerin özdeşleşme boyutundaki örgütsel bağlılıkları arasında doğrusal ve orta düzeyde bir ilişkinin olduğu saptanmıştır. Okul müdürlerinin etik liderlik uygulamalarının dürüstlük boyutuna ilişkin öğretmen algıları ile öğretmenlerin özdeşleşme boyutundaki örgütsel bağlılıkları arasında ise orta düzeye yakın ve anlamlı bir ilişkinin olduğu görülmüştür. Okul müdürlerinin etik liderliğin hoşgörü, adalet, sorumluluk, dürüstlük ve demokrasi alt boyutlarına ilişkin öğretmen algıları ile içselleştirme boyutundaki örgütsel bağlılıkları arasında orta düzeye yakın anlamlı bir ilişkinin olduğu tespit edilmiştir. Ayrıca araştırma sonucuna göre, okul müdürlerinin etik liderliğin sorumluluk ve hoşgörü alt boyutlarındaki uygulamalarına ait öğretmen algıları ile öğretmenlerin özdeşleşme ve içselleştirme boyutundaki örgütsel bağlılıkları arasında diğer değişkenlere göre daha yüksek bir ilişkinin olduğu söylenebilir. Dale ve Fox (2008) eğitim liderlerinin nezaket kurallarına uygun davranışlar göstermeleri, çalışanların örgütsel bağlılık düzeylerini pozitif yönde etkilediğini ifade etmektedir.

Etik liderliğin alt boyutlarına ilişkin sonuçlar

Öğretmenler, hoşgörü, adalet, sorumluluk, demokrasi boyutlarına ilişkin okul müdürlerinin etik liderlik uygulamalarına ilişkin algılarının "çok katılıyorum" düzeyinde oldukları görülmüştür. Öğretmenler, okul müdürlerinin etik liderlik uygulamalarını dürüstlük boyutunda ise en üst düzeyde başarılı bulmuşlardır. Bu sonuç Cemaloğlu ve Kılınç'ın (2009) ilk ve orta öğretim öğretmenleri ve Küçükkaraduman (2006) sınıf ve branş öğretmenleri üzerinde yaptığı araştırmada, öğretmenler okul yöneticilerini etik liderliğin hoşgörü adalet, sorumluluk, demokrasi alt boyutundaki uygulamalarıyla ilgili bulguları araştırma sonuçlarıyla benzerlik göstermektedir. Ancak dürüstlük boyutunda ise etik davranışlara uygun davrandıkları bulgularıyla birebir örtüşmemektedir. Şimşek ve Altınkurt'un (2009) öğretmenler üzerinde yaptığı araştırmada okul müdürlerinin etik liderlik uygulamaları, sorumluluk ve demokrasi boyutunda araştırma sonucunu destekler iken, hoşgörü, adalet ve dürüstlük boyutlarında ise araştırma sonucunu desteklememektedir. Pehlivan (1999) ve Çakır'ın (1999) eğitim yöneticilerinin etik davranışları üzerine yaptığı araştırmada, hoşgörü, adalet, sorumluluk, demokrasi ve dürüstlük boyutlarına ilişkin öğretmenlerin algısına göre okul müdürlerinin genellikle uygun davrandıkları bulgusu, dürüstlük alt boyutu hariç tüm boyutlar araştırma sunucu tam olarak desteklemektedir. Kınay'ın (2006) yaptığı araştırmada, öğretmenler okul müdürlerinin adalet, sorumluluk, demokrasi, dürüstlük boyutlarında etik davranışlara genellikle uygun davrandıkları bulgusu, dürüstlük alt boyutu dışındaki tüm boyutlar araştırmanın bulguları ile örtüşmektedir. Güleş ve Ardahan'ın (1998), öğretmenlerin okul yöneticilerini hoşgörülü olma ve adalet boyutunda yetersiz buldukları bulguları, araştırma sonuçlarını desteklememektedir. Ortaöğretim öğretmenlerin cinsiyeti ile okul yöneticilerinin etik liderliğin alt boyutlarına uygun davranış gösterme düzeyleri arasında anlamlı bir farklılığın olmadığını saptanmıştır. Bunun nedeni mesleki rollerin cinsiyete göre değişmemesi şeklinde açıklanabilir. Cemaloğlu ve Kılınç'ın (2009) yaptıkları araştırmada elde edilen bulgu, bu araştırmanın sonucunu desteklemektedir. Ancak Kentsu (2007) ve Demir'in (2007) yaptığı araştırmalar, araştırma sonucunu desteklememektedir. Ortaöğretim öğretmenlerinin kıdemleri ile okul yöneticilerinin etik liderliğin hoşgörü, adalet, sorumluluk, demokrasi boyutlarında öğretmen algılarına göre anlamlı bir farklılığa rastlanmamıştır. Ancak Okul yöneticilerin etik liderliğin dürüstlük alt boyutuna uygun davranış gösterme düzeyleri ile öğretmenlerin kıdemleri arasındaki farkın anlamlı olduğunu ortaya koymuştur. Dürüstlük alt boyutunda 6-10 yıl arası kıdeme sahip olan öğretmenlerin 1-5 yıl ve 16-20 yıl arası kıdeme sahip olan öğretmenlere göre okul yöneticilerini daha dürüst davranışlar gösterdiklerini ortaya koymuşlardır. Cemaloğlu ve Kılınç'ın (2009) yaptığı araştırmada dürüstlük alt boyutunda 21 yıl ve üzeri kıdeme sahip öğretmenlerin diğerlerinin görüşlerine göre okul yöneticilerini daha dürüst davranışlar gösterdiği vurgulanmıştır.

Örgütsel bağlılığa ilişkin sonuçlar

Ortaöğretim öğretmenlerinin örgütsel bağlılıkları içselleştirme boyutunda "çok katılıyorum", özdeşleşme boyutunda "orta düzeyde katılıyorum" ve uyum boyutunda ise "çok az katılıyorum" düzeyinde olduğu görülmektedir. Araştırmada ortaöğretim öğretmenlerin örgütsel bağlılıklarının en

yüksek düzeyde içselleştirme boyutunun çıkması olumlu olarak nitelendirilmiştir. Öğretmenlerin, görev yaptıkları okulun amaç ve değerlerini büyük ölçüde içselleştirdikleri ve okulun amaçlarının gerçekleştirilmesi ve öğrenci başarısının arttırılması açısından olumlu olarak değerlendirilebilir. Uğurlu'ya (2009) göre içselleştirilen amaç ve değerler bireyin örgüte bağlılığını yükseltir. Bu sonuçlar Erdem (2008), Balay (2007) ve Özkan'ın (2005) yaptığı araştırmalarda, öğretmenlerin örgütsel bağlılığın uyum, özdeşleşme ve içselleştirme boyutlarındaki görüşleriyle tutarlı olduğu görülmüştür. Zaman'ın (2006) rehber öğretmenlerle yaptığı araştırmada örgütsel bağlılığın içselleştirme özdeşleşme ve uyum boyutunun "orta düzeyde" olduğu gözlenmiştir. Dolayısıyla araştırmanın sadece özdeşleşme boyutu bu araştırmanı sonucunu desteklemektedir. Ayrıca Sezgin'in (2009, 2010) öğretmenler üzerinde yaptığı iki ayrı araştırmada da öğretmenlerin içselleştirme boyutundaki örgütsel bağlılığının diğerlerine göre daha yüksek olduğu vurgulanmaktadır. Bu araştırmada örgütsel bağlılığın uyum boyutunda cinsiyete göre ortaöğretim öğretmen görüşleri arasında anlamlı bir farklılık yoktur. Bu sonucu Erdem'in (2008) ve Balay'ın (2007) yaptığı araştırma desteklemektedir. Özdeşleşme boyutunda cinsiyete göre öğretmen görüşleri arasında anlamlı bir farklılık olduğu ve bu farklılığın bayların lehine olduğu görülmektedir. Araştırmada örgütsel bağlılığın içselleştirme boyutunda cinsiyete göre öğretmen görüşleri arasında anlamlı bir farklılık yoktur. Bu sonucu Erdem'in (2008), Balay (2007) ve Zaman'ın (2006) yaptığı araştırmalar desteklemektedir. Örgütsel bağlılığın uyum boyutunda kıdeme göre öğretmen görüşleri arasında anlamlı bir farklılık olmadığı tespit edilmiştir. Özdeşleşme ve içselleştirme boyutunda ise kıdeme göre öğretmen görüşleri arasında anlamlı bir farklılık olduğu belirlenmiştir. Özdeşleşme boyutunda 21 yıl ve üzeri kıdeme sahip öğretmen gruplarının kıdemi 10 yıl ve aşağı olan öğretmen grupları arasında ve 16-20 yıl arasında kıdeme sahip öğretmen grupları ile kıdemi 10 yıl ve aşağısında olan öğretmen grupları arasında kıdemi fazla olanlar lehine anlamlı farklılık olduğu söylenebilir. Kıdemi 21 yıl ve üzeri olan öğretmen grupları ile kıdemi 1-5 yıl, 6-10 yıl ve 11-15 yıl olan öğretmen grupları içselleştirme boyutunda örgütsel bağlılık düzeyleri arasında anlamlı farklılık olduğu, bu farklılık ise kıdemi fazla olanların lehine bir görünüm arz ettiği belirtilebilir. Bu durum öğretmenlerin ilerleyen kıdemle birlikte biriken deneyimleri önemli ölçüde onları örgüte bağlanmaya sevk etmektedir. Bu sonuç Balay'ın (2007) yaptığı araştırmanın sonuçlarıyla benzerlik göstermektedir.

Öneriler

1. Okul yöneticilerinin etik liderlik uygulamaları öğretmenlerin örgütsel bağlılık düzeylerinin olumlu bir şekilde etkilemektedir. Bu nedenle okul yöneticilerinin etik liderlik davranışlarını geliştirici eğitim programları hazırlanabilir ve okul yöneticilerine bu program kapsamında hizmet içi eğitim verilebilir.
2. Öğretmenlerin örgütsel bağlılığına, yöneticilerin etik liderlik rollerinin etkisi araştırılabilir.
3. Okul yöneticilerinin etik liderlik uygulamaları ile öğretmenlerin örgütsel bağlılıkları arasındaki ilişkiye yönelik benzer araştırmalar özel ve devlet okullarında karşılaştırmalı olarak yapılabilir.
4. Araştırma sonucunda ilköğretim okulu öğretmenlerinin bağlılık düzeylerini içselleştirme boyutunda yüksek olduğu görülmektedir. Öğretmenlerin görev yaptıkları okullarıyla bütünleşmelerini sağlayacak, motivasyonlarını sağlayacak moral ve psikolojik faktörlerin (Etkili takım çalışması, kendilerini ilgilendiren kararlara katılım, uygun örgütsel iklim, demokratik çalışma koşulları, etkili yönetici davranışları vb.) sağlanması önerilebilir.
5. Öğretmenlerin performansa dayalı değerlendirme sonuçlarına dayalı olarak iş görenler lehinde ücretlere ve görevde yükselme olanaklarına yansıtılarak bağlılıkların arttırılması sağlanabilir.

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INTE 2010

ÖĞRENCİ TAKIMLARI VE BAŞARI BÖLÜMLERİ TEKNİĞİNİN İLKÖĞRETİM 5. SINIF ÖĞRENCİLERİNİN ÇATIŞMA ÇÖZME VE EMPATİK EĞİLİMLERİNE ETKİSİNİN İNCELENMESİ

THE EFFECTS OF STUDENTS TEAMS-ACHIEVEMENT DIVISIONS TECHNIQUE ON 5th GRADE STUDENTS' CONFLICT RESOLUTION AND EMPATHIC TENDENCIES

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ÖZET

Bu çalışmanın genel amacı ilköğretim 5. Sınıf Maddenin Değişimi ve Tanınması Ünitesinde kullanılan işbirlikli öğrenme yönteminin öğrenci takımları ve başarı bölümleri tekniği ve geleneksel öğretim yaklaşımının öğrencilerin çatışma çözme ve empatik eğilimlerine etkisinin incelenmesidir. Araştırmanın örneklemini, Kahramanmaraş il merkezinde bulunan iki ilköğretim Okulunun altı 5. sınıf şubesinde okuyan 159 öğrenci oluşturmaktadır. Sınıflardan rastgele yöntemle seçilen 3 sınıfta Öğrenci Takımları Başarı Bölümleri Tekniği ve 3 sınıfta da geleneksel öğretim yaklaşımı ile Maddenin Değişimi ve Tanınması Ünitesi 9 hafta süreyle işlenmiştir. Farklı öğretim yaklaşımlarının ilköğretim 5.sınıf öğrencilerinin çatışma çözme ve empatik eğilimlerine etkisini incelemek için gruplara çatışma çözme ve empati eğilimler ölçeği (EEÖ) ön ve son test olarak uygulanmıştır. Çatışma çözme ölçeğinde iki boyut vardır. Bunlardan biri saldırganlık boyutu (SB) ve diğeri ise problem çözme boyutu (PÇ). Bu araştırmada kullanılan ön-testler arasında istatistiksel olarak anlamlı bir fark olmadığından genel araştırma sorusunu test etmek için çoklu varyans analiz (MANOVA) kullanılmıştır. Sonuçlar kullanılan öğretim yaklaşımlarından öğrenci takımları ve başarı bölümleri tekniğinin öğrencilerin son-SB, son-PÇ ve son-EB ölçeklerinden aldıkları puanların ortalamalarına istatistiksel olarak anlamlı bir etki yaptığını göstermiştir. Sırasıyla varyans analiz sonuçları ($F (1, 157) = 26,965$, $p< 0,05$, $\eta^2 = 0,147$) , ($F (1, 157) = 14,13$, $p< 0,05$, $\eta^2 = 0,083$) ve ($F (1, 157) = 6,67$, $p< 0,05$, $\eta^2 = 0,041$) şeklindedir. İşbirlikli öğrenme yönteminin doğasında olan yüz yüze etkileşim, birlikte başarma, tartışma ve tartışmalarda bir fikir birliğine varılması 9 hafta süreyle uygulanan bir işbirlikli öğrenme tekniği olan öğrenci takımları ve başarı bölümleri tekniğinin öğrencilerin saldırgan etkilerini azalttığı, problem çözme ve empatik eğilimlerini arttırdığını söyleyebiliriz. Çalışmanın sonuçları eleştirel yaklaşımla tartışılmıştır.

Anahtar kelimeler: Öğrenci takımları ve başarı bölümleri tekniği, çatışma çözme ve empatik eğilimler

ABSTRACT

The main purpose of this study was to investigate the effects of students' teams- achievement divisions on students' conflict resolution and empathic tendencies at 5th grade Matter of Change and Recognition Unit. 159 5th grade students participated to the study from two different schools in Kahramanmaraş. Three of the classes were chosen randomly and trained with students' teams-achievement divisions' technique and the other three of the classes were chosen randomly and trained traditional instruction over a nine-week period. To investigate the effect of different teaching approaches on 5th grade elementary school students' conflict resolutions and emphatic tendencies, a conflict resolution and an emphatic tendencies scale (ETS) was applied to the groups as pre and post-tests. There are two dimensions on the conflict resolution scale. One of them is aggression dimension (AD) and the other is problem-solving dimension (PS). To examine the general inquiry question, multi-variance analysis (MANOVA) was used. Students who experienced with students' teams- achievement divisions showed significantly higher mean score for post-PS and post-ET and low score for post-AD than

students who experienced with traditional instruction. Results of multi variance analysis were showed respectively, (F (1, 157) = 14,13, p< 0,05, η2 = 0,083) ; (F (1, 157) = 6,67, p< 0,05, η2 = 0,041) and (F (1, 157) = 26,965, p< 0,05, η2 = 0,147). In the nature of cooperative learning method have face-to-face interaction, together achievement, discussion and agreeing upon a consensus at the discussions. Students' teams-achievement divisions' technique which is a kind of cooperative learning method that was applied over nine-week period decreased the effects of students' aggression and increased the problem-solving skills and emphatic tendencies.

Keywords: Students' teams and achievement sections techniques, conflict resolution and empathic tendencies

1. GİRİŞ

Gün geçtikçe insanlar daha karmaşık ve yoğun ilişkiler ağı içinde bulunmaktadırlar. Yaşanan bu yoğunluk ve karmaşıklık, bilgi çağının getirdiği stresle birlikte toplumda kişilerarası ilişkilerin bozulmasına, kişilerarası çatışmalara, insanların birbirlerine yabancılaşmasına ve yalnızlık duygusuna kapılmalarına neden olmaktadır. Bireylerin birbirini anlaması iletişimi kolaylaştırıcı faktörlerden biridir. İnsanların birbirini anlaması, iletişim içinde olması insanlar arası yardımlaşmayı ve birlikte iş yapmayı kolaylaştırır. Bireyin empati kurabilmesi için karşıdaki ile aynı olayı yaşaması gerekmemektedir. Empati, insanın kendisini karşıdaki kişinin yerine koyabilme, olaylara onun penceresinden bakabilmedir (Pişkin,1991). Empati, genel olarak başkasının duygusal durumunu paylaşma ve anlama yeteneği olarak tanımlanmaktadır (Cohen ve Strayer, 1996; Feshbach, 1997). Devam eden bir çatışmanın başarılı bir şekilde idare edilmesi ve iyi bir iletişim ortamı oluşturmak olarak düşünülmektedir (Davis, 1996; Hatfield ve ark., 1994).

Kişiler çatışma ile karşılaştıklarında iki önemli konu ile ilgilenirler. Bunlardan birincisi çatışmaya sebep olan amaçlara ulaşma ve ikincisi çatışma yaşanan kişilerle iyi ilişkiler kurma isteğidir. Putnam ve Wilson (1982) göre üç genel çatışma çözme yönteminden bahsetmişlerdir; uzlaşma, kontrol etme ve işbirliği (Akt; Beebe ve Masterson, 2000).

İşbirliğinin kelime anlamı öğrencilerin ortak bir amaç doğrultusunda birlikte çalışmasıdır. İşbirlikli öğrenme ise öğrencilerin heterojen gruplarda ortak bir amaç doğrultusunda birlikte çalıştıkları öğrenme çevresi olarak tanımlanmaktadır (Johnson, Johnson & Holubec, 1993). Bu öğrenme yönteminde öğrencilerin hazırlanan etkinliklerle tartışma ortamının sağlandığı ve bunun sonucunda gruplarda bir problemin çözümünde ortak bir konsensüse ulaşılmak istenmesi ile öğrencilerin sosyal yönlerinin gelişmesine katkı sağlanmaktadır. İşbirlikli öğrenme yönteminin doğasında olumlu yönde karşılıklı dayanışma, yüz yüze etkileşim, bireysel değerlendirme, farklı yeteneklerdeki kişilerin aynı gruplarda bulunması ve grup işlem süreci gibi önemli öğeleri vardır (Stahl,1996). Öğrenciler küçük gruplarda ortak bir amaç doğrultusunda birlikte çalıştıklarında sınıf arkadaşları ve çalıştıkları çevre ile daha uyumlu oldukları yapılan çalışmalarla tespit edilmiştir (Beckman, 1990; Collier, 1980; Johnson ve Johnson, 1989).

İşbirlikli öğrenme yönteminin birçok tekniğinin olmasının yanında bu yöntemi uygulayacak öğretmenin işbirlikli öğrenme yönteminin uygulanmasında yeteri kadar deneyimi yoksa ve öğrencilerde daha önce işbirlikli öğrenme yöntemi ile öğrenme gerçekleştirmemişlerse öğrenci takımları ve başarı bölümleri tekniğinin uygulanması tavsiye edilmektedir (Slavin, 1990). Bu nedenle bu çalışmada öğrenci takımları ve başarı bölümleri tekniği kullanılmıştır.

1.1. Araştırma Problemleri

1). İlköğretim 5. sınıf Fen ve Teknoloji dersi "Maddenin Değişimi ve Tanınması " ünitesindeki konuların öğretilmesinde Öğrenci Takımları Başarı Bölümleri Tekniği ve Geleneksel Öğretim yaklaşımının uygulandığı sınıflardaki öğrencilerin çatışma çözme ölçeğinden aldıkları puanların ortalamaları arasında statiksel olarak anlamlı bir fark var mıdır?

2) İlköğretim 5. sınıf Fen ve Teknoloji dersi "Maddenin Değişimi ve Tanınması " ünitesindeki konuların öğretilmesinde Öğrenci Takımları Başarı Bölümleri Tekniği ve Geleneksel Öğretim yaklaşımının uygulandığı sınıflardaki öğrencilerin empatik eğilimler ölçeğinden aldıkları puanların ortalamaları arasında statiksel olarak anlamlı bir fark var mıdır?

2 YÖNTEM

2.1 Ölçme araçları

2.1.1 Çatışma Çözme Ölçeği (ÇÇÖ): Bu ölçek Koruklu (1998) tarafından geliştirilmiştir. Öğrencilerin çatışma çözme davranışlarını ölçmek amacı ile geliştirilen ölçek 24 maddeden oluşan 5 puanlı likert tipi bir ölçektir. 5'li likert tipi, eşit aralıklı ölçekte, "1= hiç uygun değil, 2= biraz uygun, 3= uygun, 4= çoğunlukla uygun ve 5= çok uygun " olarak değerlendirilmiştir. Ölçekte saldırganlık (küfür, kavga, tehdit, susarak saldırma) ve problem çözme olmak üzere iki boyut vardır. Ölçekteki saldırganlık boyutunun test-tekrar test güvenirlik kat sayısı 0,64

ve problem çözme boyutu için ise 0,66 olarak belirlenmiştir. Ölçeğin iç tutarlılık katsayıları ise saldırganlık boyutu için 0,83 ve problem çözme için ise 0,83 dür.

2.1.2 Empatik Eğilim Ölçeği (EEÖ): Bu ölçek Koruklu (1998) tarafından geliştirilmiştir. Öğrencilerin günlük yaşamda empati kurma eğilimlerini ölçmek amacı ile geliştirilen ölçek 20 maddeden oluşan 5 puanlı likert tipi bir ölçektir. 5'li likert tipi, eşit aralıklı ölçekte, "1= tamamen aykırı, 2= oldukça aykırı, 3= kararsızlık, 4= oldukça uygun ve 5= tamamen uygun " olarak değerlendirilmiştir. Negatif cümlelerde tersten puanlama yapılmıştır. Puanın yüksek olması empatik eğilimin yüksek olmasını, düşük olması ise düşük olduğu anlamına gelmektedir. Ölçeğin uygulanmasından elde edilen verilerin test-tekrar test güvenirlik kat sayısı 0,82 olarak bulunmuştur.

2.2 Verilerin analizi

Deney ve kontrol gruplarından elden edilen veriler SPSS 13 paket programına girilmiştir. Araştırma sorularını çoklu varyans analizi (MANOVA) ve ANOVA ile analiz edilmiştir.

2.3 Uygulama

Deney grubunda işbirlikli öğrenme tekniklerinden öğrenci takımları başarı bölümleri tekniği ve kontrol grubunda ise geleneksel öğretim yaklaşımı ile ilköğretim 5. sınıf fen ve teknoloji dersinin maddenin değişimi ve tanınması ünitesi işlenmiştir. Uygulama aşamaları şu şekilde olmuştur. Uygulama öncesi deney ve kontrol gruplarına ön-ÇÇÖ ve ön-EEÖ uygulanmıştır.

İlköğretim 4 sınıf maddeyi tanıyalım ünitesi ile ilgili bir başarı testi uygulanarak bu testin sonucuna göre deney grubundaki öğrencilerle akademik başarı ve cinsiyetlerine göre heterojen gruplar oluşturulmuştur. Her öğrenciye "**Küme Çalışma Rehberi**" verilmiştir

Deney grubuna ilk olarak ders öğretmeni tarafından o gün öğretilecek konu ile ilgili sınıfta, araç ve gereç tanıtımı, konunun kısa bir şekilde anlatılması, konunun video ile sunulması gibi faaliyetleri gerçekleştirerek konunun özetini öğrencilere sunmuştur. İkinci olarak her gruba öğretmen belirlenen kazanımları kazanmaları için kitaptaki konu ile ilgili bölümleri okumalarını istedi ve sonra her gruba çalışma kâğıtlarından yeteri kadar verdi. Çalışma kâğıtları konuyu anlamak için hazırlık soruları, okuma parçaları, deneyler ve farklı problemler içerir. Gruplardaki öğrenciler çalışma kâğıtlarına önce ikili çalışarak kendi aralarında bir konsensüse ve daha sonra dörtlü olarak çalışarak bir fikir birliğine vardılar. Üçüncü olarak gruplar çalışmalarını tamamladıktan sonra öğretmen her gruptan rastgele bir sözcü seçerek sonuçlarını tüm sınıfa anlatmalarını istedi. Bu işlemi 4-5 gruba tekrar ettirdikten sonra kendisi her hangi bir müdahale etmeden işlemi tamamladı. Sonrasında ise öğretmen öğrencilerin anlatımlarındaki eksiklikleri de dikkate alarak problemler hakkındaki doğru bilgileri tüm sınıfa sundu. Son olarak öğretmen her konu bitiminde bireysel olarak konu izleme testi verdi ve bu izleme testine göre iki puan hesaplandı puanlardan birisi bireylerin ayrı ayrı bireysel puanları diğeri ise grup üyelerinin bireysel puanıdır. Bu puanlar dikkate alınarak grup puanı hesaplandı. Grup puanı ile grupların başarı sırası oluşturuldu. Başarı sırasına göre ilk üç grubun üyelerine ödülleri verildi.

Daha sonra kontrol grubunda bulunan öğrencilere geleneksel öğretimle ders işlenmeye başlanmıştır. Araştırmacı tarafından yapılan gözlemlerde bu gruplarda dersin işlenmesi şu şekilde gerçekleşmiştir. Dersin işlenmesi esnasında öğretmen öğrencilere "herkes kitapları açsın" komutu ile derse başlıyor. Sonra kendisi konuyu anlatmaya başlıyor. Konu içinde örnek vermesi gerekirse örneği veriyor birkaç örnekte öğrencilerden istiyor. Konu anlatımı bittikten sonra öğrencilere konu ile ilgili birkaç soru soruyor ve bu soruları genelde sınıf ta durumu iyi olan birkaç öğrenci cevaplıyor. Öğretmenler konuyu birkaç tane öğrenci ile işliyor. Sonra konu ile ilgili kitaptan ev ödevi veriyor. Derste vakit kalırsa öğrencilere konuyu okumasını söylüyor. Dersin sonunda "dersi anladınız mı?" komutu ile dersi bitiriyor. Her derste genelde bu işlemler gerçekleştirilmiştir.

Uygulama sonrasında deney ve kontrol gruplarında bulunan öğrenciler son-ÇÇÖ ve son EEÖ uygulanmıştır.

3. Bulgular

Deney ve kontrol gruplarındaki öğrencilerin ön-ÇÇÖ (saldırganlık boyutu (SB) ve problem çözme boyutu PÇB) ve ön-EEÖ aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark olup olmadığı bağımsız t-testi ile test edilmiştir. Analiz sonuçları deney ve kontrol gruplarındaki öğrencilerin ön-ÇÇÖ boyutları ve ön-EEÖ puanlarının ortalamaları arasında istatistiksel olarak anlamlı bir bulunmamıştır (ön-SB için

(t(157) = 0,071, p >0,05) ; ön-PÇB için (t(157) = 0,801, p >0,05); ön-EEÖ için (t(157) = 0,074, p >0,05). Bu nedenle uygulanan öğretim yöntemlerinin son-ÇÇÖ ve son-EEÖ puanlarının ortalamalarına istatistiksel olarak anlamlı bir etkisinin olup olmadığını test etmek için çoklu varyans analizi (MANOVA) kullanılmıştır.

Deney ve kontrol gruplarındaki öğrencilerin ön-ÇÇÖ (ön-SB ve ön-PÇB); ön-EEÖ ile bu ölçeklerin son test sonuçları tablo 4.1 de verilmiştir.

Tablo 4.1: Deney ve Kontrol Grupları için Çatışma Çözme (ÇÇÖ) ve Empati Eğilim Ölçeği (EEÖ) Puanları

Gruplar	Bağımlı Değişkenler	n	Ortalama	Standart Sapma
DG	ön-SB	79	32,22	8,778
	Son-SB	79	16,64	6,841
	Ön-PÇB	79	44,38	6,612
	Son-PÇB	79	53,54	7,171
	Ön-EEÖ	79	65,2	6,541
	Son-EEÖ	79	72,12	8,988
KG	ön-SB	80	29,25	11,602
	Son-SB	80	25,29	13,161
	Ön-PÇB	80	44,75	11,271
	Son-PÇB	80	48,21	10,399
	Ön-EEÖ	80	67,37	9,672
	Son-EEÖ	80	68,55	8,406

DG: Öğrenci Takımları Başarı Bölümleri Tekniği, KG: Geleneksel Öğretim yaklaşımı

Tablo 4.1 de görüldüğü gibi öğrencilerin çatışma çözme ölçeğinin saldırganlık alt boyutu ortalamaları deney ve kontrol gruplarının son test ortalamaları her iki grupta da azalma gösterirken deney grubunun ortalamasındaki azalma kontrol grubuna göre daha fazladır. Çatışma çözme ölçeğinin son test puanları her iki grupta da yükselme gösterirken bu yükselme deney grubunda daha fazladır. Ayrıca empatik eğilimler ölçeği son test puanlarının ortalamalarındaki artış deney grubunda daha fazladır.

Öğrenci takımları ve başarı bölümleri tekniğinin öğrencilerin son-ÇÇÖ alt boyutları (son-SB ve son-PÇB) ile son-EEÖ puanlarının ortalamalarına etkisini test etmek için MANOVA analizi yapılmıştır. Temel araştırma sorusunu test etmek için Wilks lambda kullanılmıştır. Sonuçlar öğrenci takımları ve başarı bölümleri tekniğinin öğrencilerin bu çalışmada kullanılan tüm bağımlı değişkenler üzerindeki performanslarına istatistiksel olarak anlamlı bir etkisinin olduğunu göstermiştir (F= 5442,735; df=4; p<0,05). Bu anlamlı etkinin hangi bağımlı değişkenler üzerinde olduğunu anlamak için MANOVA analizinde devam eden ANOVA sonuçlarına bakılması gerekir. Bu sonuçlar tablo 4.2 de verilmiştir.

Tablo4.2. Varyans Analiz (ANOVA) Sonuçları

Kaynak	Bağımlı Değişken	df	Ortalamalar Karesi	F	P	Kısmi Eta karesi
Grup	Son-SB	1, 157	2977,233	26,965	0,000*	0,147
	Son-PÇB	1, 157	1129,974	14,130	0, 000*	0,083
	Son-EEÖ	1, 157	504,867	6,670	0,011	0,041

N=269, *p<0,05

Tablo 4.2 de görüldüğü gibi çalışmada kullanılan grupların çatışma çözme ölçeğinin (son-SB, son-PÇB) boyutlarında ve son-EEÖ den aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark olduğunu göstermiştir (son-SB için (F (1, 157) = 29,965, p< 0,05, η^2 = 0,147); son-PÇB için(F (1, 157) = 214,130, p< 0,05, η^2 = 0,083); son-EEÖ için (F (1, 157) = 6,670, p< 0,05, η^2 = 0,041)).

4. Tartışma

Bu çalışmanın araştırma sorusuna ait verilerden elde edilen bulgulara göre, öğrenci takımları ve başarı bölümleri tekniğinin uygulandığı sınıflardaki öğrencilerin çatışma çözme ölçeğinin son-SB'dan aldıkları puanların ortalamaları, geleneksel öğretim yaklaşımın uygulandığı sınıflardaki öğrencilerin son-SB'dan aldıkları puanların ortalamalarından istatistiksel olarak anlamlı bir şekilde daha düşük olduğunu, son-PÇB ve son-EEÖ'den aldıkları puanların ortalamalarından istatistiksel olarak anlamlı bir şekilde daha iyi olduğunu

göstermiştir. Bu sonuçlar Beebe ve Masterson (2000)'un işbirlikli öğrenme ortamı çatışma çözmede önemli bir öğretim yaklaşımıdır tezini doğrulamaktadır. Ayrıca işbirlikli öğrenme ortamındaki problemlerin çözümünde öğrencilerin kendi gruplarında birbirlerine yardım etmeleri, tartışmaları ve bir konsensusa varmaları işbirlikli öğrenmenin öğrencilerin problem çözme yaklaşımlarına etkisi olduğunu ve işbirlikli öğrenme ortamında öğrencilerin ortak bir amaç doğrultusunda birlikte çalıştıklarından sınıf arkadaşları ve çalıştıkları çevre ile daha uyumlu olduklarından empatik eğilimlerde daha olumlu oldukları düşünülmektedir.

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INTE 2010

ÖĞRENCİ TAKIMLARI VE BAŞARI BÖLÜMLERİ TEKNİĞİNİN İLKÖĞRETİM 5. SINIF ÖĞRENCİLERİNİN MOTİVASYON STİLLERİNE ETKİSİNİN İNCELENMESİ

THE EFFECT OF STUDENTS TEAMS-ACHIEVEMENT DIVISIONS METHOD ON 5th GRADE STUDENTS' MOTIVATION STYLES

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ÖZET

Bu çalışmanın genel amacı ilköğretim 5. Sınıf Maddenin Değişimi ve Tanınması Ünitesinde kullanılan işbirlikli öğrenme yönteminin öğrenci takımları ve başarı bölümleri tekniği ve geleneksel öğretim yaklaşımının öğrencileri Motivasyon Stillerine etkisinin incelenmesidir. Araştırmanın örneklemini, Kahraman Maraş il merkezinde bulunan iki ilköğretim Okulunun altı tane 5. sınıflarında okuyan 183 öğrenci oluşturmaktadır. Sınıflardan rastgele yöntemle seçilen 3 sınıfta Öğrenci Takımları Başarı Bölümleri Tekniği ve 3 sınıfta da geleneksel öğretim yaklaşımı ile Maddenin Değişimi ve Tanınması Ünitesi işlenmiştir. Farklı öğretim yaklaşımlarının ilköğretim 5.sınıf öğrencilerinin motivasyon stillerine etkisini incelemek için gruplara Motivasyon Stili ölçeği ön ve son test olarak uygulanmıştır. Bu çalışmanın genel araştırma sorusunu test etmek için kullanılan ortak değişkenli varyans analiz (ANCOVA) sonuçları kullanılan öğretim yaklaşımlarından öğrenci takımları ve başarı bölümleri tekniğinin öğrencilerin son-MSÖ aldıkları puanların ortalamalarına istatistiksel olarak anlamlı bir etki yaptığını göstermiştir (F (1, 180) = 127,799, $p< 0,05$, $\eta^2 = 0,415$). Gruplardaki öğrencilerin son-MSÖ alt boyutlarından aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark olup olmadığı bağımsız t-testi ile analiz edilmiştir. Sonuçlar deney grubundaki öğrencilerin son-MSÖ alt boyutlarından; öz etki, aktif öğrenme stratejileri, bilim öğrenmenin değeri, performans amacı ve başarı gayesinden aldıkları puanların ortalamalarının kontrol grubundaki öğrencilerinkinden istatistiksel olarak anlamlı fark göstermiştir. Ancak deney ve kontrol gruplarındaki öğrencilerin son-MSÖ öğrenme ortamı uyarıcıları alt boyutundan aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark bulunmamıştır.

Anahtar kelimeler: işbirlikli öğrenme, öğrenci takımları başarı bölümleri, motivasyon stilleri

ABSTRACT:

The purpose of this study was to investigate effects of Student Teams-Achievement Division technique on students' motivation styles, while teaching them the unit "the matter of change and identify" primary school fifth grade students. This study was carried out on 183 students at 6 different classrooms of two primary schools in the Kahramanmaraş. For teaching of the unit "the matter of change and identify, 3 classes were randomly selected as an experimental groups which used students team achievement deviation and 3 classes were randomly selected as a control groups which used traditional instruction. Motivation Style Scale was used as pretest-posttest for 5th grade students. Research questions for this study analyzed with ANCOVA and independent t-test. The results showed that there was a statistical significant mean difference on students' post-MSS scores (F (1, 180) = 127,799, $p< 0,05$, $\eta^2 =$ 0,415) in favor of experimental group and also there are a statistical significant mean difference on students' post-MSS of subgroup scores: Self-efficacy Active Learning Strategies, Science Learning Value, Performance Goal and Achievement Goal in favor of experimental group. But there was no statistical significant mean difference on students' post- MSS of subgroup scores found; Learning Environment Stimulation between experimental and control groups.

Key words: cooperative learning, Student Teams-Achievement Divisions, motivation styles

1. GİRİŞ

Eğitim ve öğretimde bireylerden içinde yaşadıkları çağın gereksinimleri dikkate alınarak beklentiler değişir. Örneğin 21. yüzyılda bireylerden beklentiler, bilimsel okuryazar olmaları, bilimsel süreç becerilerinin, eleştirel düşünme ve problem çözme yeteneklerinin gelişmiş olması, derse karşı tutuma sahip olma gibi özellikler önceki dönemlerden daha fazladır. Bu nedenle de 2004 yılında Milli Eğitim Bakanlığı bu yüzyılın beklentilerini karşılamak üzere alanında uzman olan kişilere yeni programlar hazırlatmış ve bu kapsamda ilköğretim birinci ve ikinci kademe yeni Fen ve Teknoloji Dersi programları geliştirilmiştir. Öğrencilerin fen ve teknoloji dersi ile ilgili kavramları anlamlı bir şekilde öğrenmeleri, özellikle öğrencilerin zihinlerinin öğrenme sırasında aktif olmaları ve öğrenme sürecine aktif katılmaları ile gerçekleşir. Bunun gerçekleşmesi, öğrencilerin var olan ön bilgileri ile yeni öğrenecekleri bilgilerini ilişkilendirmeleri, var olan kavram yanılgılarını ortaya çıkarıp gidermesine yardımcı olacak öğretim yöntem ve tekniklerinin sınıf ortamında kullanılması ile olacaktır.

Öğrencilerin anlamlı öğrenmelerine yardımcı olacak öğrenme yaklaşımlarından biride işbirlikli öğrenme yöntemidir. İşbirlikli öğrenme, öğrencilerin ortak bir amaç için 3-4 kişilik heterojen gruplarda birlikte çalıştıkları öğrenme ortamı olarak tanımlanmaktadır (Johnson, Johnson ve Holubec, 1993). Stahl (1996) a göre işbirlikli öğrenme yöntemi öğrencilerin akademik başarı, tutum ve motivasyonlarının gelişimine önemli katkısı vardır. İşbirlikli öğrenmenin doğasında olumlu yönde karşılıklı dayanışma, yüz yüze etkileşim, bireysel değerlendirme, farklı yetenekteki bireylerin bir arada bulunma gibi önemli öğeleri vardır. Bu öğeler öğrencilerin birlikte çalışma, tartışma ve birbirlerine yardım ederek bireysel olarak kendi ve arkadaşlarının öğrenmelerini en üst düzeye çıkarmalarında önemli rol oynamaktadır. Bu öğeler öğrencilerin sınıf ortamında aktif olmasını ve dolayısı ile de motivasyonlarının iyi olmasını sağlamaktadır.

Motivasyon kelimesi belli davranış türlerini tanımlamak için sıklıkla kullanılır. Çok çalışan ve bir sınavda en yüksek puan almayı deneyen bir öğrenci motivasyonu yüksek olarak tanımlanabilir. Bir başkası bir sınava çalışmada veya bir ödeve başlamada kendisini yeteri kadar motive edemediğini söyleyebilir. Bu tür ifadeler motivasyonun bizim davranışlarımız üzerinde büyük etkisinin olduğunu göstermektedir.

Glynn (2005) motivasyonu bireyin bir amaç doğrultusunda davranışlarını uyandıran, sürdüren ve programlayan faktörleri tanımlamak için kullanılan bir kavram olarak ifade etmektedir (Akt: Masitsa, 2008). Başka deyişle motivasyon doğrudan amaçsal davranışlarımızdır. Bir öğrenci yüksek puan alarak arkadaşlarını etkilemek istediğinden, kavramları öğrenirken aldığı zevkten veya iyi bir makam sahibi olmak istediğinden çok çalışıyor olabilir. Birilerinin öğrencileri neyin motive ettiğini bildiğini sanması doğru değildir çünkü onların zihinleri gerçekte okunamaz.

Şayet daha önceden başarı için herhangi bir öğrenme ürününün niteliği belirlenmemişse, öğrencilerin başarı durumları için motivasyon belirleyici olarak kabul edilir (Mitchell, 1992). Öğrenmeye başlama motivasyonu olmayan öğrencilerin başarılı olması pek muhtemel değildir (Gottfried, 1990). Mükemmel eğitim standartları olmasına rağmen var olan kaynakları ve fırsatları kullanmak için öğrenciler iyi motive edilmemişse öğrenmek için onlar yeterli uygulamaları yapmayacaktır. (Masitsa, 2008).

İşbirlikli öğrenmenin sınıf içi uygulamalarında birçok teknik vardır. Bunlar; birlikte öğrenme, öğrenci takımları başarı bölümleri, takım oyun turnuva, küme destekli bireyselleştirme, birleştirme (jigsaw) vb. İşbirlikli öğrenme tekniklerinden öğrenci takımları ve başarı bölümleri tekniği işbirlikli öğrenmeyi sınıflarında ilk kez uygulayacak öğretmenlere özellikle tavsiye edilmektedir. Çünkü bu tekniğin kullanımı diğer tekniklere göre daha kolaydır (Slavin, 1990). Bu nedenle bu çalışmada öğrenci takımları ve başarı bölümleri tekniği kullanılmıştır.

1.1. Araştırma Problemleri

1) İlköğretim 5. sınıf Fen ve Teknoloji dersi “Maddenin Değişimi ve Tanınması ” ünitesindeki konuların öğretilmesinde Öğrenci Takımları Başarı Bölümleri Tekniği ve Geleneksel Öğretim yaklaşımının uygulandığı sınıflardaki öğrencilerin Motivasyon Stili Ölçeğinden aldıkları puanların ortalamaları arasında statiksel olarak anlamlı bir fark var mıdır?

2) İlköğretim 5. sınıf Fen ve Teknoloji dersi "Maddenin Değişimi ve Tanınması " ünitesindeki konuların öğretilmesinde Öğrenci Takımları-Başarı Bölümleri Tekniği ve geleneksel öğretim yaklaşımının uygulandığı sınıflardaki öğrencilerin Motivasyon Stili Ölçeğinin alt boyutlarından aldıkları puanların ortalamaları arasında statiksel olarak anlamlı bir fark var mıdır?

2. YÖNTEM

2.1. Ölçme aracı: Motivasyon Stilleri Ölçeği (MSÖ): Bu ölçeğin orijinali Tuan, Chin ve Shief (2005) tarafından geliştirilmiştir. Türkçeye adaptasyonu Baştaş (2007) tarafından yapılmıştır. Öğrencilerin motivasyon stillerini ölçmek amacı ile geliştirilen ölçek 35 maddeden oluşan 5 puanlı likert tipi bir ölçektir. 5'li likert tipi, eşit aralıklı ölçekte, olumlu ifadeler "Kesinlikle Katılmıyorum=1, Katılmıyorum=2, Kararsızım=3,Katılıyorum=4 ve Kesinlikle Katılıyorum=5 " puan olarak değerlendirilmiştir. Olumsuz ifadelerin bulunduğu maddeler bu puanlamanın tersi olarak yapılmıştır.

Ölçekte 6 boyut bulunmaktadır. Ölçekteki 1,7,12,18,28,31,33 maddeler *Öz-etki,* 2,8,13,19,29,32,34,35. maddeler *Aktif Öğrenme Stratejileri,* 3,9,14,20,30. maddeler *Bilim Öğrenmenin Değeri,* 4,15,21,22. maddeler *Performans Amacı,* 6,11,17,24,25,27. maddeler *Öğrenme Ortamı Uyarıcıları* alt boyutları ile ilgilidir. Ölçeğin tümüne ait alfa güvenirlik katsayısı 0,83, her alt ölçeğin güvenirlikleri ise 0,70 ile 0,89 arasında değişmektedir.

2.2. Verilerin analizi: Deney ve kontrol gruplarından elden edilen veriler SPSS 13 paket programına girilmiştir. Araştırma sorularını ortak değişkenli varyans analizi (ANCOVA) ve t-testi ile analiz edilmiştir.

2.3. Uygulama: Deney ve kontrol gruplu olarak yapılan çalışmada deney grubuna işbirlikli öğrenme tekniklerinden öğrenci takımları başarı bölümleri tekniğine uygun olarak hazırlanan materyallerle ve kontrol grubunda ise müfredat kitabına uygun olarak dersler işlenmiştir. Uygulama aşamaları şu şekilde olmuştur. Uygulama öncesi deney ve kontrol gruplarında bulunan öğrencileri ön-MSÖ uygulanmıştır.

İlköğretim 4 sınıf maddeyi tanıyalım ünitesi ile ilgili bir başarı testi uygulanarak bu testin sonucuna göre deney grubundaki öğrencilerle akademik başarı ve cinsiyetlerine göre heterojen gruplar oluşturulmuştur. Her öğrenciye "**Küme Çalışma Rehberi**" verilmiştir

Heterojen gruplar oluşturulduktan sonra Maddenin Değişimi ve Tanınması ünitesinde işbirlikli öğrenme yönteminin öğrenci başarı bölümleri tekniği uygulanmaya konulmuştur. Uygulamanın sırası, detayları ve amaçları aşağıda sunulmuştur.

I. Amaç: Öğrenilecek konu ile ilgili amaçlar ve öğrenci kazanımlarının açık bir şekilde MEB tarafından belirlenerek öğrencilere öğretmen tarafından bildirilmiştir.

II. Öğretim Araç ve Gereçlerinin Hazırlanması: Öğretmen işbirlikli öğrenme yöntemi ile işleyeceği "Maddenin Değişimi ve Tanınması ünitesinde ki konuların öğrenci kazanımlarına uygun olarak öğrencilere çalışma kâğıtları ve öğrencilerin sınıfta kullanacağı eğitim öğretim materyallerini hazırlamıştır.

III. İşlem: Bu bölüm de öğretme ve grup çalışması olmak üzere iki aşamada gerçekleştirilmiştir.

a. Öğretme: Her hafta ilk olarak öğretmen, öğretilecek konu ile ilgili sınıfta, araç ve gereç tanıtımı, konunun kısa bir şekilde anlatılması, konunun video ile sunulması gibi faaliyetleri gerçekleştirerek konunun özetini öğrencilere sunmuştur.

b. Grup çalışması: Öğretmen belirlenen kazanımları kazanmaları için kitaptaki konu ile ilgili bölümleri okumalarını istedi ya da deney yapılacaksa deney malzemelerini vererek deneyi yapmalarını istedi. Bu işlemden sonra öğrenciler ikili olarak birbirlerini dinlediler. Sonra tüm grup üyeleri birbirlerine yardımcı oldular. Öğretmen çalışma kâğıtlarını dağıttı. Çalışma kâğıtları konuyu anlamak için hazırlık soruları, okuma parçaları, deneyler ve farklı problemler içerir. Öğrenciler önce ikili olarak çalışma kâğıtlarında birlikte çalışırlar. İkili üyeler çalışma kâğıdı üzerinde bilgileri tartıştı ve anlaşırlarsa sonucu çalışma kâğıdına yazdılar. Sonra çalışma kâğıtları üzerinde çalışma tamamlandıktan sonra tüm grup üyeleri ortak bir karara varmak için birbirlerinin cevaplarını kontrol ettiler, yanlışlarını düzeltiler,

tartıştılar ve grubun ortak sonucuna vardırlar ve çalışma kâğıdına grubun sonucunu yazdılar. Tüm gruplar bu işlemi gerçekleştirdikten sonra öğretmen rastgele belirlediği bir grubun sözcüsüne grubun kararının sınıfa iletmesinin ister. Grubun kararına doğruda olsa yanlış ta olsa öğretmen hemen müdahale etmez ve diğer gruplara da söz hakkı verir. Gruplardan doğru cevap geliyorsa diğer kazanımlara geçilir. Yanlış cevap geliyorsa ek süre verilir ve tekrar cevaplanması istenir hala yanlış cevap geliyorsa öğretmen tüm sınıfa doğru cevabı anlatır. Tüm kazanımlarda bu işlemler gerçekleştirilmiştir.

IV. Değerlendirme: Öğrencilere her konu bitiminde bireysel olarak konu izleme testi verildi ve bu izleme testine göre iki puan hesaplandı puanlardan birisi bireylerin ayrı ayrı bireysel puanları diğeri ise grup üyelerinin bireysel puanı dikkate alınarak grup puanı hesaplandı. Grup puanı ile grupların başarı sırası oluşturuldu. Başarı sırasına göre ilk üç grubun üyelerine ödülleri verildi.

Daha sonra kontrol grubunda bulunan öğrencilere geleneksel öğretimle ders işlenmeye başlanmıştır. Araştırmacı tarafından yapılan gözlemlerde bu gruplarda dersin işlenmesi şu şekilde gerçekleşmiştir. Dersin işlenmesi esnasında öğretmen öğrencilere "herkes kitapları açsın" komutu ile derse başlıyor. Sonra kendisi konuyu anlatmaya başlıyor. Konu içinde örnek vermesi gerekirse örneği veriyor birkaç örnekte öğrencilerden istiyor. Konu anlatımı bittikten sonra öğrencilere konu ile ilgili birkaç soru soruyor ve bu soruları genelde sınıf ta durumu iyi olan birkaç öğrenci cevaplıyor. Öğretmenler konuyu birkaç tane öğrenci ile işliyor. Sonra konu ile ilgili kitaptan ev ödevi veriyor. Derste vakit kalırsa öğrencilere konuyu okumasını söylüyor. Dersin sonunda "dersi anladınız mı?" komutu ile dersi bitiriyor. Her derste genelde bu işlemler gerçekleştirilmiştir.

Uygulama sonrasında deney ve kontrol gruplarında bulunan öğrenciler son-MSÖ uygulanmıştır.

3. BULGULAR VE YORUM

Deney ve kontrol gruplarındaki öğrencilerin ön-MSÖ aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark olup olmadığı bağımsız t-testi kullanılmıştır. Sonuçlar sonuçları deney ve kontrol gruplarındaki öğrencilerin ön-MSÖ puanlarının ortalamaları arasında istatistiksel olarak anlamlı bir fark olduğunu göstermiştir ($t(181) = -3,18$, $p < 0,05$). Ayrıca deney ve kontrol gruplarına uygulanan ön-MSÖ puanları ile son-MSÖ puanları arasında istatistiksel olarak anlamlı bir ilişki vardır($r(183) = 0,479$, $p < 0,01$).

Bu nedenle öğrencilerin ön-MSÖ puanlarının son-MSÖ puanlarına etkisini yok etmek için ön-testler ortak değişken olarak kullanılmıştır.

Deney ve kontrol gruplarındaki öğrencilerin motivasyon stillerine ait ön ve son test sonuçları tablo 4.1 de verilmiştir.

Tablo 4.1: Deney ve Kontrol Grupları için Motivasyon Stili Ölçeği Puanları

Gruplar	Bağımlı Değişkenler	Skewnes	Kurtosis	Ortalama	Standart Sapma
DG	ön-MSÖ	0,114	0,427	116,36	12,573
	Son-MSÖ	-0,041	-0,656	142,828	17,142
KG	ön-MSÖ	-0,395	0,651	123,922	19,020
	Son-MSÖ	0,195	-0,497	124,778	19,788

DG: Öğrenci Takımları Başarı Bölümleri Tekniği, KG: Geleneksel Öğretim yaklaşımı

Tablo 4.1 de görüldüğü gibi öğrenci takımları ve başarı bölümleri tekniğinin uygulandığı sınıflardaki öğrencilerin ön-MSÖ puanlarının ortalaması 116,360 iken son-MSÖ puanlarının ortalaması 142,828 dır. Bu grupta öğrencilerin motivasyon stili ölçeğinden aldıkları puanların ortalaması 26,468 puan artmıştır.

Tablo 4.1 de görüldüğü gibi Geleneksel yöntemin uygulandığı sınıflardaki öğrencilerin ön-MSÖ puanlarının ortalaması 123,922 iken son-MSÖ puanlarının ortalaması 124,778 dır. Bu grupta öğrencilerin motivasyon stili ölçeğinden aldıkları puanların ortalaması 0,856 puan artmıştır.

Bu sonuçlar deney gruplarındaki öğrencilerin motivasyonların kontrol gruplarındaki öğrencilere göre daha fazla arttığını göstermektedir.

Ortak Değişkenli Varyans Analizinin Kabullenmeleri (ANCOVA)

ANCOVA analizinin yapılmasından önce bu analizin kabullenmelerinin kontrol edilmesi gerekir. Bağımlı değişkenin normalliğinin kontrol edilmesi için çalışmaya katılan grupların bağımlı değişkenden (Motivasyon Stili Ölçeği) aldıkları puanların çarpıklık (skewnes) ve basıklık (kurtosis) değerlerinin hesaplanması gerekir. Bu değerler Tablo 4.1 de verilmiştir. Bu değerlerin +2 ve -2 değerleri arasında olması verilerin normalle yakın olmasının bir göstergesidir. Weinfurt (1995)' a göre her grup için bağımlı değişkenlerin benzer olması, ortak değişkenli varyans analizinin önemli sayıtlısıdır. Bu sayıtlılar Tablo 4. 2 de verilmiştir.

Tablo 4. 2. Bağımlı Değişkenlerin Eşitliğinin Test Edilmesi (Levene's Test)

	F	df1	df2	P
Son-MSÖ	0,000	1	181	0987

N=183, p>0,05

Tablo 4.2 deki p değerinin istatistiksel olarak anlamlı olmaması bağımlı değişkenin her iki grupta da homojen olduğunun bir göstergesidir.

Bu araştırmada kullanılan öğretim yaklaşımlarının ilköğretim 5. sınıf öğrencilerinin motivasyon stillerine etkisini belirlemek için yapılan ortak değişkenli varyans analiz sonuçları Tablo 4.3 de verilmiştir.

Tablo4.3. Ortak Değişkenli Varyans Analiz (ANCOVA) Sonuçları

Kaynak	Bağımlı Değişken	df	Ortalamalar Karesi	F	P	Kısmi Eta karesi
Ön-MSÖ	Son-MSÖ	1, 180	27261,98	141,74	0,000*	0,441
Grup	Son-MSÖ	1, 180	24580,61	127,80	0,000*	0,415

N=269, *p<0,05

Tablo 4.3 de görüldüğü gibi çalışmada kullanılan grupların son-MSÖ aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark vardır (F (1,180) = 127,80, p< 0,05, η^2 = 0,415). Bu durum deney grubundaki öğrencilerin son-MSÖ aldıkları puanların ortalamalarının kontrol grubundaki öğrencilerin son-MSÖ puanlarının ortalamalarından daha iyi olduğunu göstermektedir. Kısmi eta kare değerinin 0,415 olması bağımlı değişkendeki değişimin % 41,5 unun uygulamadan kaynaklandığını göstermektedir.

Bu araştırmada kullanılan öğretim yaklaşımlarının ilköğretim 5. sınıf öğrencilerinin motivasyon stillerinin alt boyutlarına etkisini belirlemek için yapılan bağımsız t-testi sonuçları Tablo 4.4 de verilmiştir.

Tablo 4.4. Grupların Son-ÖZE, Son-AÖS, Son-BÖD. Son-PA, Son-BG ve Son-ÖOU Sonuçlarının karşılaştırılması

Değişken	$\overline{X}$	SS	t	df	P
Son-ÖZE					
DG	27,45	5,93	4,886	181	0,000*
KG	22,98	6,45			
Son-AÖS					
DG	35,23	4,75	4,421	181	0,000*
KG	31,39	6,84			
Son-BÖD					
DG	20,40	2,79	5,596	181	0,000*
KG	17,72	3,63			
Son-PA					
DG	12,46	5,17	5,146	181	0,000*
KG	8,93	4,01			
Son-BG					
DG	22,70	2,73	4,250	181	0,000*
KG	20,29	4,71			
Son-ÖOU					
DG	24,59	3,57	1,925	181	0,056
KG	23,47	4,31			

n= 183; *P< 0,05, ÖZE: öz etki, AÖS: aktif öğrenme stratejileri BÖD: bilim öğrenmenin değeri PA: performans amacı BG: başarı gayesi ÖOU: öğrenme ortamı uyarıcıları

Sonuçlar deney grubundaki öğrencilerin son-MSÖ alt boyutlarından; öz etki, aktif öğrenme stratejileri, bilim öğrenmenin değeri, performans amacı ve başarı gayesinden aldıkları puanların ortalamalarının kontrol grubundaki öğrencilerinkinden istatistiksel olarak anlamlı fark göstermiştir.

Ancak deney ve kontrol gruplarındaki öğrencilerin son-MSÖ öğrenme ortamı uyarıcıları alt boyutundan aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark bulunmamıştır.

4. TARTIŞMA

Bu araştırmanın araştırma sorusuna ait verilerden elde edilen bulgulara göre, öğrenci takımları ve başarı bölümleri tekniğinin uygulandığı sınıflardaki öğrencilerin son-MSÖ aldıkları puanların ortamalamarı geleneksel öğretim yaklaşımın uygulandığı sınıftaki öğrencilerin son-MSÖ aldıkları puanların ortalamalarından istatistiksel olarak anlamlı bir bir şekilde daha iyi olduğu ve motivasyon stili ölçeğinin alt boyutlarında ise öğrenme ortamı uyarıcıları alt boyutları hariç diğer boyutlarda deney grubundaki öğrencilerin motivasyonlarının daha iyi olduğu tesbit edilmiştir. Başdaş (2007), Hanze ve Berger (2007) ve Tan, Sharan, ve Lee (2007) yaptığı çalışmalar öğrenci merkezli eğitim ve grup çalışmalarının öğrenci başarı ve motivasyonlarını arttırdığını bulmuşlardır. Sezer, ve Tokcan, (2003) ve Ural, A., Umay, A. ve Ziya Argün, Z. (2008) ÖTBB tekniğinin öğrenci başarı ve öz-yeterliliğini arttırdığını bulmuşlardır. Yapılan bu çalışmaların bulguları bulgularımızla paralellik göstermektedir. Bakaç ve diğerlerinin (1996) Türkiye genelinin farklı illerinde yaptığı çalışmada öğrencilerin anlamakta en fazla zorlandıkları ve başarısız oldukları derslerin başında fen ve teknoloji gelmektedir (Akt: Bilgin ve Yahşi 2006). Bunun başlıca sebeplerinden biri öğrencilerin fen derslerine motive edilmeden, isteksiz olarak gelmeleridir. Bu nedenle işbirlikli öğrenmenin uygulanmasında öğrencilerin bir birbirlerine yardım etmesi, ortak bir konsensüse ulaşma ve başarıda ödül yapısının olması öğrencileri motive etmede önemli katkı yapmaktadır.

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ÖĞRETMEN ADAYLARININ BİLGİSAYAR KULLANMA ALIŞKANLIKLARI İLE DEMOGRAFİK ÖZELLİKLERİ ARASINDAKİ İLİŞKİ

THE RELATION BETWEEN HABITS OF USING COMPUTER AND DEMOGRAPHIC FEATURES OF TEACHER CANDIDATES

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ÖZET
Bilgisayar, hayatımızın vazgeçilmez bir parçası haline gelmiştir. Öğrenciler arasında da bilgisayar kullanımı giderek yaygınlaşmaktadır. Eğitimin nitelikli ve kaliteli yapılmasında en büyük etken öğretmenlerdir. Dolayısıyla öğretmen adayları ayrı bir önem taşımaktadır. Eğitim teknolojisi olarak bilgisayarın öğretmen adaylarınca etkin kullanımı oldukça önemlidir. Bu nedenle, öğretmenlerin eğitim sürecinde bilgisayar kullanımı konusunda iyi alışkanlıklar edinmesi sağlanmalıdır. Ancak öğretmen adaylarının bu alışkanlıkları edinmesinde bir çok etken mevcuttur. Bunlar demografik, kişisel ve çevresel etkenler olabilir. Bu çalışmanın amacı, Eğitim Fakültesi son sınıf öğrencilerinin bilgisayar kullanma alışkanlıklarının demografik etkenlerle olan ilişkisini belirlemektir. Çalışma, 2009-2010 güz yarıyılında Trakya Üniversitesi Eğitim Fakültesi son sınıfında eğitim gören 231 öğrenci ile yürütülmüştür. Veri toplama aracı olarak, araştırmacılar tarafından hazırlanan anket soruları kullanılmıştır. Öğrencilerin bilgisayar kullanma alışkanlıkları ile demografik özellikleri arasında ilişkinin belirlenmesi amacıyla kikare testi uygulanmıştır.

Anahtar kelimeler: *Bilgisayar kullanma, öğretmen adayı, teknoloji, demografik etken, eğitim fakültesi.*

ABSTRACT
Computer has become indispensable items in our lives. Using computer has becoming widespread day by day among students too. The greatest factor to make education more qualified and quality is teachers, in fact, candidates of teacher. It is highly crucial that computer be used effectively by teacher candidates as education technology. Therefore; it should be provided that teachers form pleasant habits regarding using computer during the education process. Yet, there exist a number of factors which have influence on teacher candidates in forming these habits. These factors might be demographic, personal, and environmental ones. The purpose of this study is to determine the relation between habits of using computer and demographic factors of the Faculty of Education fourth grade students. The study has been executed with 231 students who were Trakya University Faculty of Education fourth grade students in 2009-2010 fall semester. Questionnaire questions prepared by researchers have been used as a tool for collecting data. The kaysquare test has been applied in order to determine the relation between students' habits of using computer and their demographic features.

Key Words: *Using computer, teacher candidate, technology, demographic factor, faculty of education.*

GİRİŞ

21. yüzyılın başlarında eğitim teknolojisi denilince akla ilk gelen kavramlar, bilgisayar ve internet olmaktadır. Bu kavramlar, bilgisayar destekli eğitim, bilgisayar temelli eğitim, internet destekli eğitim, internete dayalı eğitim, mobil eğitim gibi öğretme-öğrenme yöntemlerinin de uygulanmasına neden olmuştur. Eğitimde yaşanan bu gelişmelerle birlikte, öğretmenlerden bilgisayar ve internet teknolojilerinin kullanımına yönelik beklentiler de yükselmiştir. Bundan 20 yıl önce bilgisayar destekli eğitim yapabilen öğretmenler ön planda iken, bugün interneti eğitimde etkin olarak kullanabilen, e-öğrenme ve mobil öğrenme uygulamalarını becerebilen öğretmenler, diğerlerinden bir adım önde yer almaktadır. Uluslararası Eğitimde Teknoloji Birliği (ISTE), öğretmen standartlarını; teknoloji okuryazarı olan, derslerinde teknolojiyi kullanabilen, öğrencilerini teknolojiyi kullanmaya yöneltebilen, öğrenme çevresini öğrencilerin teknolojiyi kullanabilecekleri biçimde düzenleyebilen, meslektaşları ile internet

üzerinden iş birliği yapabilen şeklinde tanımlamıştır (ISTE, 2000). Bilgi ve becerileri yeni nesillere aktarmada öncelikli kaynak, bilişim teknolojilerindeki tüm gelişmelere rağmen hala öğretmenlerdir. Tüm araçlar eğitimde öğretmenin daha verimli olabilmesi amacına hizmet ettiğinden, öğretmen adaylarının bilgisayar kullanımı konularında iyi eğitim almaları, bu araçları bilinçli kullanmaları oldukça önemlidir. Öğretmenlerin eğitimde bilgisayarı etkin kullanımı, meslek hayatına adım atmadan önceki kullanma alışkanlıklarına, tutumlarına, fakültede aldıkları bilgisayar eğitimine ve demografik faktörlere bağlı olabilmektedir. Vannata ve Fordham'ın 2004 yılında yaptıkları bir araştırmaya göre, bilgisayarların bir öğretim aracı olarak kullanılabilmesinde, öğretmenlerin bu konuda sahip oldukları davranışlar önemli bir değişken olarak karşımıza çıkmaktadır. Çünkü bilgisayar başında harcadıkları zaman, sahip oldukları bilgisayar becerileri ve değişime açık olup olmamaları öğretmenlerin, bilgisayarı bir öğretim aracı olarak kullanma biçimleriyle ilgili önemli bilgiler sağlamaktadır (Seferoğlu ve diğerleri, 2008). Sadi vd (2008)'nin Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi'nde 755 öğrenciyle gerçekleştirdikleri bir çalışmada, öğrencilerin %70.5'inin sınıf dışında kullanmayı en çok tercih ettikleri iletişim aracının bilgisayar olduğu belirlenmiştir. Bu çalışmada, öğretmen adaylarının bilgisayar kullanma alışkanlıklarının demografik özellikleriyle ilişkili olup olmadığı araştırılmıştır.

YÖNTEM

Araştırma Modeli

Bu araştırma, konuya ve amaçlara uygunluğu nedeniyle ilişkisel tarama modelinde betimsel bir çalışmadır.

Evren ve Örneklem

Bu çalışmanın örneklemini, 2009-2010 eğitim öğretim yılında Trakya Üniversitesi Eğitim Fakültesi'nde öğrenim görmekte olan son sınıf öğrencileri oluşturmaktadır. Bu örneklem içinden; Sınıf Öğretmenliği (I. ve II. Öğretim), Fen Bilgisi Öğretmenliği, Okul Öncesi Öğretmenliği, Resim-İş Öğretmenliği, İngilizce Öğretmenliği ve Almanca Öğretmenliği bölümlerinden 231 öğrenciye ulaşılmıştır.

Veri Toplama Araçları

Çalışmaya katılan öğrencilere, araştırmacılar tarafından hazırlanan, 34 maddeden oluşan anket uygulanmıştır.

Verilerin Çözümü

Anketten elde edilen verilerin çözümlenmesinde SPSS programından yararlanılmıştır. Sınıflama ölçeği türündeki verilerin toplandığı değişkenlerarası ilişkilerin saptanmasında kikare analizi kullanılmıştır.

BULGULAR

Çalışmaya katılan öğretmen adaylarına "**Bilgisayar kullanıyor musunuz**?" sorusu sorulmuştur. Öğrencilerin sadece %1.73'ü bu soruya olumsuz yanıt vermiştir. "Bilgisayar kullanma durumu" ile babasının çalışma durumu arasında ilişki vardır (χ^2=4.30, sd=1, p<.05). Babası bir işte çalışan öğrencilerin %99.39'u, babası çalışmayan öğrencilerin %95.46'sı bilgisayar kullandığını belirmiştir.

"**Bilgisayar kullanmayı hangi yolla öğrendiniz**?"sorusuna öğrencilerin %52.26'sı kişisel deneyimle, %19.77'si arkadaşlarından, %16.38'i kurslarla öğrendiğini işaretleyerek yanıt vermiştir.

Öğrencilerin %86.58'i **evinde bilgisayar olduğunu** belirtmiştir. "Evinde bilgisayar var olması" ile babanın çalışma durumu arasında ilişki vardır (χ^2=9.31, sd=1, p<.01). Babası bir işte çalışan öğrencilerin %90.91'inin, babası çalışmayan öğrencilerin %75.76'sının evinde bilgisayar olduğu görülmektedir. "Evinde bilgisayar var olması" ile annenin eğitim durumu arasında ilişki vardır (χ^2=14.38, sd=5, p<.01). Anneleri lisans ve lisans üstü mezunu olan öğrencilerin %100.0'ü, anneleri ortaöğretim mezunu olan öğrencilerin %95.56'sı, anneleri ilköğretim mezunu olan öğrencilerin %85.62'si evlerinde bilgisayar olduğunu belirtirken, bu oran anneleri okuryazar olmayan öğrencilerde %63.16'dır. "Evinde bilgisayar var olması" ile babasının eğitim durumu arasında ilişki vardır (χ^2=13.56, sd=5, p<.01). Babaları lisans üstü mezunu olan öğrencilerin %100.0'ü, babaları lisans mezunu olan öğrencilerin %97.83'ü, babaları ortaöğretim mezunu olan öğrencilerin %90.12'si evlerinde bilgisayar olduğunu belirtirken babaları okuryazar olmayan öğrencilerin %60.00'ının, babaları ilköğretim mezunu olan öğrencilerin %79.38'inin evlerinde bilgisayar olduğu görülmektedir.

Öğrencilerin %71.43'ü, **kendisine ait bilgisayarı olduğunu** belirtmiştir. "Kendisine ait bilgisayarı olma" ile okuduğu bölüm arasında ilişki vardır (χ^2=15.63, sd=5, p<.01). Resim Öğretmenliği öğrencilerinin %82.61'inin, Almanca Öğretmenliği öğrencilerinin %84.21'inin, İngilizce Öğretmenliği öğrencilerinin %89.74'ünün kendisine ait bilgisayarı olmasına karşılık bu oran Fen Bilgisi Öğretmenliği (%67.65), Okul Öncesi Öğretmenliği (%72.22) ve Sınıf Öğretmenliği (%60.20) öğrencilerinde daha düşüktür. "Kendisine ait bilgisayarı olma" ile babasının çalışma durumu arasında ilişki vardır (χ^2=5.30, sd=1, p<.05). Babası bir işte çalışan öğrencilerin %75.76'sının, babası çalışmayan öğrencilerin %60.61'inin kendine ait bilgisayarı bulunmaktadır. "Kendisine ait bilgisayarı olma" ile annenin eğitim durumu arasında ilişki vardır (χ^2=16.92, sd=5, p<.01). Anneleri lisans üstü mezunu olan öğrencilerin %100'ünün, anneleri lisans mezunu olan öğrencilerin %91.67'sinin, anneleri ortaöğretim mezunu olan öğrencilerin %86.67'sinin, anneleri ilköğretim mezunu olan öğrencilerin %68.63'ünün kendisine ait bilgisayarı olmasına karşılık bu oran anneleri okuryazar olmayan öğrencilerde %42.10'dur.

Öğrencilerin, **bilgisayar kullanımı için yer tercihi** sorusuna verdikleri yanıt yüzdeleri ise; %57.02'si sadece evde, %14.46'sı sadece kafede, %0.83'ü sadece okulda bilgisayar kullanmaktalar. Okulda bilgisayar kullananların toplamı %23, kafede bilgisayar kullananların toplamı %35'dir. "Bilgisayara kullanım amacıyla nereden eriştiği" ile annesinin eğitim durumu arasında ilişki vardır (χ^2=40.83, sd=25, p<.01). Anneleri lisans üstü mezunu olan öğrencilerin %50.0'si, anneleri lisans mezunu olan öğrencilerin %66.67'si, anneleri ortaöğretim mezunu olan öğrencilerin %82.61'i, anneleri ilköğretim mezunu olan öğrencilerin %53.09'u bilgisayarı sadece evde kullandığını belirtirken, anneleri okuryazar olmayan öğrencilerin %40.00'ının bilgisayarı sadece kafede kullandığını belirtmesi dikkat çekicidir.

"**Kaç yıldır bilgisayar kullanıyorsunuz**?" sorusuna öğrencilerin %49.78'i 1-5 yıldır, %42.86'sı 6-10 yıldır, %7.36'sı 10 yıldan fazla süredir bilgisayar kullandığı yanıtını vermiştir. "Kaç yıldır bilgisayar kullandığı" ile annenin eğitim durumu arasında ilişki vardır (χ^2=37.46, sd=15, p<.01). Anneleri lisans mezunu olan öğrencilerin %50.00'si, anneleri ortaöğretim mezunu olan öğrencilerin %44.44'ü 6-10 yıldır bilgisayar kullanmaktadır, buna karşılık anneleri ilköğretim mezunu olan öğrencilerin %52.94'ü, anneleri okuryazar olmayan öğrencilerin %63.16'sı 1-5 yıldır bilgisayar kullanmaktadır. "Kaç yıldır bilgisayar kullandığı" ile babasının eğitim durumu arasındada ilişki vardır (χ^2=35.49, sd=15, p<.01). Babaları lisans mezunu olan öğrencilerin %45.65'i, babaları ortaöğretim mezunu olan öğrencilerin %49.38'i 6-10 yıldır bilgisayar kullanmaktadır, buna karşılık babaları ilköğretim mezunu olan öğrencilerin %58.76'sı, babaları okuryazar olmayan öğrencilerin %60.00'ı 1-5 yıldır bilgisayar kullanmaktadır.

Öğrencilerin %38.96'sı **günde ortalama** 1-2 saat, %29.87'si 1 saatten az, %13'ü 5 saatten fazla **bilgisayar kullandığını** belirtmiştir. "Günde ortalama bilgisayar kullanma saati" ile okuduğu bölüm arasında ilişki vardır (χ^2=75.25, sd=20, p<.01). Resim Öğretmenliği öğrencilerinin %60.87'sinin, Fen Bilgisi Öğretmenliği öğrencilerinin %52.94'ünün, İngilizce Öğretmenliği öğrencilerinin %41.03'ünün, Okul Öncesi Öğretmenliği öğrencilerinin %38.89'unun günde ortalama 1-2 saat bilgisayar kullanmalarına karşılık Sınıf Öğretmenliği öğrencilerinin %47.96'sının 1saatten az, Almanca Öğretmenliği öğrencilerinin %31.58'inin 7 saat ve üzerinde bilgisayar kullandığı görülmektedir.

"**Herhangi bir kurumdan aldığınız bilgisayar sertifikanız var mı**?" sorusuna öğrencilerin %27.27'si olumlu yanıt vermiştir.

Öğrencilerin %34.63'ü bilgisayarda oluşabilecek bir **yazılım sorununa tek başına çözüm getirebildiğini** belirtirken, %35.07'si bilgisayarda oluşabilecek bir **donanım sorununa tek başına çözüm getirebildiğini** belirtmiştir. "Bilgisayarda oluşabilecek bir yazılım sorununa tek başınıza çözüm getirebilme" ile cinsiyet arasında ilişki vardır (χ^2=7.38, sd=1, p<.01). Erkek öğrencilerin %49.15'i, kız öğrencilerin %29.65'i bilgisayarda oluşabilecek bir yazılım sorununa tek başına çözüm getirebildiğini belirtmiştir. "Bilgisayarda oluşabilecek bir donanım sorununa tek başınıza çözüm getirebilme" ile cinsiyet arasında ilişki vardır (χ^2=6.91, sd=1, p<.01). Erkek öğrencilerin %49.15'i, kız öğrencilerin %30.23'ü bilgisayarda oluşabilecek bir donanım sorununa tek başına çözüm getirebildiğini belirtmiştir. "Bilgisayarda oluşabilecek bir yazılım sorununa tek başınıza çözüm getirebilme" ile okuduğu bölüm arasında ilişki vardır (χ^2=16.86, sd=5, p<.01). Resim Öğretmenliği öğrencilerinin %65.22'si, Almanca Öğretmenliği öğrencilerinin %47.37'si, İngilizce Öğretmenliği öğrencilerinin %41.03'ü bilgisayarda oluşabilecek bir yazılım sorununa tek başına çözüm getirebildiğini belirtirken bu oran Fen Bilgisi Öğretmenliği (%20.59), Okul Öncesi Öğretmenliği (%22.22) ve Sınıf Öğretmenliği (%29.59)

öğrencilerinde daha düşüktür. “Bilgisayarda oluşabilecek bir donanım sorununa tek başınıza çözüm getirebilme” ile okuduğu bölüm arasında ilişki vardır (χ^2=11,61, sd=5, p<.01). Resim Öğretmenliği öğrencilerinin %56.52’si, Almanca Öğretmenliği öğrencilerinin %42.10’u, İngilizce Öğretmenliği öğrencilerinin %46.15’i bilgisayarda oluşabilecek bir donanım sorununa tek başına çözüm getirebildiğini belirtirken bu oran Fen Bilgisi Öğretmenliği (%20.59), Okul Öncesi Öğretmenliği (%33.33) ve Sınıf Öğretmenliği (%29.59) öğrencilerinde daha düşüktür.

SONUÇ

Öğrencilerin tamamına yakını bilgisayar kullanmayı bildiğini belirtmiştir. Öğrencilerin son sınıfta olması, daha önceki yıllarda fakültelerinde bilgisayar dersi almış olmaları, bu oranın yüksek çıkmasında etkendir. Öğrencilerin %86.58’inin evinde bilgisayarı olması, %71.43’ünün kendisine ait bilgisayarı olması, bilgisayarın ülkemizde bireyler için lüks olmaktan çıktığını, satın alma koşullarının oldukça iyileştiğini göstermektedir. 2003 yılında Deniz ve Köse (2003)’in yaptığı çalışma, bu sonucu destekler niteliktedir. Marmara Üniversitesi Atatürk Eğitim Fakültesi son sınıf öğrencileriyle yaptıkları benzer bir çalışmada öğretmen adaylarının %50,3’ünün evinde bilgisayarı varken, %49,7’sinin evinde bilgisayar bulunmamaktadır. Ayrıca, anne ve babanın eğitim düzeyi yükseldikçe, evde bilgisayar bulunma yüzdesinin de yükseldiği görülmektedir. Bununla beraber, anne ve babası okur yazar olmayan öğrencilerin yarıdan fazlasının (ortalama %61) evinde bilgisayar bulunması, göz ardı edilemeyecek bir ayrıntıdır. Bu oran göstermektedir ki, ebeveynin eğitim almamış olması evde bilgisayar bulunmasında olumsuz bir etken değildir. Öğrencilerin, ailelerini bu konuda bilinçlendirip ikna edebilmesi, satın alma kolaylıkları ve çevresel etkenlerle, bilgisayar sahibi olma oranı evlerde yüksek görülmektedir. Yine fakültede iki dönem boyunca aldıkları bilgisayar dersi ve bilgisayar destekli olarak aldıkları bir çok ders, ödev ve proje hazırlama gibi etkinlikler için bilgisayar kullanma zorunluluğu olması, öğrencilerin bilgisayar sahibi olmaları konusunda önemli etkenler arasında sıralanabilir.

Öğrencilerin günlük ortalama bilgisayar kullanma sürelerine bakıldığında Sınıf Öğretmenliği öğrencilerinin yarıya yakınının 1 saatten az bilgisayar kullandığı anlaşılmaktadır. Sınıf Öğretmenliği öğrencilerinin bilgisayar kullanma tutumları, bu sonuca neden olmuş olabilir. Bu oranın düşüklüğü, son sınıf öğrencilerinin KPSS nedeniyle yoğun olarak çalışmalarına da bağlanabilir. Almanca Öğretmenliği öğrencilerinin yaklaşık %32’sinin günde ortalama 7 saatten fazla bilgisayar kullanmaları, farklı etkenlerden kaynaklanabilir. Öğrenciler sağlıklı bilgisayar kullanımı konusunda yeterli bilgi sahibi olmamış olabilirler. Bilgilendirme aileler tarafından yapılmamış olabileceği gibi, fakültede okutulan Bilgisayar II dersinde de yeterince bilgi verilmemiş olabilir. Çünkü bilgisayar kullanımının olumsuz etkileri ve doğru bilgisayar kullanımı, Bilgisayar II dersi kapsamında yer almaktadır. Öğrencilerin bilgisayar kullanım tutumları da bu oranın yüksek çıkmasında etken olabilir.

Öğrencilerin çok küçük bir kısmının sadece okulda bilgisayar kullanmayı tercih etmesi dikkat çekici bir sonuçtur. Öğrenciler okul dışında, ya kendilerine ait ya kafelerdeki ya da arkadaşlarındaki bilgisayarları kullanmakta, okulda bilgisayar kullanma gereği duymamakta olabilirler. Öğrencilerin büyük kısmının bilgisayar sahibi olması nedeniyle, çalışmalarını okul bilgisayarlarıyla yapmıyor olmaları da muhtemeldir. Fakültede öğrencilere serbest çalışmaları için ayrılan bilgisayar salonlarının sayı ve nitelik açılarından öğrencilere yeterli gelmiyor olması da bu sonucu ortaya çıkarmış olabilir.

Öğrencilerin %52’si, bilgisayar kullanmayı kişisel deneyimle öğrendiğini belirtmiştir. Bu oran, evlerde bilgisayar bulunması ve öğrencilerin kendilerine ait bilgisayarı olması nedenlerine bağlanabilir. Fakültedeki derslerinden önce ya da herhangi bir kursa devam etmeksizin bilgisayar kullanmayı öğrenmek, öğrenciler için artık zor olmamaktadır.

Bu araştırmada öğrencilerin %27.27’si bir bilgisayar sertifikasına sahip olduğunu belirtmiştir. Deniz ve Köse (2003)’nin öğretmen adayı son sınıf öğrencileri üzerinde yaptıkları araştırmaya göre, öğrencilerin %79,3’ünün herhangi bir kurs veya sertifika almadığı belirlenmiştir. İki çalışma sonuçları karşılaştırıldığında, bilgisayar kursuna katılma ve sertifika sahibi olma yüzdesinde bir miktar artış olmuştur. Öğretmen adaylarından atamalarda MEB onaylı bilgisayar sertifikası isteniyor olması, öğrencilerin mezuniyet sonrası giderek öğretmenlik mesleğini daha çok tercih ettiklerini göstermektedir. Bu sonuç aynı zamanda, öğretmenlerin özel sektörde farklı iş alanlarına yönelmek için bilgisayar deneyimlerini belgelendirmek istediklerini de gösterebilir. Bu konu, başka bir çalışmada soru olarak öğrencilere sorulabilir.

İster yazılım ister donanım sorunlarına ilişkin yeterlik oranlarının benzer oluşu, dikkat çekicidir. Oysa donanım sorunları, daha teknik bilgi ve donanımı gerektirmektedir. Son kullanıcılarda bu oranın yazılım sorunlarına göre daha düşük çıkması beklenirdi.

Araştırmanın sonuçları toplu olarak değerlendirildiğinde; öğrencilerin tamamına yakınının bilgisayar kullanıyor olması, beklenen ve istenilen bir durumdur. Evinde bilgisayar olan, kendisine ait bilgisayar kullanabilen öğrenci yüzdesi azımsanmayacak orandadır. Bu sayı, bilgisayar satın alma konusunda ailelerin destek verdiğini göstermektedir. Ailelerin buna destek vermesi, ülkemizde bilgisayar kullanımı konusunun geniş kitlelere ulaştırılabildiği ve benimsendiği de anlaşılmaktadır. Öğretmen adaylarının kendilerine ait bilgisayar sahibi olmaları için, fakültelerde çeşitli uygulamalar geliştirilebilir. Örneğin, lisans öğrencilerinin proje yapmasına olanak tanıyan düzenlemelerle bilgisayar edinmeleri sağlanabilir. Bölüm bazında başarılı olan öğrencilere mezuniyete kadar bilgisayar zimmetlenebilir ya da hibe edilebilir. Yine araştırma sonuçlarına göre, fakültedeki bilgisayarları kullanan öğrenci oranı düşüktür. Bu sonucu birkaç nedene bağlamak mümkündür. Öğrencilerin serbest çalışmaları için ayrılan bilgisayar salonu sayısı, öğrenci sayısına kıyasla az olabilir. Bu durumda öğrenciler çalışmak için bilgisayar bulmakta güçlük çekiyor olabilir. Bilgisayar salonlarındaki bilgisayarların konfigürasyonu düşük ise, öğrenci bazı yazılımları çalıştıramıyor olabilir. Ya da bilgisayar ağır çalıştığından, iş yapma süresi uzuyor olabilir. Bu da öğrencinin kullanmaması için önemli bir nedendir. Bilgisayar salonlarının açılış-kapanış saatlerindeki düzensizlik, salonlarda görevli öğrencilerin bilgisizliği ya da ilgisizliği de, öğrencilerin bu salonları kullanmama nedeni olabilir. Bu durum, ayrı bir araştırma konusu olarak çalışılabilir. Eğer öğrencilerin bilgisayar salonlarını kullanmamaları fakültedeki etkenlere bağlıysa, iyileştirme için düzenlemeler yapılmalıdır. Yine araştırma sonuçlarında dikkat çeken bir konu, öğrencilerin %52'sinin bilgisayar kullanmayı kişisel deneyimlerle öğrendiğini belirtmesi olmuştur. Öğrenciler, üniversite eğitimleri ya da önceki yıllarında okuldan, aileden, kurstan bilgisayar kullanmayı öğrendiğini belirtmemiştir. Bu da, bilgisayarlı eğitimin okullarımızda çok da eski bir geçmişi olmadığını, ailelerin de çocukların erken yaşlarında bu konuda yeterli destek vermediğini göstermektedir. Anne ve babalarının eğitim durumu ne olursa olsun, şu an öğrencilerin bilgisayar sahibi olmaları, öğrencilerin ve çevrenin aileleri bilgisayar konusunda bilgilendirip bilinçlendirdiği olarak yorumlanabilir. Tüm bu araştırma soruları, birinci sınıf öğrencisi öğretmen adaylarına da sorularak, bu araştırma sonuçlarıyla karşılaştırılabilir. Bu karşılaştırma, fakültedeki Bilgisayar I–II derslerinin etkinliğini görmek açısından yararlı olabilir. Ayrıca, dört yıllık eğitim boyunca hem kendilerinin hem öğretim elemanlarının bilgisayarı kullanma durumlarının, bilgisayar kullanma alışkanlıklarına etkisi de ortaya çıkarılabilir.

Öğretmen adaylarının, bilgisayarı bir eğitim teknolojisi olarak görmeleri ve bu düşünce ile kullanmaları oldukça önemlidir. Öğrencilerde bilgisayar kullanmaya yönelik olumlu tutumlar geliştirmek, ilköğretimden fakülte mezuniyetine kadar geçen süreçte, öğreten kadrolarının başlıca görevidir. Öğreten, her zaman her konuda öğrenciler için örnektir. Bu da göstermektedir ki, okulda kazanılan iyi alışkanlıklar ve tutumlar, nesilden nesile geçen genler gibidir.

Bu çalışma, öğrencilerin bilgisayar kullanma alışkanlıklarının bilgisayar kullanma tutumları ile ilişkisi açısından incelenerek genişletilebilir. Öğretmen adaylarının demografik özellikleriyle bilgisayar kullanma tutumları arasında bir bağlantı olup olmadığı da araştırılabilir.

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ÖĞRETMEN ADAYLARININ YARATICI DRAMA'YA YÖNELİK TUTUMLARININ ÇEŞİTLİ DEĞİŞKENLER AÇISINDAN İNCELENMESİ

EXAMINATION IN TERMS OF SEVEREL VARIABLES OF THE TEACHER CANDIDATES' ATTITUDE TOWARD CREATIVE DRAMA

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Özet: Bu çalışmada, Eğitim Fakültesi öğrencilerinin dramaya karşı tutumları ve bu tutumun oluşmasında etkili faktörler belirlenmeye çalışılmıştır. Bu amaçla, Celal Bayar Üniversitesi (CBÜ) Eğitim Fakültesi 4. sınıf öğrencisi olan ve 112'si bayan, 79'u erkek toplam 191 aday öğretmene araştırma anketi uygulanmıştır. Katılımcıları, Fen Bilgisi % 24,1 (n=46), Sosyal Bilgiler % 23,6 (n=45), Türkçe % 22,5 (n=43) ve Sınıf öğretmenliği % 29,8 (n=57) öğrencileri oluşturmaktadır. Tutuma yönelik sorulara verilen cevaplar, eğitim görülen bölüm, cinsiyet ve daha önce drama eğitimi alıp almadığı gibi faktörlere bağlı olarak karşılaştırılmıştır. Elde edilen verilere göre, dramaya karşı tutumda cinsiyete bağlı farklılık olmadığı; eğitim görülen bölüme bağlı olarak tutumda anlamlı fark olduğu saptanmıştır ($p<0,5$). En olumlu tutumun 114.63 sıra ortalaması ile Sınıf öğretmenliği öğrencilerinde, en düşük tutum puanının ise Türkçe öğretmenliği öğrencilerinde (sıra ort.=83.81) olduğu belirlenmiştir. Ayrıca önceden drama dersi alan öğrencilerinde daha olumlu tutuma sahip oldukları görülmüştür.

Anahtar Sözcükler: *Aday öğretmen, Yaratıcı Drama, Tutum.*

Summary: In this study, it was tried to determine what the attitudes of the students from The Faculty of Education towards Drama were. For this aim, a questionnaire was given to 112 female and 79 male, totally 191 candidate teachers. 24.1 % (n=46) of the participants were from Science Education, 23.6 % (n=45) were from Social Science Education, 22.5 % (n=45) from Turkish Education, and 29.8 % (n=57) from Primary Education Teaching. The given answers were compared depending on the department of the participants, to the sex of them, and to whether they had had any previous training in Drama. According to the obtained data, it was observed that there was no difference in the attitude towards drama depending on sex; however a meaningful difference was determined in the attitudes depending on the educational departments of the candidates ($p<0.5$). The most positive attitude was in the Primary Education Teaching with a rate average of 114.63, but the lowest attitude point was in Turkish Education Teaching (rate average:83.81). In addition, candidates who had had any previous training in Drama were observed to have more positive attitudes.

Key words: Teacher candidate, Creative drama, Attitude

PLANISPHERE IN ASTRONOMY TEACHING IN PRIMARY SCHOOL – A SUCCESSFUL TOOL FOR DEVELOPMENT OF NATURAL SCIENCE COMPETENCES

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ABSTRACT

Astronomy arouses great interest amongst primary school students in Slovenia; it is one of the most commonly selected optional subjects among natural science subjects. The curriculum provides the implementation of many different active forms of work and is especially directing students to perform astronomical observations, which can be performed with naked eye or with optical astronomical instruments. Good orientation in the sky remains the most important condition for successful search of astronomical objects and the rotating sky map – a planisphere is the most effective tool for these purposes. During the learning of usage of planisphere, several different competences are being developed. In addition to specially developed learning tool – the planisphere – we also prepared an online simulation of the same rotating sky map in GeoGebra. In this paper we will fully present the important advantages of the simultaneous use of planisphere in both forms for the development of competences in astronomy classes.

Keywords: astronomy, planisphere, sky map, simulation, generic competences

INTRODUCTION

Astronomy is one of the oldest sciences. Prehistoric cultures systematically observed stars, Sun and Moon and tried to predict eclipses. Even today, the observation of stars and other objects in the sky is very widespread, but the biggest development in astronomy has been achieved through the invention of the telescope. In year 2009 we celebrated the International Year of Astronomy, the 400th anniversary since Galileo first used a telescope as a scientific tool for observing the sky (Venus, Moon, Sun, Milky Way, Jupiter and its moons...). The telescope has enabled a new and higher dimension of observation space and astronomy became increasingly popular and topical. It paved its way in the education system and became popular among the younger.

In education system astronomy is as an optional subject offered to students in primary school in Slovenia. Offering elective courses is very varied; students and schools are offered almost 100 different optional subjects. Despite the large offer optional subjects for astronomy arouse great interest, since the three objects of astronomical subjects, *Sun, Moon and Earth*, *The stars and the universe* and *Binoculars and planets* are the most frequently chosen science subjects and are also often selected among the remaining subjects (The National Education Institute, 2007). The curriculum for astronomy – for all three optional subjects of astronomical subjects – provides lots of active forms of work in the classroom. Methods of working primarily direct students to astronomical observations. These can be performed by optical astronomical instruments or with the naked eye. In both cases, this is an important condition for a successful search for a good orientation of astronomical objects in the sky, while the most effective tool is planisphere.

PLANISPHERE

What is Planisphere?

Star map or star chart is a map of the sky. It is used for locating and identification of astronomical objects such as stars, constellations and galaxies. It has been used for orientation since time immemorial. However, with star map inexperienced users harder find stars that are visible at the certain hours. Star maps were also used only for observing the night sky by the naked eye, with the development of more

advanced forms of technology star charts are also used in astronomical observations with optical devices. Modern and more useful version of star map is planisphere. In addition to these there are many other opportunities to prepare for observations, not just a star chart and star atlases, which are useful, but are difficult to orient. As the star chart and star atlases for more experienced, teachers usually use online applications, in which they select visible sky at a certain time and print photos to students. Such devices are useless for observations due to the accommodation of the eye, because of dark map on a large white area.

Planisphere (Fig. 1) is the basic astronomical device, which is indispensable for observing the sky with the naked eye. Most performances of the rotating star charts did not contain and objects of deep space, perhaps they had only drawn for search and observations of the simplest (Andromeda Galaxy, the Pleiades, globular clusters in Hercules, etc.). In International Year of Astronomy, company ntBROG issued a special rotating star map, which, in addition to the basic observation with naked eye, can also be used to prepare observations with optical astronomical instruments, since it has also drawn all Messier objects. As usual, it is made of two adjustable parts, which are jointed (Fig. 2).

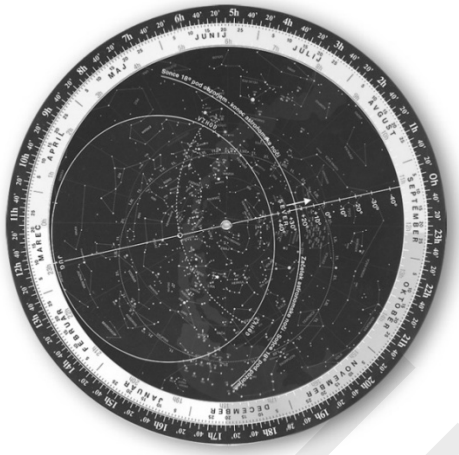


Fig. 1: Planisphere (source: ntBROG)

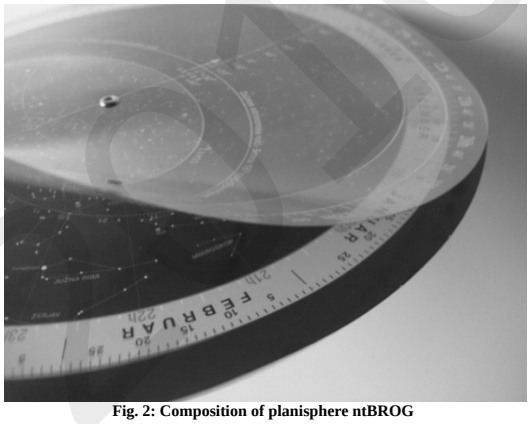


Fig. 2: Composition of planisphere ntBROG

Non-rotating part of planisphere is from a thicker cardboard with a waterproof coating and has traced constellation of stars we see with the naked eye and all Messier objects that are marked with the letter M and the corresponding number. These objects are drawn with the symbol to denote the type of object, eg.: bulk or spherical star clusters, galaxies, nebula (Fig. 4). Stellar field is surrounded by a ring, in which they are months and days of the month. From didactic reasons and due to the advanced search, the individual seasons are painted in matching colors: winter – white, green – spring, yellow – summer and orange – autumn. On a rotating transparent there is a ring with hours, where we can set the time to precisely 5 minutes. Well, we must be aware that this much precision is not really necessary, since many factors affect more, for example: leap day is not traced, refraction at the horizon, tolerance latitude of the observation site latitude maps obstacles on the horizon at the place of observation, Moon light, etc. The map has also drawn »horizon« (and the curve, below which the Sun must appear, so that conditions for astronomy night are granted), which defines the visible part of the sky at a given time. However, you can actually use concrete planisphere only in latitude zone, for which it was intended, since otherwise it will show the stars in the sky at a range of latitude that is not visible or some stars will be missing. Planisphere from company ntBROG was made for Slovenia, for the north latitude of 35 degrees. Without substantial errors it can be used in the interval deviations of 5 to 10 degrees. For more robust information it is useful in a wider interval.

Planisphere can be adjusted to see the visible stars for each hour and each date, and allows us to quickly learn and identify constellations of stars that are visible at a given time in the sky. It is the successor of the astrolabe, an instrument derived from Hellenize. The image of the sky due to Earth's rotation around its own axis and movement around the Sun is constantly different. Therefore, the revolving planisphere is designed to show us only those stars that are visible from the sky at the specific date and time and certain latitude on Earth.

Observation with the Planisphere

Observation with planisphere is easy. On the map there are constellation names written with capital letters and the names of stars and other objects with small capital letters. At first, we need to orient in the sky. Planisphere is the most often used in the evening or at night. Throughout the year, we find in the northern hemisphere typical constellation *Ursa Major (aka Great Bear)*, part of which (7 bright stars) most people know as *Big Dipper*. Near we see the constellation *Cassiopeia*, which takes the form of letter »W«. Somewhere between these constellations *North Star* (*aka Pole Star or Polestar or Polaris*) is found. Locate the two stars that form the outer edge of the *Big Dipper* and extend an imaginary line 5 times in the selected direction - straight through the two stars of the dipper edge. When you are facing the *North Star*, on the horizon directly under the *North Star* you are looking toward to north.

The map consists of paper part in ground and foil rolling around Polaris. Measuring time in the winter our clocks shows astronomical time, which is marked on the map. For example, for observating the 10th January at 9.00 pm on the rotating film, find selected hour of observation in the paper part of the map and appropriate date in the year. We turn the film so that the selected date and time overlay. Measuring in the summer takes deduct 1 hour from current time to get an astronomical time. We rise chart above and focus so that the arrow next to »north« shows to the north, which we find with help of the *North Star*.



Fig. 3: Planisphere from 1980 (Source: DZS)

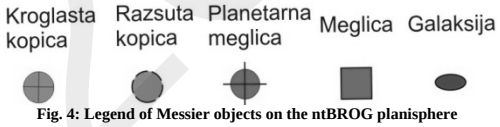


Fig. 4: Legend of Messier objects on the ntBROG planisphere

Various Planispheres

In Slovenia there are some producers of the rotating star charts, which have their own peculiarities. Map of 1980 (producer DZS, fig. 3) may not be as visually appealing, but is still very useful. At the edge it includes astrological signs that newer versions do not. In 2009, the Ministry of Education and Sport in Slovenia under the auspices of the International Astronomical Union (IAU) in the International Year of Astronomy (IYA2009) co-financed the purchase of observation equipment in Slovenian schools, especially telescopes. Primary schools were equipped with astronomical equipment, which had to be used. For inexperienced teachers, it was necessary to make devices in order to be able to watch the stars with the new equipment. Modern planisphere appeared, among which are the most widely used Planisphere Spika, DMFA (Society of Mathematicians, Physicists and Astronomers of Slovenia) card and Planisphere ntBROG (Fig. 1). Of course, rotating star map is better for observation with a telescope, which also has drawn on Messier objects.

The one that especially steps out is ntBROG planisphere, which was published in the International Year of Astronomy 2009 and contains all the Messier objects for usage in the observation with optical instruments. It is also in the recommended literature of astronomy in Slovenia (IYA2009 project in Slovenia, 2009) on the 4th place. Also, the card ntBROG is larger than others and therefore objects are more foreseeable. In the addition to the above, its advantages are the following: in the shaded part the Messier objects are worse seen due to red-orange and green colors, which are less visible through the blue shaded layer, shaded part is made with screen painting and should not be used so quickly. Paperboard is thicker and there is a waterproof layer on top, the margins are in matching colors for the seasons to allow faster searching, numbers are larger, which is especially important in the dark, for search and observation

with the red light both the stars (plotted in white) and Messier objects (mostly depicted in shades of red and orange) are good seen. Finally, the planisphere was reviewed by two eminent Slovenian astronomers, PhD Mitja Slavinec (stars and constellations, settings and curves) and PhD Igor Žiberna (Messier objects, the functional properties of map).

Simulations of Planisphere

On the Internet we may find many simulations of the rotating star charts. Two of such are the planisphere named nauk.si, formed under the same name as the project (Fig. 5), the second is a planetarium, which can be found on the portal of astronautics and astronomy (Fig. 6). Each has its advantages. The first provides a good zoom and rotating upper part of the rotating star chart, also configured to print a star chart, while the second shows bigger number of objects. In each we find some flaws, but in the other chart those are dispatched (eg, adjustable hard date for the first and low magnification in the second simulation). This was one of the reasons why we have prepared a web simulation of ntBROG planisphere in GeoGebra.

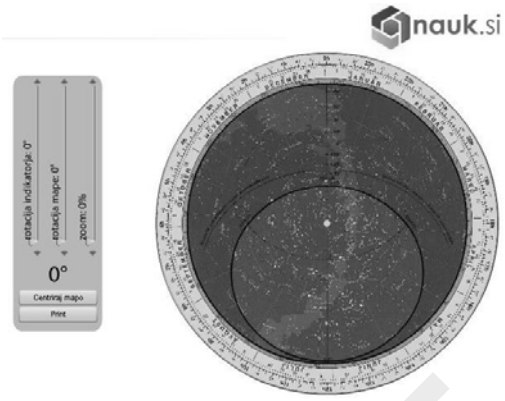


Fig. 5: Planisphere nauk.si (Project NAUK, 2010)

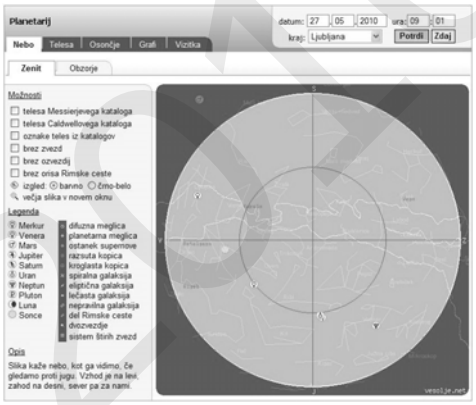


Fig. 6: Planetarium (Simon Zajc, 2010)

We developed a simulation of planisphere (Fig. 7), which combines the advantages of both mentioned cards – allows you to set the exact date and time to 5 minutes precisely. It also provides photo-quality zoom and simultaneous rotating of the two plots of planisphere.

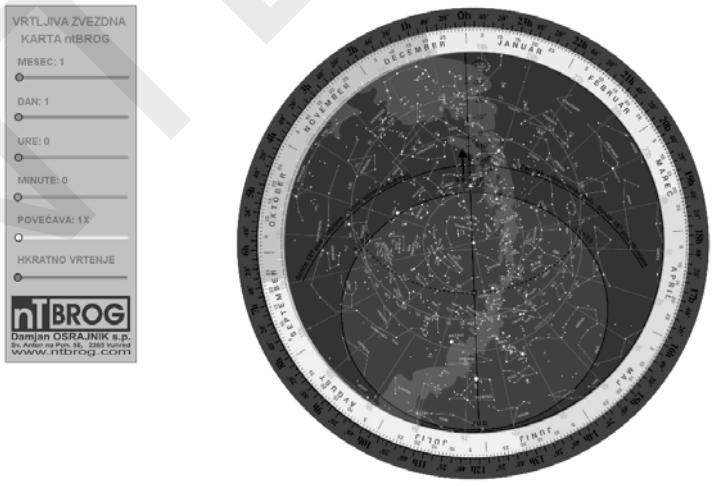


Fig. 7: Produced online simulation of ntBROG planisphere

Reasons for Using Simulation in Teaching

Usage of the planisphere in the school practice is proven to be difficult. Teachers are struggling to teach the use of card with just the map. It is too small for the class of students to follow the teacher when using

the map. We also came across the difficulties, if students have different version of the rotating star map than the teaching tool, but for better interpretation teachers use the online simulation of other card. To this end, we prepared a simulation of ntBROG planisphere; which is the best on the Slovenian market. The teachers, who use online version of the same rotating star chart, which students use as a teaching tool, teach better, easier and proper use. With online simulation we tried to overcome the shortcomings of the remaining simulations. We allow zoom, which is of high quality, adjustable to specific dates, hours and minutes. We also allow simultaneous rotation of the two maps, since this is still needed in real application.

When learning using of planisphere and orientation on the sky, it is good that a learning tool is large and that learning tool and the simulations are exactly the same. That was another reason that led us to produce simulation of the best teaching and most widespread rotating star map in schools.

COMPETENCES

In the framework of national project Development of Science Competences, which is carried out at the Faculty of Natural Sciences and Mathematics University of Maribor and financed by the European Union under the European Social Found and Ministry of Education and Sport of the Republic of Slovenia, we check whether our purpose was achieved. We prepared didactical material for the lesson, where we tested whether the students gain sufficient knowledge to practical use in observing the night sky with optical devices, as well as whether they can provide and find visible objects in our sky.

During the learning of usage of the planisphere as a teaching tool, we have set the goal to develop different competences. In teaching practice, we verified the effectiveness of certain generic skills on field of science (Martinšek, Golob, Repnik, Šorgo, 2009). It turns out that students successfully develop the following skills: the ability to learn and solve problems, transfer theory into practice and concern for quality.

In addition to competences mentioned above the implementation has shown that students' perceived progress of all natural skills in a practical way. The material, which simultaneous used planisphere ntBROG with drawn Messier object as a teaching tool and an online simulation to demonstrate the proper use of revolving card, has produced some progress on the competences outlined.

CONCLUSION

We compared three different planispheres on internet, their properties and in written details (astronomical objects), one of them was our own made. In frame of scientific project Development of Science Competences we tested, how important is usage of exactly the same planisphere as a learning tool and simulation. Tests have shown that this unification is really of great importance.

ACKNOWLEDGEMENTS

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POSSIBLE ROLE OF SHORT COMPUTERIZED VIRTUAL EXPERIMENTS IN DEVELOPMENT OF BASIC COMPETENCES IN SCIENCE AND TECHNOLOGY

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ABSTRACT

The European Parliament has published a framework of key competences for lifelong learning. For science teachers the most important are Mathematical competence and basic competences in science and technology and Digital competence, what means that they need not only to possess these competences but also to prepare teaching activities in such a way to enhance development of these competences in their students. Because competences cannot be taught but achieved by students traditional on lectures and direct instruction established methods of school work becomes obsolete. Teachers are not anymore central sources of information but promoters and leaders of activities based on inquiry, problem solving and critical thinking based on digital technology. With introduction of virtual laboratory exercises into science teaching we can trigger problem situation what can help in developing Science competences by students.

INTRODUCTION

Science teaching has become far from easy profession in recent times. To schools is mandated heavy load not only to teach students how to understand and select important from unimportant or evaluate quality of information from exponentially growing body of knowledge with the use of cutting edge technologies but to educate students so that they could appropriately perform in situations that were unknown in their educational period (Dean and Kuhn, 2009; Illeris, 2008). As a consequence of changing demands the attention of the educators has to be rearranged from contents towards competences. The European Parliament published a framework of eight key competences for lifelong learning (Recommendation of the European Parliament and of the Council, of 18 December 2006, on key competences for lifelong learning [Official Journal L 394 of 30.12.2006].) as “a combination of knowledge, skills and attitudes appropriate to the context”. If this definition is taken seriously, than some of the well established traditional methods of school work becomes marginally suitable for achieving intended goals of the document. The reason is that teachers in such teaching are not anymore central sources of information but promoters and leaders of activities based on inquiry, problem solving and critical thinking. So the survival necessity for teachers will be possession of digital and technological competences (Guzman and Nussbaum, 2009) in the framework of Technological Pedagogical Content Knowledge (Mishra and Koehler, 2006)

The nly recognition of a need to change teaching strategies towards student-centered active methods, where students would in socially rich and safe environment construct their knowledge, is insufficient. In reality there exist an asymmetry with the expectations of students, who expect the teaching of science to involve a mixture of interesting, multimedia supported lectures with frequent laboratory and field work. In reality they most often get direct instruction intended to cover the textbook content in detail with the success on final examinations as the ultimate goal of education (Šorgo and Špernjak, 2007, Špernjak and Šorgo, 2009).

One of the possible methods in the development of competences in science and technology is inquiry and problem-based teaching with the computerized laboratory in science lessons. In such learning students have to combine two or more learned rules into higher order principle what can be used later for solving the whole categories of similar problems. Problem based work can help students to achieve the highest cognitive levels (Kendler and Grove, 2004; Rehorek, 2004), raising scientific literacy (Finn et al, 2002) and to prepare students to be innovative employers in industry, research and engineering institutions as well (Duggan and Gott, 2002, Šorgo and Kocijančič, 2004). On the other hand with the use of computerized laboratory we can track very slow, very fast, and unpredictable processes, results are presented immediately, and we can combine different sensors in almost limitless combinations. Results are presented as graphs on the computer screen, which can be beneficial for the comprehension of the experimental outcomes (Šorgo et al. 2003). Yet the equipment can be a limiting factor in many schools

and students cannot take home. So we have started to think about the development of virtual laboratory exercises (Šorgo, Puhek and Špernjak, 2009; Špernjak and Šorgo, 2009) in first place to support classical and computerized laboratory exercises. Traditionally laboratory exercises follow teachers' explanations to illustrate theory. From a body of research we know, that this is the least effective strategy, so we start to test the idea to use virtual laboratory exercises as starters to trigger problem situation to be solved by students and in such a way develop competences in problem solving.

Making predictions and prognoses based on previous knowledge from limited sets of data is common practice in everyday life. In science hypothese,s are generated in such a way, and the generating of hypotheses is recognized as one of the most creative part of a scientist's work. In a school we commonly do not place and solve scientific problems but we can use problems as a simulation of scientific work. Through such work students became aware of the importance of all phases of research, starting with the initial problem through the investigation to the final report. On the other hand the teacher is able to identify misconceptions in previous knowledge. Misconceptions are very persistent and are well known blocker to the new knowledge (Prokop, et al, 2008). Therefore we try to develop suitable models and two of them are presented. What all models have in common is that they connect Physical or Chemical phenomena with Biology and knowledge can be transferred into everyday situations outside biology.

METHODS AND PROCEDURES

Each experiment was prepared in three different styles: classical, computer supported (real) and interactive virtual. Data obtained in computerized laboratory were used to produce realistic graphs in interactive simulations. Interactive simulations were programmed in Microsoft's Visual Basic 6.0. Every simulation is self-standing auto-executive programme. The main reason was that auto-executive programmes do not need additional software uploaded on computer what makes them easier to spread among computer users. In virtual exercises click on execute button will run a simulation. Students can reset initial data with no need to close the programme for another turn. Differences in the effect of learning outcomes and attitudes of different styles of laboratory work was tested in a larger study (Špernjak, 2010), and effect of execution of virtual laboratory as enhancer of problem and inquiry based teaching is in progress.

RESULTS

Experimental design

We started a lesson with explanation but not the solution of a problem. Students were asked to predict outcomes and draw graphs into their notebooks. Afterward the virtual experiment was run. So the comparison between predicted and observed graphs can initiate discussion about biological importance of such phenomena can start. During the class debate, gained knowledge is easily transferred to other everyday phenomena.

Alcohol Fermentation

In the simulation Alcohol fermentation we simulated the biochemical process, where yeast ferments sugars to ethanol and carbon dioxide. The process can be presented in different ways. In the classical laboratory experiment it is usually presented with the help of balloons collecting carbon dioxide from bottles, filled with different sugars, at different concentrations or conditions, so we decided to present it in the same way. The picture of balloons and thermometers should make simulation more attractive and simultaneously illustrates to the user how the process works considering different temperature. In the simulation three experiment sets in diverse colours are presented that at the same time enable the comparison of impact of different temperatures on the fermentation. The temperatures can be set through the scroll bar near the thermometers. The change of temperature can be immediately seen on the thermometer scale or as a number above it. When the user sets desired temperature, he/she has three options to choose from the menu on the right. Three different options that can be set influence the courses of the experiment. The results are also graphically visible in the same colours as the balloons are. When the optimal temperature is chosen, the fermentation is faster and the curve that presents the volume of carbon dioxide is increasing faster. This can be also seen from the sizes of the balloons. When the teacher

wants the students to think about the process in the first place and solve the problem while observing the process itself, the graph can be hidden.

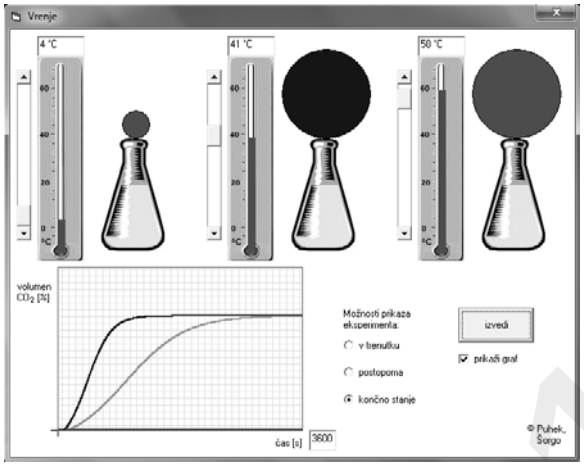


Figure 1. Front-page of the simulation Alcohol fermentation.

Isolation properties of bark

In the simulation Bark as the heat isolation we simulated the conductibility of the heat regarding the bark of different kinds of trees. The main function of the bark is to protect the plant from the impacts of surrounding environment, in our case from the high temperature. In the simulation trees are presented with the help of illustrative pictures. The user can choose between birch, pine and oak. When, with the help of the scroll bar next to the thermometer, desired temperature is selected, the experiment can be executed. Again, the user can check the checkbox whether the graph should be shown or not. The temperature is presented with two curves. One shows temperature from the inside of the tree (under the bark) and the other presents the temperature from the surroundings (on the bark). The difference between the temperatures shows the actual heat isolation of the selected bark. Finally, the hint area reminds the user on the heat conductivity by the deciduous and coniferous trees.

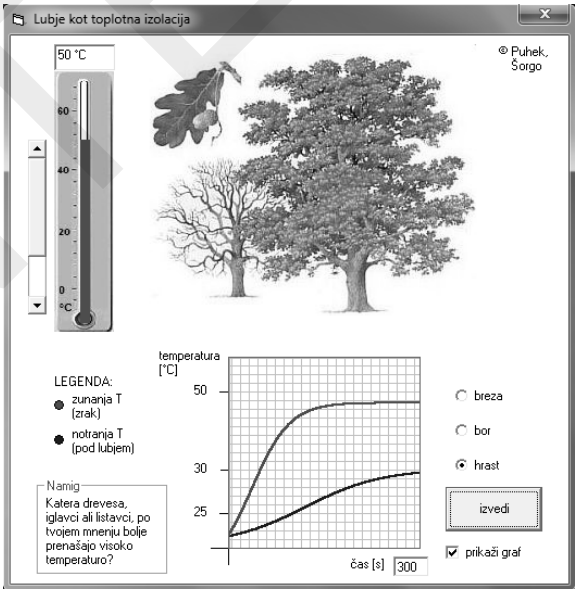


Figure 2: Front-page of the simulation Isolation properties of bark. (The picture of a tree was taken from: Ledinek Engineering. Forest. http://www.ledinek.com/slo/album.html (visited 21.2.2009)).

CONCLUSIONS

Short demonstration with the use of computer equipped with data-logger and projector at the beginning of a lesson for generating a problem situation followed with a discussion in a classroom is suitable when we try to motivate students and connect their prior knowledge and experiences to new situations. Since measurements are taken automatically and results are presented to the students graphically and simultaneously there is no need for additional manipulations or data processing, so the discussion about results can start immediately. The greatest recognized problem was finding suitable biological experiments. Contrary to Physics or Chemistry, where processes are generally fast, in most cases this is not a case in Biology. Additionally experiments with living organisms sometimes have unpredictable outcomes, can be ethically questionable, and organisms are not available at the time. When changes are too slow or differences in measured quantities are too low, waiting on results can result in drop of students' attention and motivation. We can overcome some of the earlier listed problems with the introduction of virtual laboratory exercises, knowing that we are losing first hand experiences which can be presented only as hands-on activities. Virtual laboratory is idealized and only an approximation to real laboratory, what has to be kept in mind.

With the introduction of problem based learning with computerized laboratory, we have succeeded not only in the adaptation of old experiments to new technology or the introduction of new experiments but to motivate and activate students, what can be recognized due to the falling interest in science (Tomažič and Vidic, 2009) even more important achievement than gaining few extra points on cognitive level. According to the interviews students like such work. A teacher can easily attract their attention and lead them to the solution. Because students and not the teacher have to produce appropriate explanations of the observed phenomena, misconceptions were easily recognized and replaced with newly constructed knowledge. Such knowledge is easily transferred or connected with similar situations in physics or chemistry or other everyday phenomena. In such a way fragmented and dispersed knowledge is assembled. Until now the evaluation of our work has been based on positive attitudes and good feelings. The formal evaluation of students' performances is yet to be done.

ACKNOWLEDGEMENTS

The paper is based on work supported by the Ministry of Education and Sport of the Republic of Slovenia and the European Social Fund in the framework of "Project: Development of Natural Science Competences" at the Faculty of Natural Sciences and Mathematics of the University of Maribor, Slovenia.

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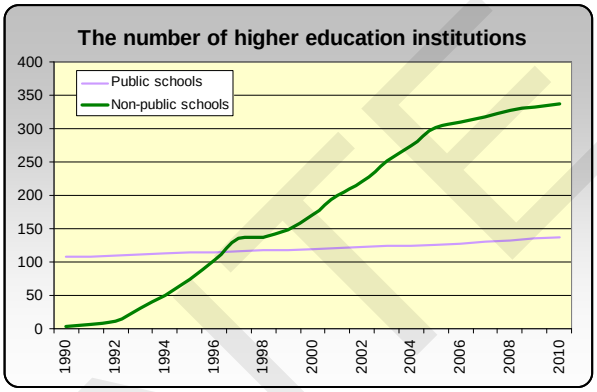
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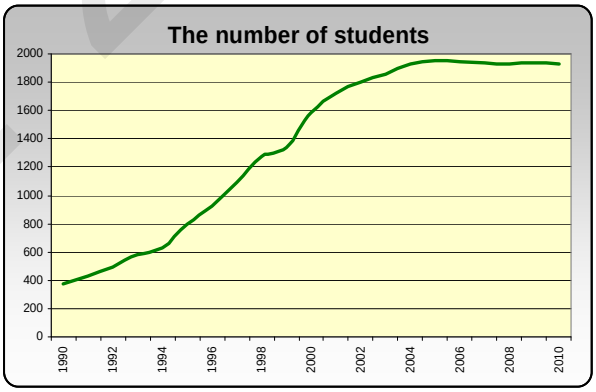
PREDICTION OF DISASTER? - CONTEMPORARY HISTORY OF THE POLISH HIGHER EDUCATION

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Introduction

The system of higher education during the communist government had a fossilized form. There were only 11 universities and a dozen or so other higher education institutions. According to the founder of one of the first private higher education institution, Krzysztof Pawlowski, - "in the socialist era, higher education was considered to be a rare good, available only for the chosen ones. […] A few factors had an influence on this: desire for keeping the socialist regime (it is easier to control uneducated people and manipulate them) and the artificial system of salaries in almost fully state run economy promoting physical work. That system successfully discouraged the potential candidates to follow their education path […] It was enough to graduate from the vocational school or go to work to earn more money than an engineer or an experienced teacher". In reality in 1991 in the country which possessed 38 million citizens there were less than 400 000 students and the higher education had only 7% of the population. The breakthrough of the 1989 and the free market changes turned around completely the priorities on the Polish job market. How aforementioned Pawlowski states "it appeared immediately that the education has high value and the salary in the private companies is strictly connected with the qualifications and skills and what is even more important with education. At the same time, along the 90s adulthood reached the generation of the baby boom". The effect of such circumstances was the rapid growth of higher education institutions and the number of students in Poland.





The number of non-public higher education institutions rose in 20 years from 4 to 337. At the same time, the number of students rose five times from 374 thousand to 2 million. The index of schooling (brutto) in 1991 did not exceed 13% and at present it is over 50% and is one of the highest in Europe.

Differences

Despite the fact that there can be heard many voices of satisfaction, which are caused by the positive indexes, there are also critical remarks to the current state of affairs. The critical remarks refer to the level of education of the non-public education institutions. There can be presented three sources of information in this range. First of all, students who have an opportunity to compare these two kinds of education institutions, points out the low level of education in the public education institutions, worse staff and didactic base. Secondly, these are the university teachers, to whom I also belong, who run their courses both in public and non-public education institutions. And the third source are such independent institutions as education local authorities, journalists and employers. Precious information is delivered by the most diligent and reliable ranking of higher education institutions in Poland made by *Perspektywy* and *Rzeczpospolita*. Within the first twenty positions there are no non-public education institutions and within fifty there are only five. It is also worth mentioning that in the rankings of lower level education institutions – secondary schools, gymnasiums, primary schools, the difference is not so visible. What is more, some non-public schools dominate over other public schools in some categories (eg. primary schools).

What differentiates public and non-public education institutions? First and the most obvious difference is the necessity of paying fees in the non-public education institutions. Although non-public education institutions try to introduce various kinds of scholarships, nevertheless, for the majority of students they will still be not free of charge – around 100euro a month. What is crucial, private education institutions are far smaller than the public ones. At average in the non-public education institutions there are 2000 students, whereas in public ones over 9000. The lower number of students leads to the decreased academic ambitions and as the reason for that most non-public education institutions have no academic programmes. Lower number of students and the fact that non-public education institutions are considered to be the commercial ventures lead additionally to paying attention to the most profitable subjects, such as education, sociology, law, administration, economics, accountancy, management and finances. At non-public education institutions such subjects as astronomy, classical philology will, which are not popular at public education institutions, will not be found or such subjects as medicine, veterinary science or direction, which acquire vast number of academic staff as well. What is also incredibly crucial, is the fact that non-public education institutions offer mainly education at the under-graduate level, rarely post-graduate. Those who offer the PhD studies are extremely rarely found.

Motivation & methodology

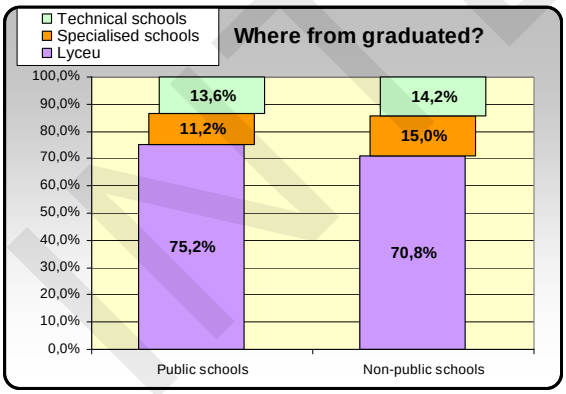
As I have already mentioned, I myself am an academic teacher of two kinds of education institutions. I could see the difference in the work comfort with students and was not sure where it comes from. I decided to do the research concerning this issue and search for the reason and the effect of these differences. I did it in 2008 with students of education faculty. The problem of the research was to answer the questions concerning what kind of students these students of education faculty are, how they differ and what the result from it is.

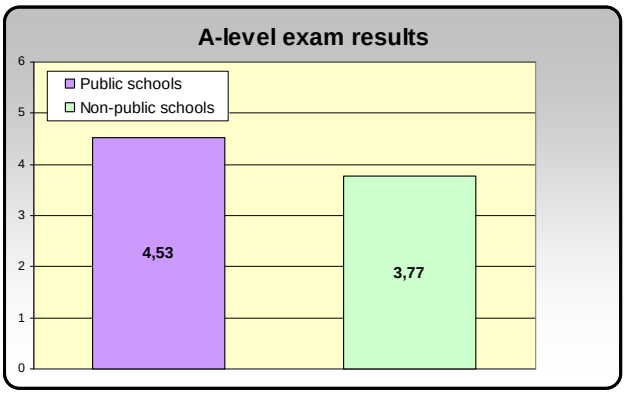
The research was run in various types of education institutions in three cities. In each city I visited both public and non-public education institutions. In each education institution there were around 50 full-time students of the 3rd year taking part in the research. The research meets the criterion of the proper representatives. I estimate that from the whole national population of the students who managed to meet the basic conditions, I tested almost 7%. I used the questionnaire with the test of competence. The gathered material is far more extensive than the one presented here and it can become the base for the further analyses, publications and speeches.

Education paths of the subjects

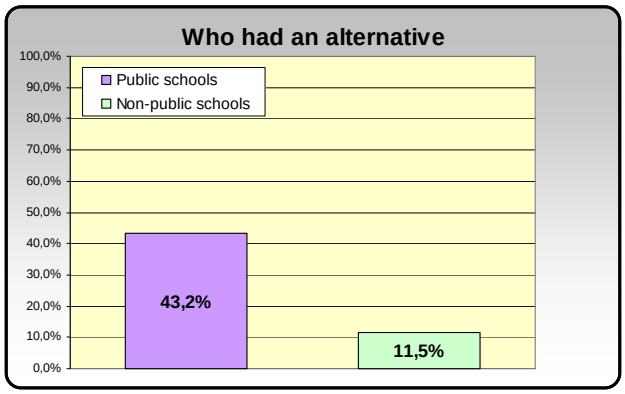
As far as the A-levels are concerned the data are similar. A bit higher number of lyceum graduates are the students of public education institutions. However, the difference varies only around 5%.

More visible difference is in the average scale of grade from A-level (although most subjects passed new A-level the scale was taken 1-6). As we can see the students of public education institutions present better results of A-level.

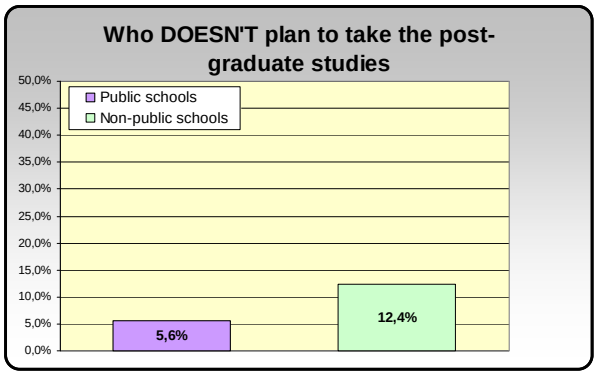


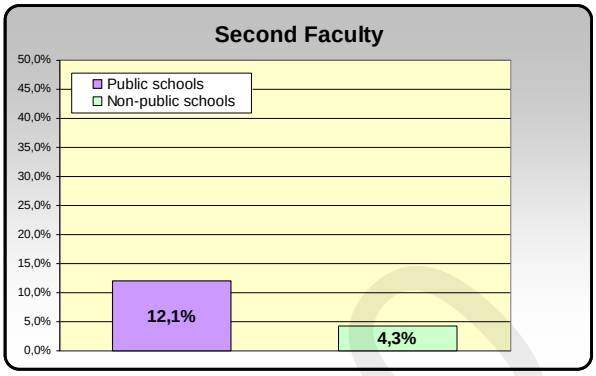


The vast difference is in the issue of alternatives within the institutions. We will find at this point the answer on the question – were you doomed to study education at this particular institution? Did you enter any other institution? As it is presented only one on ten students of the non-public education institution had an alternative in comparison with the 40% of students from public institutions. As it appeared, those from public institutions were more willing to take second faculty (12%) than those from the non-public (4,3%). Almost



opposite tendency can be observed when talking about post-graduate studies (non-public – 12,4%, public – 5,6%). In non-public institutions most do not want to continue their studies.





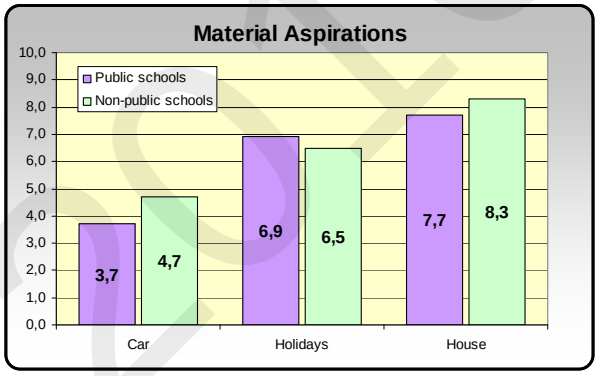
Aspirations & Expectations

It is the level of aspiration taken from three-year research in the chosen categories.

Car - what kinds of cars the subjects are going to have, if any (number, model, brand, age) – the level of automotive aspirations estimated in the scale 1 – 10.

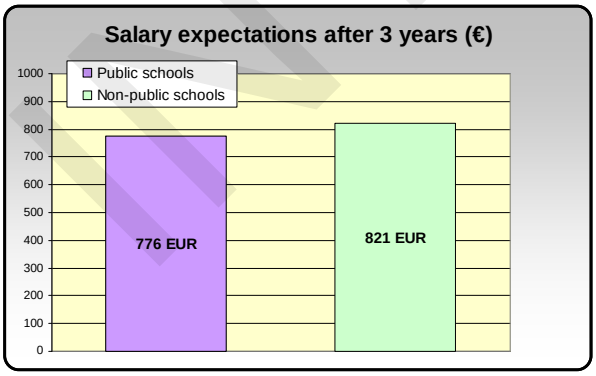
Holidays – how the subjects are going to spend their holidays (in home, in country, abroad etc) scale 1 - 10.

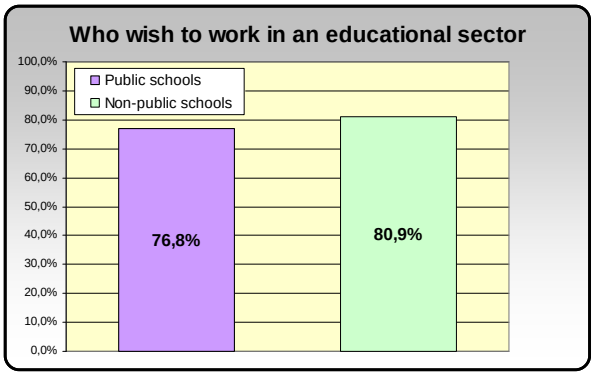
House – what kind of accommodation they would like to have (their own, rent, with parents etc) – scale 1 – 10.



Another category of aspiration is the financial one – how much on average they would like to earn within a year to three years from starting their work. It is visible that the students of non-public education institutions have a bit higher aspirations (821 euro net) in comparison with the students of public education institutions (776 euro net). It is worth paying attention that both kinds of students have, in my opinion, a bit unreasonable high financial expectations. Youth employees from not the most profitable business want to earn much more than the average earnings.

Finally, the plan concerning working into education area. It was noticeable that students of the non-public education institutions are more willing to work as teachers. 81% of them declares such a willingness, whereas similar plans have 77% of students of public education institutions.





Knowledge

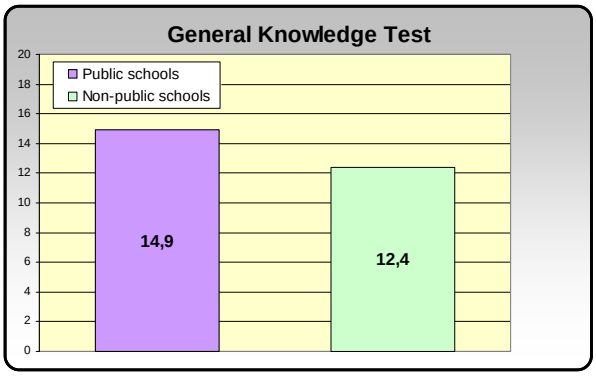
The last part takes into consideration the intellectual competence. It was defined on the base of test research. The test consisted of three parts. In first part there were twenty questions checking general knowledge. The questions were from various fields of interests, for instance – Which ministry is responsible for the higher education institutions? Who was Gianni Versace? How long does the presidency last in Poland?

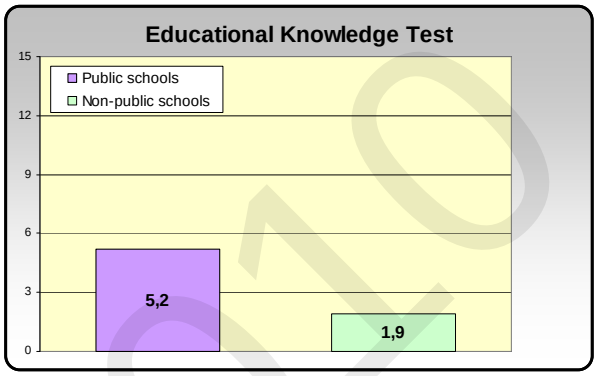
Next part, it was an educational knowledge test. I asked four professors experts from four basic branches of education (general pedagogy, theory of education, didactics, history of education) to prepare two

questions from their sub-disciplines. The questions were supposed to be so easy and clear that the average student of the 3rd year of faculty of education irrespective of the institution and whether it was a part-time or full-time studies need to know. Thanks to that I received eight precise questions from the aforementioned disciplines.

The last part it was a language test. I asked students to translate a short text from the chosen foreign language into Polish – test in each version had the same content. They could choose from the following languages: German, English, Russian, French. As I managed to learn earlier, 99,76% of the subjects chose one of these foreign language during A-level.

In the test of general knowledge, there gained a slight advantage of students of the public education institutions over the others, who achieved two and half point more (scale 0 -20).

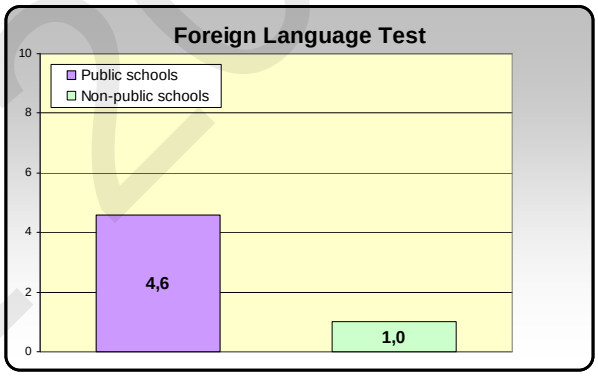




Extremely surprising were the results of the test from educational knowledge. Despite the fact that the students of the public education institutions (5,24 to 1,93 points – scale 0 -15) gained the substantial advantage, there could also be visible the general low level of knowledge of the educational issues, at least according to the expectations of the experts.

The last part – language test – showed again substantial advantage of the students of public education institutions (4,61 to 1 points – scale 0 - 10).

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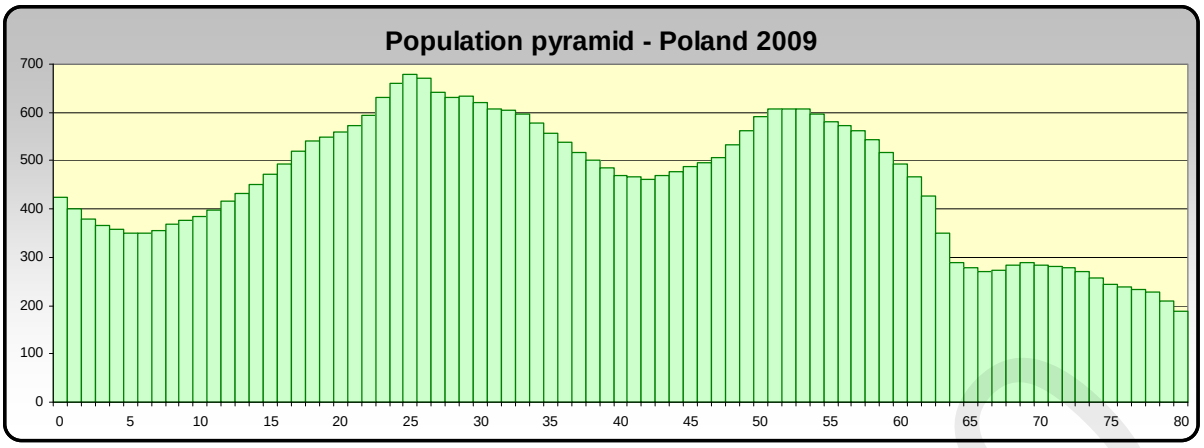


Conclusion

In aforementioned data, we can see the cohesive picture – the non-public education institutions gather weaker "new blood". The weaker pupils become usually the students of non-public education institutions. The graduates of the weaker education institutions are from vocational schools and profile secondary schools. These are also students who achieve worse results in the A-level exam. During studies these students demonstrate less initiative, rarely take second subject and less willingly continue further education. From the not presented here results of the research, we find out that only 10% of them start working during studies and it means three times less than the number of students of public education institutions. On the other hand, these students have high expectations concerning adult life. The research of the financial aspirations with reference to the earnings and possessed goods presented as well higher than in the others expectations. Students of the non-public education institutions assume that investing in studies will pay back after three and a half salaries. In comparison with the USA, the studies pays back after about 28 salaries. What is also worth mentioning, these students associate their professional plans with the field of education. The vastest discrepancies showed the test of cognitive competence. Both in the general and education knowledge tests and foreign language test such discrepancies can be noticeable.

Basing on these data and taking into consideration other factors we can risk the following assumption: Polish non-public education institutions are doomed to failure in time perspective.

First of all, democratic factors are going to play a crucial role. As data show (the pyramid of population) within the five years the generation below 400,000 will become adult. For comparison, the boom of higher education has started with the number of 530,000 and with the following years rising to 680,000. This year there were only 530,000 students. These data show that with this index of schooling there will be less than half people willing to study. Taking into consideration the economy principles, some institutions will have to be closed. At first, smaller institutions will be put on risk and most of them is non-public.



Secondly, it is visible that the government strengthens the procedure towards non-public education institutions, even by *Państwowa Komisja Akredytacyjna* (State Accreditation Agency), which is responsible for allowing to function some faculties and subjects and institutions themselves. This year 14 institutions are assigned to liquidation. In the recent years 19% of non-public institutions received only conditional allowance for running their activity, whereas 7% were negatively assessed. Both conditions of studying and substantive requirements are supposed to be made equal in both kinds of institutions. It means that the studies at non-public education institutions, which were considered to be easier, will become more demanding. It is certain that the effect of it will be the resignation of some part of candidates from gaining the qualifications at non-public education institutions.

Thirdly, the economic crisis which is considered to touch Poland and Europe in the future, will have its effects on the financial abilities of the candidates, what is going behind that fewer people will be able to afford it. As the non-public institutions collect fees, they are mostly exposed for the effects of the crisis.

Fourthly, with the abolition from 1st January 2010 the obligation of the military service, the situation concerning the number of candidates can also change. For many young men studies were treated as the avoidance of this military service (this was the additional factor that I discovered during my research). Some of the non-public institutions advertised themselves as those who give the certificates for the WKU (the military commission).

Fifthly, it is possible that the market and employers will start verifying the qualifications of their future employees. They will start paying attention to the institutions at which their candidates studied, their renown, not only the fact of possessing a diploma. As I showed in my research, the young people entering the labour market (I did the research one month before their graduation) presented various quality and scope of knowledge depending on the kind of the institution they studied. Despite the fact that all the diplomas look exactly the same, what can be found behind is the complete difference in cognitive competence. As it has started taking place in the Western European countries, which followed similar education path, the process of intensive selection of candidates according to their education and qualifications will happen in Poland as well. This process will result in driving out of the market those institutions which will not guarantee the effective results of education they offer.

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PRE-SERVICE BIOLOGY TEACHERS' ATTITUDE, FEAR AND DISGUST TOWARD ANIMALS AND DIRECT EXPERIENCE WITH LIVE ANIMALS

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ABSTRACT

In the year 2006, the European Parliament published a framework of eight key competences for lifelong learning, each as "a combination of knowledge, skills and attitudes appropriate to the context". Biology teaching in Slovenian schools is oriented primarily toward knowledge, less to skills and in major part neglecting attitudes as constituent part of competences. In this paper we present research of the attitude, fear and disgust that first and last year pre-service biology teachers have toward 25 animals in connection with direct experience with individual animal species. Attitudes and emotions of students were assessed using a self-report questionnaire. The results show that last year students on average rate their attitude higher (more positive) and fear and disgust lower (less negative) than their first year counterparts. That applied mostly for the animals that students encountered and worked with in biology didactics classes. Implications for biology education are discussed.

INTRODUCTION

Every day, we can read, listen or watch in mass media about many endangered species and the reasons for their protection. There are many campaigns organised each year by different institutions to address this issues and present them to general public. This year the United Nations declared the year 2010 the "*International Year of Biodiversity*". On their webpage, they state: "*It is a celebration of life on earth and of the value of biodiversity for our lives*" (http://www.cbd.int/2010/welcome/). They invited the world to take action to safeguard the variety of life on earth - biodiversity.

Schools have an important role to properly address this novel issues to children, first to inform them about them and to influence their attitudes and future actions (behaviour). According to Kellert (1996) education plays a crucial role in creating environmentally responsible citizens. Similar view is held by the Society for Conservation Biology which published Conservation literacy guidelines (Trombulak et al., 2004). They propose that educators should seek to develop in people a deeper understanding of the importance and tools of conservation biology. What is important to them is, that education is the most effective when people develop knowledge, skills, and attitudes through direct experience. Also, conservation biologists by their opinion, have a unique set of knowledge, skills, and concerns to share with others.

Not just conservation biologists, also biology teachers should be educated in such manner. Slovenian biology curricula state that every person in the course of their education should gain knowledge about main biology topics and at the same time form appropriate attitude toward those topics, nature and the subject itself. Furthermore, during the course of their formal education, students should acquire as much direct experience as possible of various organisms and their living environments. To be able to offer children direct experiences, student teachers (and teachers) must first develop appropriate attitudes with as little negative emotions toward organisms as possible. Biology teacher with for example irrational fear of spiders or some invertebrate species would hardly be effective in working with such live animals.

It is known, that only factual knowledge does not suffice for a development of appropriate attitudes and skills (Morgan, 1992; Prokop et al., 2009), especially when unpopular animals are of concern (Prokop et al., 2009; Prokop and Tunnicliffe, 2010, Tomažič, 2008).

Morgan (1992) argues that in order to achieve a balance between knowledge and attitudes, a certain level of involvement and amount of information are needed. If students have the opportunity to work with live organisms, they can acquire the most vivid experiences and develop strong emotions about their subjects. Students can truly understand living things when they are allowed to have direct contact with them (Lock 1994, Lock & Alderman 1996). Direct experience in contrast to indirect experience influences differently the attitude formation. Attitudes based on direct experiences are known to be more persistent, stronger,

held with greater certainty, more stable over time and more resistant to counter-influence (Fazio & Zanna 1981).
But, when teachers are asked about the reasons for not working with live animals in classrooms, they frequently state the reasons like environmental and veterinary legislation, public opinion, student opinion, facilities, funding, animal care, school policy and others (Adkins & Lock, 1994). When teachers are working with primary teaching materials (live organisms), they are frequently faced with their own interpersonal barriers and of the students that can significantly affect the quality of students experience (Adkins & Lock 1994, Bixler & Floyd 1999). Emotions such as fear and disgust affect teachers' attitudes towards animals and consequently affect their (non)use in the classroom. Studies of people's attitudes toward and knowledge (familiarity) of different animals often focuses on general public or students, but scarcely on future biology teachers (Thompson & Mintzes 2002, Barney & al. 2005).

The research questions were:
a) How many students have direct experience of animals at the beginning and at the end of their study?
b) How do first year and last year pre-service biology teachers rate their attitude, fear and disgust toward some animals?
c) How does direct experience with individual animal species influence students' ratings of attitude.
d) How will factor analysis of students' attitude ratings, group animals in individual categories.

METHODS AND PROCEDURES

Research was undertaken in 2006 (with 51 first year students and 41 last year students) and in 2007 (with 48 first year students). The study included a total of 99 first year and 41 last year pre-service biology teachers with the mean ages of 20.0 years and 23.2 years, respectively. Students in the research were studying to become primary school biology (science) teachers. Majority of students were females. There were only six male students present, therefore we did not analyse data according to students gender.
Attitudes and emotions were assessed using a self-report questionnaire which recorded the prospective teachers' attitude, fear and disgust toward 25 animals in connection with direct experience with individual animal species. All ratings were based on a five point scale. The scale for fear was adapted from Davey et al. (1998). Self-report items about **fear** were rated on the following scale: 1 = 'I am not afraid of the animal.'; 2 = 'The animal sometimes frightens me.'; 3 = 'I am afraid of the animal.'; 4 = 'I am very afraid of the animal.'; and 5 = 'I am terrified of the animal.'. Self-report items about **disgust** were rated on the following scale: 1 = 'The animal is not disgusting.'; 2 = 'I have an unpleasant feeling when close to the animal.'; 3 = 'The animal is disgusting.'; 4 = 'This animal makes me sick.'; and 5 = 'This animal makes me vomit.'. And self-report items about **attitude** were rated on the following scale: 1 = 'I do not want anything to do with this animal.'; 2 = 'I do not like this animal.'; 3 = 'I do not have a special attitude toward this animal.', 4 = 'I like this animal.'; and 5 = 'I like this animal very much.'.
Data was analysed according to the year of study and student direct experience with animals. To further analyse data from the attitude part of the questionnaire, principal components analysis (PCA) with varimax rotation was used. After factor analysis, animals were according to attitude ratings grouped into five factors. Eigenvalue above 1.0 was used for the final factor solution. The Kaiser-Meyer-Olkin (KMO) measure of the sampling adequacy test (0.863) and Bartlett's test for sphericity ($\chi 2 = 1634.92$; df = 300; $p < 0.001$) suggested that factor analysis was appropriate for this data set, because the value of KMO exceeded critical value 0.7 (Leech et al., 2005). First factor explained 31.82% of total variance and all five factors explained 63.38% of variance.
The emphasis in questionnaire was on animals that are usually harmless to humans and can be used in classrooms (e.g. snails, cockroaches, spiders, earthworms, leeches, amphibians) but can evoke higher disgust response.

RESULTS

Results show that last year students on average rate their attitude higher (more positive) than their first year counterparts. For example, only 29% of first year students reported direct experience with a toad. In contrast, 95% of last year students reported having direct experience with the same animal. The difference between their ratings for attitude toward toad was 1.0, while the differences between average fear and disgust ratings were 0.7 and 0.9, respectively.

Table 1. Differences in reported direct experiences with animals between first and last year students.

ANIMAL	DIRECT CONTACT (*f*)				SIG.		
	First year		Last year				
	yes	no	yes	no	*χ2*		*p*
Guinea pig	93	6	40	0	4,181	*	***0,041***
Hamster	91	8	41	0	5,743	*	***0,017***
Snail	93	5	39	2	0,003	*	*0,956*
Snake	74	25	41	0	12,604		***<0,001***
Turtle	92	7	40	1	1,345	*	*0,246*
Salamander	34	64	37	4	35,697		***<0,001***
Toad	29	69	39	2	49,675		***<0,001***
Frog	63	33	38	3	10,858		***0,001***
Walking stick	77	19	41	0	9,421		***0,002***
Spider	85	14	39	2	2,835	*	*0,092*
Scorpion	14	85	27	14	37,438		***<0,001***
Cockroach	39	58	39	2	35,366		***<0,001***
Shark	6	93	0	40	4,181		***0,041***
Cat	99	0	41	0	NC		NC
Dog	99	0	40	1	NC		NC
Wolf	5	92	2	39	0,005	*	*0,946*
Bear	8	87	2	39	0,567	*	*0,451*
Mouse	75	22	38	3	4,586		***0,032***
Rabbit	98	1	36	5	7,952	*	***0,005***
Rat	74	25	21	20	8,861		***0,003***
Earthworm	87	12	39	2	1,913	*	*0,167*
Tick	96	3	40	1	0,038	*	*0,846*
Fly	98	1	41	0	NC		NC
Wasp	92	7	33	8	4,286	*	***0,038***
Leach	18	80	17	23	8,739		***0,003***

Notes: * Likelihood ratio; NC - not calculated.

Figure 1 represents changes in attitude, fear and disgust ratings according to the year of study. Animals are sorted according to descending average values of students ratings. Figure 2 represents differences in attitude ratings according to reported direct experiences with individual animals.

According to factor analysis, animals were grouped in five factors, shown in Figure 3: "Disgusting" (toad, frog, salamander, cockroach, spider, earthworm, snake, snail, leech, rat and scorpion); "Pets" (guinea pig, hamster, rabbit, cat, dog and mouse); "Fierce" (bear, wolf, and shark); "Sting" (fly, wasp and tick) and "Unusual Pets" (walking stick and turtle). Crombach alphas for individual factor were 0.91, 0.80, 0.83, 0.68 and 0.60, respectively. The differences in attitude ratings between students of different grades were found mainly for animals that were according to factor analysis grouped in first factor, named "Disgusting". The only exceptions were walking stick and cat that were placed on separate factors (Figure 1, A). When comparing students attitude ratings according to reported direct experiences, additional differences were found for rabbit, mouse, wolf and turtle but no differences were found for cat (Figure 2).

DISCUSSION

Research on effect of direct experiences with animals on subjects emotions and attitudes is gaining much attention lately. Namely, Prokop et al. (2009) propose that students should beside factual be offered direct experience with animals, especially with ones that causes negative emotions (i.e. fear) in people. Schools are one of the most important and influential institutions that can offer such experiences. This study has shown that (1) pre-service biology teachers have generally gained on direct experiences with animals from first to the last year of university education. (2) Attitude, fear and disgust have in a course of studying changed from more negative to more positive (to better attitude and less fear and disgust).

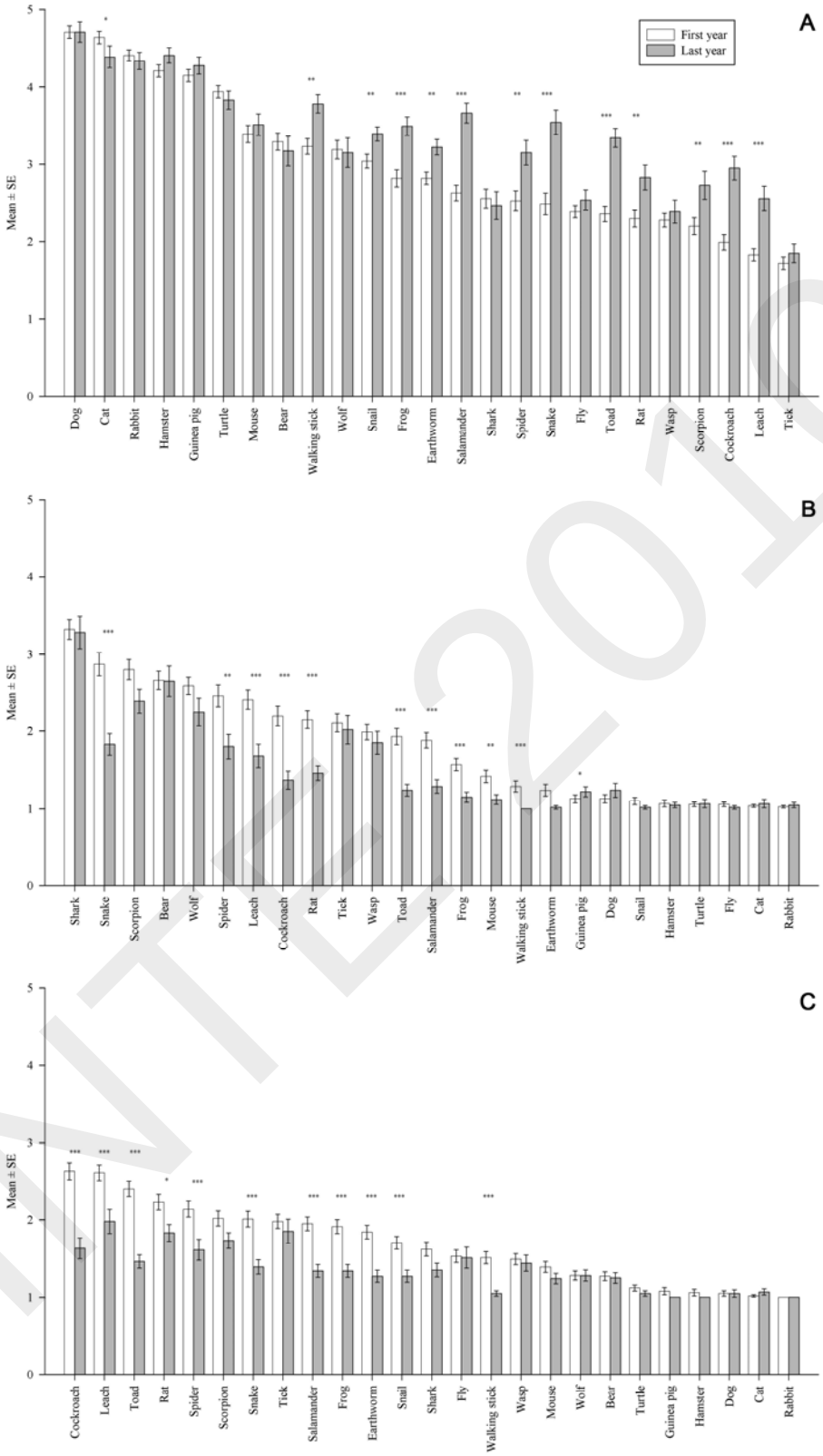


Figure 1. Differences in (A) attitude, (B) fear and (C) disgust ratings between first year and last year student teachers toward individual animals. Meaning of asterisks: Mann-Whitney U test; *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

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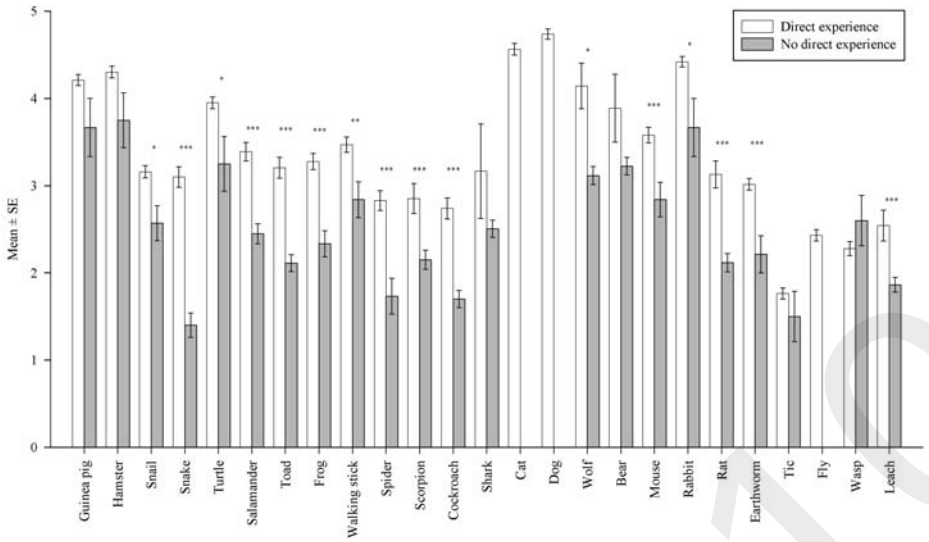


Figure 2. Differences in attitude toward different animals according to reported direct experiences of student teachers. Meaning of asterisks: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

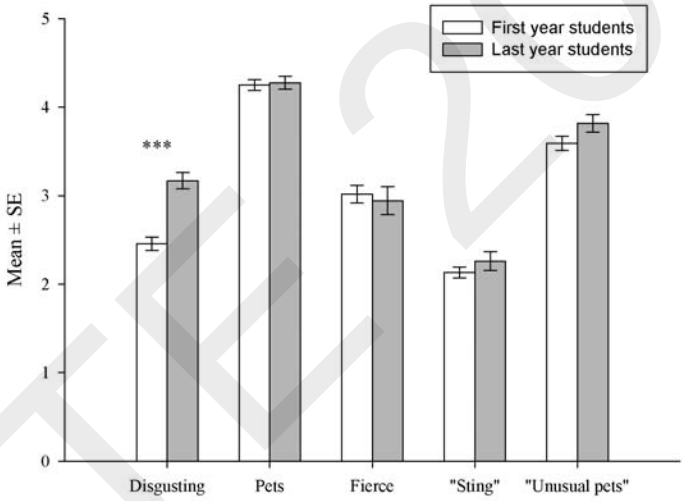


Figure 3. Differences in attitude toward different animals between first year and last year student teachers. Meaning of asterisks: *** $p < 0.001$.

(3) That was in a case of attitude mostly true for animals that evoke higher disgust response (for a discussion see Davey et al., 1998 and Arrindell, 2000). (4) Reported direct experience with individual animal species has influence on students' ratings of attitude. Namely, students with direct experiences of animals generally report better attitude than their counterparts. (5) Factor analysis of students' attitude ratings, grouped animals in five meaningful factors. From that results it can be concluded that our main effort and effect of our was on animals that are usually harmless, but can evoke greater disgust response. This are the animals which students encounter and work with mostly in biology didactics classes (i.e. toad, salamander, frog, snake, spider, cockroach, scorpion). Students attitude toward "Pets" was so high that probably just for this reason there were no statistically significant differences found. The same can be true for factor named "Unusual pets" that included two animals, walking stick and turtle. There was also no change in attitude ratings toward animals that can be potentially dangerous and can cause physical injuries (wolf, bear and shark). The same applied for animals that "sting" - penetrate skin, like wasps, flies or tick. From the last two mentioned factors it can be concluded that greater attention for working with such animals should be included in the future. Students must be aware, that animals such as those from the last two mentioned factors also play an important role in nature and that they need to have an appropriate attitude toward them, too. Experiencing them would hopefully improve that (for a discussion about learning about insects see Shepardson, 2002).

CONCLUSIONS

To conclude, students teachers as well as schoolchildren need to directly experience a variety of animals and animal groups in order to gain first hand experiences. Such experiences are believed to improve attitude and lower negative emotions in student that with proper cognitive input can consequently lead to better pro-environmental behaviour. Only factual knowledge is therefore not sufficient. As for future teachers, they should also have the opportunity to present different animals to peers and schoolchildren of different ages. As a result, they might be as teachers more willing to include live animals in instruction.

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REHBERLİ ARAŞTIRMA VE AÇIK UÇLU ARAŞTIRMA YÖNTEMLERİNİN ÖĞRETMEN ADAYLARININ BİLİMSEL SÜREÇ BECERİLERİNE ETKİSİ

THE EFFECT OF GUIDED INQUIRY AND OPEN INQUIRY METHODS ON STUDENTS' SCIENCE PROCESS SKILLS

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ÖZET

Bu çalışmada, rehberli araştırma ve açık uçlu araştırma yöntemlerinin öğretmen adaylarının bilimsel süreç becerileri üzerine etkilerinin karşılaştırılması amaçlanmıştır. Çalışmanın örneklemini Mustafa Kemal Üniversitesi, Eğitim Fakültesi, İngilizce Öğretmenliği bölümü ikinci sınıfında okuyan toplam 49 öğretmen adayı oluşturmaktadır. Bilimsel araştırma yöntemleri dersi kapsamında, rastgele seçilen şubelerden birine (25) rehberli araştırma yöntemi, diğer şubeye (24) ise açık uçlu araştırma yöntemi kullanılarak toplam 10 hafta boyunca ders işlenmiştir. Her iki şubeye de ön test ve son test olarak Bilimsel Süreç Becerileri Testi uygulanmıştır. Kullanılan yöntemlerin öğretmen adaylarına bilisel süreç becerilerini kazandırmadaki etkilerini karşılaştırmak için ortak değişkenli varyans analizi (ANCOVA) yapılmıştır. Analiz sonuçları farklı yöntemlerle ders işleyen öğretmen adaylarının bilimsel süreç becerileri testinden aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir farkın olduğunu göstermiştir ($F_{(1-46)} = 4{,}403$, $p < 0{,}05$, $\eta^2 = 0{,}087$). Dolayısıyla rehberli araştırma yöntemi ile işlenen dersin, açık uçlu araştırma yöntemi ile işlenen derse göre öğretmen adaylarının bilisel süreç becerileri süreç becerileri üzerinde daha etkili olduğu görülmüştür.

Anahtar Kelimeler: Rehberli araştırma, açık uçlu araştırma, bilimsel süreç becerileri

ABSTRACT

This study was intended to compare the effects of Guided Inquiry and Open Inquiry methods on students' scientific process skills. The sample of the study was consisted of 49 second year students studying in the Department of English Education of Education Faculty, in Mustafa Kemal University. The students were randomly assigned to two classes. A class (25) received instruction according to Guided Inquiry method and B classes (24) received instruction according to Open Inquiry method along ten week in Scientific Research Methods course. Scientific Process Skill Test was used as pretest-posttest for both classes. Research questions for this study analyzed with ANCOVA. The results showed that there was a statistical significant mean difference on students' Scientific Process Skills scores ($F_{(1-46)} = 4{,}403$, $p < 0{,}05$, $\eta^2 = 0{,}087$) in favor of A class. The results revealed that Guided Inquiry is a more effective method in improving scientific process skills than Open Inquiry method.

Key words: Guided inquiry, open inquiry, scientific process skills

1. GİRİŞ

Eğitim politikaları günümüzde, araştıran, sorgulayan, inceleyen, günlük hayatında bilimsel metodu kullanabilen fertler yetiştirmek amacıyla dizayn edilen öğrenme aktiviteleri üzerine vurgu yapmaktadır. Bilim ve teknolojini ilerleyişi beraberinde ülkelerin bu alanlarda adaptasyonu yüksek bireylere olan ihtiyacını ortaya çıkarmaktadır. Dolayısıyla eğitim faaliyetleri, öğrenciyi alarak aktive eden, balık vermek yerine balık tutmayı öğreten ve onlara bir bilim adamının bakış açısıyla bakmanın yollarını gösteren müfredatlarla zenginleştirilmelidir.

Günümüzde artık, bilgiyi akılda tutarak gerektiğinde onu hatırlayıp geri dönüt verebilen özellikteki bireylerin bunların yanı sıra etrafındaki olayları bilimsel bir bakış açısıyla değerlendirmeleri ve günlük hayatlarında karşılaştıkları problemlere çözüm üretebilmeleri istenmektedir. Bunun için öğrencilerin öğrenme sürecinde aktif olmaları ve öğrenmelerinin anlamlı ve kalıcı hale gelmesi gerekir. Aktif öğrenme ile öğrencilere; gözlem yapabilme, sınıflandırma yapabilme, ölçüm yapma ve sayıları kullanabilme, iletişim kurabilme, tahmin edebilme, veri toplama, kaydetme ve yorumlayabilme, değişkenleri belirleme ve kontrol edebilme, tanımlama yapabilme, hipotez oluşturabilme, deney yapabilme ve model oluşturma ve kullanabilme gibi bilimsel süreç becerileri kazandırılmaya çalışılır (Dökme 2005).

Öğrencilerin öğrenme ortamlarında aktif olmalarını sağlayan, öğrenmeyi kolaylaştıran, elde edilen bilgilerin anlamlı ve kalıcı olmasını sağlayan aktivitelerin öğrenciler tarafından anlaşılması bilimsel süreç becerilerinin kazanılması ile mümkün olabilmektedir (Colvill ve Pattie, 2002).

Temel becerileri oluşturan,

- Gözlem yapma
- Sınıflandırma yapma
- İletişim kurma
- Ölçüm yapma
- Tahminde bulunma
- Çıkarım yapma

ve birleştirilmiş beceriler adı verilen;

- Değişkenleri belirleyip kontrol etme
- Hipotez oluşturma ve sınama
- Verileri yorumlama
- Tanımlamalar üretme
- Deney yapma
- Model oluşturma

bilim insanlarının bilimsel araştırma süreçlerinde sergiledikleri beceriler olarak sıralanabilir (Kılıç 2003).

Öğrenme hakkındaki en son paradigma olan yapılandırmacı yaklaşım tüm dünyada olduğu gibi bizim ülkemizin yenilenen öğretim programlarında da kendini göstermektedir. Yapılandırmacı yaklaşım, öğrenenlerin bilgiyi dış bir kayaktan almak yerine kendi zihninde yapılandırdığını, öğrenmenin aktif bir süreç olduğunu, öğrencilerin mevcut bilgi ve deneyimlerinin önemli olduğunu, öğrenmedeki sorumluluğun öğrencide olduğunu savunan bir yaklaşımdır. Öğrenmenin aktif bir süreç olduğunu savunan yapılandırmacı yaklaşımın uygulama sürecinde kullanılan; projeye dayalı öğrenme, probleme dayalı öğrenme ve işbirliğine dayalı öğrenme gibi aktif öğrenme stratejilerinde bir diğeri de araştırmaya dayalı öğrenmedir.

Araştırma dayalı öğretim, öğrencilerin sınıf içi gözlemler yaparak, sorular üreterek, bilgi kaynaklarını inceleyerek, bilimsel fikir ve tutum geliştirdikleri; açıklamalar, öngörüler ve hipotezler ileri

sürmek için veri toplayıp, analiz ettikleri ve yorum yaptıkları dolayısıyla birinci elden bilgi sahibi oldukları bir yöntemdir (NRC, 1996).

Araştırmaya dayalı öğrenme; öğrencilere bilimsel süreç becerilerinin kullanarak bilimsel yöntemleri takip edip bilim insanları gibi çalışma imkanı sağlamaktadır. Bu şekilde öğrenciler sadece elle yaptıkları tekrarlayıp doğrulamadan öte sürecin planlanmasında, uygulanmasında ve değerlendirilmesinde rol almış olurlar. Bu yaklaşım öğrencilere bireysel olarak veya grupla yaptıkları çalışmalarda sorumluluk alma, kendilerini ifade etme ve öz güvenlerini geliştirme fırsatı verir. Öğrenciler bu yaklaşımla günlük hayatta karşılaştıkları problemleri nasıl araştırıp çözümleyeceklerini öğrenirler (Tatar, 2006).

Gençtürk (2004) bu yaklaşımı, bilgileri öğrencilere hazır olarak vermekten çok, konuları problem haline getirip, öğrencilere bu problemleri yetenekleri doğrultusunda geliştirdikleri deneylerle öğretmek olarak tanımlanmaktadır. Dolayısıyla araştırma dayalı öğrenmenin öğrencilere problem çözme becerileri kazanmalarında ve gündelik hayatta karşılaştıkları problemler için hazır bulunuşluklarında da yardımcı olduğu söylenebilir. Bu öğretim yaklaşımı hem öğrencinin hem de öğretmenin sorgulayıcı, fikir yürütücü, çözüm bulucu olmasına olanak verir (Orlich vd, 1998).

Araştırmaya dayalı öğretim yaklaşımı için; Yapılandırılmış araştırma yöntemi, Rehberli araştırma yöntemi, Açık uçlu araştırma yöntemi ve Birleştirilmiş araştırma yöntemi olarak dört farklı uygulamadan bahsedebiliriz. Bu yöntemler bize öğretmen merkezli olandan öğrenci merkezli olana doğru ilerleyen bir çizgide öğretim faaliyetlerinin nasıl dizayn edilebileceğini göstermektedir. Söz konusu yöntemlerden en öğrenci merkezli olanı açık uçlu araştırma yöntemidir (Bilgin ve Eyvazoğlu, 2010). Bu yöntemde öğrenciler kendi ürettikleri hipotezleri test etmek için araştırmalar planlayarak işe başlarlar. Bu amaçla veri toplar, bu verileri analiz ederek sonuçlar çıkarır ve yorumlarlar. Elde ettikleri bulguları da diğer öğrencilerle paylaşırlar.

Açık uçlu araştırma yöntemi öğrenci merkezli olmada diğer araştırma yöntemlerine göre daha ileri olsa da öğrencilerin araştırma sorularını oluşturmada ve bu sorulara cevap ararken deneysel yöntemleri takip etmede bir takım zorluklarla karşılaştıkları da bir gerçektir. Yeterli yönlendirme olmadığı taktirde sadece bir kısım zeki öğrencilerin daha çok faydalanabildikleri görülmektedir (Chang, Sung ve Lee, 2003; Zion, 2006). Araştırmaya dayalı öğretim yöntemleri arasında rehberli araştırma yöntemi, açık uçlu araştırmaya kadar öğrenci merkezli olmasa da öğrencileri yönlendirme ve onlara kılavuzluk etme bakımından öne çıkmaktadır.

Rehberli araştırma yöntemi, genellikle öğretmenin araştırma sorusunu belirlediği, araştırmaya nasıl devam edileceği, hangi yöntemlerin seçilmesi gerektiği konularında öğrencilerle öğretmenin beraber karar verdikleri bir araştırma yöntemidir (Hansen, 2002). Bu yöntemde öğretmenler, öğrencilere öğrenmeleri gereken bilgi içeriğini verilen model, bilgi veya analojileri inceleyerek ve kritik düşünme sorularını kullanarak öğretmeye çalışırlar. Her konunun başında, ortasında ya da ilerleyen bölümlerde öğrencilere kavram ya da ilke ile ilgili tanımlamalar, örnekler, betimlemeler, formüller ya da kısa bilgiler tarzında yol gösterici ipuçları verilir. Bu ipuçları kullanılarak ilgili konu öğretilmeye çalışılır (Bilgin ve Eyvazoğlu, 2010)**.**

Bu çalışmada araştırmaya dayalı öğretim yöntemlerinden rehberli araştırma yöntemi ile açık uçlu araştırma yönteminin öğrencilerin bilimsel süreç becerileri üzerindeki etkisinin incelenmesi amaçlanmıştır. Dolayısıyla bu araştırmada aşağıdaki araştırma sorusuna cevap aranmaya çalışılacaktır:

- Rehberli araştırma yöntemi ve açık uçlu araştırma yöntemleri ile ders işleyen öğrencilerin bilimsel süreç becerilerindeki gelişim düzeyleri arasında istatistikî olarak anlamlı bir farklılık var mıdır?

2. YÖNTEM

2.1. Örneklem: Çalışmanın örneklemini Mustafa Kemal Üniversitesi, Eğitim Fakültesi, İngilizce Öğretmenliği bölümü ikinci sınıfında okuyan ve Bilimsel Araştırma Yöntemleri dersini alan toplam 49 öğretmen adayı oluşturmaktadır.

2.2. Veri Toplama teknikleri: Çalışmada öğrencilerin bilimsel süreç becerilerini ölçmek amacıyla Bilimsel Süreç Beceri Testi (BSBT) kullanılmıştır. Orijinali Okey, Wise ve Burns tarafından ortaya konan BSBT'nin Türkçeye çevirisi Geban, Aşkar ve Özkan tarafından yapılmış ve güvenirlik katsayısı 0,81 olarak bulunmuştur. 36 maddeden oluşan bu test, bütün fen alanlarını kapsıyor olup, değişkenleri belirleme, hipotezleri belirleme ve ifade etme, işlemsel tanımlama, araştırmalar dizayn etme ve verileri grafik edip yorumlama şeklinde beş alt bölümden oluşmaktadır (Geban *et al.* 1992)

2.3. Verilerin Analizi: Rehberli araştırma ve açık uçlu araştırma gruplarından elden edilen veriler SPSS 16 paket programına girilmiştir. Araştırma sorusu ortak değişkenli varyans analizi (ANCOVA) ile analiz edilmiştir

2.4. Uygulama: Haftada 2 saatlik bir ders olan Bilimsel Araştırma Yöntemleri dersi kapsamında A şubesine rehberli araştırma yöntemi ile B şubesine ise açık uçlu araştırma yöntemi ile öğretim yapılmıştır. Öğretime başlanmadan önce her iki şubeye de Bilimin doğası ve Bilimsel araştırma yöntemleri ve Bilimsel süreç basamakları konularında teorik bilgiler verilmiştir. Daha sonra hem A hem de B şubelerine BSBT ön test olarak uygulanmıştır. Ön BSBT ve cinsiyet dikkate alınarak grup içinde heterojen fakat gruplar arası homojen olacak şekilde dörder kişilik gruplara ayrılmıştır. A şubesindeki gruplara önceden hazırlanmış araştırma problemleri verilerek çalışmaya başlamaları istenmiştir. B şubesindeki gruplardan ise üzerinde araştırmalarını yürütecekleri araştırma problemlerini kendilerinin belirlemeleri istenmiştir. A şubesinde B şubesinden faklı olarak problemlerini tanımlamaları, veri toplamaları, literatür taraması yapmaları, çözüme yönelik hipotez kurmaları, bağımlı ve bağımsız değişkenleri belirlemeleri, hipotezlerini test etmeleri, sonuca ulaşarak yorumlamalar yapmaları ve sunuma hazır hale getirmeleri noktalarında rehberlik yapılmıştır. Süreç sonunda her iki şubeye de BSBT son test olarak tekrar uygulanmıştır.

3. BULGULAR VE YORUM

Rehberli araştırma ve Açık uçlu araştırma gruplarındaki öğrencilerin Bilimsel Süreç Beceri Testine ait ön ve son test sonuçları tablo 3.1 de verilmiştir.

Tablo 3.1: Bilimsel Süreç Beceri Testine ait Puanlar

Gruplar	Bağımlı Değişkenler	Skewnes	Kurtosis	Ortalama	Standart Sapma
Açık Araştırma Yöntemi	ön-BSBT	0,199	-1,015	63,450	10,652
	Son-BSBT	-0,083	-0,811	72,482	9,301
Rehberli Araştırma Yöntemi	ön-BSBT	-0,659	-0,194	68,796	9,613
	Son-BSBT	-0,986	1,140	79,887	9,717

Tablo 3.1 de görüldüğü gibi açık uçlu araştırma yönteminin uygulandığı sınıflardaki öğrencilerin ön-BSBT puanlarının ortalaması 63,45 iken son-BSBT puanlarının ortalaması 72,48 dır. Bu grupta öğrencilerin bilimsel süreç beceri testinden aldıkları puanların ortalaması 9,03 puan artmıştır.

Tablo 3.1 de görüldüğü gibi rehberli araştırma yönteminin uygulandığı sınıflardaki öğrencilerin ön-BSBT puanlarının ortalaması 68,80 iken son-BSBT puanlarının ortalaması 79,89 dır. Bu grupta öğrencilerin bilimsel süreç beceri testinden aldıkları puanların ortalaması 11,09 puan artmıştır.

Bu sonuçlar rehberli araştırma grubundaki öğrencilerin bilimsel süreç beceri testinden aldıkları puanların ortalamaları son testte açık uçlu araştırma yönteminin uygulandığı gruptaki öğrencilere göre daha fazla arttığını göstermektedir.

Açık uçlu araştırma ve rehberli araştırma gruplarındaki öğrencilerin ön-BSBT den aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark olup olmadığı bağımsız t-testi ile test edilmiştir. Sonuçlar açık uçlu araştırma ve rehberli araştırma gruplarındaki öğrencilerin ön-BSBT puanlarının ortalamaları arasında istatistiksel olarak anlamlı bir fark olduğunu göstermiştir ($t(47) = 1,846$, $p < 0,05$). Ayrıca açık uçlu araştırma ve rehberli araştırma gruplarına uygulanan ön-BSBT puanları ile son-BSBT puanları arasında istatistiksel olarak anlamlı bir ilişki vardır ($r(49) = 0,428$, $p < 0,01$).

Bu nedenle öğrencilerin ön-BSBT puanlarının son-BSBT puanlarına etkisini yok etmek için ön-testler ortak değişken olarak kullanılmıştır.

ANCOVA analizinin yapılmasından önce bu analizin kabullenmelerinin kontrol edilmesi gerekir. Bağımlı değişkenin normalliğinin kontrol edilmesi için çalışmaya katılan grupların bağımlı değişkenden (Bilimsel Süreç Beceri Testi) aldıkları puanların çarpıklık (skewnes) ve basıklık (kurtosis) değerlerinin hesaplanması gerekir. Bu değerler Tablo 4.1 de verilmiştir. Bu değerlerin +2 ve -2 değerleri arasında olması verilerin normalle yakın olmasının bir göstergesidir. Weinfurt (1995)' a göre her grup için bağımlı değişkenlerin benzer olması, ortak değişkenli varyans analizinin önemli sayıtlısıdır. Bu sayıtlılar Tablo 3. 2 de verilmiştir.

Tablo 3. 2. Bağımlı Değişkenlerin Eşitliğinin Test Edilmesi (Levene's Test)

	F	df1	df2	P
Son-BSBT	0,452	1	47	0,505

N=49, p>0,05

Tablo 3.2 deki p değerinin istatistiksel olarak anlamlı olmaması bağımlı değişkenin her iki grupta da homojen olduğunun bir göstergesidir.

Bu araştırmada kullanılan öğretim yaklaşımlarının İngilizce öğretmenliği 2. sınıf öğrencilerinin bilimsel süreç becerilerine etkisini belirlemek için yapılan ortak değişkenli varyans analiz sonuçları Tablo 3.3 de verilmiştir.

Tablo3.3. Ortak Değişkenli Varyans Analiz (ANCOVA) Sonuçları

Kaynak	Bağımlı Değişken	df	Ortalamalar Karesi	F	P
Ön-BSBT	Son-BSBT	1, 46	580,938	7,271	0,010
Grup	Son-BSBT	1, 46	351,763	4,403	0,041

N=49, $^{*}p<0,05$

Tablo 3.3 de görüldüğü gibi çalışmada kullanılan grupların son-BSBT aldıkları puanların ortalamaları arasında istatistiksel olarak anlamlı bir fark vardır ($F(1\text{-}46) = 4,403$, $p< 0,05$, $\eta^2 = 0,087$). Bu durum rehberli araştırma yönteminin uygulandığı gruptaki öğrencilerin son-BSBT aldıkları puanların ortalamalarının açık uçlu araştırma grubundaki öğrencilerin son-BSBT puanlarının ortalamalarından daha iyi olduğunu göstermektedir.

4. TARTIŞMA

Bu çalışmanın sonuçları eğitim fakültesi İngilizce öğretmenliği 2. sınıf öğrencilerinin bilimsel süreç becerilerinin gelişimine rehberli araştırma yönteminin daha etkili olduğunu göstermiştir. Zion (2006)' a göre açık uçlu araştırma yönteminde öğrencilerin etkinlikleri yapmalarında araştırma sorularını oluşturmada, deneysel yöntemleri kullanmada ve ortaya çıkan sonuçları yorumlamada yönlendirme yapılmadığından bazı zorluklarla karşılaşmalarına neden olmakta ve bu nedenle de yardıma ihtiyaç duymaktadırlar. Rehberli araştırma yönteminde bu ihtiyaçlara cevap verildiğinden bu gruptaki öğrencilerin bilimsel süreç becerileri açık uçlu gruptaki öğrencilerin bilimsel süreç becerilerine göre daha fazla gelişmiştir. Açık uçlu araştırma yönteminin uygulandığı öğrenciler, kendi bilimsel araştırmalarını yaparlarken hangi basamakları takip edeceklerine ve bu basamaklarda neleri yapmaları gerektiğine dair bir rehberlik alamadıklarından dolayı süreç öncesinde onlara verilen teorik bilgilerle yetinmek zorunda kalmışlardır. Bu da onlarda yaptıkları çalışmaların gerçektende doğru olup olmadıkları hakkında kaygıya sebep olmuş olabilir. Araştırmaya dayalı öğretim yöntemleri arasında rehberli araştırma yöntemi, açık uçlu araştırmaya kadar öğrenci merkezli olmasa da öğrencileri yönlendirme ve onlara kılavuzluk etme bakımından daha avantajlı olduğu, öğrencilerin bu noktada ihtiyaçlarını giderebildiği ve bilimsel süreç becerilerini kazanmada daha faydalı olduğu görülmektedir. Böylesi bir araştırmanın öğretim işiyle uğraşanlar için bir referans olarak kabul edileceği ve araştırmacılar içinde araştırmaya dayalı diğer yöntemler arasında da bu türden karşılaştırma çalışmaları yapmaları konusunda ufuk açacağı düşünülmektedir.

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INTE 2010

SANAL GERÇEKLİK İLE EĞİTİM : SECOND LIFE (EDUCATION WITH VIRTUAL REALITY : SECOND LIFE)

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Özet:

Günümüzde teknoloji büyük bir hızda değişmekte ve her geçen gün hayatımızı kolaylaştıracak bir çok teknoloji üretilmektedir.Tüm bu gelişmelerin eğitime de entegre edilmesi eğitimin verimliliğini artıracak unsurlar arasındadır .Teknolojiyle birlikte hayatımıza giren bilgisayar oyunları ve internet bir çok kullanıcının fazlasıyla zamanını harcadığı platformlar halinde gelmiştir.. Bu oyunlar içerisinde oldukça gelişmiş ve çok fazla kullanıcıya sahip olan Second Life bizlere hem gerçek yaşam hemde eğlenceli bir oyun deneyimi sunmaktadır. Second Life içerisinde sadece eğlenme değil eğitim amaçlıda kurulmuş ve hem eğlenip hem de eğitimimizi alabileceğimiz bir çok yapı inşa edilmiştir. Buradan yola çıkarak bu makalede Second Life'da öğrenmemizi destekleyecek yapılar incelenmiş, bu yapılar konusunda kısa bilgiler verilmiştir..

Anahtar Kelimeler: Second Life, Eğitim

Abstract:

Nowadays technology is changing rapidly and lots of techonology which make our lives easier are produced.Entegration of all these developments into the education is among the elements which increase the fertility of the education. Computer games and internet which entered our lives with techonology, has become platforms which the users spend too much time. Among these games, second life, which is quite developed and has many users, provides us both real life and a joyful game experience .In second life, many structures, which not only provides fun but also gives education are built. From here on, the structures to enable us to learn in second life are investigated and information about these structures are given.

Keywords: Second Life, Education

Giriş:

Teknoloji hızla ilerliyor. Bazen ona ayak uydurmak bir yana yeni teknolojiler den o teknoloji eskidikten sonra haberimiz oluyor. Bilgi o kadar hızla güncelleniyor ve yerine yenileri ekleniyor ki; Her gecen gün bir öncekinin katlarca fazlası olabiliyor.

Tüm bu hızlı ilerleyiş içerisinde eğitimi eski modellerle sürdürme anlayışı rafa kaldırılıyor. Her gecen gün eğitimin, eğitim ortamlarının tasarımı, öğrenciye bilginin verilmesi, yasamın eğitime entegresi farklı boyutlar kazanıyor.

Çağdaş yaşam oldukça karmaşık ve dinamik bir hal almaktadır,bu ortamda tutunabilmek için etkili ve süregelen bir eğitime gereksinim vardır. (Kayave Önder;2002) İşte tüm bu yenilikler ve ilerlemeler içerisinde son gelinen noktada artık teknoloji eğitime bir bütün olarak entegre edilmektedir. Amaç birebir bilgiyi öğretmek değil öğrencisinin bilgiyi daha eğlenceli , isteyerek öğrenmesini , kendisinin bilgiye ulaşıp kendi kendine öğreneme bilme yetisi kazandırmaktır. Bunun sağlanması içinde öğrencinin isteyerek kullanacağı, onun bulunduğu cağa ve özelliklerine uygun sistemler eğitimde kullanılmaya başlanmaktadır. Özellikle öğrenciler son zamanlarda bilgisayar ve internet sistemlerinde var olan hızlı gelişmeleri yakından takip etmek de ve bu teknolojileri özellikle eğlence amaçlı kullanmaktadır.

Oyunlar öğrenciler için vazgeçilmez hayatın unsurları arasında yer almaktadır. İlk ticari bilgisayar oyunu olan Pong'un 1974 yılında üretilmesinden sonra, özellikle grafik teknolojilerindeki gelişmeler sayesinde bilgisayar oyunları oldukça gerçekçi hale gelmişlerdir (Setzer, Duckett, 1994). Oyunlar; eğlence sektörünün dışında çalışanların eğitimi gibi konular içinde iş dünyasında da kullanılmaktadır. Bunun dışında simülasyon tabanlı oyunlar, sağlık ve askeri alanlarda da kullanılmaktadırlar (Kirriemuir, 2002).

Yapılan çalışmalar göstermektedir ki;çocukların bilgisayar oyunlarını harcadıkları zaman oldukça fazla ve çocukların bu derece ilgilerini çeken ve onları uzun süre bilgisayar başında tutabilen bilgisayar oyunları eğitime entegre edilmelidir. (Christakis and etc., 2004) Funk (1993) tarafından çocukların oyun oynama sıklıkları ve oyun tercihlerini belirlemek amacıyla yapılan çalışmanın sonucuna

göre ortalama oyun oynama süresi haftada 4,2 saat olarak bulunmuştur. Fromme (2003) da buna benzer bir çalışma gerçekleştirmiştir ve onun sonucunda da katılımcıların çoğunluğunun düzenli olarak ya da en azından günlük olarak oyun oynadığını göstermiştir.

Eğitsel oyunlar, öğrencilerin ders konularını öğrenmesine katkı sağlayan, problem çözme yeteneklerini geliştiren yazılımlardır. Bu yazılımlar, öğrencilerin dikkat ve motivasyonunu yükselten ders destekleyici bir materyal olarak kullanılmasının yanında, dersin ana materyali olarak da kullanılabilirler. (Kiili, 2005). Özellikle fen ve teknoloji dersinde kullanılan eğitsel oyunlar ve simülasyonlar , öğrenci ilgi ve motivasyonunun artırdığımdan öğrenci üzerinde oldukça etkili olduğu görülmektedir. (Barad ve Dede, 2007)

Bununla birlikte uygun tasarlanmış bilgisayar oyunlarının kullanıldığı öğrenme ortamlarında öğrenciler sadece dinleyerek ve okuyarak değil, öğrenme sırasında aktif, görerek ve yaparak öğrenirler (Whelan, 2005)

İnternette sanal olarak oynanan oyunlar artık gerçek hayatı birebir tasvir edebilmektedir. Gelişen 3D teknolojisi, animasyonlar, oynayanın tercihine göre değiştirilebilen profiller ve özellikler sayesinde esnek sanal ortamlar oluşturulmakta ve gerçek hayat var olan bir çok özellik kişi tercihli olarak sunulmaktadır.

Gelişen 3 D teknolojisinin oluşturduğu en kapsamlı oyunlardan bir tanesi Second Life ‘dır. Second Life 3 boyutlu çevrimiçi sanal oyunlar arasında en popüler olanlardandır. Diğer birçok sanal dünya gibi Second Life de aynı anda çok kullanıcının çevrimiçi olmasını destekler. Bu yüzden de Çok Sayıda Kullanıcılı Çevrimiçi Oyun (MMOG) adını alır (En, Chang ve Polack-Wahl, 2007).

Second Life; tamamı ücretsiz olan sanat, bilim spor ve eğitim alanlarında çevrimiçi etkinlikler içermektedir. İçinde barındırdığı 3B modelleme aracı ve kod yazım dili (Linden Script Language) de dâhil olmak üzere güçlü araçlar bulunmaktadır. Second Life’in barındırdığı iletişim imkânları, zengin etkinlikler ve öğretme-öğrenme araçları sayesinde birkaç yıl içinde mimari ve hukuk alanlarında kullanımı yaygınlaşmıştır. (En, Chang ve Polack-Wahl, 2007).

Bu kadar gelişmiş bir sanal oyunu neden eğitimde kullanmayalım? Sağladığı esneklik , farklı platformlar, geliştirilebilir ve tercihe bağlı olarak değiştirilebilir profiller, scriptler ile yeni nesne tasarımını eğitime entegre edemez miyiz?

Second Life ve Eğitim

Second life bünyesinde eğitim amaçlı bir çok araç bulundurmaktadır. Second Life, içerisinde çok geniş öğrenme olanakları sunar. Yaratılmış sanal kütüphaneler, müzeler, eğitim platformları, üniversiteler vb. sayesinde Second Life kullanıcı için geniş bir eğitim alanı sağlar. Peki neden Second Life?

Second Life herşeyden önce hayatla birebir bir ortam sunar. Öğrenme ortamlarının hayatla ilişkili olması oldukça önemli bir konudur. Çünkü unutmamak gerekir ki eğitim kişiyi hayata hazırlar. Öğrenmenin verileceği ortamında hayatla iç içe onu öğretecek şekilde olması gerekir.

Second Life Öğrenciye özgürce secim yapabileceği bir ortam sunar. Second Life oynamaya başlayan öğrenci cinsiyetini, görünüşünü, adını , hareketlerini vb. bir çok özelliğini kendi isteğine bağlı olarak değiştirebileceği bir ortam sağlar. Öğrenci bu ortamda kendini özgür hisseder, öğrenmeye başlamadan önce kendi istediği bir profille öğrenmeye güdülenerek başlar.

Second Life her türlü kültür farklılığını ortadan kaldırır. Eğitim , öğretim ortamlarında kültür farklılığından dolayı ortaya çıkan olumsuz düşünceler Second Life ortamında sıfıra iner. Second Life ortamlarında kişiler istedikleri kimliğe bürünebilmektedirler. Böylece farklı kültürlerdeki dışlanan ve bu yüzden kendini, ifade edemeyen öğrenciler istedikleri kimliklere bürünerek her türlü ön yargıdan uzak , bastırılmadan eğitim görürler.

Second Life çoklu ortam sağlar. Second Life ortamları 3D teknolojisi ile geliştirildiği için görsel olarak birebir model ile aynı ortamları bizleri sunar. İstediğimiz fakat göremediğimiz, yada uygulayamadığımız bir çok uygulamayı ayağımıza getirir. Ayrıca buna ilaveten ses entegresi ile sadece görsel olarak değil işitsel olarak ta öğrenmemizi destekler. Second Life platformunda verilen sunum, konferans , ders. Vb. öğrenmeleri işitsel olarak dinleyebiliriz. Ayrıca Second Life bize sağladı online konuşma pencereleri ile yazılı yada sözle olarak istediğimiz kişiye soru sorabilir, cevap alabilir yada sorulara cevap verebiliriz.

Second Life ile farklı coğrafyalara uzanabiliriz. Sadece yurt içinde değil çok farklı ülkelerde desteklenen Second Life sayesinde yurtdışından arkadaşlar edinebilir, dil gelişimizi sağlayabilirsiniz. Ayrıca şehirleri gezerek turistik yerleri 3 boyutlu görebilme ve yakından tanıma fırsatı bulabiliriz.

Second life ile gelenkesel eğitimde varolan kişiye, zamana ve mekana olan bağımlılık azalır Second life ile eğitim geleneksel ortamlardan çıkarak zamana ve mekana bağlı olmaksızın anlamdan çok değişik ortamlarda çok değişik kişi ve etkenlerin yardımıyla veya bireyin kendi kendine gerçekleştireceği bir süreç oluşacaktır.

Second Life'ı bize sağladığı avantajlara daha birçok özellik ekleyebiliriz. Second Life üzerinde kurulmuş bir çok eğitim platformu bulunmaktadır. Bunlardan bazıları eğitim vermek, kültür alışverişi yapmak, bazıları rehberlik yapmak amaçlıdır. Kurulan bir çok eğitim ortamı bizlere farklı avantajlar sunmaktadır.



Sekil1: Sanal bir ders ortamı



Bünyesinde bulunan sanal sınıflar, elektronik beyaz tahtalar, etkileşimli video perdeleri , alıştırma soruları ekranı vb . platformlara gerçek hayattaki geleneksel sınıf ortamlarını bizlere sunmaktadır. Böylece geleneksel ortamlar haricinde çalışamayan öğrenciler için bir avantaj oluşmaktadır.
Second Life bünyesinde binlerce kütüphane , üniversite, laboratuar, müze, eğitim alanları bulunmaktadır. Mevcut olan birçok yerde istenilen bilgiye rahat bir şekilde ulaşılmakta ve bizlere sunulmaktadır.

Elektronik Beyaz Tahta

Second Life'da bulunan bazı eğitim platformlarını inceleyelim:

1. Sanal Kütüphaneler:



UNESCO tanımına göre kütüphane; adı ne olursa olsun, basılı kitap ve süreli yayınların ya da başka her türden çizgisel, görsel-işitsel yayının düzenli koleksiyonları ile, okurların bilgi, araştırma, eğitim, dinlenme amaçları için bunların kullanılmalarını sağlayan ve kolaylaştıran elemanlardır. Sanal kütüphaneler, kimi yerde sayısal kütüphane olarak da adlandırılırlar. Klasik kütüphanelerde bulunan her türlü materyalin sayısal olarak tutulması ve bunun kullanıcıya elektronik ortamda sunulması esasına **"Library"(kütüphane) Arama Sonuclarını** dayanır.(Takcı,Soğukpınar,2001) Kütüphaneler bilginin dağıtımı , toplu tutulması ve düzenli olarak iletilmesi için önemli mekanlardır.
Second Life'da bünyesinde geniş bir kütüphane barındırmaktadır. Kütüphaneleri arattırdığımızda karsımıza çıkan kütüphane sayısı Second Life'ın bir oyundan çıkıp gerçekten ikinci bir hayat haline geldiğini göz önüne sermektedir. Second Life'da arattığınız bir çok konu hakkında kütüphane bulma sansına sahipsiniz.
Bu kütüphanelere ışınlanarak kütüphane rafları arasından istediğiniz kitapları seçerek digital olarak okuyabiliyor ve kendi kütüphanenize ekleyebiliyorsunuz. Örneğin Kuhrang Public Library geniş arşive sahip olan ve bir çok kitabı kolayca bulup okuyabileceğimiz bir kütüphanedir.



Resim1:Kuhrang Public Library (74,13,364)

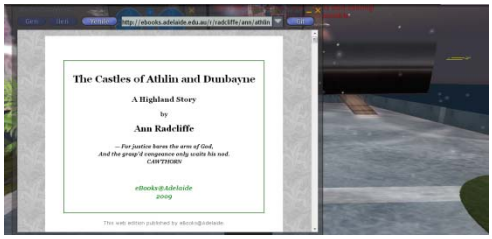


Resim 2: Seçilen Raftaki Kitap Listesi



Resim 3: "The Novel Of Ann Radcliff" Kitabının İçeriği

Resim1'de gördüğümüz kütüphane görünüş açısından geleneksel kütüphane örüntüsünde olduğundan dolayı en baştan kullanıcıya rahatlık sağlamaktadır. Kütüphane içerisinde rahatlıkla gezinip kitaplar arasından istediğine dokunarak onu raftan alıp içeriğine resim2 ve resim3 deki yönergeler sayesinde görebilmekteyiz.Raflara dokunduğumuzda önümüze gelen listeden 4 numaralı kitabı seçiyoruz ve hemen sonrasında önümüze kitap içeriği (Resim3) geliyor.Resim 3'deki gibi birinci içeriği seçtiğimizde önümüze kitabın bu içerikle ilgili olan yazısı (Resim4) gelmektedir. Böylece bu içeriği rahatça okuyabiliyor ve istediğinizi bilgiye kolayca ulaşmış oluyorsunuz.

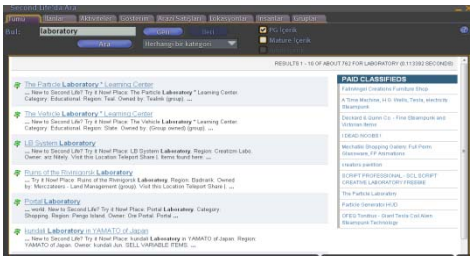


Resim 4: "The Castles Of Athlin And Dunbayne" Digital İçeriği

Second Life'ın içerisinde bu gibi kolayca ulaşabileceğiniz bir çok eğitim amaçlı kütüphane ve kütüphanelerin içerisinde birkaç basit yönerge ile ulaşabileceğiniz kaynaklar bulunmaktadır. Bu sayede bilgiye hem eğlenceli, hem çok boyutlu hem de çok farklı kaynaklardan ulaşma şansımız olmaktır. Second life da mevcut olan kütüphaneler sayesinde bir konuda çok fazla bilgiye ulaşabilmekteyiz

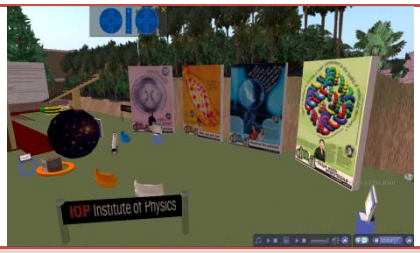
2.Sanal Laboratuar ve Müzeler

Second Life'ın eğitim ortamlarına sağladığı önemli kaynaklardan bir tanesi de sanal laboratuar ve müzelerdir. Second life 'da eğitim amaçlı kurulmuş bir çok farklı alanda laboratuar ve bir çok farklı dalda müze bulunmaktadır. Bu laboratuarların oğunda farklı aletleri kullanma, araştırmaları görme, katılma sansına sahipsiniz.



Resim5: Labrotuar Arama Sonuçları

Laboratuar araması yaptığımızda çıkan sayı az görünse de bir sanal ortam için azımsanacak bir sayı değildir. Bu laboratuarlar fizikten, kimyaya, astronomiden, matematiğe, sağlıktan edebiyata çok farklı alanlarda oluşturulmaktadır.. Örneğin; Top Instıtute Of Physics önemli bir fizik enstitüsüdür. Resim 6'ya baktığınızda genel olarak bu laboratuarı görebiliriz.

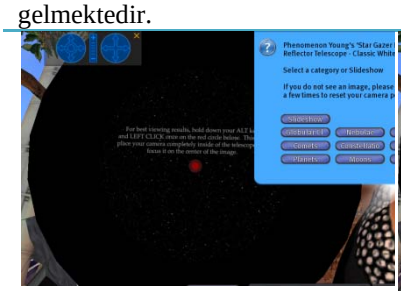


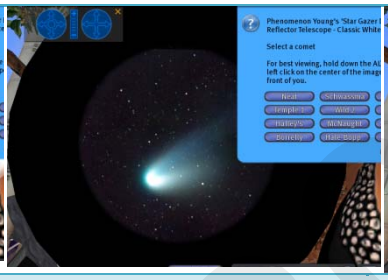
Resim 6: Top Instıtute Of Physics



Resim 7: Top Instıtute Of Physics Teleskop

Bu laboratuarda fizikle ile ilgili bir çok bilgiye ulaşabiliyoruz. Örneğin labaratuarda bulunan bir teleskop sayesinde farklı yıldızları inceleyebilmekteyiz.(Resim7-8-9-10)Resim 7 deki teleskopa dokunduğumuzda önümüze hangi cins gökyüzü meteoruna bakmak istediğimizi soran (Resim8) basit bir yönerge gelmektedir.







Resim 8: Secilecek Gök Cismi Listesi (Seçilen Öğe Comets)

Resim 9: Seçilen Yıldızların Resimleri

Yıldızlardan görmek istediğimize tıklayarak onların gök yüzündeki şekillerini izleyebilmekteyiz. (Resim 9).

Örnekte de gördüğümüz gibi Sanal laboratuarlar sayesinde teleskop kullanma berisi ve ayrıca istediğimiz gökcisimlerini gökyüzünde hareketlerini izleme fırsatı ayağımıza gelmektedir.

Geleneksel eğitim ortamlarında bazen bulamadığımız laboratuar ortamlarını Second Life sayesinde rahatça edinebilmekte ve buralarda deneyimler sağlayabilmekteyiz. Şu anda çok gelişmemişte olsa zamanla çok daha yeni ve farklı alanlarda laboratuarlar kurulacaktır.. Öğrenciler bu ortamlar sayesinde eğlenceli, aktif , yaparak öğrenecekler ve öğrenmelerinde kalıcılık sağlanacaktır.

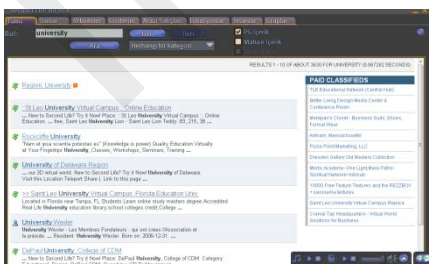


Second life'da var olan müzeler sayesinde de geçmişten geleceğe bazı objeleri görebilmekte ve bunlar hakkında bilgi edinebilme şansına sahibiz.. Henüz çok fazla bir müzeye sahip olmasa da var olan müzelerin içerikleri bir çok eğitim alanında öğrenciye kalıcı öğrenme sağlayabilmektedir.

Resim 10: Bilim Müzesi

3.Sanal Üniversiteler

Second Life da kurulmuş olan sanal üniversiteler öğrenciler için farklı öğrenme etkinliklerine katılabileceği mekanlar sunmaktadır.Yapılan aramalar sonucunda Second Life da bir çok sanal üniversite olduğu göze çarpmaktadır.



Second Life Sayesinde neredeyse ulaşmamızın imkansız olduğu bir çok ünlü üniversiteye ulaşabilmekte ve kaynaklarından yararlanabilmekteyiz. Bir çok üniversite kendi bünyesinde sınıflar, kütüphaneler, eğlence mekanları, tanıtım yerleri barındırmaktadır. Bu yerlerde sağladığı "Yardım (help)" seçenekleriyle öğrencilere nereye gideceği , nasıl araştırma yapacağı, derslere nasıl katılacağı, nasıl eğleneceği konusunda yardım vermekte, videolar, kısa turlar sunmaktadır.

Resim 11: Sanal Üniversite Arama Sonuçları

Resim12'de Saint Lewis Üniversitesi Alanı ve Resim13' de Standford Üniversitesinin Kütüphane ve araştırma merkezi girişi görülmektedir.



Resim12'de Saint Lewis Üniversitesi Alanı Araştırma



Resim13 : Stanford Üniversitesinin Kütüphane ve



Resim14: C++ dersi Sınıfı

Bazı üniversiteler online olarak ders verirken , bazıları ise yalnızca destek ve rehberlik için kullanılmaktadır. Resim 14'de katıldığımız bir C++ Dersinde çekilmiş fotoğraf görmekteyiz. Derste sanal bir tahta kullanılmış ve geleneksel sınıf olarak değil de yer minderleri kullanılarak derslere farklı bir hava katılmıştır.

Second Life için kurulmuş sanal üniversitelerin hepsi adları bilinen yada gerçekte var olan üniversiteler değildir. Bazı üniversiteler sadece Second Life üzerinde kurulmuştur. Ders, seminer, konferans vermek gibi amaçlı olabilmektedir Resim 15 'e baktığımızda EDtecth görmekteyiz. Edtech Sanal dünya kursuları için açılmış bir üniversitedir. Resimde de görüldüğü gibi burada eğitimde verilecek dersler, verecek kişilerin isimleri ve ders saatleri tabloda ilan edilmiştir. Bu saatlerde buralara girerek istediğiniz konularda konferansları katılıp dersler alabilmekteyiz.



Resim15: EDTECH

Sanal üniversiteler üniversiteye gidemeyen , mekan ve zaman sorunu çeken , maddi olarak uzak üniversitelere ulaşama imkanı olmayan kullanıcılar için oldukça iyi hazırlanmış ve kullanışlı ortamlardır.

4.Sosyal Alanlar ve Dil Eğitimi

Second life'ın bizlere sunduğu metin ve ses desteği ile tüm dünyada farklı coğrafya ki yerlere ışınlanarak oradaki farklı dile sahip kişilerle konuşma fırsatı bulabilmekteyiz.. İstediğiniz ülkenin istediğiniz şehrine giderek oradaki insanlarla konuşma fırsatımız var.. Böylece Second Life sizlere yabancı dilinizi geliştirme fırsatı sunmaktır. Resim 16 -17 de Fransızca ve Rusça konuşan 2 farklı coğrafyadan insanları görmekteyiz. Bizlerde bu fraklı coğrafyalar giderek bu insanlarla konuşabilir ,yabancı dilimizi geliştirebiliriz.



Resim 16: Fransa Tanıtım Merkezi



Resim 17: Rusya



Resim18: Satranç Oyunu

Tüm bunları yaparken farklı eğlence alanlarında gezebiliyor ve arkadaşlarınızla oyun oynayabiliriz.(Resim18). Böylece eğitim monotonluktan çıkarak eğlenceli bir misyon kazanmaktadır.

5.Second life ile Diğer Eğitim Alanları

Second Life kullanıcıya görmek istedikleri fakat çeşitli nedenlerden dolayı görmeye gidemediği tarihi kültürel mekanları 3 boyutlu görme, inceleme, gezme deneyimi yaşatmaktadır. Örneğin Mısır pramitlerine gitmek istiyoruz fakat zamanımız yok (resim 19) yada Eifell Kulesini görmek , üzerine çıkıp orada resim çekilmek istiyoruz fakat maddi olarak buna fırsatımız yok (Resim20), yada bir hayvanat bahçesine gidip hayvanları yakından incelemek istiyorsunuz (Resim 21) fakat şehrinizdeki hayvanat bahçesi incelemek için yeterli hayvan barındırmıyor. Tüm isteklerimizi Second life sayesinde yapabiliriz.





Resim 19: Pramid Örneği **Resim 20: Eiffel Tower:** **Resim21: Animal Island Shop**

Secon Life 'ın bize sunduğu 3 D teknolojisi ile istediğimiz mekanları gerçekte olduğu gibi görebilir, gezme fırsatı kazanbiliriz. Sadece bu kadar değil Second Life bizlere gitme ihtimalimizin hiç olmadığı mekanlara gidip görme buralarda deneyim kazanma fırsatı da sunmaktatır. Örneğin bir Uzay Gemisinde seyahat ve buradan gezegenleri görme, uzay gemisinin(Resim 22) içerisini gezme fırsatı da bulabiliyorsunuz.



Resim22: Spacecraft

Sonuç:

Second Life bünyesinde barındırdığı gelişmiş araçlar sayesinde gerçek yaşamda karşılaşmak istediğimiz bir çok mekanı ayaklarımızın altına getirmektedir. Öğrenmeyi destekleyen , eğitim veren platformlar sayesinde eğitimi oyunlar yansıtmakta ve çocukların zamanlarını çok fazla harcadığı sanal oyunları avantaj haline getirmektedir. Bizlere sunduğu görseller, ses ve metin desteği ile daha fazla duyu organımıza hitap ederek öğrenmemizi kolaylaştırmakta , öğrenilenlerin kalıcı sağlamaktadır. Günümüz teknolojisi her geçen gün kendini yenilemektedir. Bu yenilikler arasında bizlere düşen yenilikleri hayatımızı kolaylaştıracak olan yerlere entegre etmek ve bunları çıkarlarımız doğrultunda en iyi şekilde kullanmaktır. Second life'da eğitim ortamlarında eğitimi desteklemek, rehberlik etmek yada bire bir eğitim amaçlı olarak kullanılabilecek bir ortam olarak görmeliyiz.. Oyunları sadece eğlence amaçlı olmaktan çıkaran Second Life'ı eğitim ortamlarında etkili bir şekilde kullanmalıyız.

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SANAT VE TASARIM OKULU BAUHAUS' DA KADIN OLGUSU

WOMAN IN ART AND DESIGN SCHOOL OF BAUHAUS

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ÖZET

1919 yılında Walter Gropius tarafından Almanya'nın Weimar şehrinde kurulmuş olan mimarlık ve güzel sanatlar okulu olan Bauhaus'un ilk hedefi sanat ve zanaat arasındaki kutuplaşmalara bir çözüm bulmak olduysa; ikinci hedefi de eğitim programlarında yeni çağın yapısına uygun yeni estetik biçimleri teknolojik bileşenlerle yeni biçimlendirme düşüncesi yaratarak yaratıcılık olanaklarını yakalamak olmuştur. Bu amaçla endüstrinin verilerinden yararlanarak "sanat"la "zanaat" olgusunu birleştirerek sanatlar arasındaki sınırları eritme düşüncesi ile sanat ve tasarım alanında öncü bir yeri olmuştur.Bu hali ile günümüzün disiplinler arası sanat ve sanat eğitimi düşüncesinin de başlangıç noktası kabul edilir.

Bauhaus Okulu kadın öğrencileri kabul etmesi ile kadınların sanat eğitimine resmi yollardan katılmasında önemli bir katkı sağlamıştır.Bu katkı kadın eğitimine verilen önemin gösterilmesinin dışında, eğitimin demokratikleşmesi açısından da son derce önemli olduğunu düşündürtmektedir.

Bu araştırmada Bauhaus Okulu'nda sanat eğitimi düşüncesine getirdiği yenilikler incelenirken; kadın öğrencilerin konumu uygulamaları, başarıları yapıtları üzerinden karşılaştırmalı olarak analizi yapılacaktır.

Anahtar Kelimeler:Bauhaus ve Kadın, Sanat ve Tasarım Eğitimi

ABTSRACT

The first objective of Bauhaus, which was founded in Weimar city of Germany by Walter Gropius in 1919 as a school of architecture and fine arts was to find solution for the polarization between art and craft and its second objective was to have creativity opportunities by means of creating a new formation thought through including new forms of aesthetic which are appropriate for the new age, together with technologic components. For this reason, it combined "art" and "craft" by means of making use of industrial data and had a leading position in the field of art and design with thought to diminish the lines between arts. With this condition, it is considered as starting point for the interdisciplinary art and art education thought.

Bauhaus School made a considerable contribution to women's participation in art education in formal ways as it accepted female students as well. This contribution does not only show how it attached importance to education but also shows that education is very important in terms of democratization.

In this research, innovations made by Bauhaus School for art education will be examined; its applications in terms of the position of female students and its successful works will be analysed comparatively.

Key Words: Bauhaus and Woman, Art and Design Education

1.GİRİŞ

19. yüzyılda başlayan endüstrileşme hareketi yaşamın her alanında etkilerini hissettirirken, sanat ve tasarım alanında yaptığı eğitim reformları ile Walter Gropius; Weimar'da 1919 yılında Bauhaus Okulu olarak bilinen sanat ve tasarım okulunu kurar. Bauhaus okulunun başarısı 19 yüzyılın seri üretim ve sanat düşüncesinden kaynaklanan kargaşaya bir cevap arayışıdır. "Zira Marx'ın *Kapital*'inde ortaya koyduğu gibi, makine üretimi yani endüstri, insanı kendi ürününe yabancılaştırmıştı. Endüstrinin etkileri kısa zamanda birçok ülkede yaşam koşullarını aniden değiştirmişti. Toplu üretimin, toplum için ve insani değerleri kotararak tasarlanması gerekiyordu. Bu çizgide karşımıza çıkan ilk çabalar Willim Morris'in "Sanat ve Zanaat" hareketi ve 1907'de İngiliz toplu konut projelerinden esinlenerek kurulan Alman Werkbund'un geliştirdiği endüstriyel tasarım anlayışıdır (Erzen, 2010). Bauhaus okulu seri üretim mantığını çağdaş estetik anlayışla birleştirerek

öncelikli amacı sanatçı ve tasarımcı yetiştirmektir. Hemen devamında mimarlık eğitimi ve yaşanabilir bir çevre yaratmaktı. anın da ancak eğitimle mümkün olacağının farkındaydı.

Çağın öncü sanatçıları Joseph Albers, Marcel Breuer, Lyonel Feininger, Laslo Moholy Nagy, Wassily Kandinsky ve Paul Klee Bauhaus okulunda form renk kompozisyon derslerini vermişlerdir. Sanatçı hocalar pür sanat ile uygulamalı sanat arasındaki sınırları ortadan kaldıran yaklaşımları ile disiplinler arası bir alandan sanat ve tasarım eğitimine yaklaşarak sanat eğitimi sürecini tek boyutlu olmaktan çıkarmışlardır. Okulda baskı, seramik, tekstil, ahşap, metal, duvar boyama gibi atölyeleri arasındaki geçişlilik sanat eğitimi sürecinin bütüncül olarak değerlendirilmesine neden olmuştur. Okulun eğitim anlayışında eğitim sanat, sanatçı, zanaat, zanaatkar, sezgi, yaratıcılık, el işçiliği seri üretim gibi kavramlar ortaklaştırılmış, birbirinin içinde eritilmiştir. Sanatsal uygulamalarda ise; çömlek, tekstil, tiyatro, özgün baskı ve ahşap atölyelerinde sanat ile yaşamın bir bütün olduğu noktasından hareket eder. Amaç; disiplinler arası sanat ortamı oluşturularak; birbirinden uzak olan sanat ile yaşamı birbirine bağlayarak yeni bir yaşam sanatına öğrenciyi hazırlamaktadır. Bu süreçte "Oyun şölene, şölen işe, iş ise oyuna dönüşür." Yeni bir sanat eğitimi tavrının devamı olarak öğrenci ve hoca birlikte aynı ortak üretim sürecine katılmakta ve bu sayede sanat ile yaşam; sanat ile eğitim birlikteliğinden doğan interaktif bir ortam yaratılmış oluyordu.

J.Itten Bauhaus'un eğitim tavrını şekillendiren isimlerden biridir. Itten'in temel tasarım felsefesine göre, malzeme ve biçim analizleri özellikle karşıtlıkların birliği ilkesine dayanmalıydı. "Temel geometrileri, Goethe'nin renk anlayışını, dışavurumcu bir biçimciliği vurgulayan bu eğitim, endüstriyel üretime, yani toplu makine üretimine de uygun olan soyut biçim anlayışını önemsiyordu. Buna göre sade, birincil formlar, küp, kare, küre, üretilen işlerde göze çarpmakta ve çağdaş bir biçim dilini tüm üretim alanında ussal ve evrensel bir çözüm olarak belirlemekteydi" ((Erzen, 2010). Okul dönemin yenilikçi ve rasyonel tavrın devamı olarak form, fonksiyon ve estetik ilkeleri sanat ve tasarım eğitiminin temel kavramları olarak benimsemiştir.

Seri üretim mantığına sanatın etkisini sokmak dönemi içerisinde ne kadar öncü bir tavır ise; güzel sanatlar eğitimi ile uygulamalı sanatları birleştirmesi de o kadar radikal bir tutumdur. Elbette kuralların bu kadar yerinden edilmesi hem gelenekçileri hem de yenilikçileri rahatsız eder. Bu durumun doğal sonucu olarak "Yenilikçi, radikal, çağdaş ve katılımcı bir eğitim modelinin öncüsü olan Bauhaus, her üç yerleşiminde (Weimar, Dessau ve Berlin) gerici güçlerin tepkisini alarak sonunda kapandı. Aslında, burada şunu anımsamak gerekir ki, Antik Yunan'dan bu yana eğitimde amaçlanan tüm radikal reformlar, yerleşik düzenin ve günün güçlerinin en büyük düşmanı olarak algılanmışlardır (Erzen, 2010).

Ve nihayetinde anti-modern Ulusal Sosyalist hareketinin yükselişi ve altı yıl süren dünya savaşı yüzünden 14 yıllık Bauhaus Okulu efsanesi sona ermiştir. Okul kapanmasına rağmen günümüz sanat eğitimi sürecinde etkileri çok derindir.

2. BAUHAUS'DA KADIN ÖĞRENCİ KATILIMI

Sanat ve tasarım eğitiminde öncü yaklaşımları ile bilinen Bauhaus karma eğitim konusunda beklenen yenilikçi ve radikal bir tutumu sergileyemediği görülür. Bunun nedenleri incelendiğinde öncelikle Weimar Cumhuriyeti'nin toplumsal yapısı, kadın algılama biçimi ve kadının sosyal statüsü karşımıza çıkar. 19 yüzyıl sonu 20 yüzyıl başı kadın hareketinin başlangıç yıllarıdır. Bu dönemde kadınların meslek birliklere girişinin onaylanmış, bu süreç öğrenim hakkı, oy hakkı ve meslek sahibi olma gibi temel siyasi ve sivil hakları elde etmek için yoğun mücadelelerle sürmüştür. Bu modern kadın hakları hareketi olarak bilinen birinci dalgadır. Bu dalganın Bauhaus okulu üzerindeki etkisi elbette zaman içinde farklı yöneticilerin gelişi ile farklı olmuştur (A:Willhauck.2008).

Okula kadın öğrencilerin katılımı konusundaki azlığın ya da etkisizliğin nedenleri incelendiğinde toplumsal yapının dışında; okulun kurucusu ve ilk yöneticilerinden biri olan Walter Gropius'un kadın öğrencilere uyguladığı 30 %'luk katılım kotası görülür. Bu kota ile kurucu Gropius Bauhaus 'u zaten ataerkil bir düzleme taşımış oluyordu. Çünkü Gropius kadın öğrencilerin orada zaman kaybı yaratacağı düşüncesindeydi. Bu yüzden kadın öğrencilerin karma eğitime katılmalarına ancak sınırlı sayıda ve belirlenmiş atölyelere izin verilmiştir.

Bu yüzden de kadın öğrencilerin mimari eğitimi almalarına izin vermemiş ancak; mimari dışında eve ait dokuma, tekstil, sofra takımı vb. tasarım alanlarında cinsiyet ayrımcılığının direk yansıması olarak kabul edeceğimiz alanda üretimlerini yapmalarına zorunlu olarak yönlendirmişti. Bir tür mahrum bırakma olarak kadın

bin yıllık geleneğin devamı olarak yine evsel durumların içinde varlığını sürdürmek zorunda bırakılıyordu. Kadının ev dışında varlığını gösterebileceği alanlar kısıtlanmış yada daraltılmış oluyordu.

"Güzel ve güçlü cins arasında fark olmayacağını" vurgulayan kurucu Walter Gropius'un düşüncesinin altında yatan gerçek erkeklere ayni güçlü cinse resim, mimari ve endüstri tasarımı gibi alanların ayrılmış olmasıydı. "Güzel cins" yani kadınlar ise dokuma ile yetinmek zorunda bırakılmışlardı. "Okul öğrencileri radikal işler üretti, ancak Gropius' un vizyonu kalben, ortaçağa aitti, modern gibi göründüğü halde, öncelikle moda evleri ve sanayi üretimi için modern kumaş dokunan tezgahlar gibi yerlerde kadınları tutmaya meraklıydı. O, kadınların "iki boyutlu" olarak düşündüğüne inanırken, erkeklerin üç boyutla uğraştığını düşünüyordu" (Glancey,2009). Bauhaus atölyelerine kadınların kabulü ve kadınların ürettiği işler erkeklerin kadına bakışı ile gelenekselleşmiş halini de bize içten içe duyumsatır. Kadınların bedenen güçsüz kabul edilmesi aslında başka özgürlüklerin engellenmesinin en geleneksel halidir. Erkek egemen toplumun kuralların yansıması biyolojik gerçeklere dayandırılarak açıklanmaktadır. Kadınların doğalarından gelen güçsüzlükleri atölyelerde kendilerini var etme sürecinin engeli olduğu ileri sürülmektedir. Bunun gerekçesi olarak da bazı atölyelerdeki araç gerecin kadın öğrencilerin kullanımı için uygunsuz ve zorlayıcı olduğu görüşünden kaynaklanmaktadır. Eğitimde öncü tutumlar sergileyen okulun kadın öğrenci konusunda bu denli sınırlayıcı davranması da yeni başlayan kadın hareketleri ile önemli bir çelişki ortamı yaratmaktadır. 20. yüzyılın özellikle mimari alanda öncü olan sanat ve tasarım okulu bu anlamda büyük bir paradoksu devam ettiren haliyle ilk yıllara damgasını vuruyordu. Ancak tatsız olan olgu şudur ki; Bauhaus kadınlar için vaat edilen bir cennet asla olmamıştır. Bunlara rağmen kadın öğrenciler özellikle dokuma ve tekstil alanında ayrıcalıklı halleri ile bu alanda çığır açıcı olarak nitelenmelerine ve ünlerinin de ulusal sınırlarının dışına çıkmasına neden olmuştur.

Okulun ortamından kaynaklanan bir çok eksik olmasına rağmen öğrencilerin heyecan ve yaratıcı yetenekleri bir çok güçlüğü aşacak enerji yaratıyordu. Ayrıca okula kaydolan öğrencilerin yarıdan fazlasının kadın oluşu da başlangıçtaki cinsiyet ayrımcılığını ve kadınların olası tehdit durumunun da azaldığını haberdar eder bir durumdur. Üstellik de o dönem de alman kadınları kamusal alanda değil de özel öğretmenlerle evlerinde sanat eğitimi alırken, Bauhaus'ta derslere katılmanın ise ücretsiz olması da okula ulaşılabilirliği artıran bir unsurdur.

Bauhaus'da vaat edilen ortam özgürlük ve eşitlikçi ise okula kaydolan kadın öğrencilerin ön planda olmaması ya da belirlenen kısıtlamalarla bu nasıl mümkün olabilirdi? Tüm bu kısıtlamalara rağmen kadın sanatçı ve tasarımcılar yaratıcılıklarını farklı disiplinlerde gösterebilmişlerdir. Dokumacı olan Gunta Stölzl ile Benita Otte, seramikçi Marguerite Friedlaender-Wildenhain , oyuncak yapımcısı Ilhan Fehling veya Alma Siedhoff-Buscher , ilk tekstil sanatçısı Anni Albers; geometrik Sofra takımı (çatal , bıçak , kaşık) tasarımları ile Marianne Brandt, Gertrud Grunow, tekstil alanında Helene Börner, heykeltıraş ve kostüm tasarımcısı Ilse Fehling, fotoğrafta Lucia Moholy, Florence Henri, and Grete Stern okulun öne çıkan kadın sanatçı ve tasarımcıları olarak varlıklarını sürdürmüşlerdir.

Bauhaus okulu ile birlikte kadın sanatçılar hakkında eksik olan düşünme ve işlerini anlama ve algılama biçimi kadın hareketleri ile etkisini ve yoğunluğunu artırmış ve istatistiksel verilerle sağlam bir zemine taşınmış ve ciddi araştırmalara konu olmaya başlamıştır. Bu anlamda 2009 yılında MoMA'da açılan Bauhaus sergisi 20 yüzyıl kadın sanatçıların isimleri, işleri, eğitimlerini kapsayan süreci ve bu sanatçıların sıra dışı yaşamlarını göstermesi bakımından önemlidir. Bunun yanında Bauhaus 'un gizli kadınlarının açığa çıkarılmasına katkıda bulunan Ulrike Müller'in Bauhaus Kadınları kitabı da bu alandaki önemli bir eksikliği gidermiştir. Böylelikle eşitsiz ücret dağılımına, cinsiyet ayrımcılığına maruz kalan ayrıca apolitik kabul edilen ve daha çok da bilim ve sanat dışı bir alanda kadının sözde kendini var etme süreci feminist okumalarla eleştirel bir alana taşınarak hem yeni tartışma alanı yaratılmış hem de kadınların göz ardı edilen varlığı da kabul edilmeye başlanmıştır. Erkek yaratıcılığının neredeyse tek söz sahibi olduğu varsayılan sanat alanında kadınların varlığının legalleşmesi olarak kabul edebileceğimiz Bauhaus okuluna kadın öğrencilerin kabulü ve yaratımları ile eşitsizlik bir anlamda gerilemiştir. Elbette kadın sanatçıların yaptığı üretimler feminist okumayla yerli yerine oturulmaya çalışılmıştır. Bauhaus erkekleri (Gropius, Paul Klee, Wassily Kandinsky, László Moholy - Nagy ve Ludwig Mies van der Rohe) ünlü olurken, dokumacı olan Gunta Stölzl ile Benita Otte, seramikçi Marguerite Friedlaender-Wildenhain,, oyuncak yapımcısı Ilhan Fehling veya Alma Siedhoff-Buscher gibi isimler daha az değer gördü.

BAUHAUS KADIN SANATÇILARI

Değişen merkezleri ile Bauhaus, Weimar, Dessau, Berlin gibi ve farklı yöneticileri Walter Gropius Hannes Meyer ve Mies van der Rohe ile ilerleyen periyot ve de modern kadın hareketlerinin etkisi ile okul kapılarını kadınlara nasıl açacağını düşünmek zorunda kaldı. Okulun kuruluş yıllarında Walter Griupus kadınların okula kabulü konusunda yüksek standartlar koyarken; Rohe'nin başkan olduğu 1930'lu yıllar kadınların mimarlık okuluna kabul yıllarıdır. Artık kadınlar legal olarak sanat ve tasarım alanında vardılar. Ancak kadınların bu alanda kendilerini var etme süreçleri oldukça sancılı olurken; bir bazıları izlerini kaybettirirken, bazıları ise aldıkları eğitimin sonucu olarak üretimlerini tüm yaşamları boyunca devam ettirmişlerdir. Öncü kadınlar olarak da niteleyebileceğimiz bu sanatçılar sanatta cinsiyet ayrımcılığını kırmaları ve sanat alanında var olmanın tek koşulunun yaratıcılık süreklilik olduğunu göstermişlerdir. Sanatın erkek egemenliğinden çıkması toplumda sanatın demokratikleşmesi bakımından da bu sanatçılar ayrıca dikkate değerdir.

Anni Albers 1933 yılında ABD'ye gitmek için Almanya'dan ayrıldığında, kocası ressam Josef Albers ile Kuzey Carolina'da yeni Black Mountain College'da öğretmenlik yaptı ve Knoll, Rosenthal gibi şirketler için öncü tasarım kumaşlar üretti.

Seramikçi Marguerite Friedlaender-Wildenhain, Gölet Salonu çanakları ile ABD'de büyük bir başarı kazandı.

Benita Otte dokuma bölümü başkanıyken görevinden ayrılmak zorunda bırakıldı. Almanya'nın başka bir bölgesinde kendi yapım evini kursa da kumaşları üretim aşamasında kaldı.

Gunta Stölzl bir Yahudi ile evlendikten sonra Bauhaus içindeki Nazi sempatizanları tarafından rahatsız edildi, 1931 yılında terk ederek İsviçre'de kendi el dokuma işini kurdu.

Oyuncak yapımcısı Siedhoff-Buscher 1944 yılında bir bombardıman sırasında öldü.

1939 yılında annesini görmek için Yugoslavya'ya bir geziye giden Otti Berger, Moholy-Nagy'nin Şikago'da açılan yeni Bauhaus'ta çalışmak için bir teklif aldığında ABD'den vize alamadı. 2005 yılında erişilebilen Sovyet arşivlerinde Otti Berger'in Auschwitz'de 1944 yılında öldüğü ortaya çıkartıldı.

1926 yılında tasarladığı küre lambaları ve ayarlanabilir yansıtıcısı ile Kandem başucu lambasını tasarlayan ve metali şekillendiren Marianne Brandt Bauhaus Okulu içindeki ün yapmış isimlerden biri olarak göze çarpar..

SONUÇ

Okulun ilk yıllarında önemli oranda göz ardı edilse de kadın sanatçı ve tasarımcı kavramı 20.yüzyıl sanat ve kültür tarihine girmiştir. Bu anlamda okul sanat tarihi ve sanat eğitimi süreci içinde önemli bir eksikliği de kapamıştır. Walter Gropius'un efsanevi sanat, zanaat ve tasarım okulunun kuruluşundan günümüze Bauhaus'un kadın öğrencilerinin mirasları hala yaşıyor. Geleceğin vizyonunu yaratmada özel ve ayrıcalıklı yeri olan bu kadınlar bugün özgürlüğüne kavuşmuş, genç kadınlar yaratıcı güçleri ile sanat ve tasarım alanında kendi sözlerini söylemeye devam edecek görünüyorlar. Tüm bu eşitsizliklere rağmen onlar başardılar.

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SINIF ÖĞRETMENLERİNİN SINIFLARINDA KARŞILAŞTIKLARI İSTENMEYEN DAVRANIŞLAR VE BU DAVRANIŞLARIN NEDENLERİNE İLİŞKİN GÖRÜŞLERİ

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Özet

Eğitim bireyin davranışlarını değiştirme ve yeni davranışlar kazandırma işlem ve sürecidir. Okullar yeni kuşakların en iyi şekilde yetişmesi için oluşturulmuş önemli eğitim kurumlarıdır. Öğretmenler ise öncelikle sınıflarında öğrencilere en uygun davranışları kazandıran, yanlış davranışları düzeltmesinde öğrenciye yardım ve rehberlik eden ve bu alanda eğitim almış profesyonel kişilerdir. Eğitim amaçlı olarak yapılan bir faaliyettir. Okulda ve sınıfta eğitim-öğretim faaliyetini engelleyen, amaçlara ulaşmayı zorlaştıran davranışlar istenmeyen davranışlar olarak adlandırılırlar. Sınıflarda ortaya çıkan istenmeyen davranışların neler olduğu, bunların etkileri ve yaygınlığı ve özellikle nedenlerinin bilinmesi yapılması gerekenler konusunda öğretmenlere ve tüm paydaşlara yol gösterecektir.

Bu araştırmada sınıf öğretmenlerinin sınıflarında karşılaştıkları istenmeyen davranışlar ve bu davranışların nedenlerine ilişkin görüşleri belirlenmeye çalışılmıştır. Bu amaçla İstanbul'un Avcılar ilçesinde devlet okullarında görev yapan 261 sınıf öğretmenine istenmeyen davranışlar ve bunların nedenlerine ilişkin anket uygulanmıştır. Araştırma sonuçlarına göre en sık karşılaşılan istenmeyen davranışların sırasıyla ; izin istemeden konuşmak, ders akışını bozacak davranışlarda bulunmak (gülmek vb.), kavga etmek, ders anında ders dışı şeylerle ilgilenmek ve derse katılmamak olduğu bulunmuştur. Ailelerin çocuklarının eğitimine olan ilgisizliği, ailelerin çocuklarına karşı olumsuz tutum ve davranışları, televizyon ve diğer kitle araçları, sınıfların kalabalık olması, ve aile içi problemler öğretmenler tarafından istenmeyen davranışların çok etkili nedenleri olarak gösterilmektedir.

Anahtar Kelimeler: Davranış,İstenmeyen Davranış, Öğretmen

1.GİRİŞ

Okulda ve sınıfta eğitim-öğretim amaçlarına ulaşmayı zorlaştıran ve engelleyen her türlü davranış istenmeyen davranış olarak adlandırılır. İstenmeyen davranış derecesi ve sıklığı ile öğretmen ve öğrencilerin başarısında doğrudan etkisi olan önemli bir faktördür. Derse geç gelmek, öğretmeni veya arkadaşı konuşurken sözünü kesmek, parmak kaldırmadan konuşmak, argo ve küfürlü konuşmak, itişip-kakışmak ve kavga etmek, kendi eşyasına-arkadaşının veya okulun eşyalarına zarar vermek, ödevlerini yapmamak, hazırlanmadan derse gelmek, ders için gerekli olan şeyleri getirmemek, okulu ve sınıfı kirletmek, derste başka şeylerle ilgilenmek vb. davranışlar sınıflarda yaygın olarak görülen olumsuz öğrenci davranışlarıdır. Sınıfta istenmeyen öğrenci davranışlarının ortaya çıkmadan önlenmesi, düzeltilmesi, sınıf yöneticisi olarak öğretmene düşmektedir.

Birçok devlet okulundaki öğretmenler, öğrencilerin dersle ilgilenmesini engelleyen ve derse geçiş süresini etkileyen yönetimsel görevlerle zamanını harcamaktadır (Cangelosi, 2000:105). Öğretmenler öğrenciyi kuşatan bilişsel olmayan problemlerle ve görünürde okulun misyonu ile bağlantılı olmayan; fakat, sınıfı tıpkı bir yangın ya da veba gibi yavaş yavaş zarar vererek çökertecek problemlerle ilgilenmek zorundadırlar (Gardner, 1991:138). Çoğu öğretmen, akranlarıyla düzgün iletişim kurmama, yönergeleri (talimatları) dinlememe ve sırası gelmeden konuşma gibi öğrenci davranışlarından kaynaklanan kesintilerle uğraşırlar (Corrie, 1997'den akt: Moore, Anderson ve Kumar, 2005) ve bu davranışlar değerli öğrenme ve öğretme zamanının boşa gitmesine neden olur (Moore, Anderson ve Kumar, 2005). Öğretmenlerin, öğrencilerinin davranış sorunlarından dolayı dersin amacını gerçekleştirmede zorlukla karşılaştıkları ve zamanlarının %20'sini bu davranış sorunlarını ortadan kaldırmaya yönelik harcadıkları belirlenmiştir (Ada, 2002: 197).

Öğretmenin etkili bir öğrenme sağlayabilmesi için öğrenme için harcanan zamanı en üst düzeye çıkartabilecek şekilde öğrencilerin istenmeyen davranışlarını yönetmede yeterli olması gerekir. Sınıflarını etkili bir şekilde yöneten öğretmenler öğretmekten daha çok zevk alırlar ve öğrenci başarısını etkilemedeki yeteneklerinden daha emin olurlar (Levin ve Nolan, 2000:7).

Okullarda gözlenen istenmeyen davranışlardan bir kısmı öğrencinin kendisine zarar verirken; bazıları öğretim ortamını da olumsuz yönde etkileyerek, sınıftaki diğer öğrencilere de zarar verebilir (Erden ve Akman, 1995:253). Yanlış davranışlarda bulunan her öğrenci temel bir ihtiyacını karşılamaya çalışır (Douglass, 2001:195). Öğrencilerin sınıf içindeki problem davranışlarının nedenleri çok çeşitlidir. Öğretmenlerin atması gereken ilk adım, sorunların nedenlerinin görüntülerinden ayrılması olmalıdır. Davranışa neden olan faktörler anlaşılıp ortadan kaldırılmadıkça görüntüler problem davranış olarak ortaya çıkmaya devam edecektir. Örneğin, öğrencinin sınıfta yanında oturan arkadaşını rahatsız etmesi bir problem davranış, bir görüntüdür. Ders etkinliklerinin sıkıcı olması ise bunun nedeni olabilir (Sadık, 2002).

Öğretmen davranışları, okul çevresi, ev ortamı ve öğrencinin kişiliği istenmeyen öğrenci davranışlarının oluşması veya engellenmesinde karşılıklı etkileşim içerisinde önemli rol oynamaktadır (Özdemir, Yalın ve Sezgin, 2004: 174).

Aile ve informal sosyal ilişkiler erken yaşlardan itibaren iletişim kurmayı, birbirini etkilemeyi ve işbirliği yapmayı sağlayan sosyal yeterliliğin temelini oluşturur (Bentley, 1998:75). Günümüz sınıflarında zorlayıcı disipline alışmış olan birçok çocuğun varlığı söz konusudur. Öğretmenler büyük ölçüde güç uygulanmasına alışmış çocukların alışık oldukları güç düzeyi uygulanmadan onların itaatini nasıl sağlayabilecekleri sorusuyla karşı karşıyadır (Bergin ve Bergin, 1999).

Sınıftaki sorunların çoğu öğretmenin deneyimiyle ilişkilidir. Öğrenci açısından durum biraz daha farklıdır. Öğrenci sınıfta çeşitli otorite düzeylerini algılar. Eğer bu kontrol çocuğun daha itaatsiz ve saldırgan olmasına yol açarsa işler daha da kötüleşir. Böyle bir ortamda öğretmenin kendini ifade etmesi daha da zorlaşacaktır (Fontana, 1994:58).

Öğrenciler sonsuz nedenden dolayı dersi kesintiye uğratırlar ve bu nedenlerden bazıları hemen anlaşılır. Çocuklar çoğu zaman aç, yorgun, mutsuz, üzgün ve sinirli olduklarında bozucu (yıkıcı) olurlar. Genellikle ilgiye ihtiyaç duyduklarında, yalnız kaldıklarını hissettiklerinde ve sıkıldıklarında yıkıcı olma yoluna baş vururlar (Moorefield, 2005).

Geçmişten günümüze disiplin problemleri şöyledir: 1940'larda konuşmak, sakız çiğnemek, gürültü yapmak, koridorlarda koşmak, uygun olmayan kıyafetler giymek, çöpü çöp sepetine atmamak, 1980'lerde ise uyuşturucu kullanmak, alkol bağımlılığı, hamilelik, tecavüz, soygun, saldırı, hırsızlık, kundaklama, bombalama şeklindedir (Hodgkinson'dan akt: Rogers ve Freiberg, 1994:230). Öğretmenlerin disiplin sorunları ile ilgili endişelerini içeren karşılaştırmalı bir araştırma 1940 ve 1980 dönemleri arasındaki büyük farklılıkları ortaya koyması açısından önemlidir. 1940'lardaki endişeler kökenini okuldan alan sorunlarla ilintili iken 1980'lerde ise günlük okul yaşamının ve sosyal yaşamın parçası olan olguları içeriyor. 1990'larda ise listeye "çete" şeklinde yeni bir kategori ekleniyor (Rogers ve Freiberg, 1994:230).

Dikkat edilirse, disiplin problemlerinin sıkça görüldüğü sınıflarda, derslerle ilgili olan aktiviteler çoğunlukla öğrencilerin sıralarında uzun süre sessizce oturmalarını gerektiren sıkıcı türden dinlemeler veya okumalardan ibaret olduğu gözlenir. Bazen, sınıfta verilen ödevler öğrenciler tarafından yapılmaya layık görülmez ya da bu ödevleri yapmanın öğrencilere neler kazandıracağı öğretmen tarafından yeterince açıklanmamıştır. Bazen de, öğrencilerden yapılması istenen aktiviteler onlar için çok sıkıcı veya başarılması çok zor ve hatta imkansız olabilir. Böyle durumlarda öğretmen, ders zamanının çoğunu negatif öğrenci davranışlarını düzeltecek yöntemler geliştirmekle harcar. Gerçekte ise, bu şekilde harcanan zaman, öğrenciler için ilginç öğrenme aktivitelerinin planlanması ve uygulanması yolunda değerlendirilebilir (Saban, 2002:73).

Öğretim çocuk yetiştirmenin bir parçasıdır ve anne-babalar çocuklarının kurallara uygun davranmalarını sağlama, disipline etme ve öğretmede kilit rol oynarlar. Anne-baba şüphesiz ki çocukların kötü davranışlarına önemli ölçüde etkide bulunan tek kişi değillerdir. Kardeşler, gündüz bakıcıları, öğretmenler, büyükanneleri ve büyükbabaları ve akranları çocuğun davranışları üzerinde etkilidirler. Çocuk yaşça ne kadar küçükse ailenin onun üzerindeki etkisi o kadar fazladır (O'leary, 1998:94).

2. AMAÇ VE YÖNTEM

2.1. Araştırmanın Amacı ve Önemi:

Bu araştırma ilköğretim okullarında görev yapan sınıf öğretmenlerinin sınıflarında karşılaştıkları istenmeyen davranışları ve bu davranışların nedenlerine yönelik görüşlerini belirlemeyi amaçlamaktadır. Bu araştırma sonucunda elde edilen bulguların; eğitim ve öğretime ve eğitim uygulamalarına çeşitli yönlerden katkı sağlayacağı umulmaktadır. Bu katkıların, eğitim kurumlarında sınıf ve davranış yönetimi ile ilgili durum tespiti yapması ve eksikliklerin giderilmesi için kurumda neler yapılması konusunda ilgililere farklı bir bakış kazandırması açısından önemli görülmektedir. Bu araştırmayla ayrıca okulda eğitimi ve öğretimi geliştirme konusunda paydaşların (öğrencinin, öğretmenin, veli ve anne-babanın) birlikte hareket etmesinin, çocukların en iyi şekilde eğitim almasının önemi vurgulanacaktır. Araştırma ile toplanan veriler özellikle davranış yönetimi konusunda daha gerçekçi ve tutarlı değerlendirmeler yapılmasına yardımcı olacaktır. İlgili herkesin ve özellikle sınıf öğretmenlerinin konu ile ilgili görüşlerinin

belirlenmesi, olumsuz görülen yönlerin olumluya dönüştürülmesi ve noksan görülen yönlerin geliştirilmesi için neler yapılması gerektiği konusunda ilgililere önemli yarar sağlayacaktır.

2.2.Araştırma Modeli ve Örneklem

Araştırma tarama modelindedir. Araştırmada, sınıf öğretmenlerinin kişisel bilgi formuna ve sınıflarında karşılaştıkları istenmeyen davranışları ve bu davranışların nedenlerine yönelik görüşlerini belirlemek amacıyla verdikleri cevaplar incelenmiş ve bulgular ışığında sonuçlar tartışılmıştır. Araştırmanın evrenini, İstanbul'da Avcılarda resmi ilköğretim okullarında görev yapan sınıf öğretmenleri oluşturmaktadır.

2.3.Veriler ve Toplanması

Araştırmada kişisel bilgi formu ve Korkmaz, Korkmaz ve Özkaya,(2007) tarafından geliştirilen anket biraz değiştirilerek kullanılmıştır. Öğrencilerin öğrenme ortamını bozucu davranışları verilmiş ve bu davranışların sınıfların da görülme sıklığını Hiç(1), Çokaz(2), Az(3), sık(4), Çok sık(5) seçeneklerinden birini işaretlemeleri istenmiştir. Ayrıca, öğrencilerin öğrenme ortamını bozucu davranışları ile ilgili olabilecek nedenler sıralanmış, bu nedenlerin önemi ve etkisi ile ilgili olan seçeneği 1-Etkili değil, 2-Çok az etkili, 3-Az etkili, 4-Orta derecede etkili, 5-Çok etkili seçeneklerinden birinin işaretlemeleri sağlanmıştır. Kişisel Bilgi formlarındaki verileri değerlendirmek için frekans ve yüzde değerleri kullanılmıştır. Sınıf öğretmenlerinin sınıflarında en fazla karşılaştıkları istenmeyen davranışların en fazla olanları ve bu davranışların nedenlerine yönelik görüşlerini belirlemek amacıyla da, her bir madde, aritmetik ortalama açısından sıralanarak incelenmiş ve elde edilen bulgular tablolar halinde sunulmuştur.

3.BULGULAR

Araştırmaya katılan 261 öğretmenin 164'ü (% 62,8) bayan ve 97'si (% 37,2) erkektir. Örneklem grubunu oluşturan öğretmenlerin %62,8' inin bayan olması bayanların daha çok sınıf öğretmenliğini tercih ettiğini göstermektedir.

Öğretmenlerin 56'sı (%21,5) 1-5, 82'si (31,4) 6-10, 78'i (%29,9) 11-20, 19'u (%7,3) 21-25, 26'sı (%10,0) 26 sene ve üzeri deneyime sahiptir.

Örneklem grubunu oluşturan öğretmenlerin 141'i (%54) Eğitim fakültesi, 40'ı (%15,3) Fen-Edebiyat fakültesi, 26'sı (%10,0) Eğitim Enstitüsü, 29'u (%11,1) Eğitim Yüksek Okulu mezunudurlar. Bu durum, araştırmaya katılan sınıf öğretmenlerinin çoğunluğunun eğitim fakültesinden mezun olduğunu göstermektedir. Öğretmenlerin 40'ının Fen-Edebiyat Fakültelerinden ve 22'sini de diğerleri seçeneğini işaretleyenler ve bunların toplamında 62 öğretmenin (% 23,7) birincil kaynak olan sınıf öğretmeni yetiştiren kurumlar dışından öğretmenliğe kabul edilmeleri de ayrıca üzerinde düşünülmesi gereken önemli bir konu ve sorundur.

Tablo 1: Araştırmaya Katılan Tüm Sınıf Öğretmenlerinin Sınıflarında Karşılaştıkları Öğrenme Ortamını Bozan Davranışların Aritmetik Ortalamaları ve Bu Ortalamaların Yüksekten Düşüğe Doğru Sıralanması

Sıra ÖĞRENME ORTAMINI BOZAN DAVRANIŞLAR (GENEL)	$\overline{X}$
1- İzin istemeden konuşmak	3,6
2- Ders akışını bozacak davranışlarda bulunmak(gülmek vb.)	2,92
3- Kavga etmek	2,92
4- Ders anında ders dışı şeylerle ilgilenmek	2,87
5- Derse katılmamak	2,75
6- Aşırı ve rahatsız edici biçimde konuşmak	2,73
7- Verilen görevleri yapmamak	2,68
8- Öğretmenin derse ait isteklerini yerine getirmemek	2,44
9- Yalan söylemek	2,33
10-Arkadaşlarına sözlü saldırıda bulunmak	2,26
11- Küfür etmek	2,24
12- Arkadaşlarının eşyalarına zarar vermek	2,15
13- Derste bir şeyler yemek	2,06

14- İzinsiz gezinmek	2,06
15- İsim takmak	2,04
16- Argo konuşmak	2,03
17- Okula ait eşyalara zarar vermek	2,02
18- Derslere geç gelmek	1,96
19- Kopya çekmek	1,76
20- Öğretmene kaba ve saygısız davranmak	1,46
21- Hırsızlık yapmak	1,35
22- Bıçak vs araçlarla arkadaşlarını taciz etmek	1,28

Tablo 2: Bayan Sınıf Öğretmenlerinin Sınıflarında Karşılaştıkları Öğrenme Ortamını Bozan Davranışların Aritmetik Ortalamaları ve Bu Ortalamaların Yüksekten Düşüğe Doğru Sıralanması

Sıra **ÖĞRENME ORTAMINI BOZAN DAVRANIŞLAR (Bayanlar)**	$\bar{X}$
1- İzin istemeden konuşmak	3,58
2- Kavga etmek	2,92
3- Ders anında ders dışı şeylerle ilgilenmek	2,87
4- Ders akışını bozacak davranışlarda bulunmak(gülmek vb.)	2,86
5- Aşırı ve rahatsız edici biçimde konuşmak	2,73
6- Derse katılmamak	2,72
7- Verilen görevleri yapmamak	2,7
8- Öğretmenin derse ait isteklerini yerine getirmemek	2,4
9- Yalan söylemek	2,35
10- Küfür etmek	2,25

Tablo 3: Erkek Sınıf Öğretmenlerinin Sınıflarında Karşılaştıkları Öğrenme Ortamını Bozan Davranışların Aritmetik Ortalamaları ve Bu Ortalamaların Yüksekten Düşüğe Doğru Sıralanması

Sıra **ÖĞRENME ORTAMINI BOZAN DAVRANIŞLAR (ERKEKLER)**	$\bar{X}$
1- İzin istemeden konuşmak	3,64
2- Ders akışını bozacak davranışlarda bulunmak(gülmek vb.)	3,03
3- Kavga etmek	2,92
4- Ders anında ders dışı şeylerle ilgilenmek	2,86
5- Derse katılmamak	2,8
6- Aşırı ve rahatsız edici biçimde konuşmak	2,74
7- Verilen görevleri yapmamak	2,65
8- Öğretmenin derse ait isteklerini yerine getirmemek	2,51
9- Arkadaşlarına sözlü saldırıda bulunmak	2,37
10-Yalan söylemek	2,29

Tablo 4: Araştırmaya Katılan Tüm Öğretmenlere Göre Öğrencilerin Öğrenme Ortamını Bozucu Davranışlarının Nedenleri (Aritmetik Ortalamaları ve Bu Ortalamaların Yüksekten Düşüğe Doğru Sıralanması)

Öğrenme Ortamını Bozucu Davranışların Nedenleri	$\overline{X}$
1- Ailelerin çocuklarının eğitimine olan ilgisizliği	4,4
2- Ailelerin çocuklarına karşı olumsuz tutum ve davranışları	4,36
3- Televizyon ve diğer kitle araçları	4,27
4- Sınıfların kalabalık olması	4,25
5- Aile içi problemler	4,24
6- Öğrencilerin gelişim düzeylerine uygun olmayan öğretim uygulamaları	3,92
7- Araç-gereç yetersizliği	3,83
8- Öğretmenin tutarlı olmaması	3,82
9- Öğretmenin öğretim yöntemlerindeki yetersizliği	3,77
10- Öğrencilerin içinde bulunduğu yaşın gelişim özelliklerinin etkisi	3,73
11- Öğretmenin sınıf düzeni sağlama yaklaşımlarını tam olarak bilmeyişi	3,67
12- Öğrenciler arasında sosyo-kültürel ve ekonomik düzey farklılıkları	3,66
13- Sınıfta uyulması gereken kural ve yönergelerin açık ve anlaşılır olmaması	3,62
14- Uygun ortam olmamasından dolayı derslerin sıkıcı geçmesi	3,59
15- Okul disiplin cezalarının yetersizliği	3,59
16- Öğrencilere ilgi çekmeyen ödevlerin verilmesi	3,49
17- Sınıf içi düzenlemeler (Öğrencilerin yerleşim düzeni,öğretim araçlarının düzeni vb.)	3,38

Tablo 5: Bayan Öğretmenlere Göre Öğrencilerin Öğrenme Ortamını Bozucu Davranışlarının Nedenleri (Aritmetik Ortalamaları ve Bu Ortalamaların Yüksekten Düşüğe Doğru Sıralanması)

Öğrenme Ortamını Bozucu Davranışların Nedenleri	$\overline{X}$
1- Ailelerin çocuklarının eğitimine olan ilgisizliği	4,54
2- Ailelerin çocuklarına karşı olumsuz tutum ve davranışları	4,43
3- Televizyon ve diğer kitle araçları	4,35
4- Aile içi problemler	4,32
5- Sınıfların kalabalık olması	4,21
6- Öğrencilerin gelişim düzeylerine uygun olmayan öğretim uygulamaları	3,99
7- Öğretmenin tutarlı olmaması	3,95
8- Öğretmenin öğretim yöntemlerindeki yetersizliği	3,91
9- Araç-gereç yetersizliği	3,88
10-Öğretmenin sınıf düzeni sağlama yaklaşımlarını tam olarak bilmeyişi	3,83

Tablo 6: Erkek Öğretmenlere Göre Öğrencilerin Öğrenme Ortamını Bozucu Davranışlarının Nedenleri (Aritmetik Ortalamaları ve Bu Ortalamaların Yüksekten Düşüğe Doğru Sıralanması)

Öğrenme Ortamını Bozucu Davranışların Nedenleri	$\overline{X}$
1- Sınıfların kalabalık olması	4,31
2- Ailelerin çocuklarına karşı olumsuz tutum ve davranışları	4,23
3- Ailelerin çocuklarının eğitimine olan ilgisizliği	4,18
4- Televizyon ve diğer kitle araçları	4,13
5- Aile içi problemler	4,1
6- Öğrencilerin gelişim düzeylerine uygun olmayan öğretim uygulamaları	3,79
7- Araç-gereç yetersizliği	3,74
8- Öğrencilerin içinde bulunduğu yaşın gelişim özelliklerinin etkisi	3,73
9- Öğrenciler arasında sosyo-kültürel ve ekonomik düzey farklılıkları	3,72
10-Öğretmenin tutarlı olmaması	3,59

SONUÇ VE ÖNERİLER

İlköğretim okullarında görev yapan sınıf öğretmenlerinin kişisel bazı özelliklerini ortaya çıkarmayı ve sınıflarında karşılaştıkları istenmeyen davranışların neler olduğunu ve bu davranışların nedenlerine yönelik görüşlerini belirlemeyi amaçlayan bu araştırmada, en fazla karşılaşılan istenmeyen davranışların sırasıyla; izin istemeden konuşmak, ders akışını bozacak davranışlarda bulunmak (gülmek vb.), kavga etmek, ders anında ders dışı şeylerle ilgilenmek ve derse katılmamak olduğu bulunmuştur. Ailelerin çocuklarının eğitimine olan ilgisizliği, ailelerin çocuklarına karşı olumsuz tutum ve davranışları, televizyon ve diğer kitle araçları, sınıfların kalabalık olması, ve aile içi problemler öğretmenler tarafından istenmeyen davranışların çok etkili nedenleri olarak gösterilmektedir.
Araştırmanın sonucunda aşağıdaki önerilerin yapılması uygun görülmüştür:

- Ailelerin çocuklarının eğitimine olan ilgisizliğinin nedenleri belirlenmeli ve ilgisizliği ortadan kaldırıcı önlemler alınmalıdır. Anne-baba eğitimin önemine inanmalı, eğitim konusunda bilgi sahibi olmalı, bu bilgilerin en doğru şekilde uygulanması konusunda istekli ve kararlı olmalıdır. Veli ve anne-babaların sadece veli toplantıları için okula çağrılması yerine daha fazla okula gelmesi sağlanmalıdır.

- Okullar sadece öğrencilerin eğitimiyle değil anne-baba eğitimiyle de ilgilenmelidir. Okullarda anne-baba eğitimi ile ilgili çalışmaların tam ve yeterli olarak yapılması sağlanmalıdır. Okul ve öğretmen, anne-babanın çocuk eğitimi konusunda bilgilendirilmesi konusunda sorumluluklar almalıdır.

- Aileye verilecek eğitimde ailelerin çocuklarına karşı olumsuz tutum ve davranışlarının olumsuz etkileri konusu öncelikli olarak işlenmelidir.

- Öğretmenler sınıf ve davranış yönetimi konusunda yeterli olmalıdır.

- Okullarda ve sınıflardaki öğrencilerin fazlalığı eğitim amaçlarına ulaşılmasının en büyük engellerdendir. Sınıflardaki öğrenci sayısı mutlaka azaltılmalıdır.

- Okullarda çocukların iyi bir eğitim almaları için rehberlik servisi işlevselleştirilmeli ve rehberlik servisi, öğretmen, öğrenci, veli (anne-baba) okul yönetimi ve çevre işbirliği sağlanmalıdır.

- Okullarda yönetici, öğretmen, öğrenci ve ailelerin karşı karşıya kaldığı sorunlar tam ve doğru olarak tespit edilmeli ve bu sorunların çözümüne yönelik çeşitli öneriler geliştirilerek uygulanmalıdır. Öğretmenlerin davranış yönetimi konusunda hizmet içi eğitim almaları teşvik edilmelidir.

- Televizyon ve diğer kitle araçlarının çocukların davranışları üzerinde yarattığı olumsuz etkiler konusunda önlemler alınmalıdır.

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STUDENT ENGAGEMENT IN THE CONTEXT OF WORK BASED LEARNING AS AN UNCONVENTIONAL FORM OF HIGHER EDUCATION

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Abstract

This particular paper is derived from a research project funded by Higher Education Academy (HEA) in the UK as an exploratory study. The research is concerned with the concept of student engagement in the context of Work-Based Learning (WBL) at Middlesex University. This paper draws attention to the distinction between WBL and more conventional university-based courses in relation to considering student engagement with the university. Our research showed that the literature on student engagement assumes in the most part that students are full-time undergraduates or graduates studying university-based programmes. Nevertheless, the fairly new field of WBL provides a focus of study outside the university in a work context which overrules these assumptions. This study aims to provide an understanding of the WBL students experience, identify any gaps that exist between current provision and expectations, and achieve indicators of good practice at institutional level to strengthen work based learners' engagement.

Introduction

WBL is designed around the idea of learning that provides a flexible learning experience which is delivered through work, in work, for work. At the Institute for WBL the candidates are offered a university level learning in their workplace. Through accreditation of candidates' work experience via self-reflective report the Institute guides the candidates through BA, MA or DProf degrees. The outcome of the process of studying at a WBL programme could be summarized as constructing worker researchers/learners.

All students enrolled in WBL programmes are experienced workers and they carry out their studies on a part-time basis which is based in their work environment. Due to this unique student profile, student engagement in WBL programmes requires a through understanding of the concept of engagement within a part-time and distance learning setting. For this purpose, the research focused on the perception of engagement by the Work based learners at Middlesex University. In order to grasp an understanding of the needs and perceptions of these learners we conducted in-depth interviews with eight recent graduates. The research adopts a holistic approach to include the two main components of student engagement: the learner's context and motivations, and the approach and strategies of the HEI. This study aims to provide an understanding of the WBL students experience, identify any gaps that exist between current provision and expectations, and achieve indicators of good practice at institutional level to strengthen work based learners' engagement.

The WBL students differ from more traditional forms of higher education and WBL students' experience a more individualised and self-motivating form of engagement. Therefore they pose a challenge to the traditional teaching and learning methods within universities and urge a reconsideration of involvement ranging from administrative staff to the ICT used in teaching and learning. An important element of work based learning is that the focus of study is outside the university in a work context. The conclusions from this study are therefore to some extent generalisable to other work based courses.

It is important to draw a distinction between work based learning and university based courses when considering student engagement with the university. The literature on student engagement assumes on the most part that students are full time undergraduates studying university-based programmes. This is discussed in relation to gaining a clear definition of student engagement and getting to the essence of what is involved in a good quality of experience for students. There follows some literature which addresses part time students' experiences and this adds relevance to the part time WBL students that form this study. Finally the limited literature on WBL students' experience with their HEA is briefly reviewed.

Literature on Student Engagement

It is widely understood that the level and quality of student engagement with their higher education institutions is critical in determining student retention, learning, achievement and graduation (Laird et al,

2008; Bryson and Hand, 2008). Student engagement has also been cited as an important mediating factor in the development of students' sense of belonging to their educational institutions (Coates, 2006).

In order to guide the present study, the operational definition of student engagement provided by Harper and Quaye (2008) is adopted. They state:

> *Student engagement is simply characterised as participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes (p1).*

Despite the growing academic interest in student engagement in higher education, theorisations of this concept are still emergent and under contestation. Broadly, conceptualisations of student engagement encompass two dimensions that appear to be in close interaction with each other yet represent separate conceptual planes on which student engagement is manifested. Student engagement consists of, on the one hand, the student's active involvement in learning, i.e. the learners' motivations, inclinations and efforts to engage with their learning. Student engagement also consists of institutional engagement, i.e. the institutional support structures and organisational approaches that promote inclusive and open interactions with and between students (Harper and Quaye, 2008; Kuh, et al 2007). Researchers and academics appear to vary regarding which of the two dimensions they emphasise in their conceptualisations of student engagement. Some focus on the learners (Riggs and Gholar, 2009) and some on the institution (Little et al, 2009). In this study, a holistic approach is adopted that acknowledges the mutual interaction between these two actors in constructing student engagement.

The facilitating and inhibiting factors identified in the literature have largely been researched and understood in relation to student engagement within mainstream higher education in the form of taught, campus-based courses. However, higher education is increasingly extending to include part-time modes of study and distance/online courses to accommodate a changing student demography that is more mobile, digitally connected, professionally established and diverse in terms of age, culture and economic background. It is likely that student engagement within these different educational contexts will show commonality with 'traditional' student engagement, but also exhibit unique features and forms as well as different strengths and challenges.

Though research on student engagement is emerging within newer modes of education, it still remains incommensurate with the growing numbers of students drawn towards such study, and the policy focus on lifelong learning which turns a spotlight on these areas of higher education. The emergence of WBL programmes as a form of flexible distance learning is one such area where research on student engagement processes is required and where a limited amount of research has taken place.

Little et al (2009) found that "institutions view student engagement as central to enhancing the student experience, but more emphasis seems to be placed on viewing students as consumers and rather less on viewing students as partners in a learning community" and this is where work based learning students may to some extent benefit in their engagement. WBL students are invited to be partners in a learning agreement (or contract) with the university and their place of work (Garnett, 2000). The three-way partnership links work based learning students into an engagement with both an HEI and a work community adding a different dimension to notions of engagement. Successful work based learners will have developed themselves successfully through university learning and have also made a significant impact on their work situation (Nixon, 2008). Brennan (2005) found that integrating work-based learning into higher education requires a whole range of supporting structures and changes of attitude towards learning. New approaches to learning require new thinking from all the stakeholders involved in university work based learning. Young and Stephenson (2007) focus on how an interactive learning environment can support work based learning whilst Boud and Costley (2007) show how the work based learning student's experience is based on engagement with the university that requires a pedagogical approach that supports the three-way connection.

Methodology and data analysis

A literature search was conducted to gain an overview of conceptualisations, debates and approaches towards student engagement. This was then used to inform the construction of a semi-structured interview schedule and a student survey in order to examine students' engagement with the IWBL.

In line with literature which supports the conceptualisation of student engagement as a dual interaction between students' expectations and institutional strategies, informal and formal conversations and interviews

were held with members of staff at the IWBL in order to explore its institutional approach. This methodology coheres with the holistic approach to student engagement that is adopted by this study.

The semi structured interviews were conducted with a selection of undergraduate and postgraduate students who graduated in 2009. Interviews were conducted by two independent researchers who had had no contact with the research participants prior to the commencement of this study.

The two researchers who collected the data initially worked independently of each other to code the interview material and then compared their codes while making necessary adjustments through a process of dialogue and discussion. Analysis was related to literature in order to contextualise the findings and develop recommendations.

The framework for WBL student engagement

WBL programmes are based in students' actual work as well as having a distance relationship with the university and this is reflected in the kinds of support, resources and interactions that students receive and garner for their learning. The most important source of guidance is certainly the HEI, but the workplace, with its concrete and immediate bearing on students' lives, is also a contributor.

Institutional support, interaction and resources

Students' contact and interaction with the IWBL and the HEI in general took tangible form predominately through their relationship with their assigned WBL adviser (commonly referred to as an 'academic adviser'). In many cases this was the sole personal relationship that students had with the HEI. The fact that communications between students and advisers were based almost entirely on email contact, supported sometimes by telephone conversations, is an important indicator of the university-related aspect of the WBL study experience. Email and telephone communication was used to ask questions, discuss ideas and get clarifications with email having the added use of enabling students to submit work and receive written feedback.

Other institute resources were also used to facilitate student learning. These included guidebooks and other reading material, often posted to students, containing the programmes' structure and module content and guidelines for planning and writing course work. Students rarely used the on-campus library because of its distance from their workplace and residence and because of lack of time. However, while distance library resources, including online journals and books were also available, these were not widely used due to technical difficulties with the university's ATHENS account that enables remote access to resources. The WBL student evaluation survey conducted in 2009 found that only 20% of respondents used the online library resources with many describing attempts to use online facilities as "frustrating". Although the HEI has pursued the development of virtual learning environments (VLE), their structures and procedures are complex and difficult to understand. There are multiple types of software with separate purposes and functioning which require training to gain optimum benefit. Given the complexity of these online software products, one-off training courses do not fully prepare students for their use, especially amongst those students who have had limited prior experience of using information technology in general. More sustained training sessions, however, are difficult to provide to learners that are based at a distance. This is perhaps one of the reasons why the virtual learning environments are not used efficiently by work based learners.

On a few occasions students visited the campus for face-to-face meetings with their advisers, to attend the induction sessions and research methods modules and to present their final research projects.

Though administrative staff were another source of support that students could draw upon to deal with practical matters, they were not often approached. This may indicate the lack of administrative difficulties faced by students. Indeed some students reported not requiring administrative assistance. However, it may also be suggestive of a lack of identifiable and direct channels and of visibility of the administrative staff of IWBL. Many students did not know the names of people working on the IWBL administrative team. Therefore, when practical enquiries arose, students often directed these to their advisers or asked them to suggest other people who could help them. Others located administrative help by making a general enquiry through the university switchboard.

Clearly, administrative problems related to funding can have a detrimental effect on the student's study experience. The problems faced by this student indicate the importance of good coordination and communication between the HEI staff and sponsoring employers. When these are government employers,

with whom traditional delays in funding have been observed, there is an added need for tolerance and flexibility on the part of the HEI.

Of the many different ways in which students could access, use, and engage with the HEI, it is apparent that communications with the adviser were the most frequent, in-depth and fruitful conduit through which this occurred:

In the eventuality that their assigned adviser was unavailable for guidance, or when contact was insufficient, students were generally unaware of, and did not seek, other sources of personal and direct support from within the HEI. Within the context of work based learning studies, therefore, the adviser is fundamental to mediating student experiences and engagement with the HEI. Whereas students of campus-based taught courses have direct access to a vast array of HEI facilities and services, and are in contact with a wide range of teaching faculty with whom fruitful interactions can be established, work based learners' experiences and interactions with the HEI are determined largely by their relationship with an individual adviser. This places a heavy onus on advisers in enabling student engagement with their learning. Such individualised forms of student interaction with their HEI also lead to vastly different experiences and perceptions of the HEI from learner to learner.

Interaction with other learners

In contrast to the various ways in which work based learners engaged with the HEI, their interaction with other learners was minimal. Lack of peer interaction was due to:

- the distance learning nature of the course
- part-time status of students
- individualised course content

Since students were studying at a distance there were very few opportunities to meet other people. On rare occasions, students met each other when they visited the campus to attend short courses. However, these meetings were not prolonged or regular enough to facilitate the formation of friendships. With their busy schedules, work based learners also did not feel they had time to maintain contacts, as is suggested by a student here as she talks about her lack of contact with other learners:

> *No I didn't. I think that is because of the nature of my work, which is just to go to school the whole day, teach and come back. It's a bit isolating, so it's difficult to find time to even phone someone. (W3)*

Another very important factor that explains lack of peer interaction was the individualised content of each learners WBL programme. Unlike students of taught courses, work based learners did not share a common academic or professional area within which ideas and thoughts could be exchanged and discussed. This lack of common ground may have reduced the relevance of peer interaction for these students. This point is illustrated again by the following student:

> *...with WBL everyone is doing something different to do with their own jobs. So having contact with others would not have been quite as relevant. (W3)*

While some students did find the absence of peer interaction 'isolating', most students did not particularly miss the lack of social and intellectual stimulation from other learners even though they acknowledged its possible benefits in providing emotional support. This lack of need for social interaction was often attributed to their focus on their studies:

The focus on completing their individual projects and lack of time to engage socially explains why students did not seek and maintain interactions via email or through online forums. In contrast to 'traditional' students, peer interaction does not appear to be a central concern of work based learners and plays a very marginal role in their engagement as students.

Support from the workplace

Apart from the HEI, learners' workplaces were another source of practical, emotional, and intellectual support. Practical support came in the form of full or partial funding of the WBL programme, or more indirectly in that the workplace provided a resource base that could be used by employees. Thus some people used the library at their workplace rather than the HEI because it was more accessible. Since students' research projects were conducted at their workplace, colleagues sometimes provided logistical help, such as

facilitating access to research participants, helping to conduct surveys and organising research related meetings and workshops. A few employers also gave study leave.

The workplace was also a source of emotional support through the encouragement shown by employers and other colleagues:

> *The head of music [department] was supportive. He would ask how I was getting on and offer encouragement, which was really good. (M2)*

It also reduced feelings of isolation by filling the void in social relations arising from the distance learning nature of the WBL programme, as one learner states:

> *I think it is the nature of the course. You are kind of 'flying solo' it feels like that. I had a work colleague who completed her masters two years ago and she was quite good, so I did have support. And I had my line manager... So I think people who go on to this course need to be fairly grounded and have contacts already in the workplace or wherever for support. (W2)*

Employers and colleagues also provided intellectual support by giving advice and feedback, and discussing ideas. These people were particularly well placed to give such support because they were aware of the context of the study, perhaps more so than the WBL adviser. Their inputs were highly appreciated.

> *The support from my workplace was quite important because in my research, I did the observation in my institute and I discussed the results of observing with the focus group of colleagues. With this focus group I could discuss the evolution of my project because they know the organisation, they know the way it works, the limitations and then the opportunities and it was interesting to discuss this with them and that really helped. (M3)*

The workplace is an important source of support to work based learners in their academic pursuit. While scholarship on student engagement focuses on the role of academic institutions in facilitating student learning, in the context of WBL studies, the important role of the workplace also needs to be acknowledged.

Processes in student engagement with WBL

Whilst the engagement of work based learners is supported by a framework of resources, contacts and interactions, student engagement itself is constituted of deeper, dynamic processes. These processes relate to the students' engagement with the university's expectations and academic requirements, students' involvement and ownership of their learning and the imperative to engage and make a difference through project work with their organisation or professional field. The ways in which these interconnected processes are played out in WBL studies, creates a unique picture of student engagement and identification in this educational space.

<u>Academic integration</u>

The first step in WBL students' engagement with their learning and their HEI was the process of encountering, trying to understand and meet academic standards, as well as grappling with self-directed learning. This equates to a process of academic integration, involving socialisation within the HEI culture and norms, which, in terms of student retention, is a central determinant of whether students continue with their studies.

As discussed earlier, many work based learners have had no prior experience of university education. Initially, therefore, students had anxieties about what was expected of them and whether they would be able to meet the academic standards of a WBL degree. Support and feedback from the adviser and guidance from course hand books were critical in helping students develop a workable understanding of academic standards and expectations:

> *I was able to send him (adviser) drafts of what I was doing just to ensure I was pitching on the right level and I had the appropriate content. (W2)*

Apart from academic standards, students also had to get used to engaging in self-directed learning and develop ways of managing it, though initially some students found this quite challenging:

> *Online assignments are very difficult because you don't have a one-to one, you don't have the opportunity of speaking to the lecturer every week and the lecturer telling you "listen; this is what you're doing wrong, this is where you need to improve. (W1)*

Learners acknowledged that they required a high level of self-sufficiency and maturity to be self-directed in their learning, indicating that such form of study might not be suited to younger students who form the bulk of the university population:

> *...when you don't know what you are expected to do, you have to have a strong character. In fact I was going to give up. The first six weeks I was going to give up. And because I had a supportive family who egged me on and called me a "loser" that really shocked me. I said no, I can't, I mean that's my character. I am quite a "go getter". You have to be determined to succeed, because an online degree is not easy. (W1)*

Students often used HEI resources such as the course handbook to structure and organise their learning. As students developed a firmer understanding of academic requirements, they also gained greater confidence in being able to progress and accomplish a degree. Their reliance on the support and guidance from the tutor reduced and students increasingly took the front seat in managing their studies. Internalising the universities standards, expectations and norms of academic discourse were essential in enabling them to engage more fully with their learning and to galvanise their own self-motivation towards completing the degree.

This is not to suggest that the adviser's support became irrelevant, indeed it continued to be valued in that students felt 'supported' when they had this guidance and 'less supported' when they did not. However, if, for some students, the initial phase of establishing contact with the adviser, and through this, socialisation within the academic culture, does not go smoothly or remains weak, doubts regarding their desire to continue the program become stronger and may lead to a less positive perception of the study experience.

This occurred in the case of one individual whose contact with his adviser was unsatisfactory:

> *I was frustrated because I didn't think I was getting the advice that I needed. I was struggling to get in touch with my advisor a lot of the time. (M2)*

These feelings of alienation led this student to consider withdrawing from the programme but encouragement from a close friend who "convinced me to keep going" prevented the student from doing so.

The role of the WBL adviser and HEI is one of introducing and familiarising work based learners with the academic culture, rather than providing directed mentoring in the traditional sense. Therefore, the HEI, in the context of WBL studies, is a background facilitator of learning by providing a more structured support that is conducive to self-directed reflection and academic development.

Taking ownership of learning

Another indicator of student engagement in work based learning studies is the process of students taking ownership and responsibility for their learning. This process is particularly encouraged by the learner-negotiated course content of the WBL degrees.

As was demonstrated earlier, many students were driven to do a WBL degree because it gave them the ability to exercise greater choice and control over the content of their learning and was significant for their work. Learners could draw and build on their prior work experience while also channelling the learning gained during the degree back into the workplace in ways that were immediately relevant to their professional life. The high degree of choice and control in constructing their learning objectives and the immediate relevance of the course to their work role enabled students to experience an important sense of ownership of their learning which they did not feel they could experience within traditional taught courses.

> *I was looking around for all sorts of things to do and I particularly wanted to do something of my own choice because with the cert. ed. you are forced into studying certain aspects which sometimes you might not be interested in, you'll do it, but you are not interested in. But I wanted to do something that was very relevant to my particular work so this suited me perfectly, this one.(W4)*

The flexible structure of WBL degrees meant that students could organise their study time according to their own schedules. For some students this further facilitated a sense of ownership over their learning:

> *I didn't have to be coming down to Middlesex for regular tutorials, it all seemed to be in my hands you know, and with full time work, time was quite limited for studying so I had to put certain chunks of time aside to*

> *study...And as long as I met my dead line it was up to me when I did that work and I just felt incredibly comfortable with the way it worked out, and I didn't ever feel pressurised by it... (W2)*

Active engagement of students with their learning could also be seen in the manner in which they created time to study, in spite of hectic work schedules, by sacrificing personal, family, and social time. Here some students describe these sacrifices.

Identification with the HEI

The distance learning nature of WBL degrees has a strong bearing on the extent to which learners feel a sense of identification with their HEI. As earlier mentioned, work based learners have little physical contact with the HEI as a whole with interactions mostly limited to their individual WBL advisers. The physical remoteness of the HEI also limits students' involvement in the social aspects of student life such as making friends and participating in social events. For most students this lack of physical and social presence of the campus in their lives contributed to a lack of sense of belonging to the HEI.

> *...I didn't really feel I was at university. I didn't really think I was part of the social fabric of the whole thing because it was distance learning. So I wasn't that involved socially. (M2)*

However the lack of connection to the HEI was not simply a result of physical isolation. Students also perceived the university as a 'young' space, which they, as mature people, did not fully feel part of.

> *...I must say I saw the differences with mature students that we don't feel quite part of it as the full time students do. So, it's always a different experience. So I wouldn't say I would ever really at this stage access any of the student sites or really the general university and you know what's available on campus all that stuff goes on. (W2)*

Therefore, for most WBL students, engagement in terms of experiencing a sense of belonging or community with their particular HEI is relatively weak. This can be attributed in large part to their physical and social isolation from the campus as well as their own perceptions of themselves as older students for whom 'university life' is not relevant.

On the other hand, students of work based learning studies expressed a more abstract identification of themselves as learners. This was visible in the importance they attached to getting a degree as recognition of the learning they had engaged in throughout their professional life and the academic skills they had gained through the course of their studies.

> *In fact it (the degree) helps you discover what your work is all about. It wasn't just learning it was experiencing it and putting it in paper. (W1)*

Though students might not have a strong sense of attachment to their particular educational institution, it appears that association and identification with academia in general is important to work based learners and obtaining a degree is an important signifier of this.

The graduation ceremony was, therefore, an important event for students because it was here that they got a tangible experience of their isolated study as connected to a wider academic establishment and community of learners. The social affirmation and recognition that they got from this experience added to their sense of accomplishment.

> *I think it [graduation ceremony] kind of closes it and finishes it and makes it feel real... But you don't really feel you are part of a university in a way, because you are at home. And I suppose this made it real for me, to go there and have your name called out and be given the piece of paper and be part of it, it made me feel like I really had done it. (W3)*

Students' identification of themselves as learners and researchers could also be seen in the way in which they expressed a sense of solidarity with other researchers. Thus when asked why participants had chosen to take part in the study, many replied that this was because they now understood what it means to do research and were aware of the difficulties that researchers encountered in getting interviewees.

Conclusion

In the context of work based learning studies, the personal characteristics of learners are an important determinant of student engagement, more so than within traditional, campus-based education. To meet the

challenge of distance learning, students need to have high levels of self-motivation, determination and self-sufficiency. The learner-centred pedagogy of work based learning and learning content which has a high degree of relevance to students' professional and career objectives, encourages students to take ownership and responsibility for their learning and so also contributes to student engagement. Support from the HEI in the form of adviser guidance and interaction, learning resources and administrative help is another critical factor in student engagement. Through this support, learners proceed to understand HEI standards and norms and achieve academic integration which is vital to student retention and achievement. The workplace, with its concrete and physical presence in learners' lives also facilitates their engagement by providing various forms of practical, emotional, and intellectual support that cannot be provided by the distant university. Social networks of friends, family and work colleagues play a similar supportive role.

The study suggests that taking ownership of learning is a vital aspect of student engagement. Within WBL degrees this process of ownership is facilitated in large part by the relevance of the course to learners' work context and professional development. This provides an important factor for enhancing student engagement in taught courses. If students are to be engaged with their learning, courses need to be made relevant to them.

To increase the relevance of university education to students, course content and advising, needs to be framed in ways which encourage students to draw connections between abstract discipline knowledge and the real-world context they live in. Beyond this, lecturers should pay greater attention to enabling students to draw out the ways in which course material is personally, socially and politically significant to themselves and their fields of work. Overall, student engagement in the field of WBL differs from more traditional forms of HE. WBL students experience a more individualised and self-motivating form of engagement which is mostly an outcome of their level of professional experience, maturity and expectations from a degree programme.

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STUDYO: TASARIM EĞİTİMİNİN KALBİ

STUDIO: THE HEART OF DESIGN EDUCATION

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ÖZET

Tasarım Disiplinleri Doğal Bilimlerin ve Toplum Bilimlerinin alt disiplinlerine göre çeşitli yönleriyle farklılıklar gösterir. Bu farklılıklar, tasarım disiplinlerine yönelik yükseköğretim programlarının (mimarlık, endüstri tasarımı, iç mimarlık, kentsel tasarım, peyzaj mimarlığı vb.) eğitim yapısına da yansımaktadır. Tasarım Disiplinlerinin öğrenme ortamı, klasik eğitim ortamı olarak tanımlanabilecek sınıf düzeninden farklı olarak "stüdyo" dur. Tasarım Eğitiminin kalbi olarak değerlendirilen stüdyo, gerek ilgilendiği problem türleri, gerek öğretim metotları, gerekse de gerektirdiği iletişim biçimi ile konvansiyonel eğitim mekanlarına göre belirgin farklılıklar gösterir. Bu çalışma kapsamında, tasarım disiplinlerinin formel öğrenme ortamı olarak tanımlanan "stüdyo" ayırt edici nitelikleri ile değerlendirilecek, stüdyonun öğrenme ortamı olarak farklı disiplinlerin yükseköğretim programlarına uyarlanabilirliği tartışılacaktır.

ABSTRACT

Design disciplines differ from the sub disciplines of natural sciences and human sciences with various aspects. These differences are reflected to education structure of design disciplines' higher education (architecture, industrial design, interior architecture, urban design, landscape architecture and etc.) The learning environment of design disciplines is studio which has different attributes from conventional education environments defined as classroom order. "Studio" which is evaluated as the heart of design education shows evident differences from traditional education environments with not only types of problems and instructional methods but also communication formats. In the context of this research, studio that is defined as formal education environment of design disciplines will be examined with distinguishing characteristics and discussed with adaptability status to various disciplines of higher education as a learning environment.

1. GİRİŞ

Bilginin geleneksel olarak bilinen iki farklı alanı (1) Doğal Bilimler ve (2) Toplum Bilimleri olarak kabul görmektedir. Doğal bilimler, mevcut varlık, durum ve olaylar ile ilgilidir ve var olanın araştırılmasına, bütüncül olarak algılanmasına yönelik katı bir tekil metodoloji ile kodlanmış bir araştırma süreci olarak ifadelendirilir. Toplum bilimleri ise, fiziksel dünyaya ait olan şeylerin kültür ve zaman bağlamı içerisinde araştırılmasına yönelik olup insan davranışı ve davranış modelleri üzerine odaklanır. Her iki bilim alanı da, mevcut olanı sorgulama gibi çeşitli amaç kapsam yöntemleri ile benzerlikler gösterirken, temel amaçlarından biri "dönüştürmek" olan "tasarım disiplinleri" bu kapsamın dışında kalmaktadır. (Ayıran, 2001). Doğal bilimler ve toplum bilimleri nesnelerin "nasıl olduğu" konusuna odaklanırken, tasarım disiplinleri ise, "nasıl olması gerektiği" sorunsalı ile ilgilenir. Doğal bilimlerin ve toplum bilimlerinin amacı, gerçekliğe ulaşmak iken, tasarım disiplinlerinin amacı ise, bu gerçekliği doğrudan ortaya koymaktır (March, 1976). Bu çalışmada öncelikle tasarım disiplinlerini doğal bilimler ve toplum bilimlerden ayran temel nitelikleri özetlenecek, ardından bu farklılıkların tasarım disiplinlerinin (mimarlık, endüstri tasarımı, iç mimarlık, kentsel tasarım, peyzaj mimarlığı vb.) eğitim yapısına yansımaları irdelenecektir. Çalışmanın amacı, tasarım disiplini yükseköğretim programlarında formel öğrenme ortamı olarak işlev gören "stüdyo" olgusunun çeşitli yönleriyle tartışılmasını sağlamaktır.

2. TASARIM DİSİPLİNLERİNİN AYIRT EDİCİ NİTELİKLERİ

Archer, tasarım disiplinlerini doğal bilimler ve toplum bilimlerden farklı olarak, bilginin üretiminin yanı sıra kullanımının biçimi ve yararsallığı ile doğrudan ilişkili olarak açıklar. (Archer, 1984). Cross ise, tasarım disiplinlerini, diğer bilim alanlarından ayıran en belirgin özelliği olarak, problem odaklı (propositional) olmaktan öte, çözüm odaklı (appositional) olma yönünü gösterir. (Cross, 1982; Cross, 1986; Candy & Edmonds, 1997). Yücel (1981), doğal bilimlerin ve toplum bilimlerinin amacının simgelere, tasarımın ise nesnelere ulaşmak olduğunu belirtmekte, Antoniades (1990), tasarımın yararsalcılığı (pragmatizm) dışlayamayacağından önemle bahsetmektedir. Gregory (1966), doğal bilimleri analitik (analytic), tasarımı ise yapısalcı (constructive) yönüyle açıklamakta, bu bakış açısına göre, problem çözme stratejisi olarak doğal bilimler, "analiz", tasarım disiplinleri ise "sentez" yöntemini ağırlıklı olarak kullanmaktadır. Doğal bilimler ve toplum bilimlerinde gözlem, test etme, tahmin, yanlışlanabilme, pozitivizm kavramları etken iken, tasarım disiplinlerinde ise, değiştirme, dönüştürme, özgürleştirme kavramları öncüldür. Tasarım disiplinlerine özgü olan bu özgürleştirici tutum, tasarımcının doğrusal olmayan, geri dönüşlü bir yaklaşımla farklı görme biçimlerini oluşturmasını sağlar. Tasarım disiplinleri ilgilendiği problemlerin yapısının farklılaşması nedeni ile de doğal bilimlerden ve insan - toplum bilimlerinden ayrılır. Doğal bilimlerden farklı olarak tasarım problemleri genellikle, formüle edilmesi, tanımlanması güç, bulanık, çok boyutlu, kompleks ve karmaşık yapıları gereği, iyi tanımlanmış (well defined), kapalı uçlu problemler kapsamında sınıflandırılmamakta, kötü tanımlanmış (ill defined) hatta lanetli (wicked), açık uçlu problemler ile ifade edilmektedir. (Tablo 1). Tek bir doğrunun hedeflendiği tek bir çözüm yerine, birden çok doğrunun etkinliğinin söz konusu olduğu "çözüm uzayı" kavramı söz konusudur. Olası alternatif eylem dizilerinin artması farklı çözümlere ulaşılabilmesine olanak tanımaktadır. Çözümler doğru ya da yanlış olarak değil, sonucun "tatmin edicilik" düzeyine ve performansına bağlı olarak değerlendirilmektedir. İlgili disiplinlerin yanı sıra, değişkenlerin ve problemi oluşturan enformasyonların niceliksel olarak miktarı da oldukça fazladır. Problem alanının tanımlanması, problem çözme sürecinde oldukça etken bir role sahiptir (Cross, 1982; 1990).

Platon'un (1) kuramsal bilgi, (2) uygulamalı bilgi, (3) yaratıcı bilgi sınıflandırması göz önüne alındığında, tasarım disiplinleri bu üç tür bilgi alanının tümünü kapsaması nedeni ile de diğer disiplinlere göre farklılaşır. Bu durum, tasarım disiplinlerinin doğal bilimlerin ve toplum bilimlerinin bir alt kategorisi olmaktan öte, kendisine özgü düşünme yöntemi, geçmişi ve kazanım biçimi olan bağımsız bir bilgi alanı olarak kabul görmesini sağlamıştır. Çeşitli teorisyenler, doğal bilimlerin analitiklik, pozitivizm, bilimsel kesinlik, determinizm, rasyonellik gibi kavramlara dayanan ve kusursuzluk modeli olarak kabul gören katı bakış açısını özgürleştirilebilmesinde tasarım disiplinlerini model alarak uyarlayabileceği kazanımlar üzerinde önemle durmaktadır. "Hızlı değişim" in kaçınılmaz bir gerçek olduğu gündemde, tasarım disiplinlerine yönelik metodolojiler, yaratıcı düşünce ve yaratıcı uygulama yönleri ile bilişim teknolojilerinden toplumsal araştırmalara pek çok disiplinin doğrudan ilgilendiği bir konu alanı haline dönüşmüştür.

Tablo1. Kapalı ve açık uçlu problemlerin genel nitelikleri

Kapalı Uçlu (Close Ended) Problemler	Açık Uçlu (Open Ended) Problemler
Genellikle problem formule edilebilir, tanımlanması kolaydır. Cebirsel denklemler bu duruma örnek gösterilebilir.	Genellikle problemin tanımlanması kompleks yapısından ötürü güçtür. Çözümün niteliğinde tanımlama oldukça önemlidir.
Kapalı uçlu problemler genellikle, iyi tanımlanmış (well defined) problemler olarak nitelendirilir.	Açık Uçlu Problemlerin karmaşık yapısı, onların genellikle iyi tanımlanmamış (ill defined) ya da lanetli (wicked) problemler olarak tanımlanmasına neden olur.
Analiz-sentez-değerlendirme aşamaları için genellikle, ardışık, doğrusal bir süreç izlenir.	Analiz-sentez-değerlendirme aşamaları arasında genellikle, geçişler ve geri bildirimler vardır.
Genellikle tek bir doğru hedeflenir.	Genellikle birden çok doğru vardır ve çözüm uzayı büyüktür.
Çözümler, genellikle, doğru ya da yanlış olarak değerlendirilir.	Çözümler, genellikle, iyi ya da kötü olarak değerlendirilir.
Doğru ya da yanlış olarak nitelendirilen çözümler, genellikle, tüm zamanlar için geçerlidir.	Çözümler, zaman içinde koşullar değişebileceğinden geçerliliğini yitirebilir.
Çözüme yönelik enformasyon miktarı, ilgili disiplin sayısıyla ilintili olarak düşüktür.	Çözüm ile ilgili enformasyon miktarı çok fazladır ve genellikle birçok disiplinle ilgilidir.

3. TASARIM EĞİTİMİNİN GENEL YAPISI

Tasarım eğiminde, bellekte depolanan enformasyonların niceliksel olarak miktarından öte, bilgi setlerinin bireyin zihninde nasıl temsil edildiği, ilişkilendirildiği, bellekteki organizasyonu ve aktive edilerek düşünceye dönüşümü önemlidir. Amaç, bilginin salt duyusal düzeyde algılanarak depolanması değil, bireyin kendi bilişsel süzgecinden geçirilerek düşünce ve davranışında değişime neden olmasıdır. Bu nedenle, tasarım eğitiminde, pasif bilgi (passive knowledge) ile aktif bilme (active knowing) arasındaki ayırım, bilmekle yapmak arasındaki ilişki oldukça önemlidir (Heylighen et al., 1999; Oxman,1997; 1999). Tasarım eğitimi "temsil araçları" ile de diğer disiplinlere göre farklılaşır. Tasarım eğitiminin beyin - el - göz koordinasyonunu gerektiren psikomotor hedefleri, yorumlanan bilginin görselleştirilerek iletimine yöneliktir. Öğrenci tasarımcının soyut olarak ifade edilebilecek düşünsel aktivitesinin görsel ifade teknikleri ile dışsallaştırarak somutlaştırması ve temsili ifade dilleri ile iletimi gerekmektedir (Purcell & Gero, 1998). Tasarım aşamasında düşüncenin formülasyonunun model veya grafikler aracılığı ile sağlanması gerekmekte (Archer, 1984), birey, yaparak düşünme, yaparak öğrenme, yaparak deneyim kazanma aktivitelerini gerçekleştirirken düşündüğünü yapabilmektedir. Schön (1985), tasarım eğitimini diğer disiplinlerden ayıran ve özelleştiren en temel özelliğini yaparak öğrenme (learning by doing) sürecine dayanmasıyla açıklar.

Tasarım olgusu, genellikle, kapalı uçlu problemlerden farklı olarak mantıksal çıkarımlarla formülasyonu mümkün olmayan açık uçlu problemlere yönelik olduğundan (Candy & Edmonds, 1997), tasarım eğitiminde, "bilgi" tekil olarak yeterli olmamakta, bu bilginin, tasarım problemlerine uyarlanarak tasarım ürününe dönüşümünde bireyin zihninde gerçekleşen süreçler önem kazanmaktadır. Marx, bilginin algılanmasını, özne (knower, subject) ve nesne (environment, object) arasındaki etkileşimle açıklar. Bilgi, yalnız başına bir nesne olarak, öznesinden ya da başka bir deyişle bireyin subjektif süreçlerinden bağımsız olarak irdelendiğinde ifadesiz kalmaktadır (Heylighen et al., 1999). Bilgi, içerik bağlamında nesnel yönünün yanı sıra, kişisellik temeliyle ele alındığında, düşüncede yeniden yapılandırılması ve yorumlanması süreçlerinde öznel bir yapı kazanmaktadır. Tasarım eğitimi sürecinde, eğitimin ilk günlerinden itibaren edinilen olgusal ve işlemci bilgiler bellekte depolanarak, yeni tasarım deneyimleri için enformasyon sağlamaktadır. Bu sonsuz bilgi uzayı içinden seçilerek ilişkilendirilen bilginin organizasyonunda ve düşünceye dönüşümünde bireyin kendi ilgileri, birikimleri, değer yargıları, düşünme stili, zihinsel yetenekleri, kişilik özellikleri ve motivasyonel faktörlerden oluşan duyuşsal yapılanması önemli rol oynar. Birey, tasarım süreci başlangıcında boş bir "tabula-rasa" değildir. Edinilen her türlü enformasyon bireyin kendi bireysel filtresinden, duyuşsal süzgecinden geçirilerek ilişkilendirilir, yorumlanır, anlamlandırılır. Tasarım Eğitimi, tasarım bilgisinin edinimine yönelik olan bilişsel hedeflerle sınırlı kalmamaktadır. Bilgi setlerinin ilişkilendirilerek bireyin zihninde zaten var olan mevcut örüntülerden yeni örüntüler oluşturulmasını hedeflemektedir. Bu bağlamda tasarım eğitimi, bilginin yeniden zihinde temsiliyle yeni bilginin üretimini hedefleme ve yaratıcı süreci tetikleme amacını taşımaktadır.

4. TASARIM EĞİTİMİNDE ÖĞRENME ORTAMI OLARAK STÜDYO

Doğal Bilimler ve Toplum Bilimlerinin alt alanı olarak belirlenen disiplinlerle karşılaştırıldığında çeşitli yönleriyle farklılıklar gösteren Tasarım Disiplinlerine ilişkin eğitim metotları da kendisine özgü bir yapılanmaya sahiptir. Tasarım Disiplinlerine ilişkin yükseköğretim programlarının (mimarlık, endüstri tasarımı, iç mimarlık, kentsel tasarım, peyzaj mimarlığı vb.) kalbi olarak tanımlanan "stüdyo" gerek ilgilendiği problem türleri, gerek öğretim metotları, gerekse de gerektirdiği iletişim biçimi ile konvansiyonel öğrenme ortamlarına göre belirgin farklılıklar gösterir.

Schön, gerçek problemlerin ve durumların simule edilmesi ile yaparak öğrenme deneyimi üzerine kurulu tasarım stüdyosunu, eğitim programlarının kalbi olarak tanımlamaktadır. Tasarım stüdyosunun anahtar kavramı iletişimdir (Ward, 1990; Heylighen et al., 1999; Demirbaş & Demirkan, 2003). Geleneksel sınıf sisteminden çeşitli yönleriyle farklılaşan tasarım stüdyolarında iletişim örgütlenmesi, sadece tek yönlü bilgi iletimine (proje yürütücüsünden öğrenciye) dayalı olarak değil, proje yürütücüsü, öğrenci ve diğer tüm öğrenciler arasında sosyal bir etkileşim olarak gerçekleşmektedir. Tasarım stüdyosu farklılaşan bu yapısı gereği, gerek öğrenciler, gerekse proje yürütücüsü için organizasyonel ve sosyal süreçlerle tanımlanabilen bilgi işleme süreci yoluyla düşüncelerin özgürce dışavurumunu ve paylaşımını sağlayan bir çevre yaratmaktadır (Coyne et al., 1994). Schön'e göre, bu özgürleştirici öğreti biçiminden diğer disiplinlerin öğrenebileceği çok şey vardır. Schön (1985), tasarım problemlerinin doğasının gerektirdiği iletişim ve yaparak öğrenme temeline dayalı öğrenme biçimlerinin ve eğitim deneyiminin (stüdyo), diğer disiplinlere uyarlandığı takdirde, tıkanılan açmazlar açısından çözüm olabileceğini belirtmektedir.

Tasarım eğitimi öğrenen merkezli, öğrenme sorumluluğunu bireyin kendisine veren, ürün temelli olmaktan öte süreç temelli olan, niceliksel değerlendirme ölçütlerinin yanı sıra niteliksel değerlendirme ölçütlerine önem veren süreklilik ilkesi üzerine kurulu bir sistem gerektirmektedir. Bu sistem bireyin aktif katılımı üzerine kurgulanmalı ve öğreneni merkez alan bir yapılanmaya dayanmalıdır. Tasarım eğitimi sürecinde, ardıl tasarım deneyimleri ile birey, gerek olgusal (declarative) gerekse işlemci (procedural) olmak üzere tasarıma yönelik edindiği her yeni bilgiyi geçmiş bilgi birikimleri üzerine kurgulamaktadır (Oxman, 1990; 2002; Christiaans & Andel, 1993). Buna göre, tasarım eğitimi boyunca, önsel bilgi üzerine gelişen, genişleyen bir bilginin varlığından söz etmek mümkündür. Schön (1985), tasarım stüdyosu ile ilk defa karşılaşan öğrencinin geçmiş yaşamında tanımadığı yeni bir dil ile tanıştığını ve eğitim sürecinin hedefinin temelde bu dilin öğretilmesine yönelik olduğunu ifade etmektedir. Schön' e göre, bu dil, tasarlamanın dili ve tasarım eyleminin kendisine yönelik olan dil olmak üzere iki bileşenden oluşmaktadır. Birincisi olgusal bilgiyi (declarative knowledge) tanımlarken, ikincisi işlemci bilgiyi (procedural knowledge) ifade etmektedir (Akın, 1986; 1990; Akın & Akın, 1996).

Buna göre, nesneler ve nitelikleri, nesneler arası ilişkiler, olgusal bilgi alanını oluştururken, bir tasarım probleminin nasıl çözülebileceğine yönelik metot bilgisi ise işlemci bilgiyi oluşturur. İşlemci bilgi, dışsallaştırılarak doğrudan öğrenciye sunulan bir bilgi türü olmaktan öte, stüdyoda tasarım deneyimleri ile öğrencinin aktif olarak edindiği eylemin nasıl yapılacağına yönelik bilgiyi içermektedir. "Genel ve aktarılabilir" nitelik gösterebilen işlemci bilgi sayesinde, birey, somut ve tekil durumları soyut ve genel durumlara dönüştürebilme yetisi kazanabilmektedir. Farklı bilgi kümelerinin sentezini temel alan tasarım sürecinin işlemci bilgisini edinen birey, bu bilgiyi, tasarım problemlerinin yanı sıra yaratıcılığın da performans üzerinde belirleyici olduğu diğer açık uçlu problem çözümlerine uyarlayabilecektir. Schön (1985), tasarım eğitimiyle beraber tasarım sürecinin işlemci bilgisini edinmiş olan bireylerin iyi tanımlanmamış ve açık uçlu problemlerin çözümünde diğer disiplinlere oranla daha başarılı olduklarını vurgulamaktadır.

Cobb (1986), bilginin kuramsal - eylemsel - yaratıcı formlarını bir arada barındıran bu öğretim sisteminin yüksek öğretimin yeniden yapılandırılması sürecinde tüm diğer disiplinler için örnek teşkil edebilecek özelliklere sahip olduğunu vurgular. Yüksek Eğitim Dünya Bildirgeleri irdelendiğinde, Cobb' un bu düşüncesinin somut açılımlarla desteklendiği gözlenebilir. Doğal bilimler ve toplum bilimleri de dahil olmak üzere tüm akademik disiplinlerin öğretim sistemleri için öneriler oluşturan bu bildirgede, örnek model olarak sunulan sistem, tasarım eğitimi ile yakın benzerlikler göstermektedir. Bildirgelerde, eleştirel düşünce ve yaratıcılık ana teması kapsamında, eğitimin öğrenci merkezli olarak gerçekleştirilmesi gereği önemle vurgulanmaktadır. Buna göre, üniversite eğitiminde, somut bilginin etken olduğu mesleki öğretilerin yanı sıra, bireyin entelektüel gelişimi de hedef alınmalı, eğitimin bireysel ve açık uçlu hale geldiği bir süreçte uygulamaya yönelik bilgilerin yanı sıra, sağduyu, sezgi, duygusal zeka, esneklik,

yaratıcılık gibi soyut kavramlar da önem kazanmalıdır. Bu, tasarım eğitiminin "yaparak öğrenme" hedefine benzer şekilde bireye öğrenmeyi öğreten dolayısıyla bireyi aktif kılarak öğrenme sorumluluğunu kendisine veren bir yönelimdir.

Tasarım eğitiminin kalbi olarak tanımlanan "stüdyo", konvansiyonel sınıf ortamından mekan kullanımının süresi bakımından da farklılaşır. Teorik derslerde süre, dersin bitimi ile sonlandırılırken, tasarım stüdyolarında bu süre, dönem içindeki tüm zamanlara yayılmaktadır. Stüdyo, tasarım ders saatleri dışındaki zamanlarda da kullanılabilmektedir (Shoshi & Oxman, 2000). Tasarım stüdyosunda ders yürütücüsünün eğitmen kimliği, "antrenörlük", "koçluk" gibi kavramlarla bağdaştırılmaktadır. Stüdyoda, problem türlerine göre farklılaşan üç tür antrenörlük modelinin etken olduğu, bunların "aynalar salonu", "birlikte deneme", "beni izle" gibi modellerle ifadelendirildiği bilinmektedir (Schön, 1985; Beinart, 1981). "Aynalar salonu", yürütücü ve öğrenci arasındaki bilgi iletimindeki yansımaları, "birlikte deneme", yürütücünün doğrudan öğreten konumunda olmaktan öte, öğrenci ile beraber düşünce üreten olma durumunu, "beni izle" ise, yürütücünün öğrenciye örnek olarak model oluşturma eylemi ile ilişkilendirilmektedir. Tasarım eğitiminde, stüdyoda, eğitimcinin bir yandan bir "profesyonel", "meslek adamı" olarak yol gösterici olması, diğer yandan ise, "koç", "antrenör" olarak, öğrencinin kendi yaratıcı deneyimini gerçekleştirme yönünde cesaret verici bir katalizör rolü üstlenmesi beklenmektedir.

R1. Öğrenme ortamı olarak "Stüdyo"



5. SONUÇLAR

İlgilendiği problem türleri ve temsil araçlarının yanı sıra yaratıcılık gerektiren doğası nedeni ile de farklılaşan tasarım disiplinlerinin formel öğrenme ortamı olarak kabul edilen "stüdyo", konvansiyonel eğitim ortamı olarak tanımlanan sınıf düzenine göre çeşitli yönleriyle farklılıklar göstermektedir. Özellikle "iletişim", "etkileşimli öğrenme", "yaparak öğrenme", "eleştirel düşünme" gibi anahtar kelimelere dayalı olan bu öğrenme ortamının yükseköğretimin diğer programlarına (doğal bilimler ve toplum bilimlerinin alt alanları vb.) uyarlanabilirliğinin tartışılması gerekmektedir. Stüdyonun bir öğrenme ortamı olarak uygunluğu değerlendirildikten sonra diğer disiplinlere uyarlanan çeşitli hedef ve metodolojilerinin, bu disiplinler açısından tıkanılan noktalarda çözüm alternatifi sunabileceği ve olumlu yönde kazanımlar getirebileceği düşünülmektedir.

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TASARIM EĞİTİMİ VE OYUN TABANLI ÖĞRENME

DESIGN EDUCATION AND GAME BASED LEARNING

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ÖZET

"Oyun tabanlı öğrenme" olgusunun, sadece ilköğretim kurumları açısından değil, ortaöğretim, yükseköğretim, hatta yetişkin eğitimi açısından etkin bir öğrenme ortamı olarak işlev görebileceği önermesine yönelik tartışmalar gündemdeki yerini almıştır. Bu düşünceye göre, "oyun", pek çok disiplin açısından, enformel eğitimin önemli ve etkin bir parçası olarak işlev kazanmakta, akademik alandan bilimsel araştırmalara, ve hatta iş dünyasına pek çok oluşum açısından faydalanılabilir bir araç olarak kabul görmektedir. Her ne kadar, metodun, yükseköğretim programlarına etkisi, gerek kuram gerekse de uygulama yönü ile tartışılmaya başlanmış olsa da, konu, motivasyonel girdilerin ve yaratıcılık olgusunun etken olduğu tasarım disiplini yükseköğretim programları (mimarlık, endüstri tasarımı, iç mimarlık, kentsel tasarım, grafik tasarım, peyzaj mimarlığı vb.) açısından daha da önem kazanmaktadır. Bu çalışma kapsamında, "oyun" ve "tasarım" kavramları arasındaki ilişki ve benzerlikler irdelenecek, "oyun tabanlı öğrenme" olgusunun tasarım disiplinleri yükseköğretim programlarının enformel olarak adlandırılmayan formel bir uzantısı haline dönüşümüne olanak veren süreç çeşitli yönleriyle tartışılacaktır.

ABSTRACT

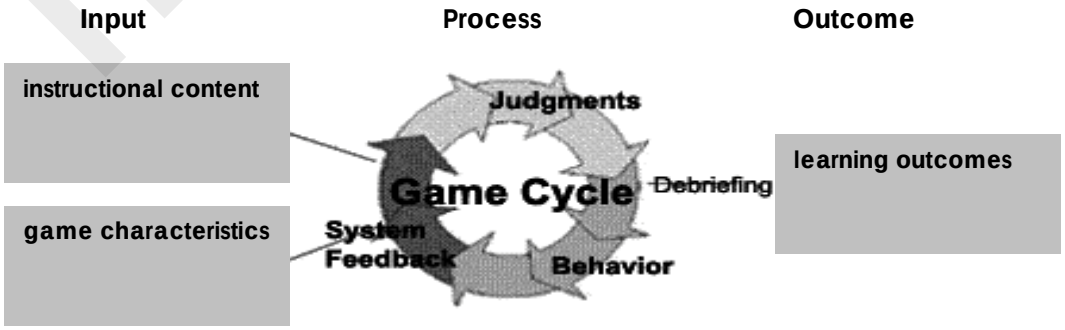
In recent years, the discussions took place on the agenda items which claims that "game based learning" phenomenon can be evaluated as an effective learning environment for not only primary schools and secondary schools, but also for higher education and adult education. According to this view, "game" has gained functions as an important and effective part of informal education for different disciplines. It was accepted as a useful vehicle for various formations such as academic area, scientific researches and business activities. The effect of "game based learning" method on higher education programs has been discussed recently but the subject gained much more importance for higher education of design disciplines' programs (architecture, industrial design, interior architecture, urban design, graphic design, landscape architecture and etc) which related with motivational inputs and creative thinking requirements. In the context of this study, the relations and similarities between the concept of "game" and "design" will be examined and "game based learning" which can be recently defined as an informal extension of design disciplines' higher education will be discussed with various aspects.

1. GİRİŞ

Her ne kadar, son yıllarda, "oyun tabanlı öğrenme" metodunun, farklı disiplinlere yönelik yükseköğretim programlarına etkisi, gerek kuram gerekse de uygulama yönü ile tartışılmaya başlanmış olsa da, konu, tasarım disiplini yükseköğretim programları (mimarlık, endüstri tasarımı, iç mimarlık, kentsel tasarım, grafik tasarım, peyzaj mimarlığı vb.) açısından daha da önem kazanmaktadır. "Tasarım" ve "oyun" kavramları, problem türlerine yaklaşım, açık uçluluk, sezgisellik, tanımlanmadaki belirsizlik, karmaşıklık, öznel değerlendirmelerin belirleyiciliği, nesnel değerlendirmedeki zorluklar, rastlantısallık gibi çeşitli göstergelerle ifade edilmekte ve bu bağlamda benzerlikler göstermektedir. Bu nedenledir ki, tasarım disiplinlerine yönelik programlar, "oyun tabanlı öğrenme" metodunu, kesintisiz geleneksel zorunlu formel eğitimde "soluk alma" araları olarak bilinçli bir farkındalık olmadan da olsa, zaten, uygulamaktadır. Bilinçsiz de olsa, kullanılmaya başlanan metodun aslında, "oyun tabanlı öğrenme" olduğuna yönelik farkındalık, ancak son yıllarda artmış, bu farkındalıkla metodun kullanımı yaygınlaşmaya başlamıştır. Bu çalışmada, öncelikle "oyun tabanlı öğrenme" olgusu genel bir yaklaşımla irdelenecek, ardından, metodun tasarım eğitiminde kullanım biçimi değerlendirilerek çeşitli örnek uygulamalar analiz edilecektir.

2. OYUN TABANLI ÖĞRENME

Garris, Ahlers & Driskell (2002) oyun olgusunu "kesin olmayan, gerçek dünya dışında, kendine özgü kuralları ve kültürü olan, eğlenceli ve isteğe bağlı bir etkinlik" olarak tanımlar (R1). Oyun tabanlı öğrenme ortamları, belirli problem senaryolarının içine yerleştirilen oyun çatılı ortamlar olarak ifadelendirilir. Geleneksel girdi-süreç-çıktı öğrenme modelleri tek denemeye dayalı öğrenmeyi (single-trial learning) vurgularken, oyun tabanlı öğrenmede, tekrar tekrar deneme söz konusudur. Buna göre, oyun, tekrarlanan bir döngüdür. Tekrarlanan yargılar-tepkiler, davranışlar ve dönütler söz konusudur. İlgi, beğenme, güven gibi öğrenene ait yargıları ve tepkileri harekete geçirir. Oyun tabanlı öğrenme modelinde öğrenen aktif olarak deneyimleri sonucunda bilgilerini yapılandırmaktadır. Bu nedenle, deneyime dayalı öğrenme etkendir. Birey öğrenme ortamı ile aktif katılımcı olarak etkileşime girer. Carlson (1971), Kirriemur ve McFarlane (2004) oyunların bireye yaparak yaşayarak öğrenme olanağı vermesi, öğrenci merkezli olması, problemin çözümünde aktif katılım imkanı sunması, etkileşimli uygulama açısından özendirici olması, öğrenme motivasyonu sağlaması gibi çeşitli özellikleri ile oldukça etkili bir eğitim aracı olabileceğini vurgulamaktadır. Bu görüşe göre, oyun tabanlı öğrenmenin bireye yaparak yaşayarak öğrenme olanağı veren ortamlar sunması, aktif olmanın yanı sıra süreci kontrol etme fırsatı tanıması, gerçek yaşamı simüle ederken, gerçek tehlikelerden uzaklaştırması, birden fazla duyu organına hitap ederek kalıcı olması, keşfetme olanağı tanıması, keyifli - zevkli - heyecanlı - eğlenceli olması nedeniyle zaman sorununun olmaması, içsel ödül mekanizması ile duygusal haz sağlaması gibi pek çok ölçütü öğrenmenin etkinliğini doğrudan arttırmaktadır. (Coleman, 1971; Malone & Lepper, 1987; Mann, Eidelson, Fukuchi, Nissman, Robertson, & Jardines, 2002; Dickey, 2003; Ebner & Holzinger, 2007; Bottino et al., 2007). Bu bakış açısına göre, oyun olgusu, sadece ilköğretim kurumları açısından değil, ortaöğretim, yükseköğretim, hatta yetişkin eğitim açısından efektif bir öğrenme ortamı olarak işlev görmektedir. Bu gündemde, oyun, pek çok disiplin açısından, enformel eğitimin önemli ve etkin bir parçası olarak işlev kazanmakta, akademik alandan bilimsel araştırmalara, ve hatta iş dünyasına pek çok oluşum açısından etken bir araç olarak kabul görmektedir.



R1. Oyun Tabanlı Öğrenme Modeli Garris, Ahlers & Driskell (2002)

3. TASARIM EĞİTİMİNDE OYUN TABANLI ÖĞRENME

"Tasarım" ve "oyun" kavramları, problem türlerine yaklaşım, açık uçluluk, sezgisellik, tanımlanmadaki belirsizlik, karmaşıklık, öznel değerlendirmelerin belirleyiciliği, nesnel değerlendirmedeki zorluklar, rastlantısallık gibi çeşitli göstergelerle ifade edilmekte ve bu bağlamda benzerlikler göstermektedir. "Tasarım" ve "oyun" olgularının bazı durumlarda sınırlılıklar ve kurallar koyan bir yapıya sahip olma gibi olumsuz yönleri de olsa, özgür düşünmeyi teşvik eden ve özgüven veren doğaları, bu iki olguyu birbirine daha da yakınlaştırmaktadır. Tasarım eğitiminin, yaparak öğrenme temeline dayalı, entelektüel gelişimi öncül gören, öğrenmeyi öretmeyi hedefleyen, motivasyon - isteklilik gerektiren, sonuç temelli olmaktan öte süreç temelli olan kendine özgü doğası nedeniyle, süreçte, formel eğitimin önceden kestirilemeyen problemler karşısında tıkandığı noktalarda, enformel eğitimin katkı sağlaması kaçınılmaz bir zorunluluk olarak belirlenmektedir.

Tasarım eğitiminde stüdyonun hedefi, sadece tek yönlü bilgi iletimine (proje yürütücüsünden öğrenciye) dayalı olmayan, proje yürütücüsü, öğrenci ve diğer tüm öğrenciler arasında sosyal bir etkileşim gerçekleştirmek olsa da, geleneksel öğretim metotları bu "iletişimi" sağlamada yetersiz kalmaktadır. Usta-çırak ilişkisini etken gören ve önceden tanımlı bilginin öğrenciye aktarılması üzerine kurulu konvansiyonel metotlar ile eğitimin sadece "tashih sistemi" üzerine kurulu olması eleştirilmektedir. Böylesi bir yönelimle, tasarım eğitiminin temel gerekliliği olan diyalog olgusunun monoloğa dönüşümüne engel olunamayacağı belirtilmektedir. Tasarım eğitimini isteklilik ve motivasyona dayalı olması gerekliliği nedeni ile stüdyoyu öğrenci tasarımcı için cazip hale getirebilecek farklı modellerin denenmesi gerektiği düşünülmektedir.

Geleneksel metotların, tasarım eğitimini diğer disiplinlerden ayıran en belirgin hedefi olan "karşılıklı etkileşim" ve "yaratıcı düşünce" oluşumunda yetersiz kalacağı önemle belirtilmekte, "oyun tabanlı öğrenme" metodunun bu bağlamda bir can simidi olarak işlev görebileceği üzerinde görüş birliği oluşmaktadır. Gündem, aynı zamanda, oyun olgusunu ciddi kalıpların dışında, rasyonel karşıtı olarak gören ve "modern" düşüncesinin dışında tutan eğilimin terk edildiği ve hatta yüceltildiği bir süreç ile paralellik göstermektedir. (Combs, 2000). Tasarım eğitiminde oyun fikrinin, statik - durağan bir kurgudan öte, dinamik - etkileşimli bir yapıyı vurgulama ve bireyi de aktif olarak bu deneyime dahil etme yönü ile farklılaşan doğası nedeniyle faydalanılabilir sonuçlar doğurabileceği iddia edilmektedir. Metodun, "yarışma" yerine "tartışma" ortamı sağlaması, "bireysellik" yerine "işbirlikçi öğrenme" olanağı sunması, stüdyo yürütücüsü - dersin hocası - akademisyen gibi çeşitli ifadelerle tanımlanan eğitmenin de öğrenci ile beraber öğrenmesinin mümkün olabileceği fikrini savunması gibi farklılaşan yönleri dikkat çekmektedir. Oyun, özellikle öğrenci tasarımcının, tasarım sürecine, tasarımcı kimliğinin yanı sıra, dinamik olarak dahil olma durumuna izin vermesi nedeniyle geleneksel tasarım dilleri ile tıkanılan noktalarda güven tazelemek için başvurulabilecek en etken araçlardan biri olarak değerlendirilmektedir. (Woodbury et al, 2001).

Tablo 1. Tasarım Eğitiminde Geleneksel Modeller ve Oyun Tabanlı Öğrenme Modeli

Tasarım Eğitiminde Oyun Tabanlı Öğrenme Modeli	**Geleneksel Modeller**
Öğrenene süreci kontrol etme imkanı verir.	Süreç kontrolü açısından öğrenene oldukça kısıtlı imkan sağlar
Aktif katılıma olanak verir.	Amaç, aktif katılımdır. Ancak, genellikle rutin etkinlikler söz konusudur.
Zaman kontrolu genellikle öğrenen tarafından belirlenir.	Önceden belirlenmiş sınırlı süreler söz konusudur.
Bireyin kendine yönelik öz yeterlilik algısını geliştirir. Öğrenen kendi kendisini değerlendirebilir. Özeleştiriye yöneltir.	Öğrenenin kendisine yönelik performans algısı etkili değildir.
Öğrenenler açısından diğerleri ile birlikte ve işbirlikçi bir çalışma ortamı sağlar.	Öğrenenler ve öğrenenlerin performansları birbirlerinden tecrit edilmiştir. Genellikle "bireysel öğrenme" söz konusudur.
Performans, ölçüt tabanlıdır. "Yarışma" yerine "tartışma" önem kazanır.	Performans, geleneksel metotlarla belirlenir. Diğer öğrenenler ile yarışma söz konusudur.
İçsel bir ödül mekanizması ve duygusal bir haz söz konusudur.	Not, derece, ödül gibi somut olarak varlık gösteren dışsal ödül mekanizması söz konusudur.

Her ne kadar, tasarım eğitiminde "oyun tabanlı öğrenme" metodunun genellikle enformel öğrenme ortamı olarak nitelendirilen "workshoplar" (katılımı isteğe bağlı olan eğitim ortamları) üzerinden gerçekleştirildiği düşüncesi yaygın olsa da, bu metodun, günümüzde tasarım eğitiminin formel eğitim ortamı olarak kabul gören tasarım stüdyolarında da (katılımı zorunlu dersler) yaygınlaşarak yer almaya başladığı bilinmektedir. Buna göre, tasarım eğitiminde, "oyun tabanlı öğrenme", enformel workshopların vazgeçilmez unsuru olmanın yanı sıra, formel eğitim stüdyolarında da tıkanılan noktalarda ara yüz oluşturan ve destek veren önemli bir eğitim aracı olarak işlev kazanmaya başlamaktadır.

4. ÖRNEK UYGULAMALAR

Öğrenci tasarımcıların, (1) her bireyin çocukken gerçekleştirdiği bir deneyim olan "kumla oynama" yöntemi ile kumsalda model üretebilmelerine olanak verme (Yürekli, 2004), (2) yerin 5 m. altında yaşayan ve taş yiyerek beslenen 15 m. boyunda bir canavar için "yuva" tasarlamalarını isteme (Tümer, 2000), (3) özürlüler için mekan tasarımında etken olan kriterlerin "empati" yolu ile algılanabilmesi için kısa bir süreliğine de olsa gözleri bağlı, koltuk değnekli, tekerlekli sandalyeli olarak yürüyebilmelerini sağlama (Dostoğlu, 2000), (4) "mekan" ve "beden" kavramları arasındaki ilişkileri sorgulatmak üzere, yapıların cephelerinin bir "giysi" olarak nasıl temsil edilebileceği konusunda fikir üretmelerini isteme ve ürettikleri tasarımları, birbirlerine, kendi üzerlerinde bir defile ile sunmalarına olanak verme (Ersoy et al. 2008), (5) bir kutu raptiye, 4 m. lastik, bir ampul, 100*70 resim kağıdı, bir kutu yapıştırıcı kullanımı ile "kıskançlık" kavramının üç boyutlu ortamda ifade edilmesini isteyerek soyut bir olgu üzerinde modeller aracılığı ile düşünebilmelerini sağlama (Yağlı & Acar; 2000) gibi pek çok uygulama tasarım disiplinlerinde kullanılan "oyun tabanlı öğrenme" modeline örnek olarak gösterilebilir.

R2. Tasarım Eğitiminde Oyun Tabanlı Öğrenme: Örnek Uygulamalar



Bilinçli bir farkındalık olmadan da olsa, stüdyo yürütücüleri, öğrencilerin istekliliklerini arttırmak ve yaratıcı sıçramanın (creative leap) gerçekleşmesine olanak vermek amacıyla, "oyun tabanlı öğrenme" modeline başvurarak yeni tasarım problemleri üretmektedir. Bu problemler kimi zaman, hiç çalışılmamış, açık uçlu, sınırlandırılmamış konu alanları olabileceği gibi, kimi zaman ise, "origami" gibi bilinen, ancak, tasarım eğitiminde kullanımı nadir olan araçlar üzerinden gerçekleştirilmektedir. Origami, son yıllarda bir "oyun tabanlı öğrenme" metodu olarak tasarım disiplinleri yükseköğretim programlarında sıklıkla kullanılmaya başlayan geleneksel bir araç olarak işlev görmektedir. Yaratıcı formların üretilebilmesine olanak veren origami, öğrenci tasarımcılara düşündüklerini modelleyebilme imkanı sunmakta, hatta 1/1 ölçekli maket üretebilmelerini sağlamaktadır. Hafiflik, stabilite, uzun ömürlülük, kolay üretilebilme - inşa edilebilme, düşük bütçe gereksinimi, çevreye duyarlılık gibi özellikleri ile dikkat çekmektedir. Özellikle tasarım disiplinleri açısından önemli bir girdi olarak kabul edilebilecek olan "esneklik" gereksinimini sağlaması, strüktür tasarımı, taşıyıcı sistem tasarımı, kinetik tasarım gibi çeşitli konu alanlarına yönelik farkındalık kazandırmada etken bir araç oluşu önemlidir.

1/1ölçek detayında dahi maket üretimine olanak vermesi ve böylelikle, öğrenci tasarımcıların ürettikleri mekanın içinde bireysel olarak ya da hep bir arada var olabilmelerine imkan sağlaması nedeniyle, keyifli bir "oyun tabanlı öğrenme aracı" olarak işlev görmektedir. Çeşitli kaynaklar, origaminin tasarım disiplinlerinde kullanımını, "form strüktür ve mekânın bir arada şekillenmesine olanak veren güçlü bir keşfetme ortamı" ifadesi ile tanımlamaktadır. (Sorguç et al. 2009). Cambridge Üniversitesi Mimarlık Bölümü öğrencileri tarafından gerçekleştirilmiş olan "Cardboard Banquet" tasarımı, İtalya Milano'da Prof. Luigi Alini stüdyosunda gerçekleştirilen "Cardboard Pavilion" tasarımı gibi çalışmalar, origaminin oyun tabanlı bir öğrenme aracı olarak yükseköğrenim tasarım disiplinlerine uyarlandığı çeşitli uygulamalara örnek olarak gösterilebilir (R3).

R3. Tasarım Disiplinlerinde Oyun Tabanlı Bir Öğrenme Aracı olarak Origami



http://blog.bellostes.com/media/packaged-cardboard-pavilion.png (Mayıs2010) http://www.arplus.com/9298/cardboard-banquet-cambridge-uk-by/ (Mayıs 2010)

5. SONUÇLAR

Tasarım disiplinleri yükseköğretim programlarında "oyun tabanlı öğrenme" metodu bilinçli bir farkındalık olmadan da olsa, zorunlu formel eğitim sürecinde "soluklanma" araları olarak uygulanmaktadır. Fakat tekniğin, aslında "oyun tabanlı öğrenme" metodu olduğuna yönelik farkındalık ancak son yıllarda artmıştır. Başlangıçta, metodun eğitimin ilk yıllarında kullanımı, profesyonel bilgi ve öğretilere daha yoğunluklu olarak yer verme yönüyle farklılaşan ilerleyen yıllara oranla daha sık gerçekleşirken, zamanla metodun kullanımında yıllara göre değişen bu belirgin ayrımda da azalma meydana gelmiştir. Metot, sadece tasarım eğitiminin ilk yıllarında değil, eğitimin ilerleyen yıllarında da geleneksel tasarım dilleri ile tıkanılan noktalarda güven tazelemek için başvurulabilecek en etken araçlardan biri olarak kabul görmeye başlamıştır. Ancak, tüm bu farklılaşan bakış açılarına rağmen "oyun tabanlı öğrenme" metoduna tasarım disiplinleri yükseköğretim programlarında yer verilme biçimi halen enformeldir. Kullanım, stüdyo yürütücülerinin insiyatifine bağlıdır. Oysa ki, metodun, tasarım stüdyolarında, formel eğitim sürecinin (zorunlu eğitimin), artık enformel olarak adlandırılmayan, formel bir uzantısı haline gelmesi, müfredatın zorunlu bir parçası olarak değerlendirilmesi gerekmektedir.

Önem verilmesi gereken bir diğer nokta, öğrenci tasarımcıların ürünlerini gerçek zamanda birbirleri ile paylaşabilme - tartışabilme, birey olarak tasarımlarının içinde var olabilme gibi iletişimsel kazanımlara olanak veren metodun kullanımında, amaç - yöntem - zaman gibi konuların belirlenmesinde dikkatli davranılması gereğidir. Metodun kullanımında, eğitiminin hangi düzeyinde, hangi öğrenim çıktıları hedef alınarak, ne sıklıkla, ne tür metodolojilerle faydalı olabileceği sorularının deneysel çalışmaların ardından nesnel olarak tartışılması gerekmektedir. Özellikle, istekliliğe dayalı eğitim metotlarının en kritik olası risklerinden biri olarak tanımlanan, eğitimin öğrenim çıktısı olarak belirlenen kazanım hedeflerini dışsallaştırıp sadece "eğlence" durumuna dönüşmesi olasılığının engellenmesi bu noktada oldukça önemlidir. Ancak bu olası risklerin engellenmesi ve formel eğitimin enformel olmayan formel bir uzantısı haline gelmesi durumunda, metot, zorunlu öğrenme ortamları olan tasarım stüdyolarında tıkanılan noktalarda ara yüz oluşturan ve destek veren önemli bir araç olarak işlev kazanabilecektir.

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TEACH ONLY WHEN UNDERSTANDING: THE STRATEGIES OF TEACHING INDUSTRIAL DESIGN TO THE NET GENERATION

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ABSTRACT: Industrial Design education has been defined by craft and well known for its 'immersed' and 'practice-based' learning environment. Most of Industrial Design schools continue to reference and embrace Bauhaus style studio courses centered on individual, hands-on product development. The design assignments have traditionally focused on researching, sketching, model making, and presentation. However, many industrial design teachers are now struggling with teaching current college design students, the so-called 'Net Generation', due to their preference and reliance on digital technology for learning. Since design education can never be accomplished solely by using digital technology, design educators are now facing major transformational change as digital technology alters how learning is enabled. This paper will explore and demonstrate how Industrial Design can be taught to the Net Generation with the understanding of their learning mode and characteristics making learning more relevant and effective. Specific examples of approaches integrated into a third year Industrial Design studio course will be illustrated.

INTRODUCTION

Many current university students belong to the 'Net Generation (or Net Geners) '- a label used to describe today's young adults along with other terms including 'Digital Natives' [8] and 'Generation Y' [6]. This group of individuals, born between 1980 and 1994 [7], have been characterized by their familiarity with and reliance on information and communication technologies. They have " spent their entire lives surrounded by and using computers, digital music players, video games, cell phones, and all the other toys and tools of the digital age" [8]. A number of social psychologists have argued that the digital culture in which the Net Generation has grown up has influenced their preferences and skills in a number of key areas related to education. For example, the Net Geners are said to prefer receiving information quickly; expect immediate answers; have a low tolerance for lectures; prefer multi-tasking and non-linear access to information; prefer active rather than passive learning; rely heavily on communications technologies to access information and to carry out social and professional interactions [2], [9].

Industrial Design education has been defined by craft and well known for its 'immersed' and 'practice-based' learning environment [5]. Most of Industrial Design schools continue to reference and embrace Bauhaus style studio courses centered on individual, hands-on product development. The design assignments have traditionally focused on researching, sketching, model making, peer evaluation and presentation. The problems faced by current Industrial Design educators are students' little patience with the intensive and long design development process and their reliance on information and communication technologies as the major information resource.

The goal of this paper is not to change the nature of the Net Geners or the current design pedagogies, but to propose the teaching strategies that both accommodate the needs of the 'Digital Natives' and ensure that the learning of Industrial Design in design schools is relevant and effective.

THE TRADITIONAL INDUSTRIAL DESIGN EDUCATION

According to IDSA (Industrial Designers Society of America), 'Industrial Design' is the professional service of creating and developing concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer [3]. Therefore, most Industrial Design curricula include courses related to problem solving, form development, human factors, design for manufacturability, computer visualization, and rapid prototyping. The design studio is regarded as the most essential course for Industrial Design students due to its possibility for students to examine what they learned from other core courses. It is often structured with activities including

observational user research, personal interviews, concept ideation, sketch development, rendering, experiential prototyping with a working model, and usability studies.

These assignments allow students to hone their abilities in understanding their target users, rapid visualization sketching, form development, and achieving user-centered design. The focus on individual skill building, however, is often at the expense of a semester long project. Students complain that these activities are 'time-consuming' and 'short of efficiency' and suggest that the instructors should tailor their teaching to match the skills, experiences and expectations of their 'Net Generation' students.

CHARACTERISTICS OF NET GENERATION

The term 'Net Generation' was coined by Tapscott (1997). It is linked directly to the (Inter)net and the emerging digital technology of the 1990s with which this generation grew up. To date, more than 30 books have been written on the Net Generation, which report the results of several surveys and research and describe their characteristics. Berk, the former Assistant Dean for Teaching at The Johns Hopkins University, synthesizes the survey research evidence from multiple sources and extends the work by the preceding authors in an effort to help faculty members in higher education understand the characteristics of the Net Generation and enhance the effectiveness of their teaching [1]. Among the various sets of characteristics presented in the literature, 20 common denominator characteristics emerge that have a direct bearing on learning. The educational implications of the characteristics are shown below:

1. Technology savvy: Having grown up with the technology, the Net Geners are familiar with most forms of digital gadgetry. They have spent their entire lives surrounded by all of the toys and tools of the digital age. The technology affects everything they do and buy. They expect information to be at their fingertips. Their experience with the technology has enabled them to master complex tasks and make decisions rapidly.

2. *Relies on search engines for information*: About 89% of Net Generation begins searches for everything with search engines like Google. They have an "ease-of-use" mentality. Their high comfort level with the technology has fostered a false sense of ability, such that they routinely overestimate their skills at finding and evaluating online information.

3. *Interested in multimedia*: They are accustomed to entertainment, speed, and accessing music, videos, games, and information their own way. They prefer interactive media rather than passive TV. They have experience with massively multiuser games and participate in virtual worlds, which are immersive, animated, and 3D environments. Many will obtain their music, videos, ringtones, and software online. Leveraging these media in the classroom is critical to connecting with their culture.

4**.** *Creates Internet content*: They are not only avid users of the technology, with 90% using the Internet to assist with homework; they also contribute to its content. About 57% design and write Websites, post blogs with pictures and original artwork, and make videos for YouTube daily.

5. *Operates at "twitch speed"*: This generation grew up with the quick pay-off world of video games, MTV, the Internet, and ultra-fast speed of action films. They are used to the instantaneity of hypertext, downloaded music, iPhones in their pockets, a library of resources on their laptops and IMing. They prefer random access, graphics-first, active, connected, fun, and fantasy activities. They have adapted to speed and even thrive on it. That translates into their" needs for speed" in everything they do by themselves and in their relationships.

6. *Learns by inductive discovery*: They prefer to learn by doing rather than being told what to do or reading text or manuals. They are kinesthetic, experiential, hands-on learners. They must be engaged, constantly connected with first-person learning, games, simulations, and role-playing.

7. *Learns by trial and error*: With their Nintendo mentality, they will jump right in and do what is necessary to solve a problem using trial and error, failing, starting over, and so on. They will seek help only if they can't come up with the answer.

8. *Multitasks on everything*: They can naturally do several tasks easily at the same time. The Net Generation can move quickly from one activity or medium to another, such as chatting with their friends on a cell phone while surfing the Net and watching TV. Mixing play and work is common. It‘s part of their lifestyle.

9. *Short attention span*: Again the Net Generation is used to speed in everything they do and touch. They must be actively engaged, doing some task, and having fun doing it, or boredom and impatience take over. They are used to immediate results and pay-offs for performance. That satisfies their need for feedback and instant gratification.

10. *Communicates visually*: They are visually literate, comfortable in an image-rich rather than text-only environment. Many don‘t like to read books, especially textbooks. They perceive print as expensive, boring, and a waste of time. Instead, they prefer visuals, graphics, and images of any kind.

11. *Craves social face-to-face interaction*: Relationships are a high priority in the Net Generation’s lives. Despite the hours that they spend in IMing and social media communications, they also gravitate toward activities that promote and reinforce in-person conversation, interaction, and collaboration.

12. *Emotionally open*: They express their feelings easily. They are open to meeting new people, sharing personal information, and digital storytelling online in blogs or other social media. They also want the opportunity to express their opinions and ideas in class or small group discussions and Q & A sessions.

13. *Embraces diversity and multiculturalism*: The Internet fosters diversity. The Net Generation’s exposure and connection to the whole world through global communications have given 72% a tolerance, appreciation, and sensitivity for multiculturalism and 79% the ability to work with diverse people.

14. *Prefers teamwork and collaboration*: As stated above, the Net Generation has strong social tendencies and a need for interpersonal interaction, both online and face-to-face. They prefer to work in teams rather than alone. Collaboration enables their “collective intelligence” to emerge through the pooling of knowledge, research, arguments, and insights from diverse groups of people.

15. *Strives for lifestyle fit*: Net Gen students want flexibility in their lives. Many are non-traditional students who attend college part-time, work full- or part-time. Lifestyle fit is extremely important. They want their school to fit their lifestyle.

16. *Feels pressure to succeed*: They feel pressure from their Boomer parents to succeed at whatever goals they set. They are goal-oriented—setting college, career, and life goals. Being able to accomplish these goals and efficiently do what needs to be done is more important than accumulating a bunch of facts. They focus on short-term achievement and grades at the expense of critical thinking skills and deep learning.

17. *Constantly seeks feedback*: This characteristic is part of the ‘Trophy Kid’ mentality. The Net Geners want to be recognized for their efforts and achievements. Receiving regular and speedy feedback on their performance is important at school. They prefer objective methods of assessment and explicit guidelines on how to make As, which are inconsistent with most performance assessments.

18. *Thrives on instant gratification*: The speed with which the Net Generation operates in every aspect of their lives has provided them with instant gratification. Their lack of patience can create frustration and boredom.

19. *Responds quickly and expect rapid responses in return*: It‘s all about speed, efficiency, and ”don‘t waste my time.” Since the Net Generation operates at “twitch speed” and multitask as a way of life, they expect everyone else to respond quickly to all communications. They have zero tolerance for delays.

20. *Prefers typing to handwriting*: Taking notes in class the old fashioned way is not the Net Generation's way. They want to type notes, communications, and papers on their PC/Mac or iPhone. That is what they are used to doing. The advantages of Word far outweigh any alternative of verbal print communication.

Although not every Net Gen student shares the same personality and could be diverse in learning style and attitude, the major characteristics of the Net Generation are still being highly valued as the most effective guide for practices in higher education [4].

STRATEGIES FOR TEACHING INDUSTRIAL DESIGN TO THE NET GENERATION

Take into consideration the nature of Industrial Design education and the characteristics of the Net Generation, eight strategies for teaching Industrial Design are formulated and examined in a third year design studio, the first design studio for students to tackle real product design issues. These strategies are:

Strategy One: Incorporate digital technology into lectures, in-class and out-of class assignments, activities, demonstrations, and communications between teacher–student and peers. (*Tech Savvy*)

Strategy Two: Provide assignments that draw on the students' search engine skills, but give guidance and instruction on how to think critically about the information and on how to maximize the value of the search results. (*Relies on Search Engines*)

Strategy Three: Most Net Gen students are visually literate, the use of multimedia, such as graphics, images, videos, or music that are student favorites in the lectures, assignments, and even their reports will draw their attention and enhance their engagement. (*Visually Literate; Interested in Multimedia*)

Strategy Four: Provide a performance-oriented design studio; focus on the quality of their design and emphasize the ability of time management and responsibility. Students will engage and participate better in their learning when they are operating at their own pace. (*Pressure to Succeed; Lifestyle Fit; Operates at Twitch Speed*)

Strategy Five: Divide the class period into multiple sessions- such as the combination of short lectures, in-class exercise, group-discussion, class brainstorming and peer-evaluation. The Net Generation has short attention span and prefers multitask, the variety of class activities will keep students engaged in different way and ensure that learning is happening. (*Short Attention Span; Multitask; Prefers Teamwork; Embraces Diversity*)

Strategy Six: Provide hands-on, exploratory, and trial –and-error problem solving exercises, individually or in groups, to allow students test their own strategies and discover the solutions. The Net Generation likes to take control of their learning as an active learner. (*Experiential/ Kinesthetic; Trial and Error; Emotionally Open*)

Strategy Seven: Tap students' multiple intelligences and learning styles to give every student the chance to succeed; encourage students think critically and independently while providing fair and appropriate assessments of achievement. (*Pressure to Succeed; Lifestyle Fit*)

Strategy Eight: Provide regular and prompt constructive feedback- positive and negative, print, online, and face-to-face. The Net Generation seeks for instant feedback and gratification, and enjoys interacting with classmates or professors. (*Face-to-Face Interaction; Seek Feedback; Instant Gratification; Responds Quickly*)

Again, the goal of creating these strategies is to ensure that the learning of Industrial Design is relevant and effective with a special consideration of the needs of the Net Gen students. The testing of these strategies should be conducted within a third year design studio, and a post-questionnaire at the end of the semester should get the feedback from the enrolled students and validate the effectiveness of these strategies.

HOW THESE STRATEGIES WORK

By applying Strategy Five, the Basic Product Design Studio is structured in the form of multiple sessions with respective topics. Each session takes about 2-3 weeks and is comprised of four distinct phases, each of which requires its own set of design parameters and skills applications. These phases are defined as: Observation, Analysis (Research Presentation), Application (Design Project), and Testing (User and Peer Evaluation) (Fig. 1).

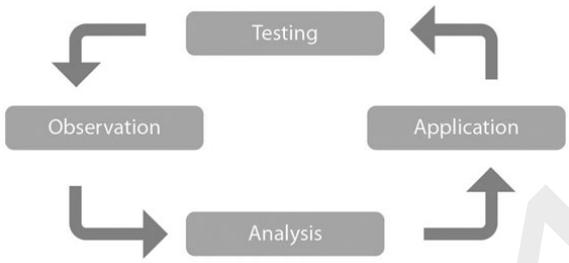


Fig. 1. The process of learning Industrial Design.

Prior to beginning any sessions, one lecture is introduced to the students and a class-discussion is followed to allow students the chance to interact with their peers and the faculty. The lecture is usually taken place in the form of PowerPoint presentation with multiple media such as graphics, images, and videos. During the Observation phase students are required to research a specific topic assigned by the professor. They are encouraged to use different types of technology to observe design and present their findings in different types of techniques, such as drawing, photo-taking, videotaping, and so on. Students enjoy the way they take control of their learning style and pace in an open yet clear-defined direction. (Strategy Two, Three, Four, and Seven)

The Analysis phase requires students to bring the results developed from the previous phase to the class in any kinds of format and share their findings with other students. The live methods such as Q&A, in-class discussion, and brainstorming create a team atmosphere for learning where the professor is part of the team. The active and collaborative activities enable students to pool knowledge, debate, share opinions and create new insights. The immediate feedback is given from the professor during these activities to enhance the interactions between students and professor. (Strategy One, Two, Four, Seven, and Eight)

Following the Analysis phase, the Application phase challenges students to develop idea sketching, renderings, and physical models of their design in order to communicate their concepts. Prior to beginning this phase, a well-structured project handout and the design schedule are presented to the students as an agreement. The handout defines the game rules, such as the goal of this project, the basic requirements, the deliverables, and the grading criteria. Students are exposed to a hands-on learning environment and gain the ability to connect the function and the form in the product designed by them through physical mock up making. One-on-one meetings are taken place during the design development process for the students to get the instant feedback and guidance from the professor. (Strategy Four, Six, Seven and Eight)

During the Testing phase students are required to test their design works, observe how users interact with these products, and document the process of operation to better understand how the form of an artifact influences the quality of design and user experience. Students are encouraged to photograph or videotape the process of testing and incorporate these media into their final presentations. In-class critique is taken place to provide prompt and interactive feedback to the presenters. (Strategy One, Three, Six, Seven, and Eight)

At the end of this semester, a questionnaire was conducted to students from three different third year design studios. The Design Studio C is the one adopting these new teaching strategies. Five simple questions with evaluation scales ranking from 1 (Strongly Disagree) to 5 (Strongly Agree) were provided

to all of these fifty-two students. The following table shows the questions and the results of this questionnaire:

	Students in Studio A (n=17)	Students in Studio B (n=18)	Design Studio adopting New Teaching Strategies to the Net Gen students: Students in Studio C (n=17)
This design studio positively affected my understanding of the industrial design process	4.2	4.10	4.55
This design studio positively affected my contextual user research abilities	3.76	3.59	3.93
This design studio positively affected my ability in form development	4.0	3.8	4.2
This design studio positively affected my ability to work in teams	3.9	3.2	4.6
This design studio positively affected my ability in both visual and verbal presentation	4.4	4.0	4.8

Table. 1. Questionnaire results. [1=strongly disagree; 5=strongly agree]

This post-questionnaire confirmed the perceived validity of these teaching strategies. The responses from students in Design Studio C yielded five mean responses either about or above 4 (4 being agree). It shows that students in Design Studio C, the one adopting these teaching strategies, have better learning experience and effectiveness and are well-equipped with fundamental design abilities.

CONCLUSION

Design education needs to prepare and equip future designers with the necessary and appropriate skills to support them professionally. This design studio does not just give entry-level design students exposure to the knowledge of Industrial Design, but also tries to create a "learner-centered" learning environment to ensure that learning is relevant and effective. Through this, students sharpen their design skills and learn to take control of their own learning. The later ability to a design educator is more meaningful than the former one since "keep learning" is one of the best strategies to the success in the field of Industrial Design and the ever-changing digital era.

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TEACHERS AND THE INFLUENCE OF AGE: ON THE TRANSFORMATION OF PROFESSIONAL SELF-CONCEPT

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ABSTRACT
The text presents selected results of a questionnaire investigation focused on identification of several factors in the work of basic school teachers aged over 50, particularly subjectively perceived changes in the selected factors forming self-concept – in the sense of security, responsibility, usefulness, success and satisfaction. Attention is paid also to the reflection of the changes in relationships and motivation for continuance in the profession from the point of view of the addressed teachers.

Introduction

The nature of the teaching profession is associated with a number of demands and difficulties related particularly to coping with stress, handling relationships both in and out of school and increasingly more significantly these demands are related to the need of keeping up with innovations and adapting to changes. It certainly is not easy to become a true professional and maintain high quality of work and motivation for it throughout the whole career. Therefore, the teaching career and its transformation legitimately attract attention of a considerable number of experts in various research fields (Huberman 1989, Hansez a kol. 2005, Levin 2003, Steffy et al. 2000 and many others). Researchers are generally interested in problems of novice teachers and conditions for their professional development till the stage of teaching "mastery" or "expertise", while significantly less attention is paid to teachers in the late stage of their career, that is those who can represent an invaluable resource of knowledge and experience, however, on the other hand, their performance (often negatively affected by fatigue and many professional frustrations) is surrounded by myths and prejudice. The significance of the projects focusing on senior working population (between 55 and 65 years old) is growing especially over the last few years due to the frequently quoted phenomenon of social ageing. The consequences of gradual ageing of the population are reflected also in the demographic representation of workers in various professions and thus in teaching too. Both Czech and international statistics indicate a high percentage of elderly teachers at all levels of education (cp. Sledování 2008, Age 2008). The questions arising are: How do senior teachers perceive themselves in the professional context? How do they perceive the changes in their own performance of the job? What motivates them? What type of support do they perceive and expect? The questions are related primarily to the professional self-concept of teachers and their job performance. These and other aspects of professional performance of teachers over 50 were examined in the research project Teachers in the late stage of their career. In this text we present selected results of a questionnaire investigation conducted in 2009 where we looked at how lower secondary school teachers aged over 50 perceive their position in school and changes in job performance. We turn our attention to the question of change in professional self-concept, changes in relationships and other aspects of professional stability as seen by the addressed lower secondary school teachers.

Self-concept and time

Self-concept is a psychological concept present in many personality descriptions; it is defined differently depending on the construction of the given personality theory. Therefore, there are a number of definitions of self-concept, they particularly stress the organisation of the conscious traits, expectations, attitudes and relationships, that is those that an individual attributes to oneself (Smékal 2002). Professional self-concept of a teacher then analogically includes e.g. opinion of oneself as a worker, feelings associated with one´s performance, the perceived professional position and role, personal experience and story related to work etc. Although it is a relatively permanent concept of oneself, still it is more or less significantly transformed due to life experience and age. Findings of developmental psychology provide convincing evidence that despite the nearly intimate nature of self-concept of each individual it is possible to generalize its transformation with age at least in some of its aspects.

An ageing individual experiences changes in self-concept or self-image, particularly as concerns **self-esteem** and **self-confidence;** an elderly person has lower self-confidence, is more cautious and often does not "dare" to start new projects or reject usual stereotypes (Stuart-Hamilton 1999, Ward 1977). A senior teacher is continually confronted with flexibility of younger colleagues, who enter the profession with a different knowledge and experiential basis. The changes in self-concept which are a consequence of "comparing what can not be compared" can even lead to negative self-presentation, learned helplessness and scepticism. Ageing and long-term employment bring about a tendency to an increase in subjective **health problems**, which can be both the cause and a consequence of changes in self-concept. Some authors refer to increasing doubts about oneself and loss of self-confidence in teachers with 20 to 30 years of practice (cp. Daniel, Sarmány-Schuller 2000, Huberman 1989). The social status of a teacher and their position in school play a significant role in the transformation of professional self-concept. Hansez et al. (2005) e.g. mention complaints especially of elder teachers about the problem of "devaluation of the profession", which is boosted, among others, by "the methods that the younger colleagues employ"and the changes in norms of behaviour. Owing to ageing the **relationship to the profession** changes as well as its subjective significance for a person. Elderly people usually do not care so much about ambitions although their work can take various forms, from excessive effort to the loss of the sense of meaningfulness of own work (cp. e.g. Alan, 1989). According to Huberman (1989) a typical feature of teachers in the late stage of their career is increased reflectiveness associated with lower ambitions and investments into the finishing career. Although it might seem that the expected changes in self-concept due to ageing hinder rather then improve performance, there are authors of empirical studies (as well as people in school practice) who agree that senior teachers **can not be regarded as second-class teachers** and empirically no clear relationship was found between the length of practice and pupils´ results or the level of educational work (e.g. Huberman 1989). Self-concept and professional self-concept are intertwined and intimate and unique to such extent that it is apparently more relevant to examine them by **autobiographical stories** without an ambition of generalizing knowledge. Nevertheless, we attempted to include several selected aspects forming the concept of professional self-concept into our questionnaire investigation which was broadly focused on some aspects of senior teachers´ work. Due to the complex nature of the concept and difficulties with transforming it into concrete items (for the purpose of a quantitative investigation) we selected for examination only closely defined categories (forming individual items in a questionnaire), which, in our opinion, can be principal for the performance of teaching.

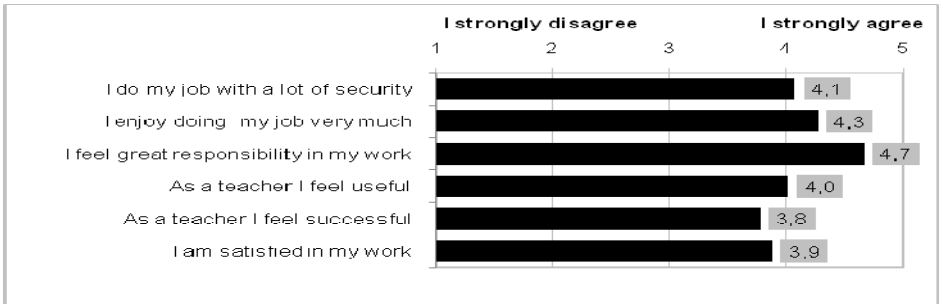
Questionnaire investigation

The respondents of our questionnaire investigation focused (not only) on professional self-concept were lower-secondary school teachers aged over 50. The items in the questionnaire were organised into the following areas: professional self-concept, profession and personal life, professional joys and troubles, cooperation with colleagues and school management and receiving support. In the part of the text dealing with professional self-concept we asked about the current situation as well as changes in the selected factors: professional security, responsibility, sense of joy, usefulness, success and satisfaction. The questionnaires were handed over to the representatives of 165 basic schools (in cooperation with the Association of Basic School Headmasters), questionnaires from 53 schools were sent back by mail. We processed in total 173 questionnaires from teachers over 50, out of those 34 were men (i.e. there were 19.8% of male teachers and 80.2% of women teachers). This distribution approximately reflects common representation of men and women in basic schools in percentage term (Sledování 2008).

On the changes in professional self-concept

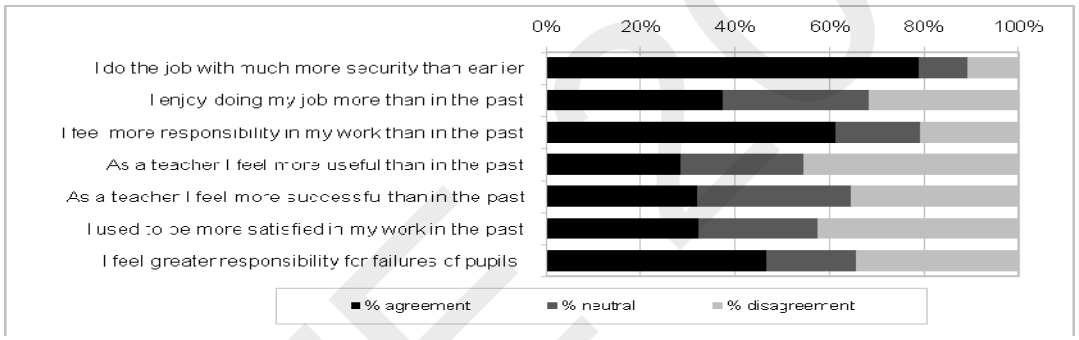
Comparing the individual factors of professional self-concept with each other, it is apparent that teachers feel above all **great responsibility** (the variance for this item was low), the lowest average value refers to the **feeling of success**, however on average it is above the middle scale value (Tab. 1). Fewer than 30% of teachers feel fully successful, nearly 40% of teachers feel completely satisfied, about 10% of them admit they are not satisfied at work.

Tab.1 Professional self-concept (averages, scale 1-5)



When asked to evaluate their feelings and perception of themselves in the profession in the course of time, most often teachers incline to the statement that the time spent doing the profession and therefore also practice and experience **bring higher security and perhaps also responsibility,** but **do not arouse a sense of usefulness, satisfaction or success.** As far as the perception of changes caused by age is concerned, the averages of values are not representative as the feeling of change is given with a significantly higher variance than expression of current state. That means that **teachers rather disagree** when expressing the change in professional self-concept, with the exception of the perceived change in the items security and responsibility, where they reach fuller agreement.

Tab. 2 Changes in self-concept (in trichotomy of a five-point scale)



The questionnaire included a number of open questions as we intended to capture also some opinions and attitudes which we did not feel competent to predict and we did not want to "induce" our own ideas and expectations. The responses were categorised and we present them in nominal values (to make it apparent how many responses we received).

Teachers agree that **what boosts their security** is mainly: experience and practice (54 times), changes in personality associated with age (e.g. detached point of view, distance, wisdom, others – 20 times), the influence of continual self-education and thorough lesson planning (15 times), the influence of school background and and good work climate (7 times), relationship to children and love for the profession (5 times) etc. On the other hand, what **diminishes their security** is especially underachievement of pupils, their lack of interest and misbehaviour (38 times), the situation in the school system, constant changes and red tape (18 times), personal changes associated with ageing such as decrease in confidence, fatigue, problems with voice, memory and health in general (17 times), attitudes and "*arrogance*" of parents (14 times), the image of teachers in society in general, *deterioration of morals* (10 times), then the inability to keep up with the modern age and technology (8 times), intergenerational problems and relationships on the workplace, *hypocrisy*" (3 times), etc.

Responsibility is understood mainly as concern about pupils´ safety, children´s future and their achievement. The positive transformation of usefulness and success is then related chiefly to better methodological work ("*...it is not easy to capture pupils attention nowadays...*") and a better ability to adapt teaching for the needs of children with educational problems. Some of the respondents (13 times) openly point out the **lacking sense of usefulness** due to the problem that teachers and their work is undervalued. All the variables referring to self-concept were analysed by means of correlation analysis and additive indexes measuring the given concept were designed whereby three new concepts were developed, entailing variables with mutual dependency: **the concept of self-realization** entails three mutually dependent variables: enjoyment of work, responsibility, usefulness and satisfaction. **The**

concept self-confidence entails mutually dependent variables: security and success. **The concept change of self-concept** entails mutually dependent variables: growing enjoyment of work, growing sense of usefulness and growing sense of success. While we identified relative agreement in the first two concepts, the third one expressing the feeling of change is characteristic by a greater variance of attitudes.

On strong and weak points of teachers over 50

In the questionnaire we encouraged the teachers to write about the strong and weak points of senior teachers – the formulation of the question carried an assumption of projection. There was space to name three factors and rank them in order of importance. The mentioned factors were categorised, marked (3 points for the factor ranked first, 2 points for the factor given as second and 1 point for the factor ranked third) and we added the points for individual categories of factors. The respondents consider the strong points of senior teachers particularly those related to:

- **experience and practice;** these are broad concepts with unspecified content, nevertheless they were given in vast majority of cases in the first place and without any comment (420 points),
- **personality competence;** particularly judgement, wisdom, detached point of view, generosity, authority, dignity and other values (177 points),
- **expert competence;** particularly expertise, security, professionalism, knowledge, methodological skills (73 points),
- **interpersonal competence;** particularly the ability to act, foster relationships, empathy, patience (60 points).

The respondents consider the weak points of senior teachers particularly those related to:

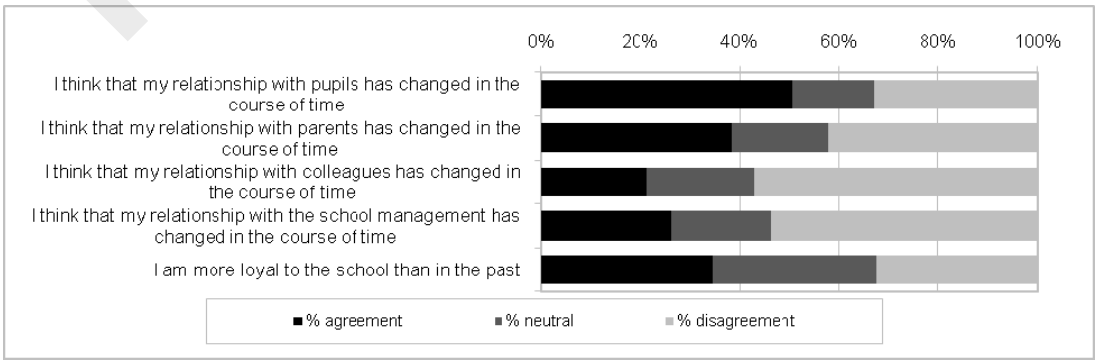
- **physical health, sensory and cognitive functions;** health, vision, hearing, voice, memory (306 points),
- **the ability to adapt to changes and learn;** technology skills, the inability to innovate, "*...they can´t keep up with the trends...*" etc. (124 points),
- **psychological changes;** heightened sensitivity, nerves, lacking self-confidence and sense of humour, cautiousness and heightened responsibility (93 points),
- **flexibility and energy;** indolence, stereotype, conservative opinions (does not concern skills but loss of energy and enthusiasm), burn-out (65 points),
- **transformation of relationships and social transformation;** generational gap, lack of understanding for young generations, different opinions from the young, the loss of illusions about values and behaviour of the young (50 points).

These findings merely illustrate general knowledge from developmental psychology and results of researches on teachers´ health and undoubtedly deserve closer explanation or understanding of specific context in qualitatively conceived research.

On the transformation of relationships

The teachers did not reach much agreement when judging transformation of relationships either; some state that they experience great transformation in relationships (especially with pupils and parents), others do not experience any changes or are not very sure (Tab. 3). The analyses showed **great variance in responses**, therefore the average values are not representative.

Tab. 3. Change of relationships (in trichotomy of a five-point scale)



We wanted to find out in which way primarily the relationship to pupils, parents, colleagues or the school management has changed. As the **changes in relationship with pupils and parents** are subjectively considered more obvious, in this text we will focus exclusively on them. The teachers mention transformation of relationships which can be organised around two bipolar criteria: **leniency – strictness, understanding – misunderstanding:**

- **greater leniency;** some of the teachers (actually the majority) consider themselves more lenient, tolerant in the course of time, they relax their requirements on pupils´ behaviour and achievement (30 times)
- **greater strictness;** on the other hand some mention more strictness and consistency towards pupils (6 times),
- **greater understanding;** some teachers consider a significant feature of the transformation in relationships with pupils greater knowledge of pupils´ personalities and thus also understanding (25 times),
- **less understanding;** on the other hand some teachers consider the relationship with pupils to be worse and mention problems with intergenerational misunderstanding "*...I don´t understand them*" (7 times).

Further, the teachers mention higher concern and worries about pupils, a greater sense of responsibility, higher sympathy etc. (15 times). It seems that concerning changes in relationships there is little agreement among the teachers, although most of them point out that there is more leniency and lower requirements on pupils. However, it is not absolutely clear whether that is due to "the pressure of the time" (schools compete for every pupil and therefore the standard is lower and more tolerance is necessary for the behaviour of pupils) or if it is because personal changes bring about a more detached point of view and tolerance, but maybe also resignation and loss of interest ("*sparing one´s nerves*"). The expressed better understanding prevails over the negative attitude; however, it is necessary to take into consideration the questions who actually are our respondents. We can assume that they are rather those active, open, willing and positively thinking teachers who were willing to share their experience. Thus, there might be more negativism, dissatisfaction and scepticism than we are able to reveal in a research conducted in this manner.

As far as **the change in the relationship of teachers over 50 with parents** is concerned, neither here is much agreement and they can be classified into several groups according to their responses:

- teachers who have developed **understanding**: "*... we have more empathy, understanding, patience, generosity and helpfulness,.... we have/had children too...*" (18 responses),
- teachers who have developed **scepticism**: "*... they do not cooperate, are unwilling, are not authority for their children, unreliable, don´t respect school nor the teachers...*" (11 times),
- teachers who have developed **superiority:** "*... we are stricter, more critical, we are not afraid of them, I give them advice, teach them responsibility, treat them as pupils...*" (10 times),
- teachers who have adopted **tactics and strategies:** "*...you have to deal with them with care, I know how deal with them, I know what they are like...*") (10 times),
- teachers who have developed **optimism:** "*...we are striving for partnership, cooperation....*" (4 times),

Some teachers (apparently mainly in small towns) point out that they know whole families – the parents were once their pupils and therefore the relationship is rather specific.

On motivation and continuance in the profession

Motivation for work and high performance is closely associated primarily with **professional satisfaction.** Among the most important factors of professional satisfaction teachers rank the atmosphere at the workplace, good climate, cooperation with colleagues (62 times) and good relationships with the school management, "*decent management*", "*personality of the headmaster*" (23 times). Professional dissatisfaction often results in resignation from the profession. Research proves that there is a higher percentage of resignations among teachers within the first five or seven years after entering the profession, then in middle-age the situation is stabilised and at the end of the career the number of resignations increases again, however this is probably mainly due to early retirement (e.g. Ingersoll 2001). Out of our research sample 21.1% of teachers never changed their workplace, 20.5% changed a workplace once, 26.3% twice and 32.3% of teachers changed their workplace more times. 78% of the addressed teachers have never worked outside the school sector. **The most frequent tendencies to**

change jobs are apparent in men, only 14% of men have never changed jobs and 47.1% of men changed jobs more than three times, 30.3% of men as compared to 20.1% of women have had a job outside the school sector.

The teachers were also asked if they ever in their career got a **feeling that they had to give up the teaching profession.** Nearly 45% of teachers disagree completely or partly (i.e. they never wanted to give up) while approximately 40% of the respondents fill in the opposite. We can get an insight into these tendencies by looking at the open questions. As **reasons for the considered resignations** the teachers mention firstly fatigue caused by the enormous amount of work and duties, health problems, the burn-out syndrome etc. (22 times), misbehaviour of pupils, their lack of interest etc. (14 times) and also conflicts with the school management and relationships among the staff (13 times). The presented reasons for continuance in the profession separate the teachers into **two equal groups**: those who continue **because of the profession** (they enjoy doing the job) and those who would leave immediately if they came across a better opportunity providing at least the same life security.

If the teachers were to choose once more whether to enter the same profession then nearly a half of them would **choose teaching again** (81 out of 166 responses) and the other half would either hesitate (i.e. would choose teaching under certain conditions or they do not know – 37 out of 166 responses) or would **reject the possibility** (48 out of 166 responses). Some of the rejections were very decisive and apparently entailed certain disillusion: "*Certainly not! No, never!!! No way!*" etc.

Conclusion

The results of the questionnaire investigation indicate that the pillar of professional self-concept of senior teachers is a sense of great responsibility and ageing brings about primarily higher security in the profession. The sense of security is then closely linked with the sense of success. The teachers consider their strong points especially experience, personality changes such as "a detached point of view and distance" etc., on the other hand, what hinders their work is mainly health problems and fatigue together with misbehaviour and lack of interest of pupils. These findings in principle correspond with previous foreign and Czech researches conducted in this area. It is remarkable that the teachers repeatedly complain about the red tape, which worsens their fatigue. Questioning the teachers about the changes of self-concept involves relying on their memory and ability of self-reflection – their experience in this respect varies. If the teachers are able to reflect on some kind of change then it is in almost all the items. They notice changes particularly in better methodological work and regarding the relationship with pupils they take the role of more "understanding and lenient" teachers. The changes in the relationship with parents are not perceived so distinctly: the teachers admit superiority, critical attitude as well as the need of strategic conduct. Teachers are typically strongly attached to their profession and are motivated by good relationships among the staff rather than by work itself, an important role is played by the school management too. It seems that creating favourable climate in schools remains a great challenge for the school managements. A matter requiring attention is undoubtedly also the relatively high percentage of completely unsatisfied teachers (Is one tenth of completely unsatisfied teachers too much or little?) and those who consider their choice of the profession a life failure. A more detailed insight into the problem was enabled partly by the teachers´ responses to the open questions, greater understanding of some of the developmental changes will be gained from the case studies conducted within our research project.

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TEACHING NEW WORDS IN ENGLISH TO UNIVERSITY STUDENTS

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ABSTRACT:

As it is known, teaching vocabulary is a crucial and an inevitable subject in English language teaching and education. Many kinds of teaching methods can be used according to the language levels and ages of the students in our classes. Students need to learn the meanings and the pronunciations of the words they are learning from their textbooks.

New words on science, technology and medicine, new words on entertainment and on many different areas have recently been created in English. These words have to be told to students in order to develop their communicative competence.

This paper deals with the use of the new words in English and how they can be taught to students. Samples of these words and their usages will be explained. Dealing with vocabulary and types of dictionaries will be told.

Key words: sample new words in English, dealing with vocabulary, types of dictionary

I. Introduction

This study deals with the use of the new words in English. Many new words in different areas have recently been created and they have often been used. These words have to be told to students in order to improve their social skills and their communicative competence.

In this paper, sample new words on science, technology and medicine, on entertainment, on social trends and economy and finance will be given. The sources for these new words will be suggested. Dealing with vocabulary, the aims and objectives of the vocabulary teaching sessions, the types of dictionaries and how to study with these dictionaries will be explained. Useful web-sites for teaching vocabulary will be suggested.

II. Dealing With Vocabulary

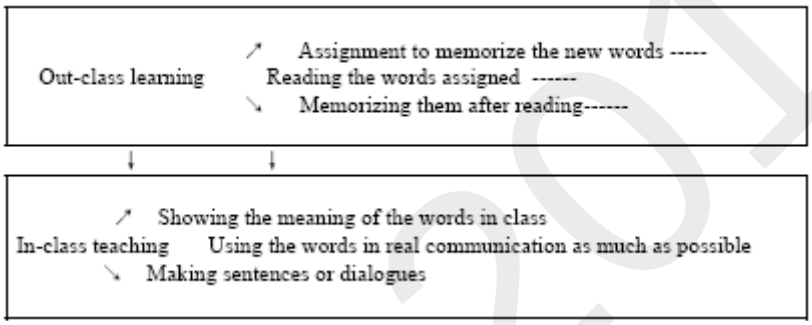
No language stands still. New words and expressions are always being created, sometimes just for fun or usually because something new is invented. (McCarthy& O'Dell: 2005: 36)

McCarthy and O'Dell (2005: 5) state that

It is not enough just to know the meaning (or meanings) of a word. You also need to know:
- *which words it is usually associated with.*
- *its grammatical characteristics.*
- *how it is pronounced.*
- *whether it is formal, informal or neutral.*

Zhan-Xiang (2006) tells on teaching vocabulary to adult beginners that

> *From many years of observation, I think vocabulary teaching for these kinds of learners can be performed in two ways: one is out-class learning and another is in-class teaching. Out-class learning is a task assigned after class to memorize words in groups, which means a certain number of words should be read and memorized in each given period of time in order to speedily memorize a lot of words from the words list. For exmaple 1800 words required in the primary stage should be divided into groups according to the categories to be learned and memorized in several given periods of time. In-classroom teching is the time when we show them the meanings of the words they memorized and how to use the words. In the vocabulary teaching, akind of feeling of a real need to learn the words should be created for the students. Students' seeing the words, reading them and memorizing them after class should be also attached to showing the meaning of the words and using the words in real communication. The pattern of learning vocabulary in this stage is as follows.*



It is explained in the above paragraph that effective teaching and learning in class also depends on students' effective studies outside the classrooms. If the students in our classrooms study the new words in class before coming to class and after class teaching, and effective learning can be achieved.

Vince& Emmerson (2003: 213) state that

> *If you are reading and you find a new word you do not know, do not immediately use a dictionary and add the word to your vocabulary notebook. Ask yourself:*
>
> *- Is this an important, useful word?*
> *- Do I need to know the exact meaning?*
>
> *If the word seems important, and you have time, then of course use a dictionary and add the word to your vocabulary notebook.*
>
> *If the word seems unimportant, or you are reading just for pleasure, or you don't have time, then you can:*
>
> *- leave it and come back later*
> *- try to guess the meaning of the word from the context*
> *- compare the new word with other words that look similar, then guess*
> *- ask someone*

II. 1. Making The Most of Your Dictionary

Nyikos and Fan (2007: 265, 266) emphasized successful dictionary use in the following lines:

Successful and unsuccessful look-up macro-strategies may be related to the language proficiency of students (Neubach and Cohen 1988; Fan 2003; Thumb 2004). For example, Neubach and Cohen (1988) observed that high-proficiency students analyzed the word and sentence before looking it up and tended to find the correct grammatical form and definition for that particular context while less proficient students generally did not. In addition, lower proficiency students had problems with other students in the definition and generally did not find the dictionary useful. Gu's (1994) case study of two Chinese learners found that the more proficient student looked up fewer words because he was highly selective when choosing which words to look up and used the ancillary information such as pronunciation, examples, and usage more frequently than the less proficient student, and preferred to use a variety of contextual cues in order to guess the meaning of a problem word before looking it up. Similarly, the Hong Kong students in Fan's (2003) study considered the immediate use of newly learnt English words in authentic communication superior to a look-up strategy. Not all proficient learners used the dictionary with the same rationale, success or regularity. For example, Neubach and Cohen (1988) reported that some students used the dictionary less, simply because it was too time-consuming relative to the benefit they felt they derived.

We understand from the paragraph written above that using dictionary efficiently depends on the language proficiency of learners. If the language level is high, the definitions given in dictionaries can be understood well and the benefits of using dictionaries can be understood clearly by the learners.

It is stated by McCarthy and O'Dell (2005:12) that

Good dictionaries, especially learners' dictionaries, can tell you a lot more about a word than just its meaning, including (among other things):

- *Word-class (usually abbreviations **n:** noun, **adj:** adjective, etc.), whether a noun is countable or uncountable, and whether a verb is normally transitive (needs an object) or intransitive (doesn't need an object).*

- *Synonyms and their differences, e.g. **mislay** and **misplace***

- *Antonyms (opposites), e.g. friend # enemy/foe*

- *Collocations (how words go together), e.g. living is often used in these collocations: cost of living, make a living, standard of living*

- *Pronunciation: this will mean learning some symbols which are different from the letters of the English alphabet and their pronunciation is not too hard to guess.*

- *Word stress: often shown by a mark before the syllable to be stressed or by bold type. Make sure you know how your dictionary marks stress.*

- *Usage: how a word is used and any special grammatical pattern that goes with it, e.g. **suggest**+clause (not an infinitive)- I suggest **you ring her** right away.*

- *Whether a word is used for people and/or things. For example, look at this entry for **malignant:***
  malignant:** 1 (of people or their actions) feeling or showing great desire to harm others; malevolent: a malignant slander, attack, thrust. 2 (a) (of a tumour) growing uncontrollably, and likely to prove fatal: The growth is not malignant. (b) (of diseases) harmful to life. **ma-lig-nancy** 1 [U] state of being malignant. 2 [C] malignant tumour. **ma-lig-nantly adv.

II. 2. Types of Dictionary

The following information is given by McCarthy & O'Dell (2002: 10) that

Type	***Comments***
alphabetical	*the most common type; words are arranged in alphabetical order*
thesaurus	*the words are arranged according to meaning, usually under a broad heading, e.g. under walk we would find stroll, plod, stride, etc., with explanations*
monolingual	*in one language only; popular learners' dictionaries of English are often monolingual, and have detailed explanations in English, with examples of use*
bilingual	*in two languages, usually yours and the language you are learning; useful because they give translations, but may not be so good for distinguishing between possible translations*
dictionaries of synonyms	*words are grouped according to their closeness in meaning, e.g. start and begin; sometimes antonyms (opposites) are also given and explanations of differences in meaning*
dictionaries of false friends (or cognate words)	*these give advice on words which are easily confused with similar-looking words in other languages.*
CD-ROM and online dictionaries	*some publishers include a CD-ROM with their learners' s dictionaries and/or have put their dictionaries on the Internet; with these dictionaries, searching is very quick and easy- you can search for words, meanings, examples, words you only half-know, all much faster than using a book.*

II. 3. Useful Web-Sites for Teaching Vocabulary

The following web-sites are for teaching vocabulary:

How new words are created:

http://www.teachingenglish.org.uk/try/lesson-plans/how-new-words-are-created

Classroom Activities For Vocabulary Teaching:

http://www.inged.org.tr/index.php?option=com_content&view=article&id=49&Itemid=56#content

III. Sample New Words

McCarthy and O'Dell (2005: 36) give definitions of the following new English words on science, technology, medicine,, entertainment, social trends and on employment:

III. 1. Science, technology and medicine

Cyberspace: the realm where electronic data are sorted or transmitted by computers
Junk e-mail: unsolicited material, such as adverts, sent by e-mail
Keypal: a kind of penfriend that you Exchange e-mails with rather than letters
Surfing the net: exploring the world-wide web
e-commerce: business based on the Internet
mouse potato: someone who spends a lot of time in front of a computer, especially on-line
information fatigue syndrome: a condition of psychological stres induced by trying to cope with too much information
eating disorder: a serious disturbance in eating habits often caused by emotional problems
GM foods: genetically-modified food, i.e. food adapted by use of biotechnology

III. 2. Entertainment

snowboarding: gliding on snow, upright on a large single ski
in-line skating: roller-skating or roller-blading with rubber wheels in a straight line
video jockey (VJ): a TV presenter of music videos
audio book: an audio recording of a book read aloud-sometimes in shortened form
drop-dead gorgeous: inspiring admiration for someone's attractiveness
bad hair day: a day when everything goes wrong and you feel unattractive

III. 3. Social trends

docusoap: a television genre showing people going about their ordinary lives
cybercafé: a café where customers can eat and drink and also use the Internet
road rage: extreme anger experienced by drivers in stressful conditions, resulting in dangerous driving or attacks on other drivers
singleton: an unmarried man or woman
spin doctor: someone whose job it is to manipulate popular opinion in favour of politicians or other public figures
decluttering: the art of discarding unnecessary items
off-message: departing from the officila party line
grey vote, grey pound: the voting or purchasing power of older people

III. 4. Employment

Down-sizing: reducing the size of a company or organisation, usually by sacking people
Outsourcing: employing outside workers to do work away from the company site
Hot-desking: the practice of sharing desks or workstations between workers (rather than individulas having their own desks)
Waitperson: waiter or waitress

IV. Aims and Objectives For Teaching New Words in English
The aims of teaching new words in English is to help learners to extend and improve their vocabulary by:

- increasing the number of words they know.
- helping learners to use words in a more natural, more accurate way
- improving students' knowledge and active use of collocation
- presenting additional meanings or metaphorical uses of words which our students already know.

(McCarthy& O'Dell: 2002: 6)

V. Conclusion:

McCarthy and O'Dell (2005: 4) state that

> *English vocabulary has a remarkable range, flexibility and adaptability. Thanks to the periods of contact with foreign languages and its readiness to coin new words out of old elements English seems to have far more words in its core vocabulary than other languages. For example, alongside* ***kingly*** *(from Anglo-Saxon) we find* ***royal*** *(from French) and* ***regal*** *(from Latin). There are many such sets of words which add greatly to our opportunities toe express subtle shades of meaning at various levels of style..*

Teaching all kinds of words help our students to learn many different kinds of cultures. But teaching the new words in English make them to be more modern people and help them to search and develop new ideas and topics. During the learning vocabulary sessions in classes, students improve their pronunciation skills, they also improve their grammar, because they learn how to use words in different types of sentences.

It is hoped that this paper will help colleagues to teach more effective and enjoyable vocabulary teaching courses and it is also hoped that samples of the new words given in this study will help colleagues to find more words which have recently been using in our lives.

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TEACHING PRONUNCIATION THROUGH THE INTERNET FROM EFL TEACHERS' PERSPECTIVES

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Abstract

This paper aims at emphasizing the prominence of teaching pronunciation to EFL learners through the use of the Internet. It defines the concept of the Internet, expounds the relationship between the Internet and pronunciation teaching via examples and examines preparatory school EFL teachers' perspectives on Internet-based pronunciation teaching. The results of the study reveal that preparatory school EFL teachers' perspectives on Internet-based pronunciation teaching are positive despite not being able to implement internet-based pronunciation teaching because of having very little knowledge of the implementation of internet-based pronunciation teaching, large class size encountered in language classes of preparatory schools in North Cyprus universities and inappropriateness of materials in textbooks for using internet-based pronunciation teaching. Results also show that language teachers are willing to get training to promote their Internet-based language teaching skills so that they can use the Internet as a tool for teaching pronunciation to their students.

1. INTRODUCTION

The Internet is one of the most significant teaching tools to improve foreign language learning and teaching in our times. Language teachers have become interested in employing the Internet because recent developments in ICT boost diversity in learning methods and multimedia materials that can be beneficial for language learners. The vast amount of information linked by hypertext on the Web seems highly useful for learners having a self-directed learning style. Each learner is permitted and stimulated to manage the learning process independently and to investigate linked pieces of information non-sequentially on the basis of their personal choices and necessities (Son, 1998). Language teachers, accordingly, can make their classes individualized and personalized, contributing to self-empowerment and autonomy in learning (Warschauer, Turbee & Roberts, 1996). It is through the use of the Internet that EFL teachers can reinforce students to utilize the target language in a natural setting (Daugherty & Funke, 1998; Moore, 1996; Mosquera, 2001). Teachers can find language teaching materials and share their own materials, knowledge and ideas with other teachers via the use of the Internet (Warschauer, Shetzer & Meloni, 2000).

The reason why the researcher engaged in this investigation is that teachers in North Cyprus have begun to view the importance of using Internet-based pronunciation teaching materials and activities in their classroom as much as possible despite not being able to implement internet-based pronunciation teaching due to having very little knowledge of the implementation of internet-based pronunciation teaching, large class size encountered in language classes of preparatory schools in North Cyprus universities and inappropriateness of materials in textbooks for using internet-based pronunciation teaching. This article aims to explain the relationship between the Internet and pronunciation teaching and report the outcome of a study that examined preparatory school EFL teachers' perceptions and perspectives on the use of the Internet for teaching pronunciation to students.

2. THE INTERNET AND PRONUNCIATION TEACHING

The Internet can be viewed as an ideal pronunciation learning and teaching tool in that it presents authentic pronunciation learning resources available without having to go to English-speaking countries. To illustrate, in a pronunciation lesson, the language teacher may make students watch the videos taken from online news sites, such as CNN, BBC and the Voice of America in relation to what is currently happening in the world (i.e. Swine influenza, global warming, earthquakes, etc.). After that, s/he can ask the students to make a list of as many words as possible with problem causing segmental and suprasegmental features of English pronunciation based on what they watch and hear in these video news.

Meagher (1995) states that teachers can design homepages for the purpose of their lessons and that they can put their language teaching materials online. According to Muehleisen (1997), EFL teachers can use the

Internet in their classes to motivate their students to utilize the foreign language beyond the classroom context and to make the foreign language an inescapable part of their lives. Daugherty and Funke (1998) emphasize that the Internet can present a wealth of information to students that are not available in textbooks and in-class lectures. To illustrate, on the Internet, there are a variety of sites to assist in the implementation of internet-based pronunciation teaching. Since these sites offer sound animations for minimal pairs, animated articulatory diagrams of consonant and vowel phonemes of the English language, tongue twisters, activities, exercises and drills for students, they are very beneficial for teachers who need to implement internet-based pronunciation instruction. Some useful sites on teaching pronunciation are http://lime.weeg.uiowa.edu/~acadtech/phonetics/, http://www.shiporsheep.com/, http://www.fonetiks.org/ and http://www.manythings.org/pp/.

Through the use of the Internet, language teachers can stimulate their students to become independent learners. For instance, the language teacher can teach students how to access to some online pronunciation teaching sites. Students can access to these sites beyond the classroom context and learn how to pronounce words in the target language correctly. Likewise, the language teacher may provide them with a list of some useful sites for learning pronunciation. Accessing to such online pronunciation learning sites, students can improve their pronunciation skills in the target language by being exposed to a variety of online pronunciation lessons, sound and video animations, diagrams of speech organs, tongue twisters, minimal pairs and songs. Motivating learners to utilize web-based pronunciation learning sites can contribute to autonomous pronunciation learning and hence may give rise to developing their phonetic knowledge in the target language.

Online professional organizations such as *the International Phonetic Association*, *IATEFL's Pronunciation Special Interest Group*, and *TESOL's Speech/Pronunciation Special Interest Section* inform language teachers of issues and news in the field of pronunciation learning and teaching. They also offer a wide range of resources teachers can employ to develop their phonetic knowledge and pronunciation skills. Online journals such as *the Journal of Phonetics, the Linguist,* and *Language Learning & Technology* provide ready access for language teachers who are interested in promoting their phonetic knowledge, comprehending the most current research trends in the field of pronunciation learning and teaching, and putting theory into practice. Listservs and online discussion groups provide language teachers with a vehicle for exchanging pronunciation teaching ideas as well as getting new information and pronunciation resources from each other.

3. METHOD

3.1. Subjects

17 non-native and 3 native teachers of English at European University of Lefke, English Preparatory School participated in this study in the Spring Semester of 2009-2010 Academic Year. Teachers' ages ranged from 25- to 45-years-old. The table below displays the demographic properties of the participants.

Table 1. Demographic properties of the participants

		Frequency	Percentage (%)
Gender	Male	6	30
	Female	14	70
Age	20-29	10	50
	30-39	9	45
	40-49	1	5
	50+		
Teacher	Native	2	10
	Non-native	18	90
Teaching	less than 5 years	10	50
Experience	5-9 years	9	45
	10-20 years	1	5
	20+		

These teachers are the teachers of English Preparatory School at European University of Lefke and Turkish teachers of English are required to have a certain level of proficiency in English to be able to teach English as a foreign language to the students registered in the English Preparatory School. Before starting the teaching profession, these teachers take TOEFL or IELTS type of proficiency tests. In these proficiency tests,

their reading, writing, listening, speaking, and grammar abilities are tested. Those achieving the required level of proficiency start the teaching profession; however, those performing below the required level of proficiency are not given the chance to work as an English teacher at the preparatory school. Moreover, all language teachers, native and non-native, are expected to attend CELTA or DELTA programs so that they can gain more experience in relation to teaching English as a foreign language to the students in North Cyprus.

All teachers had previous computer experience ranging from 2 – 15 years. The main purposes for using computers were for preparation for the lessons with five teachers also citing personal use such as listening to music and for entertainment. They all also had previous experience using the Internet ranging from 2 – 15 years. The most popular types of activities were chatting, sending e-mail, and searching for information on the web. Other activities mentioned were downloading pictures, songs and games (five teachers).

3.2. Research Questions

In this study answers to the following questions were sought.

1. What are preparatory school EFL teachers' perspectives on Internet-based pronunciation teaching?
2. Do preparatory school EFL teachers use internet-based pronunciation teaching in their teaching?
3. What are the reasons for preparatory school EFL teachers' choosing or avoiding the implementation of internet-based pronunciation teaching?

3.3. Instruments

3.3.1. Questionnaire

To document preparatory school EFL teachers' perspectives on the use of the Internet for pronunciation teaching purposes, a questionnaire adapted from Shin and Son (2007) and designed by the researcher was administered to the subjects. The questionnaire included three sections: a demographic section to get respondents' background information; a multiple-choice section to unearth their perspectives on implementing internet-based pronunciation teaching; and a section on reasons for teachers' choosing or avoiding the implementation of Internet-based pronunciation teaching. The questionnaire was distributed to 25 preparatory school teachers in European University of Lefke in North Cyprus. A total of 20 completed questionnaires had been returned within a week and the data collected from the questionnaire were analyzed quantitatively and qualitatively.

4. RESULTS

4.1. Teachers' Perspectives on Implementing Internet-Based Pronunciation Teaching

Table 1.Teachers' Responses to the Questionnaire Items (N= 20)

Questionnaire Items	SA	A	U	D	SD	Mean (SA:5- SD:1)
1. The Internet provides a rich learning environment for non-native learners of English.	4 (20%)	12 (60%)	1 (5%)	3 (15%)	0	3,85
2. Internet tools (e.g. e-mail, chats, blogs, wikis, podcasts) can be used for pronunciation teaching purposes.	5 (25%)	15 (75%)	0	0	0	4,25
3. Internet resources can replace textbooks.	0	2 (10%)	4 (20%)	10 (50%)	4 (20%)	2,20
4. It is easy to find pronunciation teaching materials on the Web.	0	13 (65%)	0	7 (35%)	0	3,30
5. ESL/EFL Websites are useful for teaching pronunciation to students.	3 (15%)	13 (65%)	1 (5%)	3 (15%)	0	3,80
6. Students can be motivated to learn pronunciation by the use of the Internet in the classroom.	4 (20%)	15 (75%)	1 (5%)	0	0	4,15
7. Students can improve their pronunciation skills through the use of the Internet.	4 (20%)	12 (60%)	1 (5%)	3 (15%)	0	3,85
8. Students can improve their pronunciation	4	13	0	3	0	3,90

skills by chatting with native speakers of English online.	(20%)	(65%)		(15%)		
9. Students will be more autonomous in Internet-based pronunciation teaching classes.	4 (20%)	16 (80%)	0	0	0	4,20
10. Students will be more attentive in Internet-based pronunciation teaching classes.	0	11 (55%)	3 (15%)	6 (30%)	0	3,25
11. I am responsible for the success of internet-based pronunciation teaching.		6 (30%)	7 (35%)	7 (35%)	0	2,95
12. I am competent to utilize internet-based pronunciation teaching materials in the classroom.	4 (20%)	4 (20%)	0	12 (60%)	0	3,00
13. I know how to amalgamate internet-based pronunciation teaching resources into my program.	3 (15%)	5 (25%)	0	12 (60%)	0	2,95
14. I need training to improve my Internet-based language teaching skills so that I can use the Internet as a tool for teaching pronunciation to students.	4 (20%)	10 (50%)	0	6 (30%)	0	3,60
15. I would like to use Internet-based pronunciation teaching materials and activities in my classroom as much as possible.	4 (20%)	12 (60%)	3 (15%)	1 (5%)	0	3,95

Note: N: 20; 5: strongly agree, 4: agree, 3: undecided, 2: disagree, 1: strongly disagree

Table 1 displays the results of the teachers' responses to Section II of the questionnaire. The first question investigated whether the Internet provides a rich learning environment for non-native learners of English or not. In response to Question 1, most teachers indicated that the Internet provides a rich learning environment for non-native learners of English, 4 teachers (20%) indicating strong agreement and 12 teachers (60%) indicating agreement. Question 2 was related to the use of internet tools (e.g. e-mail, chats, blogs, wikis, podcasts) for pronunciation teaching purposes. The result for this question indicates that Internet tools can be used for pronunciation teaching purposes with 5 teachers (25%) and 15 teachers (75%), either in strong agreement or agreement. Relevant to the question of replacing textbooks with Internet resources (Question 3), teachers gave somewhat mixed responses: 2 teachers (10%) agreed, 4 teachers (20%) were undecided, 10 teachers (50%) disagreed and 4 teachers (20%) strongly disagreed.

In terms of the easiness to find pronunciation teaching materials on the Web, 13 teachers (65%) showed their agreement, whereas 7 teachers (35%) showed their disagreement. Question 5 examined the usefulness of ESL/EFL websites for teaching pronunciation to students. While 3 teachers (15%) exhibited their strong agreement and 13 teachers (65%) exhibited their agreement, 1 teacher (5%) was undecided and 3 teachers (15%) disagreed. In relation to the use of the Internet in the classroom in motivating students to learn pronunciation (Question 6), 4 teachers (20%) strongly agreed, 15 teachers (75%) agreed. However, one teacher (5%) was undecided. Question 7 was related to the use of the Internet in improving students' pronunciation skills. Responses to this question indicated that students could improve their pronunciation skills through the use of the Internet with 4 teachers (20%) and 12 teachers (60%), either responding in strong agreement or agreement, 1 teacher (5%) responding in undecided and 3 teachers (15%) responding in disagreement. Most of the teachers also indicated that students could improve their pronunciation skills by voice chatting with native speakers of English online and would be more autonomous in Internet-based pronunciation teaching classes.

Question 10 examined students' being more attentive in Internet-based pronunciation teaching classes. While 11 teachers (55%) agreed that students would be more attentive in Internet-based pronunciation teaching classes, 3 teachers (15%) were undecided and 6 teachers (30%) disagreed that students would be more attentive in Internet-based pronunciation teaching classes. In relation to the teacher's responsibility for the success of internet-based pronunciation teaching (Question 11), teachers gave mixed responses: 6 teachers (30%) agreed, 7 teachers (35%) were undecided and 7 teachers (35%) disagreed. Relevant to teacher's competence to utilize internet-based pronunciation teaching materials in the classroom (Question 12), while 8 teachers (40%) stated that they were competent to utilize internet-based pronunciation teaching materials in the classroom, 12 teachers (60%) indicated that they were incompetent to utilize these materials in the classroom. Likewise, regarding the amalgamation of internet-based pronunciation teaching resources into the program (Question 13), 8 teachers (40%) stated that they knew how to amalgamate internet-based pronunciation teaching resources into their programs, whereas 12 teachers (60%) stated that they did not know about the amalgamation of internet-based pronunciation teaching resources into their programs.

As for need for training to improve Internet-based language teaching skills, while 14 teachers (70%) agreed that they needed training to improve their Internet-based language teaching skills so that they can use the Internet as a tool for teaching pronunciation to students, 6 teachers (30%) showed disagreement in relation to such a training. The last question in the questionnaire examined whether teachers would like to use Internet-based pronunciation teaching materials and activities in their classroom as much as possible or not. Responses to this question indicated that most of the teachers would like to use Internet-based pronunciation teaching materials and activities in my classroom as much as possible with 4 teachers (20%) and 12 teachers (60%), either responding in strong agreement or agreement, 3 teachers (15%) responding in undecided and 1 teacher (5%) responding in disagreement

The teachers also provided answers to a yes/no question in Section III of the questionnaire. In response to this question regarding whether they use internet-based pronunciation teaching in their teaching or not, all teachers (100%) indicated that they did not use internet-based pronunciation teaching in their teaching. Relevant to the reasons that they avoid implementing Internet-based pronunciation teaching, teachers gave mixed responses: 10 teachers (50%) stated that large class size was an obstacle to use internet-based pronunciation learning, 5 teachers (25%) stated that materials in textbooks were not appropriate for using internet-based pronunciation learning and 5 teachers (25%) stated that they were using the Internet in their daily lives for e-mailing or chatting purposes but they stated that they had very little knowledge of internet-based pronunciation instruction.

5. DISCUSSION

Overall, preparatory school EFL teachers' perspectives on Internet-based pronunciation teaching were positive although none of them used the Internet for teaching pronunciation to their students in the classroom. Of the 20 teachers, 14 non-Internet users (70%) indicated that they needed training to improve their internet-based language teaching skills so that they can use the Internet as a tool for teaching pronunciation to their students. A total of 16 teachers (80%) stated that they would like to use Internet-based pronunciation teaching materials and activities in their classroom as much as possible. Most of the teachers agreed that Internet tools could be used for pronunciation teaching purposes and that the Internet created a rich learning environment for non-native learners of English. The teachers considered pronunciation teaching materials on the Web as easy to find and stated that ESL/EFL websites are beneficial for teaching pronunciation to students. They also thought that students could be motivated to learn pronunciation by the use of the Internet in the classroom. At the same time, they expressed the view that students can improve their pronunciation skills through the use of the Internet in the classroom and through voice chatting with native speakers of English online.

Most teachers in the study stressed that students would be more autonomous and more attentive in Internet-based pronunciation teaching classes. However, 12 of the teachers (60%) expressed their being incompetent in both utilizing internet-based pronunciation teaching materials in the classroom and integrating internet-based pronunciation teaching resources into their programs. At this juncture, 14 of the teachers (70%) stressed that they need training in relation to internet-based language teaching to improve their pedagogical skills so that they can use the Internet as a tool for teaching pronunciation to their students. Before the implementation of internet-based pronunciation teaching, teachers who are inexperienced or incompetent in e-learning as well as basic computer skills should be offered inservice training. As Shin and Son (2007) states, seminars, workshops and talks can be organized for each educational institution to educate language teachers as to how to use internet resources, how to design or choose Internet-based activities, how to develop internet-based pronunciation lessons and how to infuse Internet resources into actual classroom teaching. Personnel knowledgeable in educational techology and materials design as well as computer technology can be employed in education faculties and preparatory schools where English is taught as a foreign language to students. Moreover, it was found that teachers would like to use Internet-based pronunciation teaching materials and activities in their classroom as much as possible. Lastly, it was found that teachers avoided implementing Internet-based pronunciation teaching due to large class size, inappropriateness of materials in textbooks for using internet-based pronunciation learning, having very little knowledge of internet-based pronunciation instruction.

6. CONCLUSION

The results of the study has revealed that preparatory school EFL teachers have positive perspectives on using the Internet for pronunciation teaching purposes, albeit avoiding the implementation of internet-based pronunciation teaching in their teaching. Most of the teachers have indicated that they need training in relation to internet-based pronunciation instruction so that they can make use of the Internet both as a techological and a pedagogical tool for teaching pronunciation to their students. In the light of the findings of the present study, it

can be stated that the Internet, a very powerful technological and educational innovation, will reshape many aspects of foreign language learning and teaching. At this point, all language teachers should be open to new horizons in education and they should infuse internet resources into their programs to some extent or to a great extent no matter whether the title for such a wind of change becomes internet-based language learning, internet-assisted language learning, or blended language learning.

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TEACHING PSYCHOLOGY IN THE ARAB COLLEGE IN ISRAEL

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INTRODUCTION: ON THE UNIQUESS OF PSCYOLOGY TEACHING

Armstrong (2006), the educator and psychologist, asks:

> What is the aim of education? Is the primary goal of schooling to train young people to pass tests and get good grades' or is it, as Jean Piaget once put it, "to train young people to think for themselves and not to accept the first idea that comes to them"? (p. VII).

Indeed, teaching psychology to education students in general and in the Arab college in Israel in particular is an excellent thinking training. At the first stage the student must transform from a school girl whose most important task is achieving high grades to an adult who uses her own independent thinking abilities to enhance her academic success. She is required – in many cases for the first time in her life – to think critically rather than accept what her teachers tell her as absolute truth.

In addition, unlike in many other fields, where cognitive abilities are the sole requirement for successful learning, understanding and memorizing the "material", the learning of psychology requires, even at the very beginning, the use of one's full capacities – emotionally as well as intellectually – for integration of the learnt material into one's professional and personal life. It also requires its assimilation and implementation, and the challenging of assumptions generally as true, right, and commonly accepted.

The psychology lecturer in the Arab Teachers' college in Israel needs to constantly emphasize that the theories taught are not an absolute truth, but rather opinions of a certain researcher, scientist or theorist. Only by doing that subjects that contradict certain traditions, and others that have never been a part of the curriculum due to their high sensitivity can be introduced. For example:

1. Subjects connected or related to human sexuality;
2. Many subjects dealing with child education at all ages;
3. Issues of respecting the wisdom of the old in spite of new perceptions in modern psychology;
4. Almost all subjects related to religion that in modern psychology include the other two monotheism religions, Christianity and Judaism, but not Islam.

Armstrong (ibid) assumes, that in most educational constellations striving for accomplishments is the main aim, but he perceives this tendency as problematic, as its consequences as at risk of preventing or at least – limiting either academic or personal growth. On the other hand, when school curriculum is adjusted to the developmental needs, to the subjects of interest and to the learner's abilities, learning enables personal as well as academic development. When transferring from by-repetition to "multi-channel" learning we prepare the student to modern, "real" life outside of the educational institute, the life or professionals who would have opinions of their own and will be able to express them in public.

However, the necessity to teach psychology at a teachers' college in a way that enhances personal development of the students makes it a complicated task, as many researchers have already mentioned (APA, 1999, 2002).

TEACHING PSYCHOLOGY IN THE ARAB TECHERS' COLLEGE: THE DIFFICULTIES

In addition to the problems that the psychology teacher in the Hebrew teachers' college has to deal with, she must cope with many issues unique to the teaching of psychology in the Arab teachers' college:

1. The lack of cultural tradition. Psychology is not a part of the Islamic tradition; thus a large part of the students meet this subject for the first time when starting their first course of psychology at the college. This reality is difficult both for them and for the lecturer. The students lack the knowledge of basic concepts of psychology, they have no general knowledge regarding the human mind, and they are not acquainted with psychologists and have not idea about the different domains in psychology. Furthermore, there are still many prejudices in the Arab sector regarding psychology, and the lecturer must fight, in many cases, against the resistance that this discipline arouses in the students in order to make its teaching affective;
2. The still common belief that psychology is tightly connected with mental disorders, and persons who choose to make it a vocation implies that they are mentally problematic;
3. There is a religious-ethical-social taboo on many subjects that psychology deals with, e.g. sex, the status of children, modern theories of child raising, etc. (Dwairy, & Van Sickle, 1996);
4. Western psychotherapy has a potential to help the Arab patient so solve her or his inner conflicts, but at the same time it can cause mightier conflicts between the individual and the society he or she belongs to (ibid).
5. Due to the fact that unlike the situation in many other subjects studied at the college, there is hardly any previous exposure of the students to psychology, not only the initial knowledge of the students is limited, but quite frequently even the need to learn it is challenged;
6. The language problem: learning in Hebrew. Due to the low number of Arab psychologists in Israel holding a PhD, a degree required from all college teachers, many of the psychology teachers in the Arab sector are Jews who do not know Arabic, and thus psychology is taught in Hebrew, which is the second language of the students;
7. A learning method the students have not been accustomed to. While the popular method of teaching other subjects is introducing new ideas while relying on basic terms and concepts that are known – at least partially – to the students, teaching psychology involves a simultaneous introduction of the basic terms and the theories attached to them.

WAYS TO OVERCOME THESE DIFFICULTIES

1. Making connections to the cultural and religious tradition;
2. Confronting the taboos directly, but avoiding the expression of opinions about them;
3. Focusing on Muslim (or Christian) religious elements – common to other religions;
4. Making both historical and scientific references to the giant Muslim scholars who have contributed to the world's development in philosophy, fine arts, the humanities, science and mathematics.

I will hereby demonstrate how a lesson about Sigmund Freud can be taught in an experimental way, while breaking the students' resistance against the man and his theory, and enabling them to develop emotionally, reduce their rigidity regarding a few basic issues, and understand some phenomena from a broader perspective.

THE TEACHING OF FREUD'S PSYCHOANALYTIC MODEL BASED ON THE THREE CENTRAL POWERS: THE 'ID', THE 'EGO', AND THE 'SUPER-EGO'

The students were asked to read at home about Freud, using any available source in any language. This was done in order to give all of them the opportunity to look for an Arabic textbook if they felt they would rather read in their mother-tongue, to use English web sources, easier to access, if they were training to be English teachers and thus felt their English was good enough to meet the challenge of reading a psychological text in English, or in Hebrew – as finally most of the students chose. The textbook for the course was the Hebrew book: *Psychology of childhood and adolescence* by Sohlberg (2007). I chose that book because of two main reasons:

1. The author is an Orthodox Jew, and thus terms that might be perceived by the students as intrusive, not modest or even insulting are minimized.
2. This book is shorter than any other Hebrew textbook that includes all the subjects Sohlberg's book does. That helped my students whose mother-tongue was Arabic.

For the first task the students had to read pages 7-11: "Freud's psychoanalytic model".

At the beginning of the class I wrote the three following terms on the blackboard:

id; ego; super ego.

I assured the students that at the end of the class we would all understand these basic Freudian concepts, and I asked them to remain patient in order to allow me explain them in my way.

I started the class by asking: "who was Freud?"

Only on student – of the 48 in this group – had heard about Freud before being asked to read about him for this course. From all answers given by my students I chose just two and wrote them on the blackboard:

- Sigmund Freud (1856-1939) was a medical practitioner;
- At the end of the 80ies, the 19th century, he came to the conclusion that the origin of various symptoms of neurosis was mental.

I emphasized the fact, already known for hundreds of years, of mind-body relations, and told my students that Freud, as a physician of both body and mind, developed this idea for practical use. He found that a straight line connected various mental conditions and physical illnesses, and developed the theory of mental treatment accordingly. His therapy was "healing by speaking", that proved to help the disappearance of physical symptoms whose origin was mental. Here I introduced, for the first time, the fact that the Islamic tradition had already developed the idea of body-soul relations, and asked: "who was the Muslim great medieval physician and philosopher?"

One of the students knew I had referred to [Abū ʻAlī al-Ḥusayn ibn ʻAbd Allāh] ibn Sīnā', or Avicenna, known as Abū Alī Sīnā (ابوعلی سینا/پورسینا, 980-1037). I asked the students to read about him in an Arabic encyclopedia, and mentioned just one of his approximately 450 writings: *The metaphysics of the healing* (Avicenna, 2004). I focused on the influence Ibn Sena had on Western scholars, whose written, scholarly language was Latin, and Jewish sages who translated his work to Hebrew (for example: Ibn Ezra, 1983). I also mentioned Maimonides (1137/8-1204), the great Jewish philosopher and physician influenced by Avicenna.

I wrote on the blackboard the four following lines:

- Symptom and illness;
- Diagnosis: the first stage of healing;
- Consciousness (being conscious or unconscious);
- Resistance.

Symptom versus illness

I asked: "what are the possible reasons for high temperature? The answers were: the flue, infection, rubella. I summarized by saying that temperature is, thus, a symptom; there is a variety of illnesses that might cause it – all those mentioned by the students and many more.

Diagnosis: the first stage of healing

I asked: does anybody know what is migraine? A few students knew that an attack of migraine includes strong headaches; "luckily" one of the students in this class suffered from migraine. She described, quite vividly, the situation in the past, before she was diagnosed, when each attack by her inability to function for about a week, in comparison the present situation, when means are implemented in order to relieve the symptoms: the taking pills prescribed by the doctor, avoidance of noises, minimizing the activities. I summarized by saying that it could be observed that sometimes the suffering person is relieved – at least partially – right after the diagnosis. In many cases the cause of suffering can be mended and the illness – cured; in others, like in the case of migraine, the pain can be treated and the suffering person can partially function. This situation is valid, I continued, when an illness attacks the body. The next stage was explaining the role of the psychologist for the diagnosis of mental problems.

One of the students asked: what should be done when a person goes to a psychologist for a long time, but is still unaware of his problem? I answered: in this case the psychological treatment did not

succeed. Mental treatment does not always work, and when it does – sometimes it takes time to find the method suitable for each individual, as even when dealing with the same problem, a certain method would work for one patient but no for another. The student was not satisfied, and asked: "Why should not the therapist tell the patient what his problem was the way you described in migraine"? I forwarded the question to the class, asking: can anybody tell me why? Nobody answered, and I said: we shall now explain the term: consciousness.

Consciousness (being conscious or unconscious)

I told the story of Anna O. (Freud & Breuer, 1957). During the telling I realized the students had started to lose interest, so I had omitted as many details as possible, and concentrated only of those perceived by me as most important: the paralysis that had stricken Anna, her inability to understand its origin, and the healing after the insight about her relationship with her father. Then I pointed at the last term written on the blackboard:

Resistance

I said: let's go back to the question asked before, about the therapist's inability to tell the patient why he suffered. In order to make it more interesting, please listen to the following story.

In a Galilee village lived a woman of about 70, widowed for three decades, whose first-born son, to whom she had given birth at age 17, was already a grandfather. The woman had never visited her son's home, because she did not forgive her daughter in law for her "sin". It turned out that almost 30 years ago the older woman had planned to marry her first-born son as well as one of her daughters in *badal* marriage, a package deal in which a brother and sister from one family marry a sister and brother from another. The son had refused to marry the girl his mother had chosen for him, and thus his sister did not marry that girl's brother. However, all four young people potentially involved in the suggested *badal* had married since; they all have had families and had already become grandparents. The old *badal* business seemed to them irrelevant. In spite of this the mother had neither forgotten nor forgiven.

I asked the students: In to your opinion, is the cancellation of the *badal* the real reason of the attitude of the mother in law towards her son's wife? The students answered: The mother in law thinks so, but we don't.

I asked: so what do you think is the real reason? The answers were:

* The mother wanted to control her son and his family, but after he had disobeyed her she could not control them any longer;

* The mother in law wanted "to have the final word" regarding anything connected to the kitchen and food, child education and everything else; now, after being disobeyed, her opinions would not be respected anymore;

* And even: "the mother in-law had thought that her son would be a substitute of his dead father, and now a strange woman came and took him…"

I asked: If someone reveals the true reason to the mother in law – how would she react? The answers were:

- It should not be done under any circumstances!
- She will get a shock;
- The relationship will be ended forever.

These answers showed me that my students understood the term "resistance" very well. Thus, at this point I had summarized, that unlike in the former example, when right after using the explicit term: "migraine" a relief was noticed due the opening of treating options for the symptoms, when the symptoms are mentally-related, the healer cannot "do the work" for the patient, and revealing the diagnosis to the patient by the therapist might even result in worsening of the symptoms.

Returning to the three concepts: id, ego ad super-ego, I asked one of the students to read aloud Sohlerg's (2007) explanation of "id". I asked: if "id" is the inferior part, connected to sexuality and aggression, how does Freud differentiate between man and animal also having these two drives?

No answers came from the students. I could tell from their faces that they felt uncomfortable. I might be that the comparison between man and animal was difficult for them to hear; it was new, unclear, maybe even outrageous. Thus I asked: can we say that the sex- and aggression drives are "bad' or "good"? Here the students were more cooperative; most of them voted for "bad" while some – for "good". By discussing of their opinions they finally came to agree that both drives were necessity for human survival.

One of the students raised the issue of gender inequality in relation to these two drives. I said that according to Freud there is a large gap between male and female sexuality, but this part of Freud's theory had been challenged for a few decades. As for aggression, I added, it has been known that its level is tightly connected to the testosterone's level, and as male testosterone's level is higher in general than female there is a quantitative reinforcement to our instinctively-perceived assumption, that male aggression level is higher than female.

I asked: "Why is it important that males would have a higher level of aggression than females?"

Some students did not agree that it was important at all, but those who did explained, that "in order to succeed in life one must be aggressive; a man that has to provide for his family should thus be aggressive". As in Israel only 21% of 25-55-year old Arab females were employed in 2006 (Ben David, 2007), I could not but agree with the students that indeed, "'someone must provide for the family, and he should be equipped with whatever it needs"…

I wrote on the blackboard: In summa –

Both sex- and aggression drives contain positive and negative parts. Without the sex drive the world would have stop existing; without aggression it would have been extremely difficult to survive. Thus, these drives should not be classified as "good" or "bad": they are both necessary and thus exist in all living creatures.

One of the students read Sohlberg's line (2007) summarizing the term "ego": "The ego is the mediating and operating power of personality and its function is to direct and regulate the behavior" (p. 8). The words "mediate" and "regulate" had first to be explained to the students, but even then the students found it difficult to compare humans to animals. I thus explained the term "super ego", and asked: "it it acceptable to say that animals, too, have a super ego?" All students answered "No!' explaining that only humans have conscience and have morals. We developed a discussion about "religious orders" in comparison to "command of conscience". The students had an opinion about a common knowledge of "good" and "bad", what is allowed and what is forbidden, no matter if they were believers or non-believers. Probably, I said, most people would not murder even if it had not been forbidden by their religion or by secular law, but because of their understanding that killing was immoral. They would not kill even if there was no punishment for caught killers.

Going back to the "ego" – the students summarized that there were animals capable of "family- or social life" similar to that of humans. However, while all humans are "programmed" to live in groups; they take care of their relatives – their immediate kin, their expanded family members, their fellow neighbors, even all those sharing his nationality. The ability to regulate one's behavior, to connect different parts of the personality – this is what differentiate man even from the most developed animals.

Finally, I explained, when hearing the name "Sigmund Freud" we immediately think about unrestrained drives and behaviors man is programmed to, but this if far from being accurate: though Freud's theory contains discussion about human inclinations, he contrasts them to those of animals.

SUMMARY

It seems that even the teaching of a small number of basic concepts in psychology can meet some of the needs of students learning in the Arab teachers' college in Israel.

- Teaching this suggested unit could not fill the gap of absence of learning psychology in the traditional Muslim culture, but the mentioning of Ibn Sena [=Avicenna], and the comparison of the three monotheist religions regarding basic prohibitions, such as "You shall not murder" (Exodus 31:18, Deuteronomy 9:10) might compensate, at least partially, for the absence of such tradition.

- It is possible to lean by presenting theories while gradually presenting the learner with basic concepts connected to these theories paying attention to the pace of understanding and processing, as long as the examples given are taken from the lives of the students and their immediate surroundings. The examples are used as "crunches" to pass from the memorizing stage to the next stages: understanding, processing, storing in the long-term memory, and finally – retrieving, both in the original shape of the stored knowledge and as a "brick" that might help formulate a new hypothesis potentially leading to a new a scientific theory.
- The lack of basic concepts in psychology can be compensated, at least partially, by using stories and descriptions taken from the students' experiences. When students activate their emotional intelligence and analyze situation that sound familiar to them Western psychology loses its strangeness and gets a little closer to the students' lives and experiences.
- The religious-social taboo on many subjects limits the dealing with them. However, when a female lecturer teaches a female class, subjects such as domestic violence and even sexual abuse can be introduced. The teacher must be very careful not to use explicit terms, but at the same time make sure everybody understands what is discussed. If done successfully, the students get, for the first time in their lives, a modern perspective on the behavior of children, youth and families, necessary for their optimal functioning as teachers.
- The level of psychology teaching, due to all these limitations and obstacles, is usually lower than that of other subjects learnt. The main task of the teacher is to teach well so that the student can have a deep understanding of the newly introduced terms and ideas, which will enable her to use them both as a teacher and a mother. The process, which might take months or ever years, cannot be accelerated substantially, as the new concepts must be absorbed. The amount of material learnt is not critical; the process the students go through while studying is important, as well as the increasing level of curiosity and the possibility that these students will develop an initiative to enlarge and deepen their psychology knowledge.
- The language problem is not to be solved in the near future. Thus, the lecturer in the Arab teachers' college must do her best in order to be understood, and the students must invest their best efforts in order to understand the new, complicated, subject matter.

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TELLING IS NOT TEACHING, LISTENING IS NOT LEARNING: E-TUTORING APPLICATION FOR INTRODUCTION TO ACCOUNTING COURSE

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Abstract: Technological developments have highly deep impacts on business life as well as teaching methods, tools and also presents extraordinary utilities that changes the vision of education. Information and communication technologies came to a point that internet and web technologies are effectively used densly in creating course contents and conducting those courses. The e-learning system formed by these utilities contains various technological tools such as internet, satallite broadcast, audio/video media tools, etc. Within the e-learning system, there can be found e-exercise, e-exam, e-book, e-TV and e-tutoring subsystems. In this study, after explaining the process of e-learning systems and e-tutoring system, the e-tutoring application of Introduction to Accounting course conducting in Anadolu University, Turkey is explored and further suggestions are made for dissemining of e-tutoring applications for formal education.
Key Words: *Accounting Education, Education Technology, E-learning, E-tutoring*

1. INTRODUCTION

In this study, it was discussed predominantly subjects intended for accounting education in undergraduate and two years level. The basic concepts, principles, standards of the basis of the accounting knowledge are not subject to significant changes, a continuous change and new requirements appear in economical applications. Such improvement requirement can be observed as perception and application of new business forms of knowledge intensive business world and also as benefiting from new technological possibilities.

The scope of accounting education and methods of education show tendency conformable to such changes in due course, and moreover form a basis for change. In present situation, the demand for education and information usage increase, the lifetime of the information decreases, the cost of information reduces, the area of circulation of information expands, the speed of access to the information, opportunity of information storage and re-usage develop, and information media becomes varied. The practicability of these improvements is provided basically by technological developments.

In this study, it was attempted to set forth the data obtained by e-learning in accounting education, literature review, and observing the application. Data relation to the application is obtained through searching e-learning and e-tutoring works carried out in Open University. The e-tutoring application of Introduction to Accounting course was evaluated through discussing with respect to the content of the program, manner of application, instruments used, relevant parties and results of the application.

2. TECHNOLOGICAL IMPROVEMENTS IN ACCOUNTING EDUCATION

2.1. Educational Technology and Education Opportunities

Technology means the systematic usage of scientific and/or organized knowledge in the problem solving (Newby et al., 2006:13). Using the knowledge in a systematic manner means keeping machineries, applications, methods, processes, and system and labor as a whole in a certain order. (Koşar et al, 2003:3).

Technology has a function of connective factor between problem solving and “knowledge”, in other words a function of “bridge”. Technology provides solutions for problems. These solutions are not magic images. It provides the method of applications and helps realization (Newby et al., 2006:15).

Application of technology to the problems of people in the area of education in the same way have caused coming into existence of the conception of “*education technologies*”. In a more perspicuous manner, educational technologies are the usage of technological instruments and processes in the solving problems in education and learning (Newby et al., 2006:15).

In terms of system approach, the purpose (output) of learning and tuition activities must be determined. It should be determined the necessary inputs for obtaining objective outputs, and the manner of gathering these inputs conformable with the purpose (organization of instruments, media, and process). Moreover, it is required to design and operate feedback ways systematically intended for eliminating problems and improving the activities.

From this point of view, educational technology can be expressed as a procedure for developing, applying, evaluating, and managing suitable design through gathering all factors in relation to the human, knowledge, method, technical, instruments and tools and arrangements for the purpose of analyzing and developing solutions for the problems including all aspects of learning of human (Kuzu et al., 2007:18). According to another definition, educational technology is a learning process allowing self-learning of student without requiring direct intervention of teacher taking into account personal characteristics of each individual in the learning process (Hızal, 1984:3).

The main purpose of utilization of the developments of educational technologies is to increase the procedure of democratization of societies and to remove problems such as inequity, disparity, disability, inferiority of social structure (Sürmeli and Kaya, 1999:26).

Improvements in educational technology increase the perception capacity of persons, and thus develop conception capacity. According to the researches made, it has been showed that, if a learning activity addresses more sense organs, then such learning activity is more permanent and oblivion occurs lately (Demirel et al., 2003:78). According to the results of this survey, it was showed that individuals remember 10% of what they read, 20% of what they listened, 30% of that they saw, 50% of what they both saw and heard, 80% of what they saw, heard, and said, 90% of what they saw, heard, touched, and said. Today's technologies address to more than one sense of human in learning process. The contribution of technologies such as speech and handwriting recognition systems basing on visual and audio, wireless connections, new web technologies, palms to the learning activities is important in this regard.

2.2. E-Learning

In recent years, developments in educational technologies and internet technologies enable presentation of e-learning services. Harmonization of educational environments showed in different classifications in the direction of special purposes of education within the scope of today's computer and communication technologies has brought out the conception of *e-learning.* E-learning is defined as web based training system carried out by using internet and web technologies (Yücel, 2006:123; Selim, 2007:397). E-learning systems has been developed as a result of efforts intended for solving some problems arise during distance learning process. The primary problem is the distance and thus interaction problem caused by different geographical positions of tutors and students. For this purpose, interactive sharing, in other words, collaborative learning strategy provides interaction between students, tutors, and course subjects (Kanuka, 2002:73). E-learning system consists of instruments for the purpose of eliminating these problems.In e-learning courses, students take the responsibility of self-learning (Selim, 2007:398).

E-learning which is basically used for carrying out distance education is used for support to the students taking formal education. E-learning system consists of various sub-systems such as e-exercise, e-exam, e-tutoring, e-book, e-TV, and e-support. E-learning instruments are shown in Fig. 1.

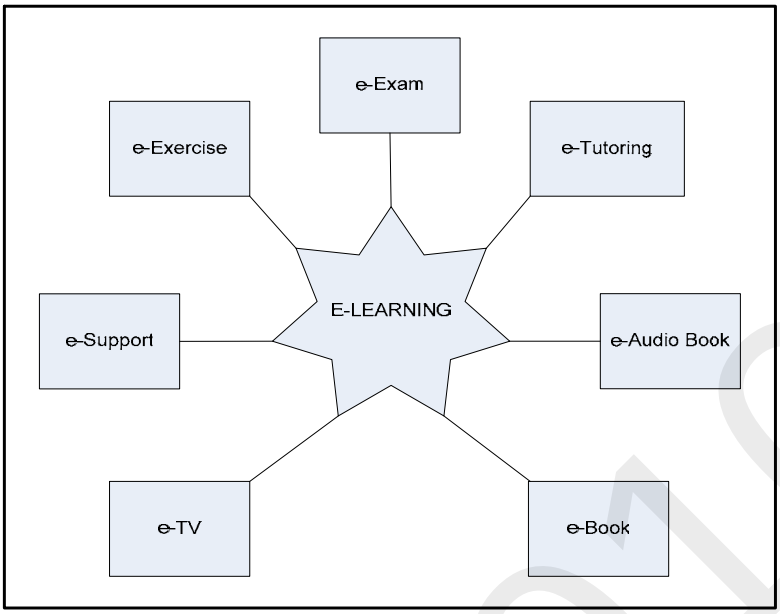


Figure 1: e-Learning Instruments

E-Exercise: This is a e-learning application which provides preparation of students to the courses over internet at any time in different aspects such as lecturing, problem solving, exercise application and test evaluation.

E-Exam: This is an application which provides the usage of examination files prepared for students accessing to the e-learning environment according to the duration of examination, number of units and questions. At the termination of the period, the application closes automatically, and the result of evaluation (number of true and false answers) is given to the student.

E-Tutoring: This is a e–learning environment in which students deliver the questions not answered in face-to-face and other learning environments to the e-tutor over internet, and take answers synchronous or asynchronous manner.

E-Book: As in traditional education, the basic course material is book in open and distance education. In e-learning environment, books which have been prepared as self-learning of the student are provided in electronic medium. The e-learning instrument which is formed with vocalization of texts in e-book is named as e-audio book.

E-TV: This is broadcasting of courses in video format which was previously produced as TV medium.

E-Support: This is a technical support service which assists in solving problems faced in relation to the service provided in internet medium and using e-learning instruments.

3. E-TUTORING APPLICATION

3.1. Conceptual Definition

The quality and efficiency of learning activity increase with an experienced tutor. The tutor can increase the quality of learning activity through showing close and continuous attention to the learning problems of each student. The main function of the tutor in such an interactive learning medium is to determine the learning problems of students and provide assistance to the solving problems (Bork and Gunnarsdottir, 2001:72). E-tutoring is defined as carrying out learning activities by using online technologies, providing support to students, managing students and completing evaluation activities (E-tutoring overview, pg. 1, http://www.warwick.ac.uk /ETS/Publications/Guides/Skills/docs/e_tutoring.pdf). At first sight, the difference of e-tutoring from tutoring is the usage of advanced technology. However, the time difference in the tutor-student relationship, location difference, and usage of instruments which eliminate the negative effects of these changes to the learning activities. For example, it is required to support students who take courses in different locations and times in a manner to apply collaborative learning and to carry

out group work. (E-tutoring overview, pg. 2). Consequently, usage of correct instruments in correct location and times which was required for training courses is highly important for success of e-tutoring services. (Valdes-Corbeil and Rene Corbeil, pg. 1).

3.2. Introduction to Accounting Course E-Tutoring Application

Anadolu University has two types of education of which are open and formal education. Open education system in Anadolu University has started with published course books and TV-Video broadcasts, and today is supported with various services provided in e-learning portal. Among these services, face-to-face tutoring is widely provided since 1983. The conventional asynchronous e-tutoring has been put into effect on 2004-2005 term, and synchronous e-tutoring on 2008-2009 term.

With a view to benefit from open education system, e-learning services more effectively, and to fully access these services by using single address, an e-learning portal has been created and put into effect on May 2005. The aim of the e-tutoring service is to provide answers of the academic students who were unable to take face-to-face tutoring service.

The presentation of e-tutoring service requires a specific technological infrastructure support. The e-tutoring service, which was prepared with C# programming language and ASP.NET infrastructure works integrated with SQL Server, Microsoft database solution (Mutlu et al., 2006:3).

The open education system e-tutoring service includes 3 different user types in order to control the validity of questions asked. This structure consists of moderator, tutor and student. The authorization of moderators and tutors are restricted only to their courses. The services given in the system and the number of students using these systems are given in Table 1.

Table 1: E-Learning Services and Statistical Data

Services	***Number of Courses***	***Number of Chapters***	***Capacity***	***Explanation***
Courses (Book)	232	2922	2,11 Gb	
TV	178	1780*	30,7 Gb	* Program
Exercises	88	1204	30 Gb	
Tutoring	88	1204	111**	** Tutor
Exams	136	11.600***		*** No. of questions
Audio Books	32	474	17,7 Gb	

The student connected to the e-learning portal logs on by entering student number (R.T. ID No) to the page opened. There is no any other password or restriction for entering to the system. Logging of moderators and/or tutor lecturers to the e-learning portal is consist of two level process. The session is opened first with the user name and then password. The tutor login page is shown in Figure 2.

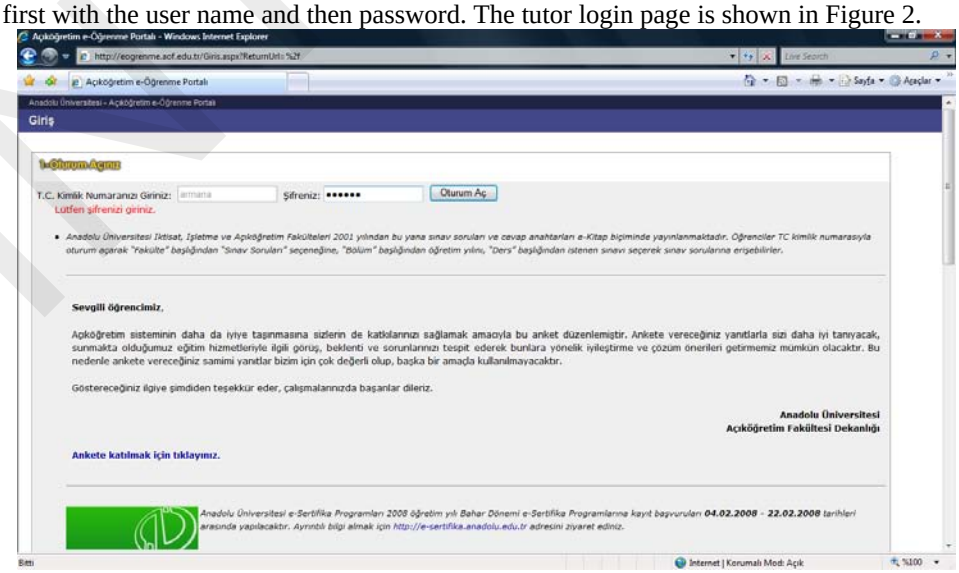


Figure 2: Tutor Login Page

After logging in to the e-learning portal, the pages of faculty, department and course selection are made.

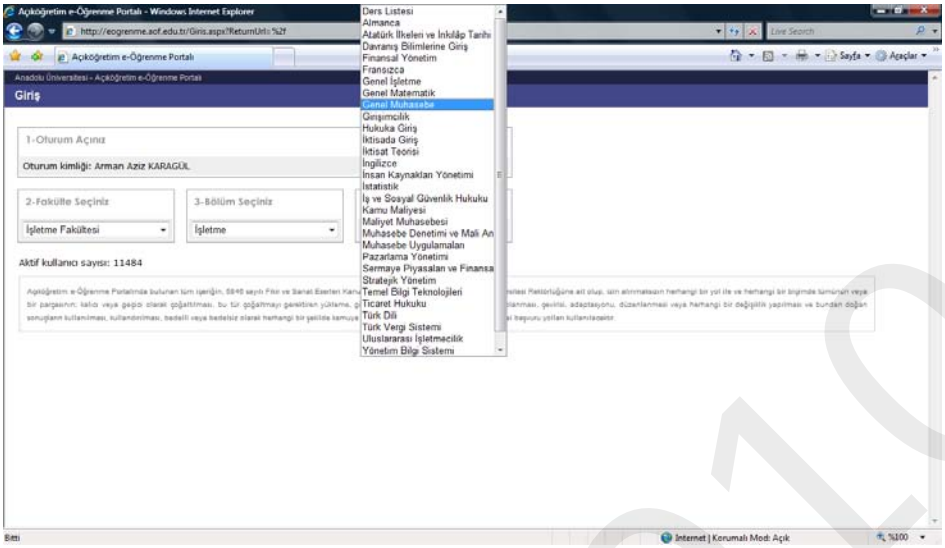


Figure 3: Faculty, Department and Course Selection Page

After making appropriate selections, the e-learning portal home page loads. In this page, it can be reached to e-tutoring service by clicking e-tutoring link. For example in the e-tutoring page of Introduction to Accounting course (Figure-4), it can be seen general information on e-tutoring, list of units, number of new questions and number of total questions according to the units, access list to other e-learning instruments, and course changing link.

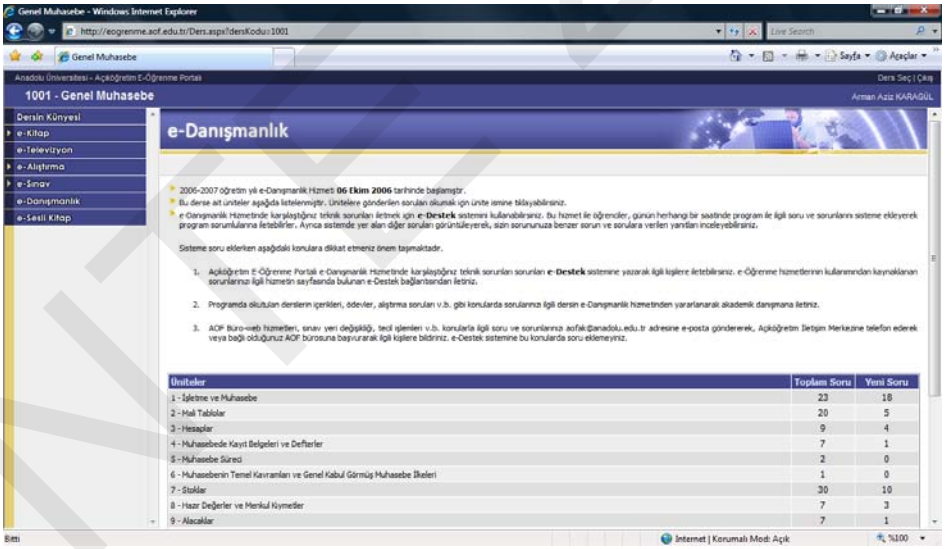


Figure 4: Introduction to Accounting Course E-Tutoring Page

After selecting chapters, it can be seen all questions relevant to that chapter, name and surname of the student, entrance date of the question, and whether the question is answered or not. When clicking on the relevant question, the page of question and answer loads. The tutor/moderator types the answer of the question to a place reserved for answer where he/she can see the type of question and information regarding the question, and attaches necessary mathematical operations, calculations, tables, graphics, pictures, and send his/her answer by clicking "answer" button, and makes necessary corrections or additions if found necessary (Figure 5).

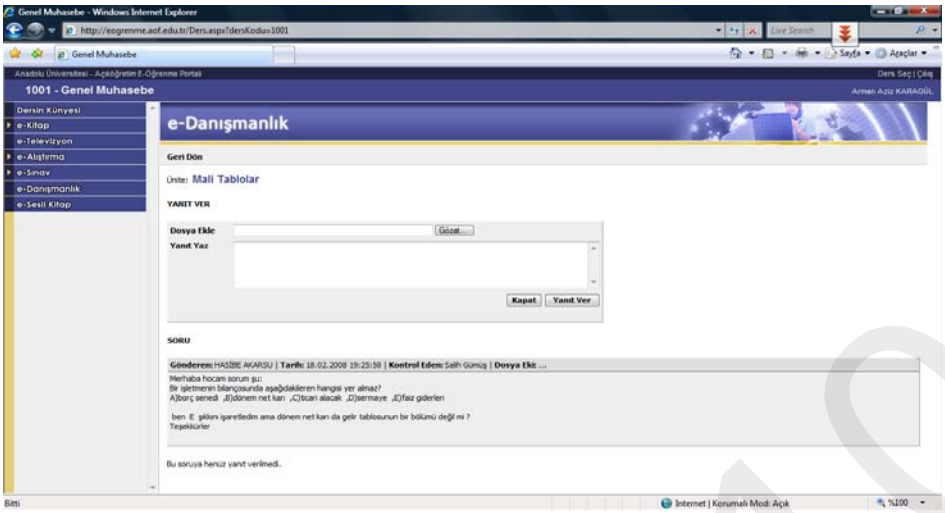


Figure 5: E-Tutoring Application Page

Other users excluding moderators and tutors are not authorized to make any correction on the answers, but only can read them. After answering questions, the next page view can be seen in Figure 6.

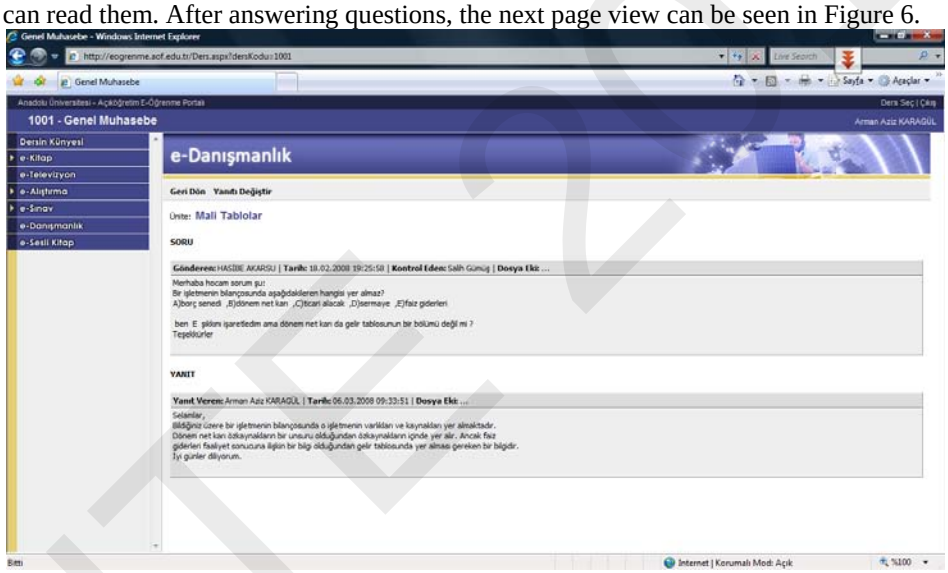


Figure 6: E-Tutoring Review Page

After that, it can be returned to new questions page by clicking “return” button for selecting new unit and/or question selection, and the same process is repeated for each question.

The question sent to the system by student for delivering to the tutor is firstly sent to the moderator, and questions requested by moderator for answer is delivered to the tutor. In some cases, moderator can answer some routine questions regarding the mechanism of the system, exam program, etc. or delivers to the e-support system. Questions delivered to the tutor must be answered in the shortest possible time. This process is monitored and controlled from the beginning to the end continuously by the faculty and senior management of the university.

Currently, the e-tutoring services is given for 88 courses; and while nearly 450-500 questions is asked for Introduction to Accounting course and 300-350 questions for Applications in Accounting course in a single academic year, the number of students utilizing e-learning service is nearly 770,000, and the number of clicks is nearly 23,000,000 ((http://bde.anadolu.edu.tr, 02.01.2009).

4.RESULTS AND SUGGESTIONS

E-learning and e-tutoring are new instruments used in accounting education and learning. Becoming widespread of e-tutoring application is dependent upon providing the infrastructure of educational

institutions, playing active role by lecturers and technical personnel in the content formation procedure, and increase the number of internet users.

As distinct from academic face-to-face tutoring and meeting of student-lecturer in formal education, e-tutoring forms an electronic medium which can be repeated as many as required without requiring time and location unity.

Student can deliver a question occurred while studying in any time to the asynchronous e-tutoring service server, and can receive answer within a period of time. Thus, this distance education system becomes an application which makes closer the student, lecturer, and educational institution, and motivating. It is possible to form similar environments in formal education system. Similar applications can be made in the personal web page of the lecturer, however private lesson management software can be highly expensive for such kind of applications. Becoming widespread of such kind of applications, the experience of the lecturer and transferring course material to the electronic media have an important role.

Supply of these student support services facilitating learning, diversification of education materials, supporting learning channels with modern education technology instruments, becoming widespread of synchronous tutoring applications will be beneficial for developing education of accounting in modern education environments.

The distance online education services of Anadolu University are not only restricted to the enrolled students. Using these services in public education services such as "Yunus Emre New Generation Education Portal" and "ANAPOD" is a clear sign of this development.

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THE ACQUISITION OF SUPRASEGMENTALS

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Abstract:

Considerable progress has been made in the field of language acquisition in a number of languages, and we seem to have a clear picture of what goes on in a few well researched areas, such as grammar. When I took my first steps as a researcher I was advised to undertake some work on intonation because it had been a neglected subject so far. Years have gone by, but we still seem to be far from achieving a typical acquisition sequence of tones by foreign students in languages so well researched as English, to mention just an example. I would be interested in discussing some methodological approaches to the study of intonation, and the results of my work in the field of acoustics, in the hope that my enthusiasm for this topic will be shared by other colleagues who may wish to engage in this type of work.

1. Introduction:

Suprasegmentals still occupy a relatively marginal role in the field of language acquisition. In the present globalised world, the vital importance of the role of intercultural awareness and communication are not questioned. For second language speakers of English, and we should bear in mind, that for many of the million of speakers of this language, English is just a second language, mastering suprasegmentals is part of the linguistic skills necessary to render their speech comprehensible and within the boundaries of what would be considered formally acceptable. Yet, the impact of the published materials designed to help second language learners improve their production in this field remains relatively limited, if we review the bulk of mainstream sources.

Current teaching practice draws from the results in research in the field of language acquisition. Very often, natural acquisition sequences can be observed for certain phenomena. To take an example from grammar, we know that certain structures in an early stage can be expected to be learned as chunks, so that learner productions seem acceptable in the first instance, that later on these chunks are subject to a linguistic analysis that leads to typical grammatically unacceptable interlanguage utterances, and gradually we can expect formally acceptable target like speech samples to emerge, thus leading to a typical U-shaped acquisition pattern. Therefore, nowadays we try to create a classroom environment that is conducive to the natural development of these acquistion sequences, and very often in the classroom we try to reenact the real world.

The research world is becoming increasingly interdisciplinary. Currently accepted language acquisition theories are based on research results in sociology and didactics. Nowadays the behavourist tenet that learning takes place by imitation has been superseded by cognitive theories based on the assumption that individuals must get actively involved in the construction of meaning necessary to make sense of newly acquired data. Thus, nowadays we do not believe that learning takes place when we copy reality. According to constructivist teories, which have evolved from the work of the Swiss psychologist Piaget, any intake of new concepts involves the restructuring of previous knowledge.

Currents of thought do not emerge in isolation. Parallels can be found behind major shifts in thought in the XXth century. Behaviourist theories were relegated mainly though the impact of cognitivism. Cognitivism, in psychology, and generativism, in linguistics, both share their interest for mental processes involved when information is processed. In both currents of thought focus on meaning takes major relevance, as opposed to focus on form, which permeates structuralism.

In the 80's, ample research was carried out to illustrate the ways in which negotiation of meaning modifies student production and in turn their interlanguage (Selinker, 1969, 1972), that is, their internalised L2 system of rules. For an overview, see Pica (1994). In the last few years, attention has shifted to recasting and other types of episodes in the classroom that lead to focus on form (Long et al, 1998).

From the point of view of language teaching, the need to create negotiation of meaning in the classroom, which led to the emergence of communicative approaches, will be considered by most classroom practitioners today as the true turning point in the XXth century. Although we acknowledge that the primary aim of language teaching is to promote communicative competence, in the course of time the shortcomings of communicative language teaching have been identified, and objectives have often been redefined in terms of communication with accuracy. While maintaining the focus on communication, various methodologies have been developed to direct attention to form simultaneously and this way promote language awareness (James, Garret, 1991).

Nowadays negotiation of meaning alone is not considered to lead to language learning, and the latest developments in task design take a look at a wider picture from the perspective of the processes involved (e.g. frameworks), but most well-informed classroom practitioners nowadays would reject the idea of going back to purely structuralist curricula.

2. The acquisition of suprasegmentals. State of the art:

The sounds of human languages can be studied from the point of view of production, which is the object of articulatory phonetics. We can also focus on the characteristics of the speech wave, as in acoustic phonetics, or we may desire to study how our auditory system and brain process this physical reality and enter the realm of perceptive phonetics.

Three acoustic parameters of the sounds of human languages, Fo, intensity and duration, and their corresponding perceptual correlates, pitch, loudness and length, interact in the different languages of the world to produce the suprasegmental phenomena of stress and intonation. The term suprasegmental may be misleading, as it gives the impression that it is superimposed at a later stage on segmental information. However, research into language acquisition reveals the contrary. Research into motherese, the speech from mothers addressed to their infants, reveals exaggerated melodic patterns, prominent pitch excursions, increased duration of sound segments and similar manipulations in intensity. Infants are especially receptive to the features of motherese and acquire language through suprasegmentals, and not the other way around.

English intonation has been studied from different perspectives. In the British tradition, established by O'Connor & Arnold (1961, 1973) and Halliday (1970), the central unit of study is the intonation contour. Contours are made up of pre-heads, heads, nuclei, and tails. The nucleus, depending on pitch movement, can exhibit falls, rises, fall-rises and rise-falls. In subsequent works within this tradition, the emergence of new tones, such as the high rise, has been reported (Ladd, 1996). Choice of nucleus leads to different attitudinal meanings. The interaction of intonational and grammatical cues is also discussed. The main task of the researcher consists of identifying major pitch movement (tonicity), describing the nature of this pitch movement (tone) and dividing the speech continuum into tone units (tonality).

Among the most notable exponents of the study of the intonation of English by American scholars are Kenneth Pike (1945) and Janet Pierrehumbert (1980). Tone levels are identified to describe English intonation, and diacritics may be superimposed on transcriptions to signal other phenomena, such as stress.

These linguistic descriptions have often been used as a theoretical background for the subsequent development of materials for language learners, such as Celik (2001). However, the impact of these laudable private initiatives remains limited. The most widely circulated textbooks rarely make reference to prosody.

Speech wave analysis may be used to support the academic's work. Nevertheless, the bulk of research into the intonation of English remains the product of auditory analysis and linguistic introspection. Research into this area is hardly ever replicated. When it is, percentages of agreement among scholars, as far as I am aware, never have been reported above 70% (Grabe, 1998). As for the reality of the mental representations identified by academics, the following paragraph, by Greg Kochanski, the director of the Phonetics Laboratory at Oxford University, reporting on work in progress, is highly elucidating:

> Although the pitch of the human voice is continuously variable, phonologists commonly represent intonation (pitch variation) as a sequence of discrete symbols. A frequent claim is that English involves a small set of categorically different intonation patterns; listeners interpret and make linguistic sense of continuous pitch changes via those patterns. Evidence for discrete symbols in intonation is based on the linguist's conscious classification of contours. However, there is uncertainty as to the number and the boundaries of such categories. Even their psychological reality is in doubt. (http://www.phon.ox.ac.uk/intonation)

Researchers do not agree on the number of tones or levels to be used to describe speech formally. Even the psychological reality of such entities is questioned by recent, reliable research. In spite of this, we expect students to learn to identify such tones in real speech and to use them accordingly. My general impression is that the study of suprasegmentals is perceived as daunting by teachers and learners alike.

Although more weight is increasingly given in recent work to the value of acoustic analysis, due to experimental constraints relating to data control, very often recordings of texts read aloud are used. I am always highly suspicious of the reported results. I often wonder whether that particular informant's behaviour would be upheld in spontaneous speech.

3. Methodological proposal:

In order to collect data that are useful to gain an overview of the processes at work in the acquisition of suprasegmentals, work on acoustics and perception should be prioritized over linguistic introspection, always following recommended practice in the established research field of experimental phonetics.

Data authenticity should not be sacrificed on the grounds of experimental control. When the use of laboratory recordings is unavoidable, perception tests are frequently used in the field of experimental phonetics to validate the claims of researchers as to the communicative intention of the speaker.

Research into intonation is not simple. The physical correlates of intonation also convey other suprasegmental phenomena. Sometimes it is also difficult to set aside linguistic from extralinguistic phenomena.

In acoustic studies, the Fo plot is usually taken as the correlate of intonation. However, Fo is only controlled in the production of vowels. Fo may be inherent to consonant quality. Raw Fo plots, without further manipulation, should not be taken as the basis for linguistic analysis (Rossi et al., 1981).

For the purpose of comparability, procedures have been developed in experimental phonetics which, though extremely time consuming, ensure scientific accuracy.

3.1. Rationale

The sounds of speech may be produced with or without vibration of the vocal cords. All vocalic sounds are voiced by nature, but consonants may be voiced or unvoiced. In spite of the natural interruptions of voicing in the flow of natural speech, our brain perceives pitch oscillations in speech as a continuum and may extract linguistic information from this continuum.

Different languages favour some suprasegmental phenomena against others. The amount of information conveyed in English by intonation is particularly rich and complex. English children have been reported to be in the process of acquiring this system well into their teens (Cruttenden, 1982). On the other hand, in languages such as Finnish or Turkish, other suprasegmental phenomena take higher relevance, like vowel harmony for example.

Fundamental frequency (Fo), determined by the frequency of vibration of the vocal folds, is naturally higher in women and children than in men, for example. Again, the use of raw data is not recommended for linguistic analysis. To extract linguistic information the absolute values are irrelevant. From a linguistic point of view, relative height and, especially, intervals, are significant (Malmberg, 1954). It is variations in pitch that render linguistic information. From the point of view of perception, a particular

value only gains relevance in comparison with preceding values in the same utterance, or within a particular speaker's usual pitch register.

The methods to transform the raw values provided by acoustic measurements to render them useful for linguistic interpretation can be classified into two categories, those that use logarithmic scales and those that express differences among linguistically relevant points in Fo in terms of percentages. Evidence seems to suggest that, for the perception of frequencies below 1000 Hz, the latter scale is more adequate, with the added benefit that mathematical operations are simplified (Johns-Lewis, 1986).

The graphs compiled with the data obtained from such mathematical calculations offer the added advantage of clarity and easy comparability.

3.2 **Application**

The following methodology was applied successfully to describe and compare the intonation patterns of a group of native speakers of English and a group of non-native speakers of different levels of proficiency in Balcells (1991).

Informants were requested to learn four different paragraphs and to produce them in an anechoic chamber as naturally as possible. In each one of those texts most tone units had the same illocutionary force. Either the transactional function was dominant (declarative tone units), or the intention to elicit an answer (interrogative tone units), or to influence somebody else's behaviour (imperative tone units). The last paragraph was designed to elicit emotional utterances (exclamative tone units).

Perception tests were carried out to verify the recorded corpus. The sampled sentences were low pass filtered at 400 Hz to eliminate segmental information and presented to informants in randomized order. If most informants deemed that a particular utterance had been produced with the intended illocutionary force, that utterance was deemed valid and was subjected to linguistic analysis.

Fo, intensity and duration values were taken for each vocalic segment of the validated corpus. The resulting data matrixes were used to elaborate intonation graphs and for statistical analysis.

3.3 Results

Confirming the results of previous research, native speaker's Fo in stressed syllables was significantly higher than in unstressed syllables. Only the results for the near-native Spanish informant were statistically marginally significant (p=0.051). Non-native speakers do not use Fo systematically to distinguish stressed from unstressed syllables.

Linear equations were calculated for the main segments of the tone unit to obtain their slopes (positive or negative), which resulted in intonational plots. The first segment comprised from the first Fo value in a tone unit to the nucleus, and the second segment from the nucleus to the last syllable. This analysis revealed that the slope of declaratives and imperatives for both segments is usually descending, but behaviour patterns differ. Fo values at the beginning of imperative tone units are significantly higher than those in the same position for declaratives for non-native speakers. On the other hand, among native speakers, higher onsets for declaratives than for imperatives do not reach statistical significance.

Use of pitch in exclamatives cannot be systematised. As for interrogatives, visual inspection of the intonational plots revealed intonational transfer as a strong strategy. The starting point of Wh- questions among non-native speakers was significantly higher than that of yes-no questions. No such difference is observed among native speakers of English. Sometimes the onset had lower values than that particular informant's intrinsic tone (the all-observations average from declarative tone units), and it was hypothesized that in these cases a compensation mechanism would emerge whereby Fo would rise in one of the following syllables. This compensatory effect was statistically significant both among native and non-native speakers of English. Some differences also appeared regarding the place where compensation is observed. All native subject compensations in Wh- questions are performed in nuclear syllables (Chi-Square=17; p=000), against 85.7% among non-native speakers (Chi-Square=30; p=0.000). In polar

questions, native subjects never compensate on nuclear syllables (Chi-Square=14; p=0.000), while 81% of non-native subject compensations appear in nuclear syllables (Chi-Square=25; p=0.000).

As for tonicity, native speaker behaviour strongly adheres to linguistic descriptions, while deviation from models thrives among non-native speakers. Fall-rises are practically non-existent among beginners, and the phonetic realizations of this tone among advanced students, with an ending point higher than the approach, do not conform to the frequently observed customary native patterns. Only in the near-native informant's data are found examples of fall-rises that adjust consistently to native patterns of production.

Intonation patterns in exclamative tone units could not be systematized, as could be expected from some samples of speech representative of the emotional function of language.

4. Discussion

The emergence of a compensatory mechanism to make up for low onsets suggests that linguistic descriptions of intonation based on levels may better correspond to our mental representations of intonation than contours.

The fact that non-native speakers seem to be in the habit of compensating in the wrong syllables, which gives rise to the emergence of patterns which just do not exist in the data from native speakers, confirms previous research reporting on the difficulties of students to acquire appropriate L2 intonation forms (Chun, 2002).

Intonation, after all, may be acquired following perfectly structured phases, just as other linguistic features. The fall-rise was practically absent from my beginner data, only to appear in highly deviant forms in the data from advanced students. Exceptionally, the near-native informant, after years of residence in English-speaking countries, exhibited native command of this tone. This cross-sectional picture seems to reflect U-shaped patterns of acquisition reported for other fields of study in linguistics and psychology.

5. Conclusion

Although more studies are emerging that actually investigate learners' production, even for English, which is probably the best researched language in the world, we have a patchy picture of overall learner performance in the field of suprasegmentals.

As for the question, how we can help these students with their shortcomings, the answer still comes frequently from linguistic studies based on introspection which provide linguistic models to be imitated. In spite of the fact that we know that imitation does not hold the key to learning, the revolution that has taken place in the field of language teaching, the shift from structuralism to constructivism, has not reached the field of suprasegmentals.

It is a difficult task to translate the results from acoustic studies on learner productions into useful guidelines for language training. Obstacles arise when we try to o gain a general perspective. Many issues that arise relate to comparability among studies, or reliability; for example, whether the purported meaning is actually conveyed through intonation or, as a matter of fact, through other means. A considerable amount of studies are still based on recordings of texts read aloud.

The nature of intonation requires an approach to the research into its acquisition that is different from that in other areas. Studies into student production need to be complemented with perceptual studies. Slowly, we may gain a picture of the processes involved, and we may revert these results into teaching.

Part of the problem may be the interdisciplinary nature of suprasegmentals. Typically, research into phonetics is carried out in theoretical linguistics departments, while language teaching materials, in the best scenario, have been developed by professionals in the field of applied linguistics.

Nowadays, the most innovative research is the product of collaboration among different disciplines. Applying the techniques developed in the field of experimental phonetics to the field of language acquisition may produce highly elucidating and useful results.

It is difficult that students produce correctly language features that they are not able to perceive. Still, studies into the perception of intonation, such as Cruz Ferreira's (1986), are few and far between. It is not rare to see that such promising research lines have simply been discontinued.

Present research into the acquisition of intonation has failed to produce results comparable with those in other areas of language acquisition, both in terms of scope of the actual research and the comparability of the results of these studies. Results are reported on the study of certain data, but it is difficult to know whether these conclusions would be valid if applied to different sets of data. In addition, comparability is only part of the problem.

In some languages, such as English and German, pitch phenomena along the whole tone unit are relevant. However, in Spanish, to take an example, only pitch onset and the intonational phenomena observed in the last stressed syllable seem to be relevant. It is only natural to expect differences in the performance among learners from different backgrounds.

In other fields of language teaching, research into language acquisition has changed the face of language teaching practice. This revolution has not taken place in the field of the teaching of suprasegmentals, partly because we have not gained a complete picture of the processes involved in its acquisition.

In this paper, I have just tried to make known to a wider public that the tools from experimental phonetics are there to be used by researchers in the field of language acquisition. I tried to open new paths with my own work. Due to the fact that previous studies are non-existent, I focussed on primary communication functions. Hereby I would like to encourage research into more specific language functions.

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THE EFFECT OF PROBLEM POSING METHOD IN THE IDENTIFICATION OF MATHEMATICALLY GIFTED 7th GRADE STUDENTS (KAZAKHSTAN)

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ABSTRACT
The identification of a gifted student especially in 7 grades in Aksai Kazakh-Turkish high school is one of the main tasks of mathematics teacher. Because The Ministry of Education organizes The Mathematics Republic Olympic competition every year. Secondary school teachers in Aksai try to identify the gifted students among many students in class and to develop the mathematical skills of them. The aim of this study is to give some directions for teachers to move up their students' level and to identify a gifted student by using a problem posing approach which has two dimensions. First, special problem posing tasks were prepared for students and second face to face interaction with them. As a result ,the usefulness of this approach will be discussed for secondary school teachers in order to use the method in their special courses to identify a gifted student and second how a special curriculum can be prepared for the gifted students.Finally the method of problem posing may be used in the identification process of a gifted student for all secondary school mathematics teachers in Kazakhstan. The study is a research study and paired t test is used to analylize the gathered data.

Key words: Problem posing ,Mathematical abilities,Gifted students

INTRODUCTION

Mathematical abilities are studied by many mathematicians from different perspectives. Generally, the abilities are shown at solving different mathematical problems which are specially designed. One important person was Henri Poincare who discover the existence of special mathematical abilities and show that their important parts of mathematical intuition. Metelskii(1989) is another mathematician studied mathematical abilities and ordered a list of many mathematical abilities from logical reasoning to analysis and synthesis.Bandjur,V (2006) gave additional different abilities. Also A.V.Borovik and D.Gardiner defined the mathematical abilities as "Like music ,mathematics is a personality-building activity,it shapes the way the learner thinks and sees the world".And in the same article they say that mathematics depends on systematic ,cumulative learning, and each new skill needs to be built on a solid foundation laid at earlier stages. The number of mathematical abilities in the broad spectrum. As a result , high metacognition,flexibility in thinking, questioning and problem posing ,logical reasoning,generalization,ability of using symbols,memorazing are different abilities.Shortly , for a mathematician one of the final aims is to identify the mathematical abilities of their students that is unique .let us continue to define the mathematically gifted student . Of course there are many different definitions of mathematically gifted student .Many researchers such as Bluton 1983:Miller ,1990; Gagne 1991) defined the student as gifted in many ways.But sofar there is no international agreed definition yet.Gagne (1991) defined as students have excellent ability and potential for great achievements who are selected by experts.In this area Kretetskii,1976;Sriraman,2003;and Lee 2005) observed that gifted students are very fast and get in detail in problem solving . Also observed that their intellectual reasoning that the mathematical form and pass through the practical reasoning and systematic reasoning. These students concentrated the concept much and they don't deal with the ways of problem solving. Problem posing ,on the other hand, is the generation of new problems about a situation or the reformulation of a given problem(English,1997;Silver,Cai (1996).Also, Problem solving is widely regarded as an important part in the learning and teaching in mathematics(NCTM,2000,Schoenfeld,1985;Polya ,1973). Problem posing is considered as the heart of mathematical activity(Brown&Walter 1993Kilpatrick,1987;Moses,Bjork&Goldenberg,1990;Silver,1990,1994;Silver&Mamona,1989). The activities done by students by problem posing students generate their own activities in socially free situations more actively. Such activities increases insight the students' understanding of important mathematical concept as well as the nature of school mathematical activities(Silver,1994;Simon ,1993).

Additionaly,problem posing activities improve students 'attitudes toward mathematics and give more responsibility to them for teir own learning (Brown&Walter,1983).Mathematical abilities, gifted students and problem posing is the main parts of this study which makes a connection between them .

PURPOSE OF THE STUDY

The problem is how we can discover the mathematical ability of a gifted student by problem posing tasks. For a teacher ,the case here how to identify students with highly developed mathematical abilities .How to distinguish mathematically gifted student?. May be ,you can differentiate the talented and gifted students from the others but here problem is more specific you have to find the mathematically gifted student among students. Another problem is to recognize the mathematically gifted student among the gifted students class. Because gifted is generally different from mathematical gifted ones.

METHODOLOGY

Participants:

The study is done in "Almaty Kazakh-Turkish high school for gifted students». The school is gifted because students have to pass school entrance exam that includes two parts .The first part is covered the passed subjects of the primary classes and second part is IQ questions. Nearly 20000 students participate around Kazakhstan and only 1500 students will be accepted .Among 1500 students only 100 students will be candidates of mathematics Olympiad competitions. Here, the teacher should find a reliable method to find the mathematically gifted students. Very often ,we use IQ tests scores to select the student as an indicator but IQ scores are not always reliable .Because the results are related to a variety of different abilities and skills. Another method is also used to identify the mathematical gifted child is that any selected mathematical subject is taught to the students and teacher made test are given to the students. Based on scores which are taken from subject test the student is accepted as mathematically gifted student.

Research methodology:

The research is an experimental design research. The pattern of research is post test grouped experimental design. For the study, 80 students are divided into two classes according to the scores they got at school entrance exam in uniformly. One group is experimental and the other is control group. Selection with problem posing tasks is applied to the experimental group and face to face interaction is done with the students .For example, «write the question in your own sentences" and the stages stated by Brown &Walter -a)Listing attributes (b)What-if-Not (c)Question Asking or Problem posing (d)Analyzing the problem-is done. So, traditional and problem posing oriented types of instruction are compared during 4 weeks program. At the end of the of the program, the experimental and control group students take junior selection exam .Scores of the both goup students are compared with the paired sample t test by computer program SPSS 16.

Junior selection exam: The exam which is prepared by the head of mathematics department includes non routine problems that are very difficult when you compare with level of the students. The problems are selected from different local books that are written from Kazakh and Russian mathematicians. Also problems from international mathematics Olympiads are asked to the students that are gifted and can solve them.

SOME EXAMPLES OF TASKS USED IN JJUNIOR SELECTION EXAM

This tasks is suitable with problem posing oriented courses of course there are also different kinds of asks there are but number of pages are limited here.

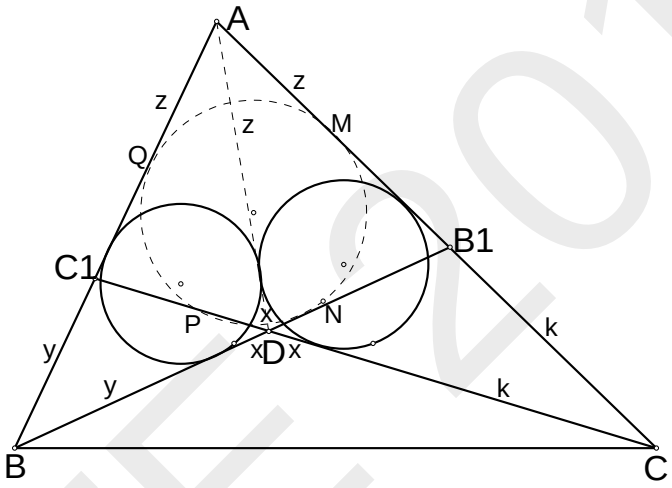
Task1

1. B_1 and C_1 are the points on AC and AB sides of the triangle ABC. The lines BB_1 and CC_1 are intersect at D. Prove that AB_1DC_1 is circumscribed if and only if the incircle of ABD and ACD are tangent.

First :The student writes the attributes and try to draw figure under the consideration of teacher.

Second:The definitions of mathematical terms will be discussed

….



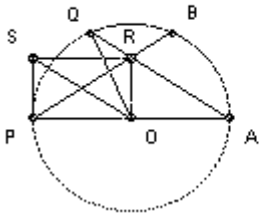
Task 2:

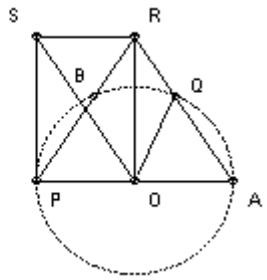
QB is a chord of the circle parallel to the diameter PA. The lines PB and QA meet at R. S is taken so that PORS is a parallelogram (where O is the center of the circle).

Show that SP = SQ.

By symmetry, OR is perpendicular to PA. So m<OPR = m<OAR = m<PAQ (same angle) = ½m<POQ.

But PORS is a rectangle, so m<POS = m<OPR. Hence S lies on the bisector of the angle POQ and the result follows.





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Task3:
This task is difficult for the students but anyway verbally we listen the students' appraoach to the task here.
A spherical planet has finitely many towns. If there is a town at X, then there is also a town at X', the antipodal point. Some pairs of towns are connected by direct roads. No such roads cross (except at endpoints). If there is a direct road from A to B, then there is also a direct road from A' to B'. It is possible to get from any town to any other town by some sequence of roads. The populations of two towns linked by a direct road differ by at most 100. Show that there must be two antipodal towns whose populations differ by at most 100

Task4
After cutting only one square from 5x5 square we can fill out the remaining part using linear triminoes. Determine all the possible squares that are cut off.

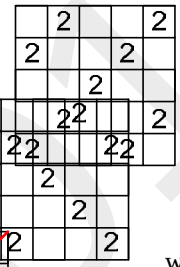
1	2	3	1	2
2	3	1	2	3
3	1	2	3	1
1	2	3	1	2
2	3	1	2	3

$1-8$
$2-9$
$3-8$

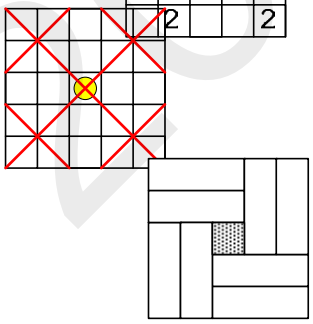
Since each triminoe covers each number we must remove one of 2's. So we have 9 alternatives but we can eliminate by symmetry.

2	1	3	2	1
3	2	1	3	2
1	3	2	1	3
2	1	3	2	1
3	2	1	3	2

Therefore



If we combine these two figures we get



So the center is the only case.

FINDINGS

The data is compiled by paired t test as shown below the students have an average 16.4 out of 20 according to the junior selection exam.Table 1 shows the comparasion of averages for both groups.

Table 1.Statistical results of data collected from experimental and Control group out of 20.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EXPERIMENT	16.4250	40	2.45876	.38876
	CONTROL	13.2250	40	2.51648	.39789

Table 2.Post test paired groups according to scores got from post exam

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 EXPERIMENT - CONTROL	3.20000	3.82435	.60468	1.97691	4.42309	5.292	39	.000

RESULTS AND CONCLUSIONS

The main purpose of this study to distinguish of mathemacially gifted students among the students who are gifted in different perspectives by organizing problem posing instruction.The research indicates that problem posing method is also used in the identification of a mathematically gifted students.because with this method teacher and student interaction is so high and student is so active that is why the teacher can find easily the gifted student among the gifted students.Mathematically gifted students are identified through their advanced reasoning capabilities and their passion for mathematics(Johnson,M .1983;Sheffield 1999).Our finding is reliable with this stament because to understand to identify the gifted student ,you should make face to face interaction with them.Just making an IQ exam and getting the scores and then decide these students are high capable with mathematically is not enough and sometimes not a true way to decide a guickly the student is gifted or nor mathematically.This approach is also suitable with (Johnson ,D 2000).The ability to solve non-routine problems is an important mathematical goal for students(Australian Education Council,AEC ,1991;National Council of Teachers of Mathematics,NCTM,2000;Romberg,1994).Solving non-routine problems provides students high level cognition and develop the metacognitive skills (Betts&Neihart,1986;Diezman&Watters,2001).Our way to distinguish the mathematically gifted students among the students is an important way according to ideas stated above.As a result , the teachers may prepare better designed problem posing tasks as a method when they want to look for mathematically capable students.

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THE EFFECT OF VOCATIONAL GUIDANCE ON SECONDARY SCHOOL'S STUDENTS

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ABSTRACT
Some students don't like or don't want to continue their university degree course. 30 people took part in the pilot survey and 50 people in the final survey. Also, five students were used as case studies. The purpose of the investigation was to determine how many of the university students were satisfied with their parts in choosing their career path and had adequate career counseling in high school. Also, additional concepts influence students' career choices. These were: peer influences, role of their family, etc. The first part consists of personal information. The second part includes information about high school life and the final part the results of the survey. In conclusion, the factors which influenced the freshman students' decision to study at the Faculty of Education. Additional information were obtained by questionnaires and interviews.

Keywords: influence, freshman students, vocational guidance, family influence, weak part of counseling services, needs of students

INTRODUCTION

Psychological counseling and guidance services are important and inseparable dimension of education. The services aim to meet students' counseling needs, their personal development and self-realisation (Güven 2008). Vocational counseling is a regular and continuous service necessary to enable students to chose an suitable career based on their ability and interest, to prepare them for their occupation and progress in this occupation.
For definition of goals we may divide our work in vocational guidance into three parts: What might be called the general survey work with a student of class? In the society; the industrial situations of research, detailed work with the personal student in the effort to make as describe as possible the chances, situations, and needs in a given job. When focus on some information of the pupils of the vocational plans, vocational counseling is more impressive." (Giles 1914). Choosing a career is an important decision in students' lives. Choosing an occupation is an important decision, because it not only concerns students' working life, at the same time affects their quality life and standard of living (Güven 2008). According to these characteristics, vocational guidance studies have an important role on helping services for taking best decision because the person's characteristics must cover oneself the occupation of positions. According to research results, there are six factors that have an effect on choosing an occupation. These factors are:a)biological: the physical characteristics of a person, sex, the structure of body, the condition of seeing and hearing. b) Sociological: feelings, values, the relationship with the family, to connected of the friend environment's expectations and impressions, the social level of family, ability to established close relationship of other people. c)Psychological or individual: the person needs, feelings, attitudes, values and abilities. d) Economic: economic status of family, general economic factors and status of the environment or country and development of automation and technique. They show effect on environment as power of human.e) Political: potentiality of entrancing avocation, potentiality of job finding, opportunity of different education and development. Potentiality of connected with luck, natural cataclysm, case with on works and work area, internal and external wars effectively. As a result of these factors; in to the school psychological counseling and guidance services has got very big importance and also specialist of counselor and guidance help to identify each students by themselves; also helps to rise up their potential on top level. These duties are applying from counselor and guidance at schools. (Kepçeoğlu 1992) Psychological counseling has a number of responsibilities in vocational counseling services in schools. These are; it helps students recognize their hidden potentials, their needs, their expectations and to be aware of available job and education opportunities. Also to make decisions about their future according to the society's expectations. They perform certain psychological tests to identify students' personality in correct and detailed manner. They go through the results of tests with students individually. They gather information about education and job opportunities and report this to the students. (Güven 2008) This study was conducted to find the elements that affect the decision making in choosing a career and to find the deficiencies in vocational counseling services performed by the Psychological Counselors in schools. The aim of the study was to establish the importance of vocational counselor's role for students who are choosing to go to university. In addition, to show the effect of vocational guidance on students even though during the process, other factors such as role of family, peer effect, advice of professional colleagues, so on and so forth from subject.

Significance of the study

Creating new dimension and conceptualizing old one will be renewed by the research. In order to was gaining awareness about that. Showing the importance of vocational counselors effect on students because this process affect almost all students lives. This research is significant for students, counselors, schools, students' families, society so on, and so forth. The end of the research, numerous benefits will be gained, if the research is carried out students will not lose years from their true, may be this sentences lead to think, how can prevent to lose years their lives, for instance. Like this students will learn what they want, what are their abilities, interest etc. what are occupational opportunities, so that students will take consciously decision. The number of unemployed people will be decreased. How? Students, before making their decision, will know what skills are needed in their country because some people do not work like this reason, they do not want to do their job, they became unemployed. Unemployed problem will be decreased by the research. As known as, this is small step but help to research enormous area to make profit**.**

Research Questions

1.What factors influenced the freshman students to study at the Faculty of Education? 2.From whom did the freshman students receive help at secondary school to decide the department to study? 3.To what extent did the freshman students receive at secondary state schools affect their decision on deciding career selection? 4.What did the freshman students report about their state of contentment in studying in EMU?

LITERATURE

"23 developing countries entered in an international conference about the status of technical and vocational education in 1976. This report name change and analysis by UNESCO in 1979. The report name is 'Trends in Technical and Vocational Education' and the analysis show very important issues of vocational education in the Third World: 1.attitudes of resistance to change, and negative views as to the value of technical and vocational education; 2.financial restraints in developing vocational education; 3.a lack of co-ordination between education and employment on questions of planning, training and curriculum development and 4.problems relating to implementation, including a lack of information and research facilities for curriculum development and evaluation; hindrances to the recruitment and training of qualified teachers; and a lack of provision for local production of learning materials and equipment." (Belbase & Jung 1984) Vocational guidance included firstly careers and jobs plan. For vocational counseling, three variables are important; these are: vocational adjustment, vocational pattern and vocational maturity. The pattern is to work in all vocational appearance, for vocational guidance choice between occupational plan and job adjustment. The vocational maturity is important in four areas: people relations in work place, adjustment for working routines and pressures, people's use of abilities effectively and motivation in a work place. Vocational counseling involves a career planning, guidance, placement, appraisal these are sub goal in the process of make easy vocational adjustment. The vocational adjustment's aim to mean a different between personal and emotional adjustment. Personal adjustment did not require precondition for vocational adjustment, a good personal adjustment to help. Vocational guidance offices need to work tightly with parents and school groups. The vocational guidance offices develop four important services: counseling, vocational adjustment, placement and work experience." (Gellman 1954) "The vocational counselor has come to understand the importance of sentimental factors and individual drives entailed in work choosing and Pleasanton. Different studies have displayed that people often take their early family trials and sentimental behaviors with them to their occupations and react to their work accordingly. Jobs are often picked for the alleviation of guilt feelings, for the satiety of childlike requirements, as a consequence of diagnosis with parents or their surrogates, for social ratification. The instabilities, dependency and immaturity that may obstruct personal daily activities, may also stop or pretext good vocational planning. A group counseling program was started. Some researchers made investigating about it, they tried to put the significant variety about students who took role in occupations course. To sum up, in this article's review is that, that put to opportunities to see and highlights part of vocational guidance. Vocational guidance is not merely essential for individuals, at the same time, plays an important role in large groups such as schools. However, as individually vocational guidance can reach different issues. These are; economics, psychology and also sociology. After these points, numerous disciplines have started to find main important point in the vocational guidance. A related study by Young (92), who examined self-estimates of scholastic promise by college freshmen, indicated that freshmen could predict their potentiality as well as or better than could counselor estimates, high-school rank, or ability tests." (Roeber 1957) Undergraduate degree is not an occupational fate's predictor. Some of students hear some information about the technical fields' growth and general information is left over in specialization, and students start to make calculation every choice for some particular job, etc. Although good longitudinal studies on this matter are rare, there is probably an even looser relationship between occupational "choice" in high school and later occupational fate.16 A Bureau of Labor Statistics follow-up of high school leavers in seven labor market areas found that completion of industrial arts courses by boys had little effect on type of jobs obtained; dropouts and graduates fared about the same. In effect, the Gelatt model prescribes characteristics of adequate informational inputs and suggests an organization to be imposed on it. No specific rules are offered for proceeding from information to commitment. Kaldor-Zytowski Model. A model of occupational choice derived from the tenets of economic decision-making was developed by Kaldor and Zytowski (1969) to specify classes of determinants.

The chosen alternative is the one offering the greatest net value-the highest value when input costs are balanced against output gains. Review of educational research for decision purposes, whereas those preferring the uncertainty assumption attach considerable imprecision strategies in VDM models can be considered of two general sorts: the classical models that attempt to select the alternatives with maximum subjective expected utilities, and the satisfying models that attempt to minimize the difference between an alternative and some preconceived standard to these differences. Assumptions about the level of precision in combine information to make commitment." (Jepsen & Dilley 1974) While think these situations, gender as the important issues while choosing occupation these concepts take account." (Craing 1976) "In current years, there has been consider able research including social factors influencing occupational level and achievement of education. 'The general hypothesis of the present study, that interaction with peers influences levels at occupational and educational aspiration at American adolescent boys is based on this conclusion'" (Worth & Haller 1960) "at the occupational chosen, young of families persons orientation is important. Mother - Father and children permanently are in interaction. Mother – Father should orient as well to students and should take account of their children's interests, abilities so on and so forth. However, some families do not take account of students interest, abilities etc." (Elmacıoğlu 2004)

METHOD

In this research, the aim is to show the importance of vocational guidance in state high school to students who are enrolled in departments in Education Faculty of EMU and students who are freshman students and want to learn what criteria bring them to EMU

Population and Sampling: In this research subjects were determined from students who are freshman in Education Faculty of EMU. Since, four different fields of state high school take place in Education Faculty of EMU. Besides, this research sample who are TRNC'S citizen. In addition, to these were not making any identification about gender. And type of sampling is convenience sample. The total number of subjects is ninety. The survey applied 90 people. However, the group members have reached 50 students and applied 50 students. Some of students study in Psychological Counseling and Guidance, Social Science, Computer Technology and Teaching, Turkish language teaching, English Language Teaching, Music Teaching. A1 English Language Teaching 26 participants, Psychological Counseling and Guidance A2 22 participants, A3 6 participants, AF Turkish language Literate Teaching 1 participant, AB High School Mathematic Teaching 6 participants, AA 3 participants, A6 Computer Teaching 2 participants, AC Music Teaching 6 participants, AE Social Science Teaching 18 participants. In order to provide confidentiality, researchers took the decision to use students' department codes combined with their sample list order numbers for identification of participants. The list's numbers combined from one to ninety. Namely, with list's order number and students' department code are used to ensure confidentiality for participants of this research.

Data Collection Procedure and Instrumentation

Data collection procedure used a mixed approach. Data collection was conducted in Education Faculty of EMU. First of all, after determining a suitable time for each participant, at the end of participants' lectures, questionnaires which were prepared for collecting information about vocational guidance were distributed. Another data collection method used was interviewing. Five students were chosen to be interviewed about their past experiences of vocational guidance. A pilot study with 30 participants was carried out for providing consistency of data collection methods. Another goal of making pilot study is that, instrument of this research, hadn't been designed by someone else. Instrument of this research were prepared by researchers of this research.

Data Analysis Procedures

During this research process, data analysis of questionnaires was performed by using a technical program called SPSS. The interview analysis gave detailed information about participant all experiences and what researchers want to show. The questionnaire consisted of thirty-seven questions. Each question had five possible choices. These choices were: Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree. Each participant's responses were analyzed in confidence. Interview analyzes' procedures were provided by preparing table for reduction. First of all, all records were being written and which were being divided according to categories. End of this research, suitable codes would be found for confidentiality of this research.

Validity and Reliability

In this research, trustworthiness and authenticity were achieved by method of triangulation and members checks. Method of triangulation which included an interview and a questionnaire that is providing trustworthiness and authenticity. During the analyzing of interview results, all researchers checked the consistency of validity and reliability. In this research, the pilot study applied 30 people. The results of the pilot study with 30 participants, supported the research questions.

Scope of Limitation

The scope of the research was constraint by the small sample size. Also, the time restriction due to the duration of spring semester being shorter than the fall semester resulted in collecting limited information from students. For this reason, the researchers came across limited time problems for reaching sample and making wider research. In the research, limited information was taken by students. According to these reasons, the research

affected and came across limited time opportunity to research and gather information from sample of the research.

Ethical Issues in design, Data Collection, and Analysis:

During the research, the researchers did not give any distribution, physical or psychological harm to anyone else during this research. For providing confidentiality, researchers determined and used numerical ordinary numbers which made identification of individual students who took part impossible. In the survey, the name of the students did not use and the researchers gave number to the students from 1 to 50. Researchers provided the participants with detailed information about the research. During this process, informed consent, which included a verbal contract between the researchers and all participants in the research, played an important role. Since, under some circumstances a participant may want to give up study, the contract allowed participants to change their decision and leave the study. Data collection was boundaries of the research, all participants were voluntary, nevertheless, condition of delivering questionnaire and doing interview affected participant while answering question of questionnaire and interview.

RESULTS

The results of the prepared questionnaires and interviews results are given below. Two categorizes were defined to provide beneficial result to show as detailed. Questionnaires' answers and interviews' answers were given as separately and interviews' results according the determined criteria of questionnaires and interviews**.** For questionnaire part, each question is evaluated one by one. Like the following; **What factor influences the freshman students to study at the Faculty of Education?**

Table 1.0 - Means for questions 1 to 7

Questions	Meanx
1. I chose myself the subject I am studying.	4.26
2. The decision on the subject I am studying currently was taken with my family.	2.90
3. The decision on the subject I am studying currently was taken on school counselor's advice.	2.24
4. The decision on the subject I am studying currently was taken with my friends.	2.40
5. I took advice from a student who was studying the subject I am studying currently before choosing it.	2.56
6. I took advice from people who were practicing in the field of subject I am studying before choosing it.	2.60
7. I got counseling advice in high school with the subject I am studying currently.	2.46

The majority of students chose department according to they wanted. The majority of students did not choose departments as a result of their families' intervention. On choosing departments, counselor teacher effect was very insignificant. The students didn't choose departments with intervention of friends that were too much. The majority of students did not choose departments based on advice from people study in these departments. The students didn't choose departments with advice who people work in this occupation that were too much. The students didn't choose departments with helping counselor teacher in high school that were too much.

How the students choose their field in high school and how is related their field with this department?

Table 1.1 – Means for questions 8 to 12, 23 and 25

Questions	Meanx
8. I made my decision depended on the chosen department.	3.58
9. In high school, I made my department selection with my family	2.88
10. In high school, I made my department selection based on my counselor's advice.	2.40
11. In high school, I made my department selection based on my friend's advice.	2.52
12. In high school, I made my department selection based on the best possible advice and information from the school counselors.	2.74
23. With possible success and failure, I would still choose my current subject I'm studying.	3.42
25. On my chosen department, I had chosen that based on my own needs and interests.	3.80

The students made their decision that depended on the chosen department. In high school the students made their department selection with their family. In high school the students did not make their department selection based on their councilor's advice. In high school the students did not make their department selection based on their friends' advice. In high school the students did not make their department selection based on the highest possible advice and information. The students know about their success and failure subjects in high school that were choose their departments. The majority of students chose departments according to their needs and interest.

What is the helping services were provided for students to choosing departments?

Table 1.2 – Means for questions 13 to 22, 24, 26 to 29

Questions	Meanx
13. In university the education in which I was going to be facilitated by my department the counselor had given me advice.	2.72
14. Before entering the universities entrance examination, I was given a lot of information by counselor's office.	3.40
15. I was given the highest possible information my counselors before choosing subject to study	3.10
16. For university in counselors services help me for gaining recognition for choose department.	2.70
17. Before choosing department, the counselor's office provided me possible job opportunities after graduating from university**.**	2.86
18. With the guidance of a counselor, I was given a test on the possible future job.	3.10
19. I got answers of the test from my counselor	3.02
20. When in time of uncertainty with choosing a job, I was given a great amount of advice by counselor	2.40
21. With the help of high school counselors, I chose my subject to study at university	2.44
22. I was pleased with the help and support provided by the school counselors when I was choosing subject to study at university.	2.58
24. On behalf of the counselor services, there were continual seminars provided on my chosen department of study.	3.08
26. Instead of following other peoples advice, I chose to follow professional counselor services advice	2.80
27. Before choosing my department, I was given plenty of advice and information by my counselor	2.70
28. Counselor's office had provided me with information on educational language of my chosen department.	2.60
29. Counselor's office had provided me with plenty of information on the university of my choice.	2.68

In university, which the students were not going to be facilitated by their department the councilor had given their advice. Before sitting the university entrance examinations, students weren't given a lot of information by counselor's office. The students were not given the highest possible information by their counselors before placing subject choices. In counselors services did not help them for gaining recognition for choose department. The counselors' office did not provide possible job opportunities after graduating from university before students chose their subject to study. With the guidance of a counselor, students were given a test to identify the most appropriate future job for them. The students got answers of the test from their counselor's teacher. The school counselors did not provide adequate help when the students were choosing their future occupation,. The counselor services did not help to students for deciding departments. The majority of students were not pleased with the help and support provided by the school counselors when choosing subject to study at university. The school counselor did not provide regular seminars. The majority of students did not benefit from the guidance service. The majority of students in high school did not receive enough information from the counselor's teacher. The majority of students did not take any help about language of the chosen department. Their counselor's office did not provide their plenty of information on the chosen university in which the students will not be studying their chosen department.

What happened as a result of choosing departments?

Table 1.3 – Means for questions 30 to 37

Questions	Mean x
30. Before studying in the department in which I am in currently, I was in another department.	3.14
31. The subjects I am currently studying at university is connected to the subjects I was studying in high school.	3.34
32. I am pleased with and appreciative of the current department I am studying in.	3.76
33. If I had greater opportunities, I would have liked to have studied in another department as well as the subjects I am studying currently.	2.30
34. I am thinking of changing my choice of department.	2.00
35. Due to false and indirect information of chosen department I am currently suffering difficulties at university.	3.06
36. Due to the exams in which I was put though by the counselors office at the time of preference of department unfortunately there is link.	2.88
37. Due to the points in which I had gained in my university entrance exams is the reason of chosen department I am currently studying.	3.38

The majority of students changed their departments. The majority of students thought the subjects they are currently studying at university were connected to the subjects they were studying in high school. The students were pleased with and appreciative of the current department the students were studying in. The majority of students want to change their department. The majority of students don't want to change their department. The percentage students who had problems at university is higher than others. The majority of students choose their departments without the help of counseling services. The majority of students choose their department according to their results. According to sex of T-test results, in the sample of twenty-six were girls and twenty-four were boys. The majority of girls and boys chose their departments consciously because the result of questions did not below the sig 0.05 so the girls and boys had the same opinions about the questions but twenty-third questions that was meaningful differences between the girls and boys results that were below the p=0.05>0.017 so that results were shown the girls and boys did choose their departments unconsciously. In the research did not a big gap between both genders.

Interview Analysis

Table 1.4 - The students' expectation about career counseling services of school

School counselors should have separate room in school
Number of school counselors should be adjusted according to the number of students
School counselors should give enough attention and should know well to provide right and health guideline for students
School counselors provide help to students according to their interests,
School counselors should be close to students like being friends.

Table 1.5 - the problems students faced during career counseling

Not enough counselors in high school
Not giving help according to students' vocational choices test
Not oriented by school counselor
Families oriented
School counselors did not give enough attention to students.

Table 1.6 the students opinions about the weakness of the Career Counseling

Number of school counselors is not sufficient and environment used for counseling is unsuitable for counseling
Confidentiality is not clear therefore students can't feel their self as free to go counseling services.
School counselors do not give enough information about departments and made test neither are nor used for giving direction to future.
Students and school counselors are not serious about vocational guidance.
School counselors do not give enough attention to students.

Table 1.7 - the students' opinions about the impact of the career counseling on students' university life

School counselors procedures are not wide, that only emphasize on OSS
Interest and ability Test results are not taken into account when giving advice to students on choosing department
Could not take enough explanation and any help from related people.
Students came accidently to their department
This problems lead to lose time of students' life.

DISSCUSSION

First of all, vocational guidance has important roles that are focused and members of the research thought all problems approximately leaded by school counselors' less attention about vocational guidance. According to the situation, influences affect students and their choices about their career. As seen as, numerous authors

emphasized on importance of vocational guidance. Besides, the process of investigating student's needs do not merely problem for students less part of vocational guidance, also in addition to this; students' gender is affective factor while making their choices for university. **What factor influences the freshman students to study at the Faculty of Education?** The first of seven questions related to this research question. As a result of these questions, the majority of students chose departments according to their requests. The other way of students choosing department was intervention of family because their families may be want to work same job. Other criteria took important role such as family. The research result showed that the family influences on student's choices Parents must be involved in this process, but for various reasons, this involvement must take place in a flexible manner. (Rohrs 1992) The effect of the school counselor may be not enough information about the vocational guidance because the students may not trust to vocational counseling that is beneficial for choosing departments. A little of students choose their departments with intervention of who people work in this occupation and with intervention of who people study in this departments because the student's friends may not work in the same work with their departments or the students may be enter department, if they may not interest this departments, the students may criticize the departments. **How the students choose their field in high school and how is related their field with this department?** The second of five questions related to this research questions. A lot of students may be chosen departments for their interests. In high school the students might be chose their fields with intervention of families and friends that is more than effective the school counselor effecting to choosing the field in the high school but the school counselor give information to students about in the departments of university. The twenty-third and twenty-fifth questions are that the students may be select their departments to known as a success and failure of occupation fields and the students select their departments according to their needs and interests. Applying tests, observation, interview and psychological counseling, required lists, measurements, role list technique, and interests should be written. According to these things results, should be decides with suitable and achievement techniques. It will be advice students for their future plans and occupational information.. **What is the helping services were provided for students to choosing departments?**The school counselor may gave information about the entrance exam and what is necessary for entering the departments. In addition the school counselor might be applied the tests and feedback the result of tests. The school counselor might be provided seminars for recognizing of occupations. In some schools, the school counselor may not design the seminars because the schools may be having differential applications for applying of vocational guidance. Moreover, the school counselors might be help to the students for choosing departments and giving information about the departments of work possibilities. The students might took information about the education of period and the education of language. In addition to this, vocational guidance takes big importance on student's career choices as "Unfortunately there remained confusion as to whether a person's expressed need for vocational guidance was merely symptomatic of a deeper maladjustment or whether vocational guidance could help a person to higher levels of adjustment". (Roeber 1957) **As a result of chosen departments, what happened?** The majority of students may be thought to change departments. A lot of students might be study related with the field in the high school. A lot of students are satisfied with their departments but some students may want to change departments. The majority of students had troubles because the choosing of departments unconsciously and the students register their departments although the taking scoring of entrance exam. Some of students gave the results of tests and the students departments related with the feedback of tests. Before, as mentioned students should take enough information about from school counselors. According to interviews' results, a lot of information was gained. The results of interviews focused on number of school counselors, because the numbers of school counselors were not sufficient. Their role is not made exactly by themselves. Conditions of counseling rooms are poor and counselors do not have their own separate room. School counselors do not give enough attention and information to students so students come across problems. These problem lead to waste of student's time. It was bad for students as known as and previous proof sentences demonstrated these things are important

CONCLUSION

At the beginning of the research, the researchers focused on vocational guidance importance on students' career choice and influence on students' university lives who study as freshman students in education faculty of Eastern Mediterranean University and so on. During this process, members of the research got additional concepts, like not only problem of vocational counselors weak part also, curriculum does not have enough guidance time for students in high school, school counselors do not make their duties well also school counselors do not have opportunities to reach all students because of number of students and counselors is not fix. Moreover, students' families take significant role and also, students' friends have role on students' career choices. Because of these reasons, students lived problems and that leaded to change their department and near the things students lost their time during the university lives until find true way for them. As seen, the results part of research shows everything as well. According to these results, students affected from these and their choices were shaped as wrongly from these influences. The process of research before announced, information was got from questionnaire and interview. The results of the research shows that vocational guidance should be improved and other factors should be taken into account when students are deciding on their university life. These factors have

a significant influence on students' choices. Their lives are affected by these factors. Students' career choices are an important cause of change affecting them for the rest their life span.

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THE EFFECTS OF MUSIC ON COMPUTER BASED INSTRUCTION

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ABSTRACT

In today's world, the trend in education is moving from the classical classroom environment to computer based instruction at every stage of schooling. Computer based instruction, unlike classical education, does not assign the role of passive listener to the student, instead provides a highly effective teaching environment involving entertaining game-like natural subject presentation and question asking through interactive teaching. Moreover, there is no music associating subject presentation through lecturing in the classical education. However, when computer based instruction is employed, it is possible to support the presentation with various sound effects and music. In this paper, besides the visual setting provided by the computer, we investigated the effects of audio elements on learning. Besides voicing of the text, we wanted to highlight the effects of music given as background sound on learning.

Key Words:

Computer based instruction**,** educational software, learning with music

INTRODUCTION

In today's schools, computers completely change education and the delivery of instruction to students. Hundreds of research studies have been performed attempting to prove that using a computer to teach something is better than using a book, a teacher, a film, or some other more traditional method (Alessi & Trollip 1991, Meyer 2007, Kaçar 2007). Research results show that the computer based instruction is more successful than the traditional education because children can learn concepts quickly and enjoyable with the help of moving images and visual effects (Giles 2007, Ljung-Djarf 2008, Sarmaşık 2009). But researches on efficiency of computer based instruction usually focus on the whole of the software and the results are evaluated in relation to students' achievement. However, before looking at the whole of the software, we should evaluate the components of educational software individually. One of the most important components of the educational software is music which is as much influential as the visual elements. Unlike classical education, in many of the educational software developed for computer based education, there is a background music playing while the subject is presented. However, there is lack of research dealing with the effects of music in educational software programs. And, many of us think that listening to music while studying is a distractive factor. In this paper, we investigated whether the background music playing while teaching is carried out has positive influence on learning.

EFFECTS OF MUSIC ON LEARNING

The existing research shows that music associated learning creates more fun and promotes learning. Listening music while learning something in the classroom environment was observed to help to focus attention, enhance concentration, empower the memory, enrich the imagination, and improve motivation and in this way made positive contribution to learning (Brewer, 1998).

The people exposed to teaching supported with music were frequently examined in order to see how permanent the things they learned are. Even 6 months later they were able to remember the 88% percent of what they had learned. In addition, even if they did not use the foreign language they learned for 22 months, they were able to remember 50% of what they had learned (Ostrander & Schroder, 1995, pg.34)

When the literature is reviewed, it is seen that a prominent figure looking at the effects of music on learning is Bulgarian Psychiatrist Dr. Georgi Lozanov. Lozanov found out that music has the potential of positively affecting learning in 1966 and he coined the approach designed to incorporate music into the learning environment as suggestopedia. In his studies, Lozanov found that special music with specific rhythms could increase the learning concentration of people by leading them to a stress-free environment. Lozanov's most important finding in this regard is that easy and permanent learning occurs when the brain is in alpha wave. Some classical music pieces with some certain rhythms tested by Lozanov decreased the brain waves to the range between 8 and 12 Hz and in this way promoted the brain to emit alpha waves (Bancroft, 1999, pg.25).

As a result, music plays a very positive role in the process of learning regardless of the age of the learner. During learning, the music playing in the background affects the brain waves, and helps the learner to better focus on the subject and be more energetic and also transfer the information into long-term memory.

EFFECTS OF MUSIC ON THE BRAIN

In computer based instruction, capacity of easily adding music to the teaching of a subject as a positive contributor to learning gives it a more advantageous position when compared to classical teaching. But we need to know how music positively affects learning in order to decide what types of music we should prefer. Scientific research revealed that music including sounds at some certain frequency intervals helps people to concentrate on an issue by increasing the level of energy in brain cells.

In his experiments, Lozanov found out that classical music pieces do not lead the listeners into alpha brain waves setting and in this regard the most effective pieces of music are 60-beat "largo" and "baroque music" with 4/4 or 3/4 meter. Concentration power is directly related to the energy level in the brain cells. The tests carried out in Iowa State University revealed that when baroque music is used during learning activities, the effectiveness of the learning activity and power of memory are increased by 24%. The dual-impact technique developed by combining largo baroque music with binaural frequencies technique is called "Bio-Rhythmic Largo Technique". "Bio-Rhythmic" Largo background music prepared by mega memory consist of special baroque music pieces playing 60-beat with largo phase (Lozanov & Gateva, 1988):

- When a piece of "Bio-Rhythmic Largo" music is listened without headphones as background music while studying, stress-free learning advantage of "Largo Baroque" music can be obtained.
- When a piece "Bio-Rhythmic Largo" music is listened with headphones as background music with the music coming from two ears separately, the additional impact can be created and this improves the concentration of the person.

Listening classical music regulates the activities in brain waves. In 1993, neuroscientist Fran Rauscher from California University investigated how classical music listened before the exam affects the achievement. It was observed that the group listening to Mozart for 10 minutes before the exam was found to be more successful than the group that did not listened (Rauscher, Shaw, & Ky, 1993). In 2004, Rauscher and geneticist Honh Hua Li from Stanford University found that when alzheimer patients listen to Mozart, they can have better social relations, and in epilepsy patients it regulates the activities in brain waves (Singer, 2004). It is a system founded in the 1950s by Alfred Tomatis, a French doctor, and which is defined as a pedagogy of listening. It is known as the Mozart Effect, Tomatis discovered that certain types of classical music -especially that of Mozart and Gregorian chants- particularly effective in rebalancing the brain (Thompson & Andrews, 2007)

What Types of Music Do We Need to Use As A Positive Contributor to Learning?

Normally a person' pulse beats 80 times in a minute but while resting, it becomes 60. In meditations, as the pulse-beat drops to 60, best learning occurs. Having positive impacts on learning, baroque music has 60-beats like our pulse beating in resting position. Hence, while a person is listening to this music, body of the person complies with this pace. And then the body relaxes and mind is opened. Special baroque music consist of pieces playing 60-beat with largo phase.

In order to increase the effectiveness of learning, Lozanov and Gateva (1988) suggest the music that can be used can be categorized as active and passive:

Passive music: Largo parts of the works of 16th and 18th century baroque classical music composers such as Bach, Vivaldi, Teleman, Corelli, and Handel are suggested to acquire new information and retain it.

- J. S. Bach: Fantasy in G major, Fantasy in C minor, Tiro in D minor
- Handel: The water music
- Corelli: Concerti Grossi, Op. 6, No.2,8,5,9
- Vivaldi: Five Concertos for flute and Chamber Orchestra

Active music: the music suggested to revive the mind and enhance the performance:

- Beethoven: Concerto for Violin and Orchestra in D major, Op.61
- Tchaikovsky: Concerto No:1 in B flat minor for Piano and Orchestra
- Mozart: Concerto for Violin and Orchestra
- Haydn: Symphony No. 67 in F. major; Symphony No:69 in B. major

In the similar way, Soviet psychologist I.K. Platov, researches the absence of music, when the metronome is adjusted to 60 beats, this also has positive impacts on humans. But, in this case, though the students still acquired the information, they complained about stress, tension and fatigue. The results of laboratory studies revealed that some drum beats have soothing effects and they help to regulate breathing and brain waves, and leads to biochemical changes creating various situations of consciousness. An American advertisement company looking at the effects of music played in advertisements on viewers found that 72 beats in a minute in the music or drum have positive impacts on retention (Ostrander & Schroder, 1995, pg. 62).

CONCLUSION

As a conclusion, the prior interaction of the student with the music is not important while selecting the type of music to be used as background music in computer based instruction. Because, listening to music occurs as a result of pressure changes in the sound taking place in the ear. If these changes are irregular, what we hear is only loud. But if the sound comes to the ear in the form of regular vibrations, the result is, depending on the frequency of the sound, a melody.

The music to be used as background music should have 60 beats in a minute, be largo music with 4/4 or 3/4 pace. In order to avoid monotony, pieces of music including different instruments (violin, flute, clavier, mandolin, guitar) or with different music keys such as major and minor. And in order increase attention, allegro music can be used for revival. The sound of background music should be low not to distract students' attention from the subject taught.

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THE HIGHER EDUCATION AND UNIVERSITIES IN TURKEY

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ABSTRACT

Education is the fundamental development process of human life. It affects on human mind, character and physical abilities. In this study, I will try to discuss the higher education in Turkey. Higher education is provided by universities, academies and institutions. The purpose of this, I will examine the history of universities in general and the development of universities in Turkey. Higher education includes undergraduate, graduate and postgraduate education. We can find the first characteristics of universities in Plato's *Academy* and Aristotle's *Lyceum*. In Medieval Europe we met the first examples of universities such as University of Bologna. In Turkey, the history of higher education has depended on 1900's. There was only one higher education institution which is named "Istanbul Darülfününu" (Istanbul Academy of Science), before the Turkish Republic. Istanbul University founded in 1933 is the first state university of Turkish Republic. Today, there are many state and private universities in Turkey. I will try to give a brief history about universities in Turkey.
Key Words: Education, Universities, Higher Education System, Turkey.

Education is the fundamental development process of human life. It affects on human mind, character and physical abilities. The history of education began with the human history itself. Higher education has also play an important role in human life. Higher education includes undergraduate, graduate and postgraduate education. It is provided by universities, academies and institutions. In general, higher education and university are used the same meaning. The word university is derived from the Latin *universitas magistrorum et scholarium*, roughly meaning "community of teachers and scholars."(en.Wikipedia.org/wiki/university)

We can find the first characteristics of universities in Plato's *Academy* and Aristotle's *Lyceum*. Plato is a founder of the Academy in Athens in BC 387. Academy is the first institution of higher learning in the western world. Dialectic was used as a teaching method. Lyceum was founded by Aristotle in BC 335. In this school, Aristotle lectures while he was walking so it was called peripatetic school. However, these two schools did not refer to the modern university.

In Medieval Europe we met the first examples of universities such as University of Bologna. Universities were first founded in Europe. After Europe they were founded in America, Asia and Africa. In general universities are productions of 19th century. Their origins are relied on Medieval Europe and Christian culture. We can see the first modern universities in Medieval Europe. Aristotle's philosophy was studied in Padua, Paris and Bologna Universities. In this time, religion had an important place, so the Catholic Church was the dominant intellectual authority of all Europe. Therefore, Medieval European scholars were members of the clergy. Paris and Bologna were important universities in Medieval Europe. Theology was dominant at Paris, while Bologna had domination over law. Medieval universities were concerned theology and Aristotelian philosophy. After 1929, universities became autonomous. Universities rapidly became the home of an original and creative tradition of European scholarship. Latin was a common language in the schools because it was suitable for scientific researches. The University of Bologna is the oldest university in the world. The word "universitas" was first used by this school.

In Turkey, the history of higher education has depended on 1900's. There was only one higher education institution which is named "Istanbul Darülfününu" (Istanbul Academy of Science) Darülfünun is derived from Arabic *dar* meaning house and *fun* meaning sciences. In general, the term Darülfünun is used to refer university. Istanbul Darülfünun was founded by II. Abdulhamit under the name of *Darülfünun-I Sahane* in 1900. In fact, the idea of Darülfünun appeared in 1846. Darülfünun was different from Madrasa. In Madrasa, it was studied theology but in Darülfünun science was studied. After the foundation of Turkish Republic Istanbul Darülfünun was reorganized as Istanbul University in 1933

Another important school in Ottoman was Robert College. This college was founded in 1863. In this college, the numbers of teachers were more than students. In 1903 the school gave the first Turkish graduates. In 1958, Robert College High School was founded. In 1971 this school reorganized as Bogazici University.

The first private university in Ottoman was founded in 1908 by the name of el- Camia el-Mısriyye. It is claimed that Turkey followed German model, "the German specialized professor and the single discipline department were imitated, and universities became geared,.., to the combination of teaching and research" (Perkin, 2007: 178).

Turkey has a long history about higher education. At present, there is a council The Council of Higher Education (YOK) in Turkey. All universities are connected to The Council of Higher Education. The Council of Higher Education (YOK) was established in 1981. Before the establishment of this council Turkish higher education system has five kinds' institutions, these are as follows:

- Universities
- Academies which depends on the Ministry of Education
- Two-years vocational training schools
- Normal schools which trained people to be junior-high and high-school teachers (3 years)
- Correspondence course- YAYKUR

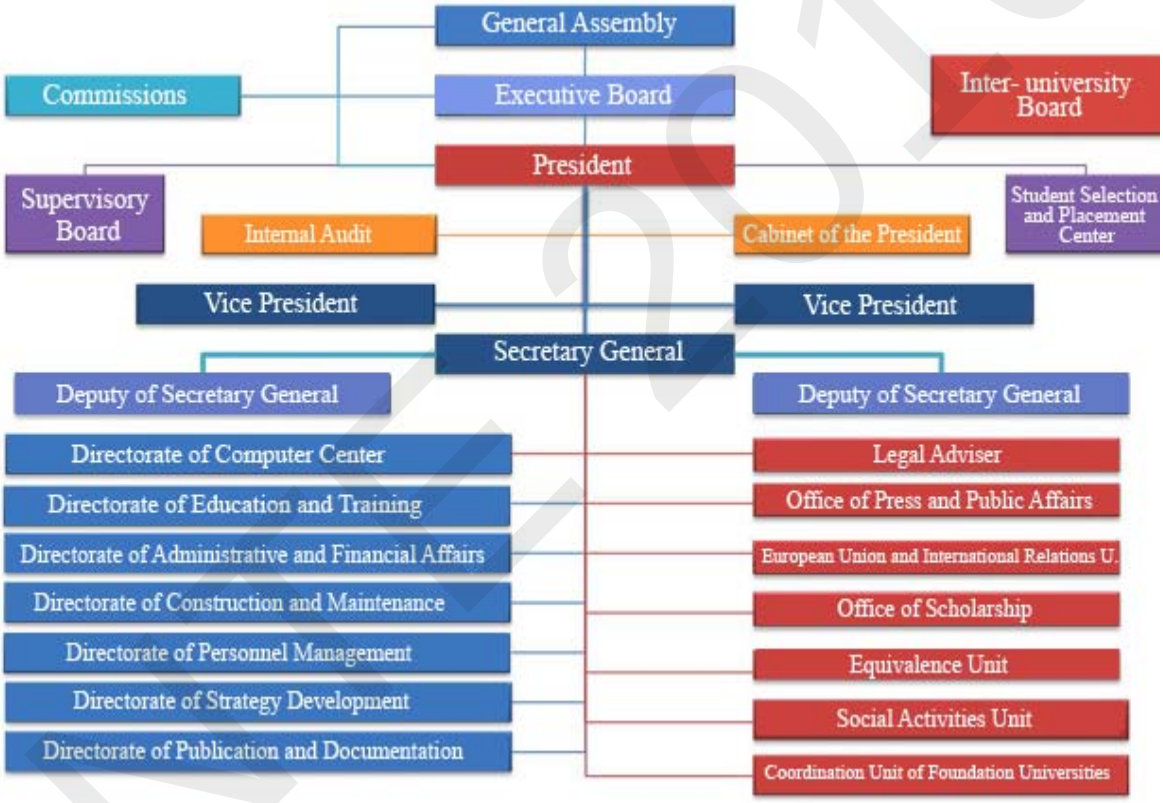


Figure 1.
Organizational Structure of the Council of Higher Education (YOK) (www.yok.gov.tr)

At present, there are 146 universities in Turkey. Many of them just have been founded. 95 of which are state universities, while 51 of them are private universities. Many of the private universities are located in Istanbul. Let see these state universities by alphabetic order:

State Universities:

1- Abant İzzet Baysal University (1992)
2- Adıyaman University (2006)
3- Adnan Menderes University (1992)
4- Afyon Kocatepe University (1992)
5- Agrı Ibrahim Cecen University (2007)
6- Ahi Evran University (2006)
7- Akdeniz University (1982)
8- Aksaray University (2006)

9- Amasya University (2006)
10- Anadolu University (1982)
11- Ankara University (1946)
12- Ardahan University (2008)
13- Artvin Coruh University (2007)
14- Ataturk University (1957)
15- Balıkesir University (1992)
16- Bartın University (2008)
17- Batman University (2007)
18- Bayburt University (2008)
19- Bilecik University (2007)
20- Bingöl University (2007)
21- Bitlis Eren University (2007)
22- Bogazici University (1971)
23- Bozok University (2006)
24- Celal Bayar University (1992)
25- Cumhuriyet University (1974)
26- Canakkale On Sekiz Mart University (1992)
27- Cankırı Karatekin University (2007)
28- Cukurova University (1973)
29- Dicle University (1974)
30- Dokuz Eylul University (1982)
31- Dumlupınar University (1992)
32- Duzce University (2006)
33- Ege University (1955)
34- Erciyes University (1978)
35- Erzincan University (2006)
36- Eskisehir Osmangazi University (1970)
37- Fırat University (1975)
38- Galatasaray University (1994)
39- Gazi University (1982)
40- Gaziantep University (1987)
41- Gaziosmanpasa University (1992)
42- Gebze Technology Institute (1992)
43- Giresun University (2006)
44- Gümüshane University (2008)
45- Hacettepe University (1967)
46- Hakkari University (2008)
47- Harran University (1992)
48- Hitit University (2006)
49- Igdır University (2008)
50- Inonu University (1975)
51- Istanbul Technical University (1944)
52- Istanbul University (1933)
53- Izmir Technology Institute (1992)
54- Kafkas University (1992)
55- Kahramanmaras Sutcu Imam University (1992)
56- Karabuk University
57- Karadeniz Technical University (1955)
58- Karamanoglu Mehmet Bey University (2007)
59- Kastamonu University (2006)
60- Kırıkkale University (1992)
61- Kırklareli University (2007)
62- Kilis 7 Aralık University (2007)
63- Kocaeli University (1992)
64- Mardin Artuklu University (2007)
65- Marmara University (1982)
66- Mehmet Akif Ersoy University (2006)

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67- Mersin University (1992)
68- Middle East Technical University (1959)
69- Mimar Sinan University (1982)
70- Mugla University (1992)
71- Mustafa Kemal University (1992)
72- Mus Alparslan University (2007)
73- Namık Kemal University (2006)
74- Nevsehir University (2007)
75- Nigde University (1992)
76- On Dokuz Mayıs University (1975)
77- Ordu University (2007)
78- Osmaniye Korkut Ata University (2007)
79- Pamukkale University (1992)
80- Rize University (2006)
81- Sakarya University (1992)
82- Selcuk University (1975)
83- Siirt University (2007)
84- Sinop University (2007)
85- Suleyman Demirel University (1992)
86- Sırnak University (2008)
87- Trakya University (1982)
88- Tunceli University (2008)
89- Turkish-German University
90- Uludag University (1975)
91- Usak University (2006)
92- Yalova University (2008)
93- Yıldız Technial University (1982)
94- Yuzuncu Yıl University (1982)
95- Zonguldak Karaelmas University (1992)

We can see the development of higher education during the republican era in Turkey as following table:

Years	**1923-24**	**1970-71**	**1990-91**	**1999-2000**	**2010**
University (Public)	1	8	28	53	95
University (Private)	-	-	1	23	51

In Turkey, in 1992 and in 2007 many universities has founded. After 2000, 70 universities have founded. We can see the higher education in Turkey has been progressing. The first private university was founded in 1984 under the name of Bilkent University. During the last two years, the number of private universities has been increased. The quality of higher education has also been increased.

The improvements in technology speed up the research processes. Both students and teaching staff are able to access researches much faster by internet and thus carry out their research at the best convenience in universities in Turkey. The main aim of universities is to illuminate societies by arriving information and technology in favor of societies. Thus, the universities should be open to changes and also improve their qualities. In Turkey, there is an important development in Universities. In Turkish Universities provides many opportunities both their students and their academic staffs. One of the important of these is the LLP/Erasmus programme. ERASMUS programme is a European Union founded programme which offers the possibility to students of studying abroad in another European country for a period of between 3 and 12 months. The programme is open to the Member States of the European Union, the three EEA countries (Iceland, Liechtenstein and Norway) and to Turkey (as candidate country). In Turkey, many universities perform exchange programs for students and teaching staff. Another important programme applied in Turkish Universities is Farabi programme. Farabi is also exchange program; it performs among universities in Turkey.

YOK prepares plans to establish and develop higher education institutions in Turkey. *The Higher Education Law (Law no. 2547)* covers all universities in Turkey. “Nearly all institutions of higher education in Turkey have, each year since 1974, accepted students in accordance with the results of the examinations organized by The Student Selection and Placement Center (ÖSYM)” (www.osym.gov.tr).

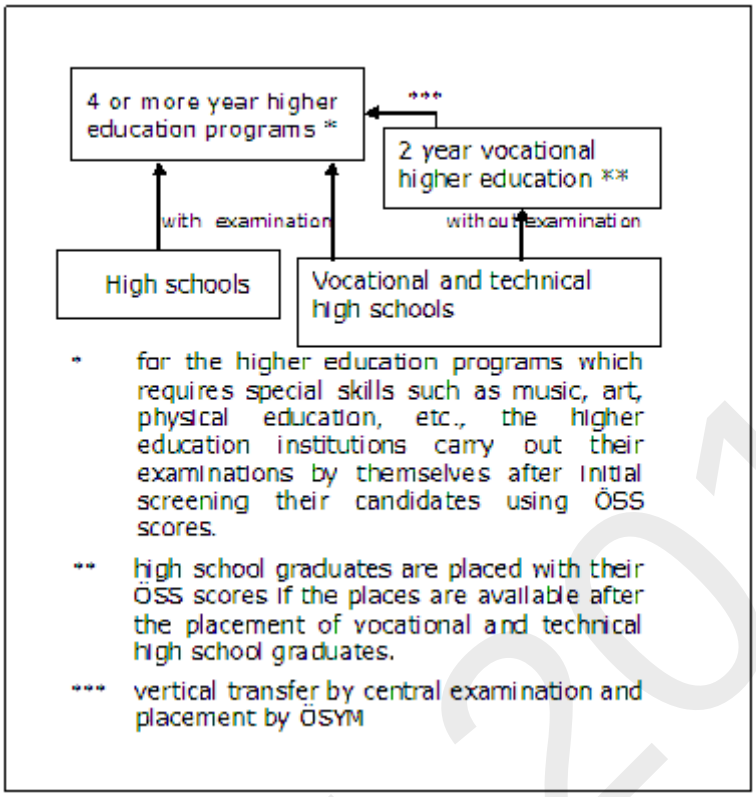


Figure 2.
Access to higher education in Turkey (www.osym.gov.tr)

The aim of education is to educate individuals who respecting human values, human rights and freedom. The advancing technology increases educational opportunities for people. Universities have begun to benefit from these technological advances facilitating research and informational exchange. In Turkey, higher education has been progressing. This also shows the level of scientific and economic development in Turkey. I hope the new universities provide a tangible improvement in the quality of education in Turkey.

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THE IMPACT OF THE ANALOGIES IN CHEMISTRY ACHIEVEMENT

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ABSTRACT

This research aims to investigate the influence of analogies related to the subject of "chemical equilibrium" on 11th grade students' achievements. On this account, analogies were developed by considering students' misconceptions and learning difficulties. The sample of this study consists of 151 11th grade students who were studying at 3 diffrent high schools in İzmir, Turkey. Before and after the study, boths groups were given chemical equilibrium misconception test. Before the instruction, pre-test was applied on all the students to determine students' prior knowledge and misconceptions. After that, experimental groups instructed with analogies while control groups instructed with traditional teaching method. The collected datas were analysed statistically. The results showed that the mean scores of the students in the experimental groups were significantly higher than those in the control groups. These results also showed that analogies used in experimental groups reduced misconceptions in some aspects of equilibrium.

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THE INCLUSIVE CULTURE IN GUARDA'S COUNTY: TEACHERS' PERCEPTIONS AND PRACTICES

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ABSTRACT

For UNESCO (2006), inclusion is conceived as a dynamic approach to deal positively with the students' diversity, considering the differences among individuals not as problems, but as opportunities to value learning. The education system should provide appropriate responses to diversity, promoting development and education for everyone, including those said to be normal and the severely handicapped, as well as those said to be specially gifted, by means of a growing participation in learning, in culture and communities. The main purpose of this study is to research the issues related to school inclusion, analyzing the perception of educators and primary school teachers about culture, politics, and pedagogical inclusive practices as well as their own practices in their daily life. We anticipate that this study could be extended to other fields of inclusion, as, for example, gender issues. A descriptive exploratory study was developed, by applying a questionnaire adapted from the originally developed by Booth and Ainscow (2002).

Introduction

UNESCO (2006) considers inclusion as a dynamic approach to answer positively to students' diversity, considering the differences among individuals, not as problems, but as opportunities to value the learning process. The concept of "Education for inclusion" is set back on a number of legal documents from the international community where the right to all children to benefit from an education free from discrimination is seen as fundamental. In fact, different declarations were produced in different international forums (as the Declaration of Education for everyone, Jontiem, 1990; the Declaration of Salamanca, 1994; the one from World Wide Forum on Education, Dacr, 2000). These declarations knowledge the right to handicapped people to access and participate in common educative structures.

In a preparatory document to the International Conference about Inclusive Education, promoted by the United Nations Organisation for Education, Science and Culture, held in Genebra in 2008, it is said that "Inclusive

education is an evolving concept that can be useful to guide policies and strategies addressing the causes and consequences of discrimination, inequality and exclusion within the holistic framework of EFA goals. Removing the barriers for participation in learning for all learners is at the core of the concept of inclusive education, which is truly rights-based and will require all aspects of the education system to be reviewed and redesigned. Inclusive education can be comprehended as an on-going process in an ever-evolving education system, focusing on those currently excluded from accessing education, as well as those who are in school but not learning" (ED/BIE/CONFINTED 48/3. p.9).

The inclusive education, or the right of all children, independently from their handicaps, to attend regular schools is the result of a long process of evolution that, according to Bénard da Costa (1999), is characterised by "a history of exclusion / rejection that has had many periods: exploitation and dropping out of school, charity protection; enrolment in school institutions, enrolment in special schools or special classes. Only after the 70 (XX century) , in most of the countries, the processes of including these students in regular teaching structures is started, based on different concepts: normalisation, integration, equality of opportunities and finally inclusion" (p.25). For research purposes it is important to characterise this development path.

We can trace the beginning of special education in the end of the XVIII century. This period faces the handicapped individuals with ignorance and rejections in most of the cases. During the XIX century, we can find the emergence of special education, with a period of specialised institutionalisations of handicapped people. In this period, institutions treated people from an assistance point of view, rather than from an educative one. (Bautista Jiménez, 1997b).

In the beginning of the XX century there were advances in science, and we should mention the contributes of Galton (1822-1911) and Alfred Binet (1857-1911), who developed techniques in the evaluation of intelligence that were later used in the classification of levels of mental handicaps and educative possibilities. Maria Montessori and Ovide Décroly were also important influences on the process of intervening in special education "Through the development of '*Pedagogia científica*', these authors, who started by studying handicapped students, contributed to important school reforms that happened in Europe at the time, namely through the movement known as "new education".(Madureira & Leite, 2003, p.19).

In the first half of the XX century there was a system of special education that was based on the idea of segregation and separation of handicapped people, not allowing their integration on regular schools. Only after the appearance of institutions like asylums or hospitals new structures of special education were created, including people according to their handicaps, in an internal or external regime and special classes were attached to regular schools. At this time, the main concern was to classify systematically different types and grades of handicaps, based on medical and psychological perspectives, after which students were sent to special institutions. This is to say that special education was working in a parallel dimension to general education (Felgueiras, 1994).

In the decades of 60 and 70 from the XX century, some criticism has aroused as well as a feeling of discontent towards the inefficiency of the traditional model of special education and the poor results in this area. Several students, educators, teachers and even parents started wondering the classical answers given to handicaps in

their different forms (Monteiro, 1991; Belmont, 2004). Several movements – social, educational and political ones – pressured governments so that, in some countries, as Bairrão Ruivo, said "the integration was no longer an option, to become a legal warrant"(1981, 13). This was the case of Sweden, with the publication of laws of integration from 1968, The United States of America 1975, with the law PL 94-142 ("*Education for Handicapped Children Act*") and the United Kingdom in 1978, with the *Warnock Report*. These were the fundamental documents that guided decisively the ideas of integration. Progressively, during the decade of 1980, the model of integration was presented and defended, succeeding to the segregations models by the special traditional school. Children were, thus, recommended to enter regular schools.

According to Bautista Jiménez (1997b) the philosophy of integration is based in the principles of normalization, defending that education should be developed in a non-restrictive mean, individualization, defending the attendance to the special characteristics of each single student and set of different sectors, promoting the attention to special individual needs, in a natural environment, with help through special support or services provided. In the context of the affirmation of the universal right to education, the principle of the progressive integration of children with special needs in regular schools is recommended. So we could assist to profound change of mentalities as far as education of handicapped children is concerned: "The school of discrimination was succeeded by the school of integration; the school of homogeneity was replaced by the school of diversity" (Bautista Jiménez, 1997a, 9).

From 1990 onwards, due to the evaluation on the integration model, the educational policies were revised and some changes in the direction of theoretical and practical objectives were made, towards a definite implementation of the inclusion model (Sanchez, 2009).

The idea of inclusion was specially defended by the Worldwide Conference of Salamanca (1994), where it was recommended the need of creating schools for everyone, institutions that welcome every human being, accepting differences and making it possible to cope with individual needs. This was the beginning of a new social and economical policy and a deep reform of the regular school so that it would be possible to make the ideal of inclusive education true. The adoption of a pedagogy centred in the child enables the education of all children, even the ones that are not severely handicapped.

With this new trend the responsibility of giving convenient answers to diversity is dependent on the educational system and it is promoted the development of education for everyone. In an inclusive education, it is considered relevant: the restructure of culture, politics and practices of schools that respond to the diversity of students; the development of educational projects based on inclusion, equity and democratic socialization, involving students , teachers, families and communities; the reduction of obstacles to learning and participation of all students in the activities in the classroom and in the surroundings. The path for the inclusive education is a complex task and, in order to be successful, it implies: the restructuring of culture, politics and practices in schools so that they are able to respond to the diversity of the students' needs; the development of educational projects based on inclusion, equity and in democratic interchange enrolling teachers and students, families and the surrounding community; the reduction of obstacles to education and to the participation of all students in the classroom activities and in the extra-curricular time (Ainscow, 2000; Booth e Ainscow , 2002).

In the scope of an inclusive education, it is given to the school the mission of educating everyone, consequently the school must be increased and developed (Bénard da Costa, 1996, 2002). The suitable preparation of teachers and all the educational personnel is an important factor in the promotion of the inclusive schools.

High Education Institutions that form new teachers have an important role in the area of special needs, especially as far as research, evaluation assessment and education of teachers is concerned but also programmes, materials and their production (Declaration of Salamanca, UNESCO, 1994).

Our main goal is to research issues concerning school inclusion, analysing the perception of teachers from pré-school and primary schools about the possible nature of inclusive culture, politics and pedagogical practices, Our general question is: Is there a positive level of inclusion in pré-primary and primary school?

Our hypothesis were as follow: H_1: The culture of inclusion promoted by teachers in pré- schools and primary schools is positive; H_2: The politics of inclusion perceived by teachers in in pré- schools and primary schools are positive; H_3: the practices of inclusion perceived by teachers in in pré- schools and primary schools are H_4 the inclusion, globally perceived, by teachers of pré-primary and primary schools is positive; H_5: there are differences perceived in different ways according to gender, Job, belonging to non-governmental organisations and age.

Methodology

A descriptive exploratory study was developed in order to gain some understanding about teachers' perceptions regarding the culture, politics and practices rooted in Portuguese schools.

Subjects and sampling

The universe of the study concerns the teachers, from pre-primary and primary schools, in Guarda (Portugal) County.

Instruments

We applied a questionnaire, adapted from the "Guide de l'éducation inclusive: Developer les apprentissages et la participation dans l'école", originally developed by Booth and Ainscow (2002), which aims to assess the implementation of an inclusive culture, its politics and practices. There are two sections: one involves 43 items evaluated in a Likert scale of four points; the other consists in item that asks to choose the two most important priorities among six options. It aims to assess teachers' perceived inclusive culture, considering four dimensions. Data was collected between March and July of 2009.

Results

The questionnaire was applied to 108 teachers and educators, 93 were female, and 15 were male. The population reveal, a tendency to aged, the mean is 48,7 years, among the population of teachers and educators. The youngest was 34 and the eldest 63 years. In the analyses of the profession 30 are educators, and 76 are teachers.

This population of teachers and educators, as a long experience in their professions the mean is 24,3 years of experience, that probably justify the positive perception of the inclusive culture, politics and practices in school. We also register, a very good congruity (3,2 mean) between the several questions in a Likert scale, which indicates a very favourable predisposition towards to a inclusive culture, politics and practices. That we also confirmed in the Independent Samples Test, we can say they perceived culture, politics and practices positively, because the Confidence Interval of the Mean is between -9,2 to 4,0 which confirms the hypothesis H1,H2,H3,H4,there isn't no variance depending on gender. The same hypothesis when crossed with professions is not accepted (Conf. Interval 2,4 and 11,4), but when we cross information about belonging to non-governmental organisations then we confirmed the hypothesis (Conf. Interval -3,3 and 12,1).

Conclusions

The interpretation of the data of our study lets us conclude that primary teachers and pré-primary teachers of our sample present a positive perceptions about the existence of a culture, politics and practices hat are inclusive in their working institutions. As a matter of fact, they have perceived high levels of agreement about items concerning the creation of a culture of inclusive education as well as the building of a community based on values of inclusive education, items concerning the production of politics of inclusive education that ay provide the development of a school for everyone, based on the support of diversity and finally items concerning the development of inclusive practices such as the organisations of learning and mobilisation of resources to answer the diversity in Portuguese schools.

The existence of differences between pré-primary teachers and primary teachers, as far as perceptions and practices of inclusion are concerned is that pre-primary teachers are more aware of these due to the fact that inclusive education is different in pre-primary schools and primary schools. Analysing the problem of integration of handicapped children in regular schools in France, considering also the pré-primary level, Plaisance (2002) refers that the last level receives a large scope of children and consequently integration of handicapped children is easier. The author also suggests that the integration success is more consistent when teachers motivate the spirit of tolerance, which favours the welcoming of differences, and when teachers adopt a student_centered model. This author concludes that «Pré primary teachers claim that the facto of receiving a handicapped children lead them to change their own behaviour with other children in their benefit.(...) The existence of a handicap is transformed into a stimulus to reflection on educative issues that may benefit other children" (Plaisance, 2002, p.44).

Politically talking, the Ministry of Education in Portugal has been defending the inclusion of handicapped people, as we can see with the analysis of legal documents from the decade of 70 and 80 (XX century). An Inclusive education is not possible without learning strategies and teachers committed to the concept. It is necessary to invest in the support to proper long-tem formation, giving regular teachers a life-long formation during their carrier. Pedagogically speaking, it is necessary use a different pedagogy, making and applying individual educative projects and also fundamental to motivate collaboration between professionals using teams work, mutual support and a common resolution of problems. (Belmont, 2004).

Inclusive education is a process to develop in a continuous and progressive way. Nowadays it is a productive solution to make school quality better and even society itself, more just and social.

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THE MATLAB E-LEARNING ENVIRONMENT

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Abstract

The Institute of Analysis and Scientific Computing at the Vienna University of Technology runs a web e-learning platform in an MATLAB environment for dynamical models available for both, teachers and students. Teachers can use these online models for teaching and demonstrating in classes, whereas students can more understand and in-depth knowledge or increase their programming skills when getting over these examples at home.

All these dynamical models are available over the *Mathematics, Modeling and Simulation (MMT) e-learning server*, which provides suitable examples as well for lectures in basic mathematics (i.e. Basic *Mathematics for Surveillance and Mapping*) as for lectures given about modeling and simulation. The examples run at the MMT-server are organized in modules, whereas each module consists of a general introduction to the thematic, a short description of usable algorithms, etc. and a basic (simple) example (task (a)). From task (b) on, different aspects of the model / example are taught by more complex models and parameter changing. At each task students are encouraged to observe the behavior of the given model (which is virtually displayed most of the time), by changing input parameters through the web-interface.

In addition, the underlying MATLAB source codes (*m-files*) of these models are available and provide sufficient advice when students start making their first experiences in programming MATLAB.

At the moment the team that's in charge of the MMT-server, programs MATLAB-routine to get a most comprehensive exercise-catalogue for all courses concerning basic mathematics lectures and modeling and simulation lectures, respectively. Thus, the course *Modeling and Simulation* is recently under the extension of two new modules concerning radioactive decay models in two different approaches: the first decay module concentrates on decay curves with different elapsing times and decay parameters represented by the radioactive decay. Students get in touch with the behavior of the differential equation and therefore to quantity that is said to be subject to exponential decay if it decreases at a rate proportional to its value. The second module introduces a cellular automata model (CA-model) for the migration of radionuclides in soils.

Keywords: e-Learning, MATLAB

THE MORAL EDUCATION OF AN EMBODIED SUBJECT

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ABSRTACT

Merleu-Ponty's phenomenology introduces the concept of the embodied subject. His analysis raises meaningful implications for the nature of learning, and the teaching approach that should follow. I will examine one implication, concerning the moral education that can be given to pupils in schools, once their embodied subjectivity is recognized and addressed. My conviction is that the body is central for educating towards an ethic of care. I will propose that deepening the child's awareness of her/his body and developing the child's sensitivity to embodied communication can improve the child's tendency for concern regarding the needs and the suffering of others. Pedagogical methods for achieving this goal will be examined. I will argue for an educational focus on disciplines such as architecture, painting, dance, photography, cinema and theater – disciplines that require and strengthen the ability to understand and create physical communication. Hence, the children will learn how to read and write not only verbal texts but also physical texts.

Introduction: Moral and Educational Questions

A bare-foot man is kneeling on the cold, hard sidewalk. His head is bent down. His back is crooked. His face is hidden from my eyes. His arm stretches forward, and his hand is waiting for a coin. I do not know for how long he had been kneeling in this position, but during the five minutes that have passed since I have arrived at this crossroad, he has hardly moved.

Is it my obligation to help him? This is a moral question, which had received several answers from different philosophers. Let us agree for the sake of this discussion that yes, it is my moral obligation. But does this obligation actually affect me? Does it awaken me from the general indifference that urban life has accustomed me to? And does it motivate me to take action? That is another question, a psychological one. And it carries with it the educational question at hand here: How can we educate people to care about others, to feel obliged towards them, to help them? What kind of education should I have been exposed to, in order for the sight of the person on the side walk to make me act and help him?

In order to answer these questions, we must ask first an epistemological question: do I know what this person that I am facing is feeling or experiencing right now? Dualistic philosophy had taught us that one cannot know what is happening within another person's mind because the mind or the soul is thought of as a private abstract being that is inaccessible for others.

Ever since Descartes' *Cogito* Western philosophy has assumed that the human subject is a thinking entity, accessible directly to him/herself only, surrounded by thick boundaries and separated from other people by a complete border. On this basis, philosophers have encountered difficulty when facing the challenge of justifying access to others. Different philosophers have suggested different solutions to this problem, usually based on logical or cognitive procedures of analogy from the self to others. I see the other person's visual reactions, compare them to mine, and conclude about his inner situation. This is a complex and mediated cognitive process. The assumption is that we do not have direct and immediate access to the subjectivity of the other.

This philosophical discussion also bears educational implications. Western education was traditionally focused on developing the mental and cognitive skills of the mind only. Mathematics and language, sciences, humanities and the social sciences have long been taught in a strictly theoretical way. As to moral education, the assumption was that developing reason through the strengthening of rational thinking would develop moral argumentation, and this process is the only way to transform pupils into moral persons.

The approach that I would like to discuss here challenges both the epistemological assumptions and the moral and educational problems that follow this reasoning. I will offer a different solution to the question of our social and moral access to other people, based on the ideas of the French Philosopher Merleau-Ponty. In the first two parts of the lecture I will shortly portray the philosophical ground for the concept of the embodied human subject, and then proceed to present the patterns of learning of this subject. In the third part I will examine the educational implications of these ideas, and I will focus on the

contribution they may provide to moral education. In the last part I offer a few practical suggestions of how to implement this educational approach in schools.

1. The Embodied Subject

The phenomenology of Merleau-Ponty has taught us that a person's experiences and feelings reside in his body and in his face, and are expressed through them, thus exposing onlookers to them directly. Thus, when I meet the man on the sidewalk, I immediately witness his experiences and feelings. I do not need to cross any boundaries, I do not need to turn to logical analogy in order to conclude or guess about them.

Phenomenology offers a different basis for the ethical discussion. If I am an embodied subject, then my own humanity and that of others is apparent to me at the same time and in the same way; thus, my moral obligation and devotion to the other is quite simply and unproblematically justified. In order to explain this idea, I will very briefly review the central themes of the phenomenology of human subjectivity, as an embodied subjectivity.

Merleau-Ponty rejects the dualism of body and soul and the identification of the human with the mind. He can be read as suggesting a new solution to the old psycho-physical problem. In his *Phenomenology of Perception*, Merleau-Ponty (1962) invites us to adapt a holistic concept of a person and to identify the physical and the mental as two dimensions of one entity. It is important to note that according to his thinking, the mental is located in the whole of the body and not just in the brain: “consciousness of the body invades the body; the soul spreads over all its parts” (p. 87). We can try to sum up the core of this theory in six claims:

a. The body is not an object: While Western culture generally regards the body as an object, Merleau-Ponty shows that the body in fact cannot be considered an object because the predicates that usually characterize objects do not apply to the human body. For example, objects maintain the possibility to be either present or absent, while the body is always present for the person himself. Moreover, Merleau-Ponty concludes that the body can not be an object because it in itself comprises the necessary condition needed for the mere possibility of conceiving other objects.

b. The body knows: Merleau-Ponty brings evidence from neurological case-studies showing that in the process of sensual perception, the body is not as passive and receptive as is commonly thought. He analyses different perceptive phenomena to show that the sense organ is active and selective, and that it has strong influence on what is perceived. A type of consciousness is brought to light in processes that are commonly considered to be purely physical.

Merleau-Ponty (1962) discusses the knowledge of the body; this is a direct, unabridged type of knowing, as opposed to the mind’s holding of mental representations of things. “My body has its world or understands its world without having to make use of my symbolic or objectifying function" (p. 162). Moreover, he analyzes the phenomenon of habit as another proof for corporal knowledge. When a person plays the piano, he does not hold in his conscious mind an explicit and conceptual knowledge of the location of the keys, and still, his fingers know where the keys are. This analysis leads Merleau-Ponty to demand a reexamination of basic concepts: “it is the body which understands in the acquisition of habit. This may sound absurd, but the phenomenon of habit is just what prompts us to revise our notion of understand and our notion of the body.” (p. 167).

c. The body is the tool of ‘being in the world’, and it shapes our world: In accordance with the phenomenological tradition, Merleau-Ponty (1962) talks about ‘being in the world’, a concept that includes activity in the environment, instead of the passive stand of a gaze on the world that philosophy has traditionally ascribed to itself. The body is the central tool of 'being in the world' as the relation of the subject to the world is always one of a concrete action, functionally defined. Furthermore, the characteristics of the active body play a central role in the way in which a person perceives the world, or rather, the mode in which his or her world is established. For example, our hand is what makes us perceive a ball as an object that can be dribbled or thrown, i.e., as a ball. Clearly, in this context, we are not concerned with the body as a static structure, but rather with the dynamic, active body. The body has different modes of activity, according to which it places around us different types of worlds:

> The body is our general medium for having a world. Sometimes it is restricted to the action necessary to the conservation of life. Accordingly it posits around us a biological world. At other times it manifests a core of new significance: this is true of motor habits such as dancing. (p.169).

d. The body is an agent of meaning: In Merleau-Ponty's example of dance mentioned above, we learn that the body manifests a meaning. Yet taking this argument further, Merleau-Ponty also discusses the body as the carrier of meaning. "We say that the body has understood… when it has absorbed a new meaning, and assimilated a fresh core of significance" (p. 169). Later, he advocates a change in the concept of meaning, which he claims to be necessary in order to make sense of the idea of a physical meaning.

e. The body is the base of the experience of the self: As opposed to Descartes' *Cogito*, which placed thought at the basis of the 'I am' experience, Merleau-Ponty identifies the corporal self–image as the base of all selfhood. This point will be further elaborated below.

f. The body is the central agent of language and communication: Merlaeu-Ponty's analysis of the phenomena of human language draws a direct line from the physical gesture and what we would call 'body language' to verbal language and to written language as well. He explains that communication is that miraculous process whereby corporal acts such as the movements of the mouth and tongue are gradually inspired with meaning – a meaning which they also present to the listener. "Language is the indissoluble extension of all physical activity… speech emerges from the total language as constituted by gestures, mimicries etc…" (1963, p. 12)

Of course this is a very partial explanation of Merlaeu-Ponty's analysis, but these six points should merely serve as an overview of the concept of the human being as an embodied subjectivity and provide new implications for the concepts of meaning and of knowledge. The type of knowledge discussed above is 'organic knowledge' that inhabits the body and is expressed through it. Now the question at hand is, what is the learning prices that allow the acquisition of organic knowledge? What is the nature of learning typical to the embodied subject?

2. The Learning Patterns of the Embodied Subject

Merleau-Ponty discussed these questions in two courses in developmental psychology that he gave at the Sorbonne University at the end of 1940. The notes of these lectures were collected and published, and they give us a rich source of Mealeau-Ponty's thought concerning these issues. In the first lecture (1963) he analyses the child's subjectivity, and he focuses on the domain of language. By scrutinizing the child's first processes of development and of acquisition of various skills, Merleau-Ponty supports the recognition that we cannot separate between the emotional, the cognitive and the corporal aspects of the child's being. The interpretation that he offers to developmental processes during childhood, expresses a holistic grasp of learning. He speaks of learning as a holistic process, as part of the active and interactive being of the child within its surrounding.

As to the social domain, which is of particular relevance to the issue at hand, Merleau-Ponty (1964) argues that it is impossible to differentiate between the domain of social relations – which is commonly considered to be an emotional issue – and other aspects of the child's development. In addition, he stresses the significant role that physical awareness plays in the function of social relations. According to his analysis, the phenomena of the child's recognition of others as persons can be understood only if the human person is seen as an embodied subjectivity. Otherwise, it is hard to understand this phenomena at the young age in which it actually appears. As mentioned above, maintaining the traditional binary concepts of body and mind would require the existence of a complex intellectual operation of analogy taking place in the child's mind, in order to make him or her recognize the other person as a person. Yet such a complex cognitive operation is not likely to occur at such young age, when the child's conduct clearly does prove such recognition. Merleau-Ponty describes the recognition of another person as part of the miraculous process in which body and spirit are intertwined:

> To be aware that one has a body and that the other's body is animated by another psyche are two operations that are not simply logically symmetrical but form a real system. In both cases it is a question of becoming conscious of what might be called **incarnation**"(1964, p. 120)

A self-experience as an embodied subject allows a direct and immediate transference to the other and a grasp of the other as another embodied subjectivity – as a person. Identifying one's own body and the recognition of the other as person thus become two aspects of the same developmental step. The awareness of one's own body is an ability that includes the understanding that 'I am a body' – a being that is experienced subjectively as a self while at the same time being visually perceived by others. On the

other hand, the perception of the other is the ability to understand that another person in fact 'dwells' inside the visual object that one perceives. Merleau-Ponty's main conclusion is that the child's bodily self-awareness is a main factor in the development of his relation to others, and of his ability to feel empathy and sympathy towards the other.

> The perception of behavior in other people and the perception of the body itself by a global corporeal schema are two aspects of a single organization that realizes the identification of the self with others .Sympathy would emerge from this. Sympathy does not presuppose a genuine distinction between self-consciousness and consciousness of the other, but rather the absence of a distinction between the self and the other. It is the simple fact that I live in the facial expressions of the other, as I feel him living in mine." (1964, p. 36)

3. Educational Implications

Merleau-Ponty did not write directly about education, and therefore he did not develop an educational theory based on these insights. Formulating the educational change that would follow here is a big challenge that was partly met by a few educators and thinkers. I will mention only one thinker whose writings influenced my own approach: Marjory O'Loughlin of the University of Sidney, Australia.

Of course, I cannot describe the full range of the educational implications attached to the concept of the embodied subject within the scope of this lecture, but I would like to briefly review a few potential changes that I find to be critical.

a. A new approach to physical education: First, the acknowledgement of the subjective aspects of the body requires an expansion of the role of physical education in school, with a radical change in the meaning we ascribe to physical education. It is no longer just the teaching of gymnastics, but rather educating the body and educating the child through the body or, more precisely, through the corporal aspects of his being. The emphasis of this new approach is on developing bodily self-awareness through awareness of posture, gesture and movement; strengthening the individual's body-image; and deepening the student's conscious relation to his or her experience of embodied subjectivity.

Practically speaking, we can think of adopting disciplines such as yoga (which is holistic and combines mediation with physical activity), or other disciplines like the Feldenkrise method (which focuses on developing awareness through movement).

b. Addressing the pupil as an embodied subject in general education: A second critical implication of Merleau-Ponty's work involves acknowledging the corporal aspects of learning processes in order to enhance learning in general. One of the insights that we draw from the embodied patterns of learning is the critical role that situational factors play in promoting or preventing learning. The architecture of schools and the physical aspects of the classroom emerge as crucial factors in determining not only how the pupils will learn, but also the actual contents and values that will be learned and absorbed. For example, let us examine the issue of the sitting arrangements in the classroom. When students sit in the traditional form of lines facing the black-board and turn their backs to other pupils, they learn through their bodies that knowledge emanates from the teacher only, and that the process of learning is not supposed to include any mutual interaction between themselves and the other students. Nobody tells them this message but their bodies learn it, and it becomes part of their implicit knowledge about the world. On the other hand, arranging students in a circle facing each other transmits different messages concerning the dialogical nature of learning and the importance of mutual contribution between pupils as part of the learning process within a community of learners.

A second insight concerns corporal movement and activity. Once we understand that movement and activity are central to any learning, we are obliged to seek new ways to transform the teaching of any and all school subjects from a theoretical process into one that is based on the types of movement and activity that are suitable for each field. Of course, this is not a completely new idea. We can find expressions of it in the experimental methods of learning and teaching that were already initiated in the educational thought of J.J. Rousseau (1762) and were developed mainly by John Dewey (1923). Needless to say, Dewey has had great influence on the Western education in the last century, in several domains such as democratic education, and Paidocenrtic approach to teaching. On the other hand, I would like to claim (and this claim is justified more fully in my PhD dissertation) that neither he himself nor his followers fully developed the ideas of his anti-dualistic approach. Thus these ideas were not sufficiently applied in theoretical and in practical changes in education. Pupils in most school make some experiments in the

laboratory as part of their studies of chemistry or physics, but for the most part, their studies in school are still of a theoretical and verbal nature.

I would thus recommend applying the active modes of learning more fully, and not only in the natural sciences, but also in the fields of the social sciences and humanities such as literature, history, and philosophy. The nature of activity is different in each discipline and its practical application requires further investigation, but the general mode of organic learning in which the pupil is fully involved with his/her mind, emotions and body is indeed applicable to all fields.

c. The moral education of the embodied subject: My central aim in this lecture is to show that Merleau–Ponty's insights, concerning the corporal nature of human beings and of human learning, are especially fruitful when we focus on the moral aspects of education. If we return for a moment to the man on the side-walk, I would like to claim that an education that emphasizes the embodied nature of the interpersonal relations and of communication would not allow me to ignore the suffering that I witness. Such an education would strengthen my awareness to the fact that I do indeed see the suffering. I see the subject's experience of hunger and need. I have no need for a logical process in order to know about it.

The person is his body, and I can no longer claim that I see only his body but do not know what his mental experiences are. I can no longer alienate myself from the human experience that I face. I see his hand. His hand is desperate for a coin. I see the desperation.

Historical examples teach us that people can easily convince themselves that a certain 'other' is not a person, not really a human being – a type of dehumanization that paves the way for enslavement, using humans as objects or murder. Emanuel Kant (1785), the founder of Western humanistic morals, had taught us that it is morally forbidden to forget that the other person is a human being, and to treat him/her as if s/he were an object. He bases this principle on the fact that the other person has reason, but he does not solve the traditional philosophical problem that if I view the other person's body as an object, then his/her reason is not accessible to me.

Thinkers like Carol Gilligan (1982) and Nell Noddings (1984) have talked about 'Care' as the focus of human relations and as the emotional basis for moral conduct. But they did not offer a solution to the alienation that might prevent this feeling of care from arising in the first place.

I would like to suggest that an education that would strengthen our embodied communication would help address this obstacle in developing ourselves and our students as caring moral people. Merleau–Ponty showed us that we all have a natural tendency to express ourselves through our bodies, and to see and understand what other people express through their bodies. What he didn't emphasize enough, to my opinion, are the individual differences between people in the extent to which these tendencies are developed and fulfilled. Tendencies of bodily expression, understanding and communication skills can be developed just like people's verbal abilities, which have received most of the educational attention until now. I believe that an education that is aimed at developing the embodied aspects of communication would enhance these tendencies' dominance in our culture. This process is critical since bodily understanding is central to social and moral relations.

A few thinkers have presented similar ideas of applying Merleau-Ponty's philosophy to moral education in several directions, including environmental ethics and other fields (Albano, 1998. , Schertz, 2007). I focus on Humanistic morals as an educational goal, which I consider especially important due to the moral confusion that the post-modern era has brought about. It is interesting to note that Humanism can be supported by the growing awareness to our embodied being in two manners, which might seem contradictory at first. The first is the recognition of the universalism of the human body. Our bodies are very similar to each other, and that is why the world that we posit around us through our bodies is a mutually common world. The pain in the knees of the man on the sidewalk is apparent to me because I have knees too. My knees would recognize the sidewalk as cold and hard just like his knees do. In that sense, our corporality is a basis for identification with the other as similar to us.

On the other hand, the bodily experience can also help us realize and accept differences between ourselves and other people. The human body has a wide a range of possible patterns of physical habits, of postural habits, and of ways of moving. Cultural differences between people and personality patterns of individuals are often apparent in the different ways in which they carry their bodies within the same environment. Experiencing modes of physical being that are different from the modes we were brought up with and are accustomed to may offer us a new possible channel for accepting the 'other' as 'other', without judging or condemning him/her, and thus educate us towards tolerance.

These two points can be easily clarified with the example of dance. Different people from different cultures share the passion for dance, and realizing this can make us feel close to other people. On the

other hand, different cultures have very different types of dances, and these styles are usually connected to other aspects of the culture, such as the patterns of social behavior, norms concerning exposing or hiding parts of the body, concepts of sexuality and of what is considered normal in the relation between men and women, etc. When we learn how to dance a style of dancing that comes from another culture, we have a chance to absorb through are bodies many concepts and meanings, and thus understand this culture in ways that are not as accessible through reading or even by a verbal dialogue. These experiences may help us accept and tolerate people from cultures that are different from our own.

4. Practical Suggestions

Let us now reflect on several possible pedagogical ways to practically fulfill the educational vision that was presented.

a. Embodied texts: First, we could practice with the students the skill of looking at people and reading the meanings and the messages that reside in their bodies and their faces. We could learn how to read a wide range of embodied texts: photographs of people, live shows of dance, pantomime and theater; documentary films and cinema. While observing these texts with guidance, the learners may become conscious to their natural ability to read and understand a lot from what they see. They could then improve and expand this ability, enabling them to reach the same degree of specification in which they read and understand verbal language.

Another type of embodied texts are places in which human beings live and move about: furniture, rooms, buildings, gardens and streets can teach us a lot about the embodied aspect of human life, both on the individual and on the social and cultural level. Analyzing the structure and the design of these human places with different styles from different periods can open new ways of seeing different modes of life.

In addition to the ability to read these "texts", education should also promote the ability to write these embodied texts consciously, or in other words, the ability of the person we are educating to express him/her self thorough the embodied aspects of their being. Here we should encourage active participation in the fields mentioned: drama and dance, photography, theater and architecture. Such participation should be focused on the consciousness to the embodied human subjectivity that is expressed.

The institutional implication of these suggestions includes a shift of priorities within the school system regarding the allotment of time and budgetary attention among the various disciplines. The first step in this shift is that the corporal fields discussed above should be regarded to be as important as the disciplines that promote verbal and rational abilities, such as language, mathematics and literature.

b. Embodied communication and social skills: The second sphere of educational work that can address the embodied aspects of human life is to practice social behavior that makes use of the embodied communication between people. We could think of group physical experiences that combine movement and touch as ways of promoting trust and support between the members of the group. Just like a young baby learns a lot about his family and about the world from the ways in which s/he is held and treated by the adults, so can older children continue to learn about more complex notions of social interactions from group physical exercises.

In addition, embodied communication can be used when facing conflict or social problems that arise between the children. For example, if two children fight, the traditional way for the teacher to find out what happened and to achieve resolution would be by talking about it, asking what each of the children had said that had insulted the other, asking them to apologize, etc. Only in cases were physical violence was involved, would some attention be granted to the corporal aspect of the conflict, and only to its negative aspects. Of course, I do not underestimate the importance of verbal communication, and I would never suggest giving it up. Yet I would like to invite teachers to broaden the spectrum of aspects being addressed in the social domain. The teacher might encourage the children to be more conscious of the body language that was used during the conflict; she may also offer to use body expression to deliver messages of reconciliation.

It is useful to note that in the field of dance movement therapy (DMT), these techniques are employed successfully with children and teenagers. Yet unfortunately, this field at present only reaches special populations. My hope is that these lines of work will come to be considered not only as therapy for people with special needs, but as a legitimate part of the social and moral education of the regular children too.

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INTE 2010

THE RELATIONSHIP BETWEEN DOMINANT INTELLIGENCES AND ACADEMIC SUCCESS OF SECONDARY SCHOOL STUDENTS IN RELATED LESSONS

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ABSTRACT

According to multiple intelligences theory improved by Gardner, intelligence consists of 7 different scopes as verbal, mathematical, visual, musical, intrapersonal and interpersonal intelligences. The dominant intelligence of a person symbolizes the field or fields that he/she can show the most success in them. In that case is there any relationship between dominant intelligence of a student and academic score in related lesson that is an indicator of his/her success? This study has been done for determine of relationship between dominant intelligences and academic success of secondary school students in related lessons. The 6th 7th and 8th grade students (n=58) that study in a primary school in Trabzon-Turkey constitute the universe of the study. This research is a survey. As data collection tools, for determine of students' dominant intelligences "Multiple Intelligences Inventory" improved by Teele, S. that is determined as suitable norm for Turkish students and used in several thesis; and for determine of students' academic success, the exam scores of lessons that were related with their dominant intelligences have been used. Obtained data has been statistically analyzed by SPSS software program. At the end of study, the relationships between dominant intelligences and academic success of students in related lessons have been determined and some suggestions have been made according to the research results.

Key Words: *Secondary School, Multiple Intelligences, Dominant Intelligence, Academic Success*

1. Introduction

The first intelligence tests have been designed in parallel with the theories about intelligence in order to determine cognitive skills such as abstract-visual, verbal and logical judgment and short term memory(Şemin, R. U., 1987; Martin, P. A., (2002). The Theory of Multiple Intelligences designed by Howard GARDNER has brought a different point of view on intelligence and its measurement besides other cognitive approaches. The theory suggests a revolutionary criticism to the "traditional view of intelligence". Intelligence, in the traditional sense, is defined as "verbal and mathematical skills" that are innate and can be measured through short answer tests by psychologists. However, Gardner stated that intelligence is made up of more than one intelligence area that have unique ability of problem solving. These are Verbal/ Linguistic Intelligence, Logical / Mathematical Intelligence, Musical Intelligence, Spatial/Visual Intelligence, Bodily-Kinesthetic Intelligence, Interpersonal Intelligence and Intrapersonal Intelligence. The Theory of Multiple Intelligences has seen considerable interest since the day it has been put forward. According to this theory, there exists seven types of intelligence (Brualdi, A. C., 1994; Checkly, K., 1997; Hoerr, T., 1998; Silver, H., Strong, R., & Perini, M., 2000; Terry, K., & Wayman, M., 1996).

The features of these types of intelligence are as follows:

Verbal/ Linguistic Intelligence: It is the ability to use language effectively both written and orally. People with such intelligence are politicians, speakers, poets, playwrights, editors. *Logical / Mathematical Intelligence:* Using numbers efficiently, solving problems scientifically, distinguishing between concepts, making classifications and generalizations, expressing a mathematical formula, calculating, making similarities and reasoning the results are related to this type of intelligence. Mathematicians, accountants, mathematical statisticians, computer programmers are of this type.

Musical Intelligence: Being sensitive to rhythms, melody and volume of sound, recognizing sound and thinking through music involves this kind of intelligence. Individuals with such kind of intelligence can generally do jobs such as musicians or orchestra conductors. *Spatial/Visual Intelligence:* It is the ability to

be sensitive to shape, form, color, space and line. It is generally seen that mariners, pilots, sculptors, painters, architects and surgeons have this type of intelligence.

Bodily-Kinesthetic Intelligence: It is the ability to be able to use body muscles while expressing thoughts and emotions, or while solving problems and creating a product of any kind. Ballets, dancers, athletes, surgeons, sculptors, pantomime artists, craftsmen, operators, actors and handicraft makers are some examples.

Interpersonal Intelligence: Being able to understand other's emotions, moods, motives and intentions, how they work, understanding how to cooperate with them and the ability to work out issues falls under interpersonal intelligence. Successful salesman, politicians, teachers and religion men can be said to have this type of intelligence.

Intrapersonal Intelligence: It is the ability of the individual to find out the weak and strong points of oneself, mood, wishes and intentions and shape his/her life accordingly. Religion men, psychologists, philosophers are individuals whose inner selves have developed (Gray, H. J., & Viens, J., 1994; Hoerr, T., 1998; Lazear, D., 2000).

According to this point of view, intelligence can be developed based on environmental factors as well as genetic factors. It is perceived as a concept that cannot be numerically calculated but only observed in real life conditions in order to understand the ways of achieving success (Saban, 2002; Selçuk and others, 2004). According to Gardner(1985, 1993), different intelligence areas in individuals work in interaction and harmony and every individual is born with a different level of intelligences. However, they can develop in time through experience and feeding (cited: Öngören, Şahin, 2008). Gardner (1993) also has pointed out that one type of intelligence may be more improved in a person than another type. This is called "dominant intelligence". If people are given a chance to develop their intelligence, poor intelligence area may turn into a strong one. For this reason, in the concept put forward by Gardner, it is false to classify students as "low intelligence" or "high intelligence". It has been pointed out in the National Board of Education Law (issue 1739) that learners should be given education according to their interest, capability and talent. For this purpose, stress should be put on their strong intelligence and how they best learn through which methods rather than their deficiencies; therefore provide opportunities to achieve success (Saban, 2002).

In the light of this information, the answer to the question of " Is there a relationship between the academic score that shows student's lesson performance and the dominant intelligence? " is examined in this study.

2. AIM

The main purpose of this study is; to determine of relationship between dominant intelligences and academic successes of secondary school students and to make some evaluations with respect to obtained results.

3. METHOD

3.1.Study Groups

This research is a survey. The 6th (23 students) and 7th (14 Students) and 8th (21 students) grade students (totally 58 students) that study in a primary school in Trabzon, constitute this research's study group.

3.2.Data Collection

In the study, for collecting data firstly literature search was conducted. By taking help from the obtained data in consequence of the literature search, scale has been determined for apply to the study group. For measurement of secondary school students' dominant intelligences, "Multiple Intelligences Inventory" (TIMI) consists of 28 topics, improved by Teele (1992) that is determined as suitable norm for Turkish students and used in several thesis, has been used. As answer options in the scale, dual answer options have been used. The answer options have been determined as "A" and "B". For determine

academic successes of the students, the scores that students got from the different lessons' exams followed by application of Teele Multiple Intelligences Inventory, have been used.

3.3. Analysis of Data

The data have been obtained from application of the Inventory, have been put into the process of analysis. For examining of the study group answers towards topics formed the scale, descriptive frequency measurements have been done and tables have been formed. Dominant Intelligences of the students have been determined by the answers that they gave to the topics. For determine of relationship between dominant intelligences and academic scores that students have got from different lessons' exams, firstly Kolmogorov-Smirnov test has been done and it is understood that the data were parametric. One-Way ANOVA analysis has been done for determine the relationships and tables have been formed.

4. FINDINGS

4.1. Differences Based on Intelligence Types in Students' Academic Successes

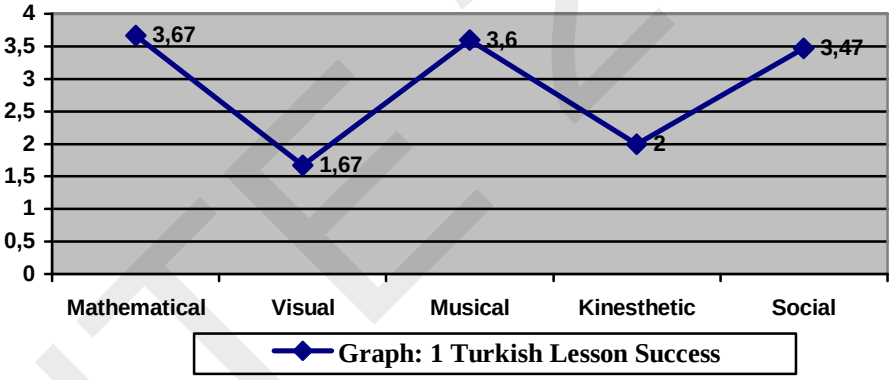
In this section firstly lesson scores' means that study group students with different dominant intelligences have got from the exams, have been determined. Afterwards, test of normality (Kolmogorov-Smirnov) has been done and it is understood that the data was parametric. One-Way ANOVA analysis has been done for determine of relationships between dominant intelligences and academic scores. Test results have been shown on tables.

Lessons	Intelligence	N	Mean ($\overline{X}$)	Lessons	Intelligence	N	Mean ($\overline{X}$)
Turkish	Verbal/ Linguistic	2	2,00	**Religion**	Verbal/ Linguistic	2	3,50
	Logical / Mathematical	6	3,66		Logical / Mathematical	6	4,16
	Spatial/Visual	6	1,66		Spatial/Visual	6	3,00
	Musical	5	3,60		Musical	5	4,60
	Bodily-Kinesthetic	3	2,00		Bodily-Kinesthetic	3	3,00
	Intrapersonal	2	2,00		Intrapersonal	2	2,50
	Interpersonal	34	3,47		Interpersonal	34	4,14
	Total	58	3,13		**Total**	58	3,93
Mathematic	Verbal/ Linguistic	2	1,00	**Drawing**	Verbal/ Linguistic	2	5,00
	Logical / Mathematical	6	2,33		Logical / Mathematical	6	5,00
	Spatial/Visual	6	1,16		Spatial/Visual	6	4,83
	Musical	5	1,60		Musical	5	5,00
	Bodily-Kinesthetic	3	1,00		Bodily-Kinesthetic	3	4,66
	Intrapersonal	2	1,00		Intrapersonal	2	4,00
	Interpersonal	34	2,14		Interpersonal	34	4,97
	Total	58	1,87		**Total**	58	4,91
Science	Verbal/ Linguistic	2	2,50	**Music**	Verbal/ Linguistic	2	5,00
	Logical / Mathematical	6	3,33		Logical / Mathematical	6	4,83
	Spatial/Visual	6	1,83		Spatial/Visual	6	4,83
	Musical	5	3,60		Musical	5	5,00
	Bodily-Kinesthetic	3	2,00		Bodily-Kinesthetic	3	4,33
	Intrapersonal	2	1,50		Intrapersonal	2	4,00
	Interpersonal	34	3,50		Interpersonal	34	4,76
	Total	58	3,13		**Total**	58	4,75
Social	Verbal/ Linguistic	2	2,50	**Gym**	Verbal/ Linguistic	2	5,00
	Logical / Mathematical	6	3,83		Logical / Mathematical	6	5,00
	Spatial/Visual	6	2,00		Spatial/Visual	6	4,50
	Musical	5	3,60		Musical	5	5,00
	Bodily-Kinesthetic	3	2,00		Bodily-Kinesthetic	3	5,00
	Intrapersonal	2	2,00		Intrapersonal	2	5,00
	Interpersonal	34	3,52		Interpersonal	34	4,82
	Total	58	3,24		**Total**	58	4,84
Foreign Language	Verbal/ Linguistic	2	2,00	**Technology and Design**	Verbal/ Linguistic	2	5,00
	Logical / Mathematical	6	2,66		Logical / Mathematical	6	5,00
	Spatial/Visual	6	1,16		Spatial/Visual	6	4,50
	Musical	5	2,40		Musical	5	5,00
	Bodily-Kinesthetic	3	1,66		Bodily-Kinesthetic	3	4,33
	Intrapersonal	2	1,50		Intrapersonal	2	4,00
	Interpersonal	34	2,44		Interpersonal	34	4,79
	Total	58	2,24		**Total**	58	4,75

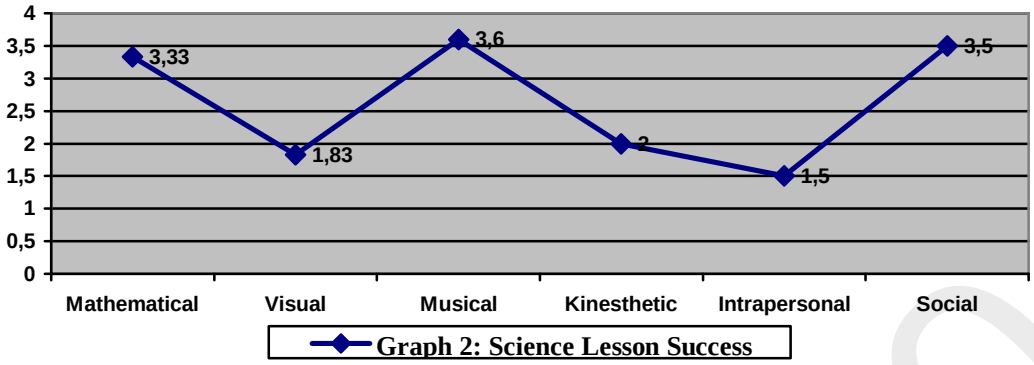
Table 1: Students' Academic Success Scores' Means According to Students' Intelligence Types

Variable	Factor	Sum of Squares	df	Means of Squares	F	p
Turkish	**Inside Groups**	28.56	6	4.76	**3.45**	**.006**
	Between Groups	70.34	51	1.38		
	Total	98.90	57			
Mathematic	**Inside Groups**	12.52	6	2.09	1.67	.147
	Between Groups	63.63	51	1.25		
	Total	76.16	57			
Science	**Inside Groups**	26.03	6	4.34	**2.96**	**.015**
	Between Groups	74.87	51	1.47		
	Total	100.90	57			
Social	**Inside Groups**	23.62	6	3.94	**3.29**	**.008**
	Between Groups	61.00	51	1.20		
	Total	84.62	57			
Foreign Language	**Inside Groups**	11.71	6	1.95	2.03	.078
	Between Groups	48.92	51	.96		
	Total	60.62	57			
Religion	**Inside Groups**	16.43	6	2.74	**2.83**	**.019**
	Between Groups	49.30	51	.97		
	Total	65,.72	57			
Drawing	**Inside Groups**	2.10	6	.35	**7.22**	**.001**
	Between Groups	2.47	51	.05		
	Total	4.57	57			
Music	**Inside Groups**	2.17	6	.36	2.18	.060
	Between Groups	8.45	51	.17		
	Total	10.62	57			
Gym	**Inside Groups**	1.16	6	.19	1.53	.186
	Between Groups	6.44	51	.13		
	Total	7.60	57			
Technology and Design	**Inside Groups**	2.90	6	.48	2.10	.069
	Between Groups	11.73	51	.23		
	Total	14.62	57			

Table 2: Differences in Students' Academic Success Scores Based on Students' Intelligence Types

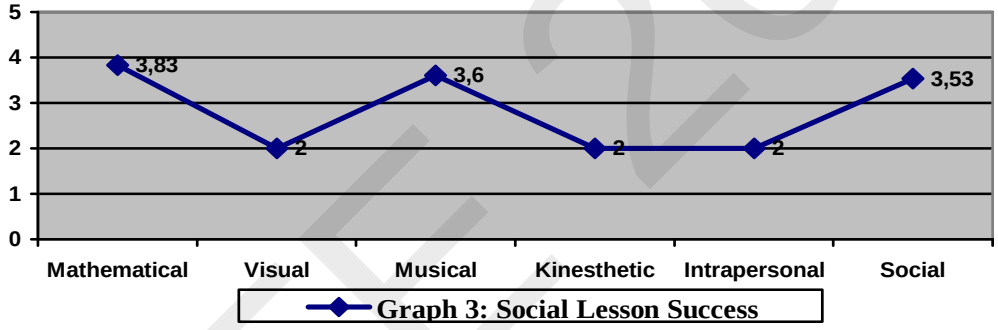


As it can be understood from the table 2; there exist meaningful differences in **Turkish lesson** success points of students in terms of intelligence types ($F_{(6,51)} = 3.45$, $p < .05$). According to the LSD test made to understand the source of this difference, it has been understood that mathematical dominant students' academic success in Turkish lesson (3,67) is meaningfully higher than visually dominant students(1,67), academic success of musically dominant students'(3.60) is meaningfully higher than visually dominant students(1.67) and academic success of socially dominant students (3.47) is higher than visually (1.67) and students with physical intelligence (2.00) The test results have been shown on graph 1.



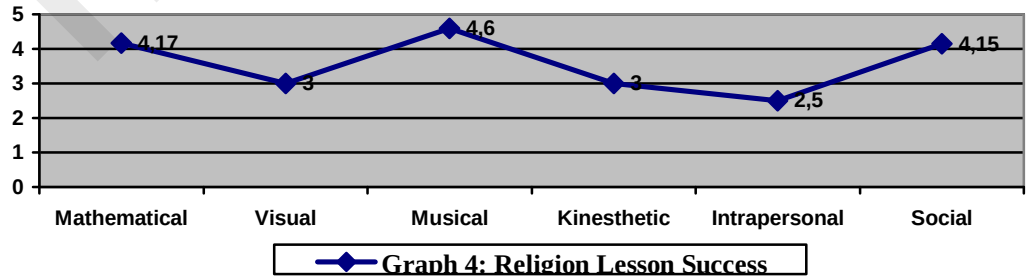
Graph 2: Science Lesson Success

As it can be understood from the table 2; meaningful differences have also been found out in **Science lesson** regarding academic success points. ($F_{(6,51)} = 2.96$, $p < .05$). According to the LSD test conducted to understand the source of this difference, it has been estimated that mathematical dominant students' academic success in science lessons (3.33)is higher than visually dominant students(1.83), academic success of musically dominant students (3.60) is higher than visually dominant students (1.83) and intrapersonal intelligence(1.50), and lastly academic success of interpersonal dominant students(3.50) is higher than visual(1.83), physical (2.00) and intrapersonal (1.50) intelligences. The test results have been shown on graph 2.



Graph 3: Social Lesson Success

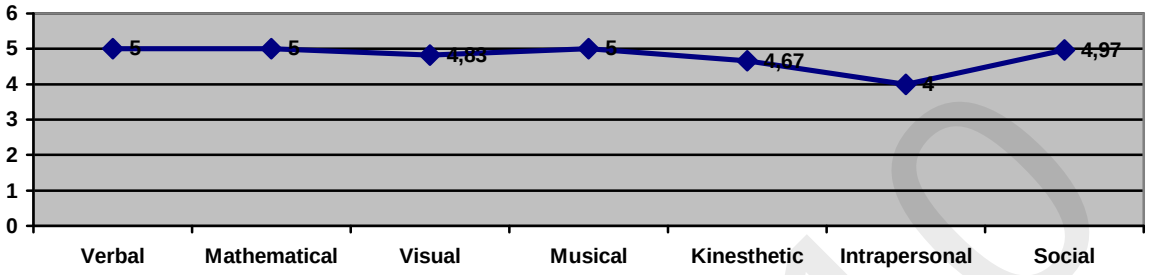
As it can be understood from the table 2; It has been observed that there exist meaningful differences between students' academic success in terms of types of intelligences. ($F_{(6,51)} = 3.29$, $p < .05$). According to LSD test carried out in order to understand the source of the difference, it has been observed that the mathematical dominant students display academic success in **Social lesson** (3.83) higher than visually dominant students(2.00), physically dominant students (2.00) and dominant intrapersonal intelligence (2.00), musically dominant students' success(3.60) is higher than visually dominant students (2.00) and finally that of interpersonal dominant students (3.53) is higher than visual (2.00) and physically dominant intelligence(2.00). The test results have been shown on graph 3.



Graph 4: Religion Lesson Success

As it can be understood from the table 2; It has been observed that there exist meaningful differences between students' academic success in Religion lessons in terms of types of intelligences ($F_{(6,51)} = 2.83$,

p< .05) . According to LSD test carried out in order to understand the source of the difference, the academic success of students with mathematical dominance in **Religion lessons**(4.17) is higher than visual(3.00) and intrapersonal(2.50) intelligence, musically dominant students'(4.60) is higher than visual(3.00), physical(3.00) and intrapersonal intelligence dominant students(2.50), and lastly students with interpersonal intelligence(4.15) is higher than visual(3.00) and intrapersonal(2.50) intelligence dominant students. The test results have been shown on graph 4.



Graph 5: Drawing Lesson Success

As it can be understood from the table 2; It has been estimated that students' success in **Drawing lessons**, there exist meaningful differences ($F_{(6,51)} = 7.22$, p< .05) . According to LSD test carried out in order to understand the source of the difference, the academic success of students with dominant verbal intelligence in Drawing lessons(5.00) is higher than those with dominant intrapersonal intelligence(4.00), success of mathematical dominant students(5.00) is higher than physically dominant students' success(4.67) and students with dominant intrapersonal intelligence(4.00), visually dominant students' success(4.83) is higher than students with dominant intrapersonal intelligence(4.00), musically dominant students' success(5.00) is higher than physically dominant(4.67) and intrapersonal intelligence dominant students(4.00), success of students with dominant physical intelligence(4.67)is higher than those with intrapersonal intelligence dominance(4.00), and finally, it has been observed that success of students with dominant interpersonal intelligence(4.97) is higher than physical(4.67) and intrapersonal (4.00)intelligence. The test results have been shown on graph 5.

5. CONCLUSION AND DISCUSSION

Following the assessment of the seven types of intelligence, the relations have been estimated regarding the report card grades of the students which show their success in lessons. The findings show that;

1. There exist meaningful differences in Turkish lesson success points of students in terms of intelligence types ($F_{(6,51)} = 3.45$, p< .05). According to the LSD test made to understand the source of this difference, it has been understood that mathematical dominant students' academic success in Turkish lesson (3,67) is meaningfully higher than visually dominant students(1,67), academic success of musically dominant students'(3.60) is meaningfully higher than visually dominant students(1.67) and academic success of socially dominant students (3.47) is higher than visually (1.67) and students with physical intelligence (2.00)

2. Meaningful differences have also been found out in Science lesson regarding academic success points. ($F_{(6,51)} = 2.96$, p< .05). According to the LSD test conducted to understand the source of this difference, it has been estimated that mathematical dominant students' academic success in science lessons (3.33)is higher than visually dominant students(1.83), academic success of musically dominant students (3.60) is higher than visually dominant students (1.83) and intrapersonal intelligence(1.50), and lastly academic success of interpersonal dominant students(3.50) is higher than visual(1.83), physical (2.00) and intrapersonal (1.50) intelligences.

3. It has been observed that there exist meaningful differences between students' academic success in terms of types of intelligences. ($F_{(6,51)} = 3.29$, p< .05). According to LSD test carried out in order to understand the source of the difference, it has been observed that the mathematical dominant students display academic success in Social Studies (3.83) higher than visually dominant students(2.00),

physically dominant students (2.00) and dominant intrapersonal intelligence (2.00), musically dominant students' success(3.60) is higher than visually dominant students (2.00) and finally that of interpersonal dominant students (3.53) is higher than visual (2.00) and physically dominant intelligence(2.00).

4. It has been observed that there exist meaningful differences between students' academic success in Religion lessons in terms of types of intelligences ($F_{(6,51)} = 2.83$, $p < .05$) . According to LSD test carried out in order to understand the source of the difference, the academic success of students with mathematical dominance in Religion lessons(4.17) is higher than visual(3.00) and intrapersonal(2.50) intelligence, musically dominant students'(4.60) is higher than visual(3.00), physical(3.00) and intrapersonal intelligence dominant students(2.50), and lastly students with interpersonal intelligence(4.15) is higher than visual(3.00) and intrapersonal(2.50) intelligence dominant students.

5. It has been estimated that students' success in Drawing lessons, there exist meaningful differences ($F_{(6,51)} = 7.22$, $p < .05$) . According to LSD test carried out in order to understand the source of the difference, the academic success of students with dominant verbal intelligence in Drawing lessons(5.00) is higher than those with dominant intrapersonal intelligence(4.00), success of mathematical dominant students(5.00) is higher than physically dominant students' success(4.67) and students with dominant intrapersonal intelligence(4.00), visually dominant students' success(4.83) is higher than students with dominant intrapersonal intelligence(4.00), musically dominant students' success(5.00) is higher than physically dominant(4.67) and intrapersonal intelligence dominant students(4.00), success of students with dominant physical intelligence(4.67)is higher than those with intrapersonal intelligence dominance(4.00), and finally, it has been observed that success of students with dominant interpersonal intelligence(4.97) is higher than physical(4.67) and intrapersonal (4.00)intelligence.

6. It has been assessed that no difference exist between the academic scores of students' other lessons in accordance with their intelligence types.

When results of the study are considered, it has been found out that intelligence types play a vital role in students' success. In this respect, through multiple intelligences;

1- Dominant intelligences can be determined, areas that students can best succeed in can be observed and hence best type of high school can be chosen for the student after middle school.

2- Intelligence points received from tests can be evaluated and low intelligences can be increased through further study and practices.

3- By taking into consideration the dominant intelligence types of students, more effective teaching methodology can be devised for students.

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THE RELATIONSHIP BETWEEN DOMINANT INTELLIGENCES AND LEARNING STYLES OF SECONDARY SCHOOL STUDENTS

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ABSTRACT

According to multiple intelligences theory improved by Gardner, H. in 1983, intelligence consists of seven different scopes as verbal, mathematical, visual, musical, intrapersonal and interpersonal intelligences. And dominant intelligence symbolizes the field that we are the most superior in it. Probably learning style of a student takes form as part of his/her dominant intelligence. In that case is there any relationship between dominant intelligence of a student and his learning styles? This study has been done for determine of relationship between dominant intelligences and learning styles of secondary school students. The 6th 7th and 8th grade students (n=58) that study in a primary school in Trabzon-Turkey constitute the universe of the study. This research is a survey. As data collection tools, for determine of students' dominant intelligences "Multiple Intelligences Inventory" improved by Teele (1992) that is determined as suitable norm for Turkish students and used in several thesis; and for determine of students' learning styles, "Learning Styles Scale" (ÖSÖ) improved by Sever (2008) have been used. Obtained data has been statistically analyzed by SPSS software program. At the end of study, the relationships between dominant intelligences and learning styles of students have been determined and some suggestions have been made according to the research results.

Key Words: *Primary School, Secondary School, Multiple Intelligences, Dominant Intelligence, Learning Styles*

1. Introduction

Today, where technology constantly keeps on developing and changing, it is definitely of great importance for the efficiency of learning-teaching and learner development which information is taught in which method. As a result of this, it has been a necessity for learners to be quicker in learning the information which is in a rapid state of change. This clearly indicates the significance of making improvements in the learning process (Şahinel, 2005). De Cecco (1968) has stated that learning theories describes under which circumstances learning occurs. The concept of learning can be defined as a complex concept which focuses on behavioral, cognitive, affective and neurophysiologic changes in the individual (Ekici, 2002). According to Hill (1977), some psychologists and educators classify learning theories into two groups: behaviorist-association theories that explain learning as the relationship between stimulant and reaction and cognitive theories which deals with the cognates of the individual about his environment and the way they effect the behaviors (cited: Senemoğlu, 2005). Recent research on learning has begun stressing upon the neurophysiologic and cognitive part of the learning process. According to this approach, the learner perceives the outer stimulants through his five senses during the learning process and following this, they are transmitted to the brain to be stored and reprocessed when needed (Erden and Altun, 2006). Learning can be briefly defined as the process of perceiving information, saving, remembering and using it. This process is an active process which means that the brain plays an active role in learning (Yıldırım, Doğanay and Türkoğlu, 2000). The characteristic properties of the learner also has a vital task in achieving its goals. As the intellectual functions of individuals are important, it is of advantage to be aware of how the person perceives information. This shows that personal differences must not be disregarded (Tatar ve Tatar, 2007). The way of learning is one of the most crucial concepts revealing personal differences (Ekici, 2002). Learning style also involves observable and discernible tips about a learner's behavior (Kaplan and Kies, 1995). Although learners' methods of learning are similar to each other biologically, personal differences such as learning style are also possible. These styles may vary depending on culture, way of living and personal development (Ergur ve Saraçbası, 2002). Although there are several different definitions for it, learning style is basically the tendencies and choices of the learner. As H. Douglas Brown puts it (cited: Özer, 1998),

learning style shows how the learner perceives learning, how the learner interacts with the environment and how he/she reacts to it (Boydak, 2001).

The Theory of Multiple Intelligences designed by Howard GARDNER in 1983 and has brought a different point of view on intelligence and its measurement besides other cognitive approaches. The theory suggests a revolutionary criticism to the "traditional view of intelligence". Intelligence, in the traditional sense, is defined as "verbal and mathematical skills" that are innate and can be measured through short answer tests by psychologists. However, Gardner stated that intelligence is made up of more than one intelligence area that have unique ability of problem solving. These are Verbal/ Linguistic Intelligence, Logical / Mathematical Intelligence, Musical Intelligence, Spatial/Visual Intelligence, Bodily-Kinesthetic Intelligence, Interpersonal Intelligence and Intrapersonal Intelligence. The Theory of Multiple Intelligences has seen considerable interest since the day it has been put forward. According to this theory, there exists seven types of intelligence (Brualdi, A. C., 1994; Checkly, K., 1997; Hoerr, T., 1998; Silver, H., Strong, R., & Perini, M., 2000; Terry, K., & Wayman, M., 1996).

According to this point of view, intelligence can be developed based on environmental factors as well as genetic factors. It is perceived as a concept that cannot be numerically calculated but only observed in real life conditions in order to understand the ways of achieving success (Saban, 2002; Selçuk and others, 2004). According to Gardner(1985, 1993), different intelligence areas in individuals work in interaction and harmony and every individual is born with a different level of intelligences. However, they can develop in time through experience and feeding (cited: Öngören, Şahin, 2008). Gardner (1993) also has pointed out that one type of intelligence may be more improved in a person than another type. This is called "dominant intelligence". If people are given a chance to develop their intelligence, poor intelligence area may turn into a strong one. For this reason, in the concept put forward by Gardner, it is false to classify students as "low intelligence" or "high intelligence". It has been pointed out in the National Board of Education Law (issue 1739) that learners should be given education according to their interest, capability and talent. For this purpose, stress should be put on their strong intelligence and how they best learn through which methods rather than their deficiencies; therefore provide opportunities to achieve success (Saban, 2002).

In the light of this information, the answer to the question of "Is there any relationship between learning styles and dominant intelligences of the students? " is examined in this study.

2. AIM

The main purpose of this study is; to determine of relationship between dominant intelligences and learning styles of secondary school students and to make some evaluations with respect to obtained results.

3. METHOD

3.1.Study Groups

This research is a survey. The 6^{th} (23 students) and 7^{th} (14 Students) and 8^{th} (21 students) grade students (totally 58 students) that study in a primary school in Trabzon, constitute this research's study group.

3.2.Data Collection

In the study, for collecting data firstly literature search was conducted. By taking help from the obtained data in consequence of the literature search, scales have been determined for apply to the study group. For measurement of secondary school students' dominant intelligences, "Multiple Intelligences Inventory" (TIMI) consists of 28 topics, improved by Teele (1992) that is determined as suitable norm for Turkish students and used in several thesis; and for determine of students' learning styles, "Learning Styles Scale" (ÖSÖ) consists of 3 sub dimensions and 79 topics, improved by Sever (2008) have been used. As answer options in the scale, ternary answer options have been used. The answer options have been determined as "Yes", "Partly", "No"

3.3. Analysis of Data

The data have been obtained from application of the scales, have been put into the process of analysis. For determine of the study group answers homogeneity, Kolmogorov-Smirnov test has been done and it is understood that the data were nonparametric. Kruskal-Wallis test has been done for determine of differences in students' learning styles according to dominant intelligences types. In application of the tests, the significance level has been determined as p<0,05. Tables have been formed for showing the study results.

4. FINDINGS

4.1. Differences Based on Intelligence Types in Students' Learning Styles

In this section firstly test of normality has been done and it is understood that the data was nonparametric. Kruskal-Wallis test has been done for determine of differences in students' learning styles according to dominant intelligences types. Test results have been shown on table 1.

	Intelligence Type	N	Mean Rank	df	χ^2	p
Audio Learning Style	Verbal/ Linguistic	2	19,00	6	6.03	.420
	Logical / Mathematical	6	32,50			
	Spatial/Visual	6	23,08			
	Musical	5	39,00			
	Bodily-Kinesthetic	3	16,67			
	Intrapersonal	2	21,00			
	Interpersonal	34	30,96			
Visual Learning Style	Verbal/ Linguistic	2	28,25	6	7.33	.291
	Logical / Mathematical	6	27,00			
	Spatial/Visual	6	38,75			
	Musical	5	13,90			
	Bodily-Kinesthetic	3	35,00			
	Intrapersonal	2	39,00			
	Interpersonal	34	29,63			
Kinesthetic Learning Style	Verbal/ Linguistic	2	26,50	6	5.86	.439
	Logical / Mathematical	6	19,08			
	Spatial/Visual	6	36,25			
	Musical	5	35,40			
	Bodily-Kinesthetic	3	17,00			
	Intrapersonal	2	27,25			
	Interpersonal	34	30,69			

Table 1: Kruskal-Wallis Test Results Towards Determine of Differences in Students' Learning Styles According to Dominant Intelligence Types

By examining of table 1, it can be understood that; no difference exists in students' audio learning styles ($\chi^2_{(df=6,\ n=58)} = 6.03$, p>.05) in terms of their intelligence types. It is also understood that no difference exists in students' visual learning styles ($\chi^2_{(df=6,\ n=58)} = 7.33$, p>.05) and no difference exists in students' kinesthetic learning styles ($\chi^2_{(df=6,\ n=58)} = 5,86$, p>.05) in terms of dominant intelligence types.

5. CONCLUSION AND DISCUSSION

After the assessment of 7 dominant intelligence types of students that have answered the scale, a relation has been found out between students' dominant intelligences and "Audio, Visual and Kinesthetic" learning styles. Findings of the study show that;

1. No difference exist in students' audio learning styles ($\chi^2_{(sd=6,\ n=58)} = 6.03$, p>.05) in terms of their intelligence types.

2. No difference exist in students' visual learning styles ($\chi^2_{(sd=6,\ n=58)} = 7.33$, p>.05) in terms of dominant intelligence types.

3. No difference exist in students' kinesthetic learning styles ($\chi^2_{(sd=6,\ n=58)} = 5,86$, p>.05) in terms of dominant intelligence types.

The fact that no significant relations between learning styles and students' dominant intelligence types have been found, can be stem from the scale or sample group. For this reason it is suggested that this study be carried out once again with different learning styles scales or samples as well.

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THE RELATIONSHIP BETWEEN PIANO LESSON MOTIVATION AND PIANO LESSON ACADEMIC SUCCESS OF MUSIC TEACHER CANDIDATES

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ABSTRACT

We can describe the motivation as "the most important factor that provides ability of doing his/her works effective and fruitful for a person". But is there any relationship between developing of motivation for learning an issue and academic success that is an indicator of learning attitude? This study has been done for determine of relationship between piano lesson motivation and piano lesson academic success of music education students. The 1st and 2nd grade students (n=75) that study in the Music Education program of Karadeniz Technical University, have been participated in the study. This research is a survey. As data collection tools; for determine of students' piano lesson motivation, PEMDÖ (scale for evaluation of student motivation in piano education) that has been improved and validity - reliability of the test has been done by Günal (1999), and for determine of students' academic success in piano lesson, the final scores that students have got from the piano exam followed the application of PEMDÖ, have been used. Obtained data has been statistically analyzed by SPSS software program. At the end of study, the relationships between piano lesson motivation and students' academic success in piano lesson have been determined and some suggestions have been made according to the research results.

Key Words: *Music Education, Piano Education, Motivation, Academic Success*

1. INTRODUCTION

Motivation is the triggering of impulses, drives and intensions that make individual act in any way (Fidan, 1993). According to İnceoğlu, the most influential and shaping psychological factors is motive and motivation. Whereas in pedagogy motive and motivation are the most important factors for students ready to learn (Tufan, 2000). Considered generally, motives stimulate organism and activates it, directing the individual's behavior to a certain goal (Günal, 1999). The stimulation which shapes, directs and energizes the organism; hence resulting in arousal in emotions is known as motive whereas the gaining of power to attain a particular aim aims is motivation (Fidan, 1993). Motives are classified into two groups: biogenic and socigenic. Biogenic motives are common in all organisms such as hunger, thirst and are related to the biological nature of people. Those with biological origins are known as "impulse". However, socigenic motives are psychological and social based. For instance, the urge to know and succeed. Such humane motives are "needs" (Tava Üçer, 2003).

According to Selçuk, an insufficiently motivated student is not ready to learn. As long as there doesn't exist a reason to encourage the learner, no interest develops in the student (Yıldırım, 1998). "Interest is the literal dealing with the stimulant and feeling of happiness from dealing with it." (Sönmez, 1991). Anderson, Brubaker, Alleman-Brooks and Duffy (1985), have stated that students who failed to succeed have a common feature of not being aware of why they are learning certain information. Most research in the following years have shown relevance of the importance of the learning material with inner motivation (Pintrich and Garcia, 1991), cognitive strategy use(Pintrich, 1989) and learning tendency (Meece, Wigfield and Eccles, 1990) that are invaluable cognitive and motivational processes.

According to Binbaşıoğlu, motives effecting learning are crucial in three ways:
1. Motive is the most vital condition that results in behavior. 2. Motive is required for practice. 3. Motive monitors the change in behavior (cited: Orhan, 2006). Besides triggering learning, motives act as catalyst in arousing the learner's interest and keep the learner alert, reveal the hidden energy in him/her, help

make criticism about oneself, direct his/her behavior and therefore increase the probability of success (Tufan, 2000).

For a country to make a name and reputation and reach a certain level in art, qualified artists play a tremendous role. A qualified artist is a direct result of a quality and efficient education (Ömür,1998). Music being one of the branches of art, instrumental education is handled individually. As such piano is based on personal education. This way of education is significant in the sense that the instructor is the determining authority which determines the education style, personal characteristics, perception, motivating style and learning style of the student(cited: Ömür, 2004). The success of the piano instructor is directly proportional to education philosophy as well as the professional background and talent. In this respect, the instructor that is productive, caring and a supporting teacher paves the way for the student. This is why, motivation and morale has an irreplaceable role since motivation is one of the factors that effects and quickens learning (Ercan,1999). Russian pianist and instructor Rosina Lhevinne has stated that it is important to closely get to know the student in order to best meet the student's needs and only in that way could the student be best taught. According to Lhevinne, one Formula cannot be based on every learner to achieve motivation, that is a Formula that fit some may not fit the other (Bastien,1988).

In the light of these points, the answer to the question of " Is there a relationship between the following: the motivation of piano lesson which aims at only practicing and studying piano and the academic success which is the marker of learning?" is examined in this study.

2. AIM

The main purpose of this study is; to determine of relationship between piano lesson motivations and piano lesson academic success of Music Education program students and to make some evaluations with respect to obtained results.

3. METHOD

3.1.Study Groups

This research is a survey. The 1th and 2nd grade students that study in the Music Education (75 students) program of Fine Arts Education Department at Fatih Education Faculty, Karadeniz Technical University, constitute this research's study group.

3.2.Data Collection

In the study, for collecting data firstly literature search was conducted. By taking help from the obtained data in consequence of the literature search, a scale has been determined for apply to the study group. For measurement of music teacher candidates' piano lesson motivation, a scale (PEMDÖ) consists of 39 topics and 4 sub dimensions improved by Günal (1999), has been used. Quaternary likert type scale has been used as answer options in the scale. The answer options have been determined as "Completely Agree", "Quite Agree", "Partly Agree" and "Disagree". For determine of piano lesson academic success of the students, the scores that students got from the final exam of piano lesson followed by application of PEMDÖ, have been used.

3.3. Analysis of Data

The data have been obtained from application of piano lesson motivation scale, have been put into the process of analysis. For examining of the study group answers towards topics formed the scale, descriptive frequency measurements have been done and tables have been formed. Firstly test of normality has been done and it is understood that the data was nonparametric. Mann Whitney U test have been done for comparing the answers of male and female students that consist the research study group. In application of the tests, the significance level has been determined as $p<0,05$.

For determine of relationship between piano lesson motivations and piano lesson academic success of music education program students, the answers of students to the scale and the scores that

students got from the final exam of piano lesson followed by application of PEMDÖ, have been used. Spearman correlation analysis has been done for determine the relationship because of nonparametric data. In application of the analysis, the significance level has been determined as p<0,05.

4. FINDINGS

4.1. Examining of Piano Lesson Motivations According to Sub Factors

In this section, the tables took place giving the measurement results towards factors of the answers that study group had given. In tables, related average scores regarding topics entered to the factors have been given and evaluations have been implemented towards these scores.

Scale	Score Ranges	Comments
Completely Agree	3,26 – 4,00	Very high level motivation
Quite Agree	2,51 – 3,25	High level motivation
Partly Agree	1,76 – 2,50	Moderate level motivation
Disagree	1,00 – 1,75	Low level motivation

Table 1: Average Score Ranges Related to Scale

In table 1, quaternary likert type answer options range scores take place. The below tables have been explained by taking help from the table indicating which score corresponds to which range.

Topics	Average ($\overline{X}$)	Sd
2. If I practiced and my teacher didn't liked what I played, I don't feel up to practice the same piece again.	2,30	,91
3. Whenever I was wanted to practice a piece, sitting on piano burdens me.	2,62	1,07
16. I easily get bored of techniqual exercises on piano.	2,29	,88
21. I often get cool down of practicing piano, after I watched friends playing better than me.	2,60	1,05
31. I try to be successful in my piano lessons, because it is very important form my family.	2,61	,99
35. I don't want to play piano if my teacher finds me unsuccessful.	2,62	,93

Table 2: Piano Lesson Motivation Scores Towards the Factor of Fake Motivation

By examining the table 2, it is understood that the study group mostly expose "*high level motivation*" and partly "*moderate level motivation*". When we consider the table 1, it is seen that most of the average motivation scores indicate the **quite agree** and **partly agree** options. Consequently, it is emerged that students mostly expose "*high level motivation*" towards the factor of **fake motivation.**

Topics	Average ($\overline{X}$)	Sd
2. If I practiced and my teacher didn't like what I played, I don't feel up to practice the same piece again.	2,30	,91
5. If the piece that I must practice isn't difficult, I don't feel up to practice it.	2,91	,95
6. Most of the time I feel myself inadequate in playing piano.	2,62	,97
8. I feel that I can never be a good pianist.	2,63	,96
9. If somebody listens when I am playing, my practice will be more enjoyable.	2,63	,90
11. If I failed in the spite of practicing, I won't want to play piano again.	2,33	1,01
12. I always have had much enjoy of being busy with pieces upper than my level.	2,69	,97
17. I feel myself inadequate in adding some things from myself when I am expressing the pieces.	2,39	,89
19. I feel intensely the fear of making mistakes when I am playing in front of people.	2,21	,96
29. I think that how much I practice; I won't be able to be adequate in playing.	2,36	,97
32. If I couldn't be successful in playing piano, I would feel ashamed.	2,75	1,10
36. I usually feel that I won't deserve the admiration of my teachers or my friends after playing a piece.	2,70	1,01

Table 3: Piano Lesson Motivation Scores Towards the Factor of Self Perception

By examining the table 3, it is understood that the study group mostly expose "*high level motivation*" and partly "*moderate level motivation*". When we consider the table 1, it is seen that most of the average motivation scores indicate the **quite agree** and **partly agree** options. Consequently, it is emerged that students mostly expose "*high level motivation*" towards the factor of **self perception.**

Topics	Average ($\overline{X}$)	Sd
1. When I am listening to a piano piece, I usually think about how I would interpret it.	2,86	,97
4. Before I start to sight - reading of the piece, I like to analyze it in respect to form, theme, harmony, period, etc..	2,69	,98
12. I always have had much enjoy of being busy with pieces upper than my level.	2,69	,97
15. Practice of piano gives me so pleasure that I want to practice more and more.	2,56	,93
17. I feel myself inadequate in adding some things from myself when I am expressing the pieces.	2,39	,89
18. I always want to play piano and I feel discomfort of don't having enough time.	2,59	,94
20. It would be better if I didn't have to play piano.	2,40	1,12
24. I always like to discuss with my friends about the pieces that I newly try to play.	2,73	1,09
25.I grow impatient for application of practice techniques that I have newly learned.	2,78	,94
26. I often try to compose a piano piece.	2,40	,95
27. I never want my piano education expires someday.	2,77	,91
28. Piano is the most fascinating instrument in my opinion.	2,64	,91
30. Whenever I saw a piano, I want to play some things.	2,69	,87
33. I try to produce new practicing techniques in addition to those my teacher taught.	2,46	,92

Table 4: Piano Lesson Motivation Scores Towards the Factor of Authentic Motivation

By examining the table 4, it is understood that the study group mostly expose "*high level motivation*" and partly "*moderate level motivation*". When we consider the table 1, it is seen that most of the average motivation scores indicate the **quite agree** and **partly agree** options. Consequently, it is emerged that students mostly expose "*high level motivation*" towards the factor of **authentic motivation.**

Topics	Average ($\overline{X}$)	Sd
3. Whenever I was wanted to practice a piece, sitting on piano burdens me.	2,62	1,07
4. Before I start to sight - reading of the piece, I like to analyze it in respect to form, theme, harmony, period, etc..	2,69	,98
7. I don't practice piano every day, regularly.	2,48	,94
10. I try to don't miss any of the piano concerts.	2,65	,90
12. I always have had much enjoy of being busy with pieces upper than my level.	2,69	,97
13. I always compare myself with the friends that play piano.	2,48	1,04
14. My greatest ideal is to be a good pianist (here isn't mentioned being concert pianist/virtuoso)	2,59	,96
15. Practice of piano gives me so pleasure that I want to practice more and more.	2,56	,93
16. I easily get bored of techniqual exercises on piano.	2,29	,88
17. I feel myself inadequate in adding some things from myself when I am expressing the pieces.	2,39	,89
18. I always want to play piano and I feel discomfort of don't having enough time.	2,59	,94
19. I feel intensely the fear of making mistakes when I am playing in front of people.	2,21	,96
20. It would be better if I didn't have to play piano.	2,40	1,12
22. I always prepare a piano practice program. It's not important if I carried out. I can notice what I must to do thanks to the program and feel presence.	2,48	,99
23. I always practice piano with imagining of playing in the concert.	2,59	1,00
24. I always like to discuss with my friends about the pieces that I newly try to play.	2,73	1,09
25. I grow impatient for application of practice techniques that I have newly learned.	2,78	,94
27. I never want my piano education expires someday.	2,77	,91
28. Piano is the most fascinating instrument in my opinion.	2,64	,91
30. Whenever I saw a piano, I want to play some things.	2,69	,87

33. I try to produce new practicing techniques in addition to those my teacher taught.	2,46	,92
34. I wonder about what my friends are playing with piano.	2,64	,98
37. I always like to accompany with piano to other instruments.	2,54	,96
38. I enjoy very much of playing 2 -hand or 4 -hand piano pieces.	2,48	1,04
39. I try to not be absent in piano lessons. If I were absent, I would try to compensate it.	2,94	,99

Table 5: Piano Lesson Motivation Scores Towards the Factor of General Motivation

By examining the table 5, it is understood that the study group mostly expose "*high level motivation*" and partly "*moderate level motivation*". When we consider the table 1, it is seen that most of the average motivation scores indicate the **quite agree** and **partly agree** options. Consequently, it is emerged that students mostly expose "*high level motivation*" towards the factor of **general motivation.**

Factors	N	Minimum	Maximum	Median	Average ($\overline{X}$)	Sd
Fake Motivation	75	6	20	15	15,04	2,98
Self Perception	75	15	42	30	30,45	5,98
Authentic Motivation	75	20	53	37	36,60	6,53
General Motivation	75	31	83	64	64,01	9,89
Total	75	72	184	147	146,10	16,56

Table 6: Piano Lesson Motivation Scores Towards Sub Factors

In table 6, for determining motivation levels of students according to sub dimensions, median has been taken as cross-section point and the median of sub scale "*fake motivation*" has been calculated as 15. When cumulative percentages are considered, %57,3 of the participants have been observed to be graded higher than median and most students are **highly** motivated in terms of fake motivation.

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The median of "*self perception*" sub scale has been calculated as 30 and when cumulative percentages are considered, most students have been estimated as **highly** motivated in terms of self perception since %53,3 of the students have been graded higher than median.

The median of "*authentic motivation*" sub scale has been calculated as 37 and when cumulative percentages are considered, most students have been seen as **highly** motivated in terms of self perception since %52 of the students have been graded higher than median.

The median of "*general motivation*" sub scale has been calculated as 64. When cumulative percentages are considered, general motivation of students have been estimated as **high**, as %50,7 of the students have been graded higher than median.

Lastly, the students' median of "*total motivation*" according to sub scales has been calculated as 147. When cumulative percentages are considered, total motivation of most students have been estimated **high** as %50,7 of students have been graded higher than median.

4.2. Compare of Genders According to Piano Lesson Motivation Levels Towards Factors:

In this section firstly test of normality has been done and it is understood that the data was nonparametric. Mann Whitney U test has been done to the study group's answers with mentioning compare of Female and Male students' piano lesson motivation levels and 1 topic that has been found significant difference among genders, have been considered and presented in tables. The significance level between groups has been accepted as $p<0,05$.

Topics	Sex	N	Average ($\overline{X}$)	Sd	p
1. When I am listening to a piano piece, I usually think about how I would interpret it.	Female Male	56 19	41,25 28,42	,97	,020

Table 7: U Test Results For Compare of Piano Lesson Motivations According to Genders

By examining of table 7, it can be understood that in expose of "*high level motivation*" and occurring significant differences between ideas of Female and Male students in 1. topic, the weight has been on **Female** students.

4.3. The Relationship Between Piano Lesson Academic Success and Motivation Sub Factors

In this section for determine of relationship between piano lesson motivations and piano lesson academic success of music education program students, the answers of students to the scale and the scores that students got from the final exam of piano lesson followed by application of PEMDÖ, have been used. Spearman correlation analysis has been done for determine the relationship because of nonparametric data. Analysis results, presented in tables. In application of the analysis, the significance level has been determined as p<0,05.

	Piano Score	Fake Motivation	Self Motivation	Authentic Motivation	General Motivation	Total
Piano Score	1					
Fake Motivation	-.20	1				
Self Motivation	-.11	,74**	1			
Authentic Motivation	,017	-,248*	-,376**	1		
General Motivation	-,048	-,110	-,266*	,93**	1	
Total	-,094	,217	,110	,814**	,898**	1

* p<.05 ** p< .01

Table 8: Spearman Test Results Towards Relationship Between Piano Lesson Motivation and Piano Lesson Academic Success

By examining of table 8, it is understood that there has been obtained no difference in any sub dimension of the piano lesson academic success with piano lesson motivation scale. However; it has been found out that there exists a strong positive relation between fake motivation and self perception, a negative relation between fake motivation and authentic motivation, adverse relation between self motivation with authentic and general motivation, a strong positive relation between authentic motivation with general motivation and total motivation, a strong positive relation between general motivation and total motivation.

5. CONCLUSION

The findings of the research have shown that most of the students that have participated in the study are "highly motivated" and a part of them "moderately motivated". When the motivation points formed by the observation of subfactors are considered, most of the students have chosen options such as **quite agree** and **partly agree.**

In determining motivation levels of students according to sub dimensions, median has been taken as cross-section point and the median of sub scale "fake motivation" has been calculated as 15. When cumulative percentages are considered, %57,3 of the participants have been observed to be graded higher than median and most students are **highly** motivated in terms of fake motivation.

The median of "self perception" sub scale has been calculated as 30 and when cumulative percentages are considered, most students have been estimated as **highly** motivated in terms of self perception since %53,3 of the students have been graded higher than median.

The median of "authentic motivation" sub scale has been calculated as 37 and when cumulative percentages are considered, most students have been seen as **highly** motivated in terms of self perception since %52 of the students have been graded higher than median.

The median of "general motivation" sub scale has been calculated as 64. When cumulative percentages are considered, general motivation of students have been estimated as high as %50,7 of the students have been graded higher than median.

Lastly, the students' median of "total motivation" according to sub scales has been calculated as 147. When cumulative percentages are considered, total motivation of most students have been estimated **high** as %50,7 of students have been graded higher than median.

As a result of the normality range test performed to compare the motivation levels of male and female students that participated in the study group, the data has been seen as unsuitable to the normal range and Mann Whitney "U" test has been conducted; hence only 1 article with a meaningful difference has been found out. (1st article). According to test results, in the formation of this meaningful difference between the ideas of male and female students and female students are dominant in displaying "a high level of motivation". In order to test the relationship between the piano lesson motivations of the Music Department students and their piano lesson academic success, firstly a normality test range has been carried out and as the data are not suitable for normal range Spearman Correlation Test has been used. As a result of the test, there has been obtained no difference in any sub dimension of the piano lesson academic success with piano lesson motivation scale. However; it has been found out that there exists a strong positive relation between fake motivation and self perception, a negative relation between fake motivation and authentic motivation, adverse relation between self motivation with authentic and general motivation, a strong positive relation between authentic motivation with general motivation and total motivation, a strong positive relation between general motivation and total motivation.

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THE RESEARCH OF PRIMARY SCHOOL TEACHERS' ATTITUDES AND PERCEPTION LEVEL OF SELF EFFICACY TOWARDS COMPUTER ASSISTED INSTRUCTION

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ABSTRACT
The aim of this study is to analyze primary school teachers' attitudes and perception level of self efficacy towards computer assisted education.

The research was conducted among primary school teachers in Cyprus. For this study, 181 teacher [72.90% (n=132) were female, and 27.10% (n=49) male] were selected by random and stratified sampling method.

In this study the "The Attitude Scale towards Computer Assisted Instruction" developed by Aslan (2006) with a Cronbach alpha reliability coefficient of .93 and the "Self Efficacy Scale" developed by Aşkar and Umay (2001) with a Cronbach alpha reliability coefficient of .71 were used as a means of collecting data. Considering the purposes of the study percentage documentation average, t-test, ANOVA, Pearson moments correlation were figured out in data analysis. The statistical significance level was accepted as .05 in the study.

As a result of the research, it was determined that primary school teachers' attitude towards computer assisted education and self-efficacy perception level is at good level; primary school teachers' attitude towards computer assisted education and self-efficacy perception do not show differentiation according to gender, whether they are branch or class teachers; primary school teachers' attitude towards computer assisted education and self-efficacy perception show meaningful differentiation in terms of having personal computers. In addition, it was determined that there is a positive and at good level relation between primary school teachers' attitude towards computer assisted education and self-efficacy perception.

Keywords: Computer assisted instruction, self efficacy perception, primary school teachers.

INTRODUCTION

With the development of the technology the importance of the usage of the computer increases. Learning and utilizing the computer requires positive attitude and self-efficacy perception. Attitudes show our feelings; thoughts and groups that are in favor of or against the objects, our tendency to acceptance or refusal of thoughts, feelings and groups (Gay and Airasian, 2000). In general, it can be said that attitudes have three aspects. The first aspect is cognitive such as thoughts and proposals. The second is perceptive such as feelings that accompany to thoughts. The third is behavioral aspect that include being ready for the behavior (Gagne, 1985). Most of our attitudes constitute as a result of our interaction with the people among us. While attitudes can change as a result of an experience, they can change as a result of multiple experiences.

Some studies have showed that working with computer develops positive attitude towards the computer (Keser, 2001; Ocak, 2004). In order to give the respect to the computer that it has deserved at school, attitudes towards the computer have to be known. It is important that knowing the attitudes of lecturers who give computer courses in order to take precautions to the problems with the integration of the computers to the education and training at schools (Bindak and Çelik, 2006).

Self-efficacy perception explains how the people feel, how they think, how they motivate themselves and how they behave. Self-efficacy perception has the effect on cognitive, motivational and selection processes (Bandura, 1994). Self-efficacy perception constitutes the root of things that people do. People have low motivation in order to struggle against difficulties as much as they do not believe that they can achieve wanted results by their movements (Bandura, 1999). In fact, self-efficacy perception is the ability of an individual in the situation in which he can control his emotional performance. Self-efficacy perception widened as it can include cognitive processes, feelings, and behaviors that people can control (Schunk, 1990). It seen that self-efficacy perception which was developed in social psychology field has been adapted many areas and used with many other disciplines. For example computer self-efficacy perception is one of these areas. Computer self-efficacy perception is defined as "individual's judgment of himself in using computer. Studies that have been held in this subject show that individuals who have high self-efficacy perception are willing in the activities about computer and they have higher expectancy in those activities. Moreover, they can struggle easily with any problems that they encounter in those activities (Akkoyunlu and Orhan, 2003).

Compeau and Higgins (1995) stated that self-efficacy perception of computer is an important variable in using computer (Cited Aşkar and Umay, 2001).

As a result of the studies it was found that self-efficacy perception is affected by experiences and models in the environment and this affects computer usage quality and continuity of it. This dual aspect interaction is a guide in arrangements in education process. Inexperience and less computer usage is the result of students' low self-efficacy perception towards the computer (Aşkar and Umay, 2001). Positive experience affects the individual's computer self-efficacy perception in a positive way and negative experience affects the individual's computer self-efficacy perception in a negative way (Akkoyunlu and Orhan, 2003).

Seferoğlu (2005) analyzed computer self-efficacy perception of primary school teachers in terms of different variables. The study included total 51 teachers. It was observed that as a result of the research, teachers' computer self-efficacy perception is at medium level, and their computer self-efficacy perception did not change according to gender and branch.

Erkan (2004) analyzed 164 pre school teachers' attitude towards computer. As a result of the study, it was observed that pre school teachers have positive attitude towards computer, young teachers have more positive attitude than old teachers, teachers who have computer experience have higher attitude towards computer and there is no difference between the attitudes of teachers who have personal computer than teachers who do not have personal computer.

Çelik and Bindak (2005) analyzed computer self-efficacy perception of primary school teachers in terms of different variables. It was determined that computer self-efficacy perception does not differentiate according to gender, branch and place of the duty. In addition teachers who have computers have higher positive attitude than who do not have personal computer. Moreover, computer self-efficacy and computer usage frequency has meaningful relations with positive attitudes towards the computer. Asan (2002) analyzed attitudes of candidate teachers in the fields of science and social. Research findings showed that candidate teachers evaluated the computer positively and they feel comfortable in front of the computer. Science teacher candidates who had not got education on computer have higher attitude than the students of social studies. This show that department is no affect on students who get education about computer. Results show that computer experience affects attitude score positively.

The result of this study is expected to be a guide for the Ministry of Education, Teenagers, and Sport of TRNC. People who will study on this area can utilize the data of this study.

Purpose of the Research

The aim of this research is to analyze primary school teachers' attitude towards computer assisted education and self-efficacy perceptions in terms of socio-demographic characteristics.

The Statement of the Problem

The question of the research was expressed like this: "Are there any important relations between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions? If there is, what are they?"

In the light of this question, answers are sought to sub-questions below.

1. At what level do primary school teachers' attitude towards computer assisted education and self-efficacy perceptions?
2. Does primary school teachers' attitude towards computer assisted education and self-efficacy perceptions differentiate meaningfully in terms of gender?
3. Does primary school teachers' attitude towards computer assisted education and self-efficacy perceptions differentiate meaningfully in terms of whether they are branch teacher or not?
4. Does primary school teachers' attitude towards computer assisted education and self-efficacy perceptions differentiate meaningfully in terms of having personal computer?
5. Are there any relations between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions?

METHOD

Research Model

This research is suitable for relational survey model. Relational survey models are a kind of research model that aims to find relation between two or more variables (Karasar, 2006; McMillan and Schumacher, 1993: 279).

Universe and sample

Primary school teachers were selected as the universe of the research. Total 181 teachers were selected with stratified sampling method from 14 schools that are selected with random sampling model. 72.9% of them were (n=132) females and 27.1% of them are (n=49) males.

Data Collecting Tools

Personal informational form: With the help of information form that was formed by the researchers, data was collected about teachers' gender, branch, service duration in the duty, having personal computer, how long they used computer, whether they use computer in the classroom or not, the frequency of computer usage.

Attitude Scale towards Computer Assisted Education: This scale was developed by (Arslan, 2006). Cronbach alpha coefficient of the scale is .93. Scale consists of 20 items. Items in the was arranged by 5 grading scale as "completely agree", "agree", "neutral", "disagree", "completely disagree". Positive items are accepted as 1 "completely disagree", 2"disagree", 3 "neutral", 4 "agree", 5 "completely agree". Negative items are accepted as 1 "completely agree", 2 "agree", 3 "neutral", 4 "disagree", 5"completely disagree". In order to find score range, score range was found by dividing score range to 4. Range value is 20. Score range can be expressed as high ($\bar{x}$=83-103), good ($\bar{x}$=62-82), medium ($\bar{x}$=41-61) and weak ($\bar{x}$=20-40).

Self-efficacy perception scale about the computer: Self-efficacy perception scale about the computer that was used in the research was developed by (Aşkar and Umay, 2001). Scale consists of 18 items. Answers were in 5 likert type. For positive answers were scored as "always (5), never (1)", in negative answers they were scored as "always (1), never (5)". Cronbach alpha coefficient of the scale was .71. In order to find score range, score range was found by dividing score range to 4. Range value is 18. Score range can be expressed as high ($\bar{x}$=75-90), good ($\bar{x}$=56-74), medium ($\bar{x}$=37-55) and weak ($\bar{x}$=18-36). In addition to the scale personal information test that was developed by was applied.

Analysis of data

Level of primary school teachers' attitude towards computer assisted instruction (CAI) and self-efficacy perceptions was determined by looking at their means. In double comparisons of primary school teachers' attitude towards computer assisted education and self-efficacy perceptions according to socio-demographic features t-test was used. In order to determine whether there is a meaningful relation between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions the Pearson product-moment correlation coefficient was used. Significance level was accepted as .05.

FINDINGS

The first sub-question of the research was expressed as "At what level do primary school teachers' attitude towards computer assisted education and self-efficacy perceptions?". As it is seen in Table 1, the

mean of primary school teachers' attitude towards computer assisted education out of 181 teachers was found as $\bar{x}$=75.76. According to this value, it can be said that teachers' attitude towards CAI is at "good level". The mean of primary school teachers' self-efficacy perceptions was found as $\bar{x}$=60.80. According to this value, they have "good level" of self-efficacy perception.

Table 1: Mean and standard deviation values about primary school teachers' attitude towards computer assisted instruction (CAI) and self-efficacy perceptions

Dependent variables	**n**	$\bar{x}$	**ss**
Level of attitudes towards CAI	181	75.76	12.58
Perception of computer self-efficacy	181	60.80	10.77

The second sub-question of the research was expressed as "Does primary school teachers' attitude towards computer assisted education and self-efficacy perceptions differentiate meaningfully in terms of gender?". t-test was applied in order to determine whether there is a meaningful change between primary school teachers' attitude towards CAI and self-efficacy perception according to gender. It was determined that primary school teachers' attitude towards computer assisted education and self-efficacy perception do not show a meaningful differentiation according to the gender.

Table 2: t-test result of primary school teachers' attitude towards computer assisted education and self-efficacy perception according to gender

	Gender	n	$\bar{x}$	S	sd	t	p
CAI	Female	132	75.72	12.93	179	.062	.95
	Male	49	75.85	11.71			
Computer self-efficacy	Female	132	60.31	10.60	179	.099	.32
	Male	49	62.10	11.21			

The third sub-question of the research was expressed as "Does primary school teachers' attitude towards computer assisted education and self-efficacy perceptions differentiate meaningfully in terms of whether they are branch teacher or not?". T-test was applied in order to determine whether there is a meaningful change between primary school teachers' attitude towards CAI and self-efficacy perception in terms of whether they are branch teacher or not.

Table 3: T-test result of primary school teachers' attitude towards computer assisted education and self-efficacy perception in terms of whether they are branch teacher or not

	Duty	n	$\bar{x}$	S	sd	t	p
CAI	Class	121	76.47	12.11	179	1.08	.278
	Branch	60	74.31	13.47			
Computer self-efficacy	Class	121	60.66	10.33	179	.23	.810
	Branch	60	61.06	11.69			

It was determined that primary school teachers' attitude towards computer assisted education and self-efficacy perception do not show a meaningful differentiation in terms of whether they are branch teacher or not.

The fourth sub-question of the research was expressed as "Does primary school teachers' attitude towards computer assisted education and self-efficacy perceptions differentiate meaningfully in terms of having personal computer?". T-test was applied in order to determine whether there is a meaningful change between primary school teachers' attitude towards CAI and self-efficacy perception in terms of having personal computer.

Table 4: T-test result of primary school teachers' attitude towards computer assisted education and self-efficacy perception in terms of having computers

	Computer	n	$\bar{x}$	S	sd	t	p
CAI	Having	166	76.57	12.37	177	2.40	.010*
	Not having	13	68.00	12.17			
Computer self-efficacy	Having	166	61.62	10.48	177	3.67	.000*
	Not having	13	50.53	10.21			

*p<.05

Meaningful difference was found in terms of having personal computer attitudes of primary school teachers towards CAI and self-efficacy perception (t_{177}=2.407, p<.05). Teachers who state that they have computers ($\bar{x}$=75.57) have higher positive attitude than the teachers who stated they do not have personal computer ($\bar{x}$= 68). Statistical difference was determined when the teachers' mean scores of self-efficacy perception was analyzed according to having computer (t_{177}=3.67, p<.05). When table 5 analyzed, it is seen that the teachers who stated they have computers have higher self-efficacy scores ($\bar{x}$=61.62) than the teachers who stated they do not have personal computer ($\bar{x}$= 50.53).

The fourth sub-question of the research was expressed as "Are there any relations between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions?". In order to determine whether there is a meaningful relation between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions the Pearson product-moment correlation coefficient was used.

Table 5: Correlation results between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions

		Self-efficacy Perception Mean=60.80 Std. Dev.=10.77
Attitude towards CAI Mean=75.76 Std. Dev.=12.58	Pearson Correlation	.45(**)
	Sig. (2-tailed)	.000
	n	181

**p<.001

When the Table 5 examined, a meaningful relation at medium level between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions was found.

RESULT AND DISCUSSION

As a result of the research, it was determined that primary school teachers' attitude towards computer assisted education and self-efficacy perceptions was at good level. This situation can derive from the spread of the computer usage and compulsory in today's world.

Primary school teachers' attitude towards computer assisted education does not show meaningful difference according to gender. Findings of Çelik and Bindak (2005) support our findings.

Primary school teachers' attitude towards computer assisted education does not show meaningful difference according to whether they are branch teachers or not. Studies that were held by Çelik and Bindak (2005), Aral et al. (2006) are at the quality of supporting our findings. According to this, classroom teachers and branch teachers have similar attitudes. Primary school teachers' attitude towards computer assisted education shows meaningful difference according to whether they have personal computer or not. Çelik and Findings of Çelik and Bindak (2005) support our findings. Using computer more of the teachers who have personal computer can be the reason for this result.

Attitude levels of primary school teachers' self-efficacy perception towards CAI show meaningful difference according to gender. This finding is consistent with the study of Özçelik and Kurt (2007).

Self-efficacy perception level of the teachers towards CAI does not change in terms of whether they are class-branch teachers.

Teachers' self-efficacy perception show meaningful difference is in favor of teachers who have personal computer. It can be said that long duration was spent on the computer by teachers who have personal computers so that they can have higher self-efficacy perception of the computer. This research finding is convenient with the results of Arsal (2006), Chao (2001).

At medium level and positive relation is seen between primary school teachers' attitude towards computer assisted education and self-efficacy perceptions. The study that was held by Arslan (2006) resulted in the same direction.

When the teachers' attitude towards computer and self-efficacy perception are evaluated as dividing teachers into two groups as teachers who have computers and who do not have computers, it was determined that teachers who have personal computer have meaningfully higher than who do not have computer. Meet them with the computer may develop their attitude towards computer and self-efficacy perception.

Suggestions:

These suggestions were given as a result of the research

When it is thought that teachers who have personal computer have higher positive attitude towards the self-efficacy of computer and computer assisted instruction, support can be given to the teachers to have a personal computer by the ministry of national education or other incentives.

1. When it is thought that teachers who have personal computer have higher positive attitude towards the self-efficacy of computer and computer assisted instruction, support can be given to the teachers to have a personal computer by the ministry of national education or other incentives.
2. A qualitative research can be held on the groups who have good or bad attitude levels towards the self-efficacy of computer and computer assisted instruction.
3. In-service courses can be held in order to develop attitude levels of the teachers towards the self-efficacy of computer and computer assisted instruction.

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THE ROLE OF GENDER, PROFICIENCY LEVEL AND ACADEMIC SUCCESS ON STUDENT INVOLVEMENT IN ENGLISH LANGUAGE CLASSROOMS

İNGİLİZCE DİL ÖĞRETİMİNDE CİNSİYET, İNGİLİZCE YETERLİK SEVİYESİ VE AKADEMİK BAŞARININ ÖĞRENCİ KATILIMINDAKİ ROLÜ

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ABSTRACT

The aim of this study is to investigate the amount of student involvement in the teaching-learning process at Çankaya University English Preparatory School and whether there are significant differences between the amount of involvement in terms of learners' *gender, proficiency level* or *academic success.* It also aims to identify the general tendency of learners' involvement types in terms of direct and indirect involvement strategies. In order to answer the questions stated in the research the data-gathering instrument "*The Identification of Students' Involvement Levels in the Teaching-Learning Process*" (Erişti, 1998) was implemented on 228 students from four different proficiency levels studying at Çankaya University English Preparatory School. The results were analyzed using "SPSS16.0" in the academic year of 2009-2010. The major findings of the study suggest that the involvement level of English preparatory school students in the teaching-learning process is at an effective level (average: 3.75). From the results gathered after the statistical analysis of the questionnaires conducted in this study, it can be stated that there is a significant difference with regard to "gender" and "academic success". However, there is an insignificant difference between students' proficiency level and their level of involvement. Analysis also shows that there is a significant difference between direct and indirect involvement levels of students in teaching-learning process.

Key Words: involvement levels of students, teaching-learning process, direct involvement, indirect involvement

ÖZET

Bu araştırmada yabancı dil öğretimi yapılan Çankaya Üniversitesi İngilizce Hazırlık Okulu sınıflarında üniversite öğrencilerin öğretme-öğrenme sürecine katılım düzey ve biçimlerininin (açık veya örtülü katılım) ve öğrencilerin katılım düzeylerinin cinsiyet, İngilizce yeterlik düzeyi ve akademik başarı değişkenleri açısından belirlenmesi amaçlanmıştır. Araştırmada kullanılan veriler, dört ayrı düzeyde eğitim gören 228 İngilizce hazırlık sınıfı öğrencisi üzerinde 2009-2010 akademik döneminde uygulanan anket aracılığı ile toplanmıştır. Bu araştırma için Erişti (1998) tarafından geliştirilen"*Üniversite Öğrencilerinin Öğretme-öğrenme Sürecine Katılım Durumlarını Belirleme Ölçeği"* kullanılmıştır. Sonuçlar "SPSS16.0" programı aracılığı ile analiz edilmiştir. Araştırma sonucunda, İngilizce hazırlık sınıflarında öğrenim gören öğrencilerin öğretme-öğrenme sürecine katılım düzeylerinin genelde etkili bir düzeyde gerçekleştiği (ortalama: 3.75), katılım düzeylerinin İngilizce yeterlik düzeyi açısından anlamlı bir farklılık göstermediği ancak cinsiyet ve akademik başarı değişkenleri açısından anlamlı bir farklılık gösterdiği; öğrencilerin, açık katılım davranışlarını örtülü katılım davranışlarından daha çok gösterdikleri; tespit edilmiştir. Araştırma sonucunda, öğrencilerin açık katılım davranışları ile örtülü katılım davranışları arasında istatistiksel olarak anlamlı bir fark olduğu saptanmıştır.

Anahtar Kelimeler: öğrencilerin katılım düzeyleri, öğrenme-öğretme süreci, açık katılım, örtülü katılım.

INTRODUCTION

The goal of any educational activity is to provide positive learning outcomes for students. This has led many researchers to investigate what factors affect the outcomes of learning with the belief that if the variables are revelaed as, they can be developed; thus with a probability of improving the quality of educational outcomes. There have been attempts to improve the quality of learning outcomes by means of content or method changes. All of these changes must have affected the quality of education to the extent that they affect students' active involvement in the teaching-learning process.

There have been numerous studies in the field of English language teaching dealing with the involvement of students in teaching-learning processes. Most of the research on student involvement has been done by Astin (1984:134), who defines involvement as "the amount of physical and psychological energy that the student devotes to the academic experience". The definition of "involvement" is necessary because students always find it difficult to become involved in the teaching-learning process and many of the academic or social activities at school. High levels of student involvement generally proved to be an independent indicator of gains in learning. Involvement levels of students are generally influenced by many factors such as the construction of an educational structure, a program or the classroom level which integrate students into the ongoing intellectual life of the institution (Tinto, 1997: 188).

Astin (1984:129) defines different types of involvement that college students can display. Academic involvement is the core of academic achievement. Astin (1984:76) likens involvement to motivation;however, he states that it differs from motivation. Involvement is not only a psychological process but also a physical one. Erişti (1998:17) mentions two types of student involvement: direct and indirect. Direct involvement is the observable act of student participation in class while indirect participation is a mental integration into the teaching and learning process. It has to be noted that involvement is an active term in nature; therefore both direct and indirect involvement may be regarded as active processes.

Literature Review

The theory of involvement emphasizes active participation by the student in teaching learning process. Recent research has suggested that learning is most effective when the learning environment is structured to encourage active participation by the student (Rosenshine, 1982: 60-69). The theory of student involvement encourages educators to focus less on what teachers themselves do and more on what the student does: how motivated the student is and how much time and energy the student devotes to the teaching learning process. The theory assumes that student learning and improvement will not be dramatic if educators focus most of their attention on course content, teaching techniques, laboratories, books or other resources. Student involvement is a term used to imply a behavioural component consisting five basic postulates. These postulates are as follows (Astin,1984:519-522):

1. Involvement refers to the investment of physical and psychological energy in various objects. The objects may be highly generalized (the student experience) or highly specific (preparing for a chemistry examination).
2. Regardless of its object, involvement occurs along a continuum; that is, different students manifest different degrees of involvement in given object, and the same student manifest different degrees of involvement in different objects at different times.
3. Involvement has both *quantitative* and *qualitative* features. The extent of a student's involvement in an academic work, for instance, can be measured quantitatively (how many hours the student spends studying) and qualitatively (whether the student reviews and comprehends reading assignments or simply stares at the textbook and daydreams).
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program.
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement.

Schlossberg's theory on marginality and mattering is also an important concept recognized in terms of student success and involvement (Evans et al., 1998). Students will generally feel marginalized when they feel they do not fit it in, thus leading to negative outcomes such as "self-consciousness, irritability, and depression". Feeling marginalized causes students to wonder if they "matter to someone else". Schlossberg emphasizes that some institutions make students feel significant since that feeling precedes student involvement in academic activities. While it is true that students must experience academic success to remain at the school they are studying, it is also vital that they become involved and engaged in other areas of college life (Schlossberg, 1989:9). Additionally, students become involved and engaged in campus life is through service-learning. Service-learning is a method of teaching, learning and reflecting that combines academic classroom curricula with meaningful service, and regular youth service throughout the community. As a teaching methodology, it falls under the philosophy of experimental education. More specifically, it integrates meaningful community service with instruction and reflection to enrich the learning experience, to teach civic responsibility, to encourage lifelong civic engagement, and to strengthen communities for the common good (http://en.wikipedia.org/wiki/Service-learning).

After mentioning the importance of student involvement in their academic work that they are doing, there needs to be a great focus on the variables which play a role on the level of student involvement as well as the types of involvement. The purpose of this paper is to identify the general tendency of student involvement levels in terms of direct and indirect involvement strategies. Another concern of this paper is whether the type of involvement is affected by gender, proficiency level or success. The research questions of the current study are as follows:

1.What is the level of student involvement in the teaching-learning process in English language classrooms?
2. Do the involvement levels of students vary in the teaching-learning process according to their:
    a. gender?
    b. proficiency level?
    c. academic success?
3. How does the level of the student vary with regard to the types of involvement (direct or indirect)?

METHODS AND PROCEDURES

The aim of the current study is to provide data on the ways to improve students' academic involvement to all parties in educational settings. To find new methods and techniques and make learners a more active part of the instructional process, the first step to be taken is to analyze what they are doing in classes now, to what extent they are being involved and which type of involvement (direct or indirect) they choose when they are involved. These points form the main core of this research in order to shed light on further research to improve the academic involvement of learners and as a consequence, their academic achievements.

To answer the research questions listed above, survey method has been used. A survey carried out by Erişti (2008) was modified and conducted at an English language preparatory school. The survey was prepared utilizing five point Likert scale. As the subject school has a specialized area of instruction, the questionnaire was revised with the appropriate adaptations.

The questionnaire was applied in Turkish so that more reliable results could be achieved. It was applied to 228 students from 18 different classes and four different proficiency levels (elementary, pre-intermediate, intermediate, upper-intermediate) in the academic year of 2009-2010. The analytical procedure was carried out by calculating the arithmetical average, standard deviation, T-test in two group correlations, and one-way ANOVA in groups of more than two. For the statistical analysis of the data, "SPSS16.0" was used.

RESULTS

In this part, the results of the survey will be presented and supported with tables of statistics. In order to find the answer to the first research question, minimum, maximum and average scores were identified.

Table 1. The Level of Student Involvement in General

Valid N	Minimum	Maximum	Average	sd
228	2.31	5.00	3.75	0.47

Table 1 presents the measurements level of students' perceptions of involvement in the teaching-learning process. The overall scores of students' perceptions, as indicated in table 1, are minimum (2.31) and maximum (5.00). The scores are marginally positive in average (Av:3.75).

Table 2. The Level of Student Involvement in Terms of Gender

Gender	N	$\bar{X}$	S	sd	t	p
Female	121	3.81	0.48	226	2.039	0.043
Male	107	3.68	0.46			

The "independent samples t -test" is used to test to reveal whether there is a significant difference between students' level of involvement and gender in English language classrooms. As indicated in Table 2, 121 female and 107 male students participated in the student involvement survey. Analysis shows that there is a significant difference between male and female students in terms of their level of involvement($p = 0,043 < \alpha = 0,05$). Female students become involved in the teaching-learning process ($\bar{X}$ 3.81) more so than male students ($\bar{X}$ 3.61).

Table 3. The Level of Student Involvement in Terms of Proficiency Levels

Variable	Categories	N	$\bar{X}$	S		
Proficiency Level	Elementary	16	3.70	0.40		
	Pre Int	96	3.78	0.51		
	Intermediate	81	3.67	0.48		
	Upper Int	35	3.89	0.35		
	Source of Variation	**Sum of Squares**	**Sd**	**Averages of Squares**	**F**	**p**
	Between Groups	1.32	3	0.44		
	Within-Groups	49.82	224	0.22	1.97	0.119
	Total	51.14	227			

As it can be seen from table 3, there are participants from four different proficiency levels (elementary, pre-intermediate, intermediate and upper-intermediate).The number of participants from each proficiency level change drastically as the majority of students in this school receive education at intermediate and pre-intermediate levels. The number of participants included in the research are as follows: elementary: 16; pre-intermediate: 96; intermediate: 81; upper-intermediate: 35. All levels are included in the research. It is indicated in table 3 that the level of student involvement do not differ according to their proficiency levels ($p = 0,119 > \alpha = 0,05$).

Table 4. Level of Student Involvement in Terms of Academic Success

Variable	Categories	N	$\overline{X}$	S		
Academic Success	0-49	34	3.65	0.51		
	50-69	100	3.68	0.41		
	70-100	94	3.87	0.50		
	Source of Variation	**Sum of Squares**	**Sd**	**Average of Squares**	**F**	**P**
	Between Groups	2.06	2	1.03	4.72	0.01
	Within-Group	49.08	225	0.22		
	Total	51.14	227			

Table 4 shows that there is a considerable difference between students' academic success and their percieved involvement levels ($p = 0,01 < \alpha = 0,05$).

Table 5: Types of Student Involvement

Types of Student Involvement	N	Minimum	Maximum	Average	Sd
Direct Involvement	228	2.33	5.00	3.98	0.49
Indirect Involvement	228	2.00	5.00	3.56	0.62

To evaluate whether student involvement in the teaching-learning process is direct or indirect, the minimum, maximum, average and standard deviation scores were analyzed and presented in table 5. The general tendency of students in terms of direct involvement is 3.98, whereas indirect involvement is 3.56. Analysis shows that there is a significant difference between direct and indirect involvement levels of students in the teaching- learning process. In other words, students prefer direct involvement strategies (3.98) rather than indirect ones (3.56).

CONCLUSION

From the results, it can be concluded that students at Çankaya University English Preparatory School involve in classes most of the time. (Av:3.75).This level of percentage change in terms of gender and academic success; however, the proficiency level of students seems to be ineffective in students' involvement level.

It is clear that in terms of gender, that female students become more involved in the teaching-learning process than male students. Gender plays an important role on not only the quantity of participation but also the type of participation. Female students get involved in the lessons more than male students both directly and indirectly. However, it should be noted that male students are involved in the courses directly than indirectly. On the other hand, female students are involved more indirectly than directly.

Moreover, the quantity of student involvement is analyzed with regard to the proficiency level at which they are being educated. The level of proficiency seems to have little influence in the level of student involvement in class. When the type of involvement is taken into consideration, it can be stated that level of proficiency has little effect on the level of direct involvement; however, the level of indirect involvement is affected by proficiency level. Upper-intermediate learners are more involved in classes both directly and indirectly. Pre-intermediate students are also high in student involvement. Pre-intermediate learners are those who start as zero beginners at the beginning of the academic year and continue their preparatory school education without repeating any levels. This result may account for the fact that the upper-intermediate group becomes involved in the learning process because they are more proficient at comprehending English and they have a higher level of understanding of the target language. There is also an elementary group which consists of students who start as zero beginners and fail their levels. Both the intermediate group and the elementary group show a lower level of involvement. This may be attributed to various other reasons for these two groups yet to be explained. It is possible that elementary groups may have given up because they fall behind the objectives of the academic year. Moreover, they may feel that they will fail in any case. On the other hand, the intermediate classes show a low level of involvement, which might be accounted for by the high number of male students and the effect of gender.

Another variable that affects the level of student involvement is their academic achievement. Academic success differs from proficiency levels because it refers to the success among their peers in students own level. This variable has a clear relationship with the involvement level of students. To sum up, The higher the learners' grade is, the higher the level of involvement becomes.

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THE SPECIFICS OF PROFESSIONAL CHOICE OF PUPILS WITH A DISABILITY

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ABSTRACT
Pupils with specific learning difficulties and behaviour disorders are a relatively strongly represented group in Czech schools, which traditionally received special attention. This group of pupils has more serious problems when making educational and subsequently professional choices in the labour market. In the text we present data from a quantitative investigation focused on identification of specific features in professional aspirations of pupils with a mild disability, specific learning difficulties and behaviour disorders. Attention is paid to selected circumstances and influences which often play a role in the process of decision making, particularly the influence of counselling bodies.

Introduction

In recent years, special attention is paid to educational choices of pupils leaving basic school and career guidance in schools. External factors influencing educational and professional choices change from time to time, especially as regards school environment generally determined primarily by school politics (e.g. the possibility of multiple choice, quality of basic schools, the number and quality of secondary schools and branches), situation in the labour market (the rate of unemployment and entrepreneurial environment, formation of new professions etc.) and social politics (incentives and promotion). In the Czech Republic there has been a discussion about the decline of crafts and vocational schools and lower quality of secondary education. That accounts also for the high number of comprehensive secondary schools which do not set entrance exams and relax their requirements on their pupils in an effort to attract and maintain pupils (in the Czech Republic there is an ongoing debate about the school-leaving exams guaranteed by the state – the problem appears almost in every number of the journal on education *Učitelské noviny* – e.g. No. 13, 14, 15, 16 , volume 113, 2010). Many leavers (not only) of these schools then search for a job in vain. Pupils with a disability might experience even a rather more complicated educational and professional path. In the Czech Republic, similarly to other countries, the integration of disabled pupils into mainstream classes is promoted and so-called inclusive schools are increasingly raised as an issue. At the same time the counselling role of the school is emphasised and in the last decade formation of so-called school counselling centres is endorsed, often financed from the European structural funds.

Within the research project MSM 0021622443 *Special needs of pupils in the context of the Framework Educational Programme* conducted at the Faculty of Education Masaryk University in Brno we focus on professional aspirations of pupils with special educational needs. The aim of this broadly conceived seven-year project is to identify a whole range of factors which influence the education of pupils with special educational needs and propose measures for their education in mainstream schools or guidance. The authors of the presented text are in charge of the field of technology education and professional aspirations of pupils. In this paper we present selected results of an investigation conducted in 2009, whose aim was to identify the specific features of educational choice of pupils with special educational needs. The focus of our attention were pupils with specific learning difficulties and behaviour disorders (further referred to as pupils with SLD and BD), who represent a relatively strong group in Czech schools. On average, there are 2 % of pupils with serious problems and about 2 % of pupils with a light form of a specific learning difficulty, in Czech schools. However, some of educators indicate that the

number of children with these problems may reach 20 %, as not all the children manifest the same signs and difficulties of the disorder (Švancar 2002). The consequences of specific learning difficulties and behaviour disorders as reflected into school achievement of pupils are generally known (e.g. Matějček, Vágnerová 2006, Pokorná 2001, Zelinková 2003). It is not a severe disability, rather a developmental deviation, nevertheless these pupils often encounter many educational problems which hinder decision making about their education and can also influence their job prospects.

On the data collection

To gain an insight into the problem of professional aspirations of pupils with specific learning difficulties and behaviour disorders we combined qualitative and quantitative methodology. Our intention in this part of the investigation was to answer the following questions:
What are the most frequent factors influencing educational choices in children with SLD and BD?
How informed are they about the chosen branch?
What do they consider most difficult in their choice?
What is the most restricting factor in the choice?
What support are they expecting?
We attempted to answer these questions by means of both quantitative methods (questionnaire) and case studies. In this paper we present only selected data – those gained from the questionnaire investigation. The questionnaire was distributed to 65 basic schools while we chose a special way of achieving the "random sample". We asked 42 students of our faculty to deliver the questionnaire to five basic schools close to their home. Thus, we achieved that there were both village and town schools, mainly from our county (85%). In the schools selected this way students were to ask teachers or pupils of the 9th (last basic school) year with a diagnosed specific learning difficulty (dyslexia, dysgrahia, dysorhographia, etc.) or a behaviour disorder such as the ADHD syndrome. It is estimated that in every class there are 1 to 5 pupils with this disorder. With their parents´ consent pupils filled in the questionnaire under the supervision of our student. In total we obtained data from 214 pupils, out of them 146 boys and 68 girls. This distribution roughly corresponds with the findings that SLD and BD are more often diagnosed in boys.

In order to allow at least crude comparison with the "healthy" population and be able to identify in quantitative terms several specific features of the choice we decided to distribute the same questionnaire in the group of "healthy" pupils (for the sake of simplicity we will use the term "healthy" pupils in comparison, although it is obvious that pupils with SLD and BD can not be considered ill). As it is necessary to gain parents´ consent for data collection, we decided to facilitate the process by addressing seven schools cooperating with our faculties in big and small towns (ordinary basic schools) and via the teachers (our supervising teachers) we got back in total 102 questionnaires (59 boys, 43 girls). Both investigations were carried out simultaneously in the time of the year when the pupils of 9th grade had already submitted their applications for secondary schools.

Presentation and interpretation of the gained data

In this part of the text we briefly present the gained data and relate the results to the research questions. As we established only research questions for the complex research and not hypotheses and also owing to the fact there are two individual sets of data we do not have ambitions for mathematical-statistical calculations as far as the significance of differences are concerned between healthy pupils and pupils with specific learning difficulties and behaviour disorders. Not to exceed the limit of the number of pages we present only some simplified tables and no diagrams.

Selected data from school case history

Special attention is paid to pupils with learning difficulties and behaviour disorders in Czech basic schools, however, it is the severity of the disability that plays a role. In our sample 44% of the pupils were **integrated** (i.e. the school gets certain special subsidy for these pupils), 27% of the pupils attended a **club for children with dyslexia**, 34% received **after-school teaching**, 41% of the pupils were **evaluated in a modified way**, and 9% of the pupils relied on **allowances made for them during secondary school entrance exams**. Eight of the addressed pupils mentioned that they have an assistant teacher with them in the class.

Although certain allowances are made for the pupils with SLD and BD in their evaluation, their performance in school is worse (Czech grading scale: 1 – the best mark, 5 – the worst).

Tab. 1 Pupils´ achievement

Achievement	Pupils with SLD and BD	Healthy pupils
1,0 – 1,7	32%,	47 %
1,8 – 2,5	41%,	33 %
2,6 – 3,3	22%	14 %
Over 3,4	5%	6 %

Among **favourite subjects** of pupils with SLD and BD there are physical education (27.5%), mathematics (10.7%), history (9.8%), crafts and science education (7%), IT and art education (6%). There is a distinct preference for physical education among healthy pupils too, though slightly lower in percentage (21%), then mathematics (11%), history and geography (9-10%), languages (10%), science education (7%); the distribution of interest among all subjects is more even. Among **unpopular subjects** pupils with SLD and BD rank (not surprisingly) Czech language (47%), then mathematics (19%), foreign language (16%). Healthy pupils dislike mainly mathematics (30%), Czech language (27%) and then evenly other subjects (chemistry, physical education, physics etc., 8-9%).

With regard to the main focus of our research where we examine also pupils´ interest in crafts and technology we aimed to find out how pupils evaluate **technology activities** conducted within the curriculum in basic school and which should arouse pupils´ interest in technology and crafts, i.e. branches with better prospects in the labour market. It was found that 22% of the addressed pupils with SLD and BD never encountered such subjects in the course of their school attendance (in healthy pupils it was even 24%) and if they did so, then pupils with SLD and BD evaluate the subject only slightly better than healthy pupils. 32% of pupils indicate the subject was excellent, 31% as mediocre and 15% as uninteresting. Only 7% of pupils with SLD and BD stated that subjects The world of work or Technology activities had direct influence on their choice (in healthy pupils it was merely 5%).

Choosing educational path

A relatively high number of pupils with SLD and BD apply for secondary schools with school-leaving examinations, although exact classification is rather difficult. At least 34% of pupils with SLD and BD apply for secondary schools with school-leaving examinations, from crafts there is greatest interest in the profession of a cook and waiter (14%) and professions dealing with machines (e.g. car mechanic 11%). 11% of pupils apply for schools with educational, social and medical focus (some of them with school-leaving examinations). Healthy pupils prefer comprehensive secondary schools more often.

Tab 2. The choice of branch

Branches	Pupils with SLD and BD	Healthy pupils
Secondary schools and general upper secondary school	34 %	47 %
Cook, waiter	14 %	11 %
Traditional crafts – blacksmith, plumber, joiner…	12 %	7 %
Social and medical care	11 %	12 %
Car mechanic and machines	11 %	7 %
Electronics and computers	10 %	8 %
others	8 %	8 %

Pupils with SLD and BD were asked what they know about their new school and their free responses were then categorised. A relatively high number of pupils admitted that they know quite little about the chosen school and referred to the experience of their friends or siblings (128 times), at the same time, however, many of them were able to name some school requirements and subjects taught there (68 times), approximately the same number of pupils listed advantages of the school (54 times - e.g. "*mathematics is not taught there*", "*you don´t have to take any entrance exams*", "*it isn´t far from home*" etc.), in 40 cases

pupils mentioned good professional or academic prospects after leaving the school, in 35 cases they pointed out the prestige of the school or its good equipment and pleasant environment (pupils were to name more than one point).

Both groups of pupils were asked if they were **looking forward to their secondary school studies** and no differences were found between the groups. The highest number of pupils in both groups state that they are "rather looking forward" to their new school. Regarding **worries** 64% of pupils with SLD and BD express concern about the subject matter, 30% about new environment and schoolmates, only rarely are the worries related to commuting or practice. Healthy pupils express worries less frequently: 57% about subject matter and 27% about schoolmates. Only 22% of pupils in both groups are really worried that they will not be accepted by the chosen school. In the open questions we asked the pupils "what they are looking forward to most". Pupils with SLD and BD most often stated practice (94 times), new friends (76%), new subjects – theory (68%), new advantages concerning greater independence or "leaving" their old school (35 times), specific skills they will acquire and the job prospects or the "new life" after leaving secondary school (34 times). Pupils wrote that they were looking forward to their secondary school only scarcely (17 times) (there was space to list more alternative answers). Healthy pupils are more frequently looking forward to new theoretical subjects in better equipped schools (61 times), favourable job prospects or further studies after leaving secondary school (32 times), as well as friends (35 times), practical subjects (32 times) and the change of environment (24 times).

Greater differences between our groups were found as regards looking for **alternative choice.** More than a half of pupils with SLD and BD (54%) state that there is not an alternative and they do not know for which school they would apply if they were not accepted, or they do not express so much interest in the other alternative. In healthy pupils 62% of the addressed pupils mention an alternative of the same value to them and 48% do not see any alternative. Differences were also found regarding the **timing of decision making**. Pupils with SLD and BD more often decide at the last moment, their decision apparently takes more time and they hesitate more; 20% of the addressed pupils state they chose the branch at the last moment, in healthy pupils only 10% of the addressed pupils postponed the decision till the last moment.

35% of the pupils with SLD and BD have been convinced about their choice for more than a year, in healthy pupils it is by 11% more. It is possible that healthy pupils decide more quickly and earlier. Nevertheless, the results of the research do not indicate the choice to be easier for healthy pupils. In both groups 35-36% of the pupils state that the choice was easy and only 12-13% found their choice very difficult. However, a few more healthy pupils confirm that their choice is **related to their interests** (65%), pupils with SLD and BD give similar answer only in 55%, but 40% say that their choice is related to the **experience of someone close to them** (in healthy pupils it is only in 30% of all cases). It seems that reference about the quality of school and experience with the potential future profession play a significant role. **Lack of finance** influences only 17-18% of pupils in both groups.

As expected, parents have greatest **influence on educational choices** of pupils; at the same time both groups of pupils state that the choice was primarily their wish. To a great extent the pupils apparently identify with the parents´ opinion. 61% of pupils with SLD and BD consider their choice mainly their own decision and only 9% write that they had only minimum say concerning this decision. The distribution is similar in healthy pupils; little influence is attributed to other circumstances (3%). Healthy pupils consider these other circumstances of influence chiefly commuting, finance etc., in pupils with SLD and BD it is most often namely their disability. The average influence is illustrated in table No.3 (1 – has no influence, 5 – strong influence).

Tab. 3 Who influences the choice?

	Pupils with SLD and BD	**Healthy pupils**
Mother	3,2	3,3
Father	2,8	2,8
Friends	2,5	2,4
Other experts (psychologist, special education teacher	2,0	1,9
Teachers	2,0	2,1
Siblings	1,6	1,5
Doctors	1,3	1,2

It seems that the rate of influence of individual subjects on the choice is perceived almost identically by both healthy pupils and pupils with SLD and BD. However, we can assume that the **influence of experts,** i.e. teachers or doctors will be higher in pupils with a risk. This influence is by both groups considered low, while 41% of pupils with SLD and BD claim they had consulted an expert; in the group of healthy pupils the choice was consulted with an expert only by 27% of pupils. Only 20% of pupils admit that their disability rather or significantly complicates the choice.

When inquiring the pupils about factors that would facilitate their choice we find out that some of their wishes can not be easily met, e.g. "*I would like to try the job... to know if I will like it... to do mock practice*", etc. Only 1% of the pupils would appreciate greater interest of their parents, 9% greater interest of teachers and school, 11% the possibility to consult the choice with other experts, 25% would appreciate experience and good reference of their peers, others claim that they do not expect any further support.

Concerning **the future** only a little group of pupils with SLD and BD (4%) are considering university studies, 21% are thinking about doing business and others see themselves as future employees. These pupils with SLD and BD might face problems in the labour market as they do not choose a craft (34% and more) but secondary schools with school-leaving exams. The risk seems to be higher in this group because 21% of healthy pupils plan that in the future they will study at university. It is obvious that such plans are only preliminary, nevertheless they indicate a risk of choice general secondary schools.

Conclusion

The greatest influence on professional aspirations of pupils in 9th year is exercised by their parents, particularly mothers. Nevertheless, majority of pupils consider the choice their own wish, i.e. they identify with their parents´ wish. Almost a quarter of basic school pupils have no experience with technology activities, if they do so, then they evaluate them mostly as excellent or mediocre, however, usually without direct influence on their choice.

Pupils with SLD and BD do not consider the choice of their education difficult more often than their healthy peers, nevertheless, they more often postpone their decision till the last moment and have difficulties when searching the alternative of the same value to their choice. Also, they more frequently consult experts (psychologists, school psychologists and special education teachers), but consider their influence on the choice low, similarly to healthy pupils. The pupils with SLD and BD choose crafts slightly more often than healthy pupils (their average achievement is worse, too), they are more strongly influenced by the family tradition and less by their own interests than healthy pupils. Besides, their self-confidence is lower regarding university studies. Therefore, the risk of unsuitable choice and unemployment can be higher. The results of the research raise questions related to the role of the school and experts and provoke the discussion on what influence is actually expected from them. To gain a greater insight into the whole range of influences and pupils´ needs in this area we are conducting qualitative investigations (case studies) too within our research, and we present them in other papers.

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TOWARDS THE ESTABLISHMENT OF A VIRTUAL OPEN UNIVERSITY IN SOUTH AFRICA AS THE PRIMARY LEARNING ENVIRONMENT FOR INDIGENT SCHOLARS

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ABSTRACT

The establishment of a fully virtual university in South Africa is a possible solution to the problem of financial exclusions which are common cause in institutions of higher learning. South Africa has the necessary structures, strategic, policy and legal framework for the establishment of such a university. Through the establishment of a virtual university South Africa will be able to discharge her constitutional obligation of promoting everyone's right to education within the available resources. Currently financial exclusion at the country's institutions of higher learning is comparable to a malignant tuma that aggravates the problem of illiteracy and brain drain. On average, about 25 percent of students leave higher education (HE) institutions annually in South Africa because they are excluded on academic and financial grounds. This has prompted a number of financial exclusions protests at almost every academic registration period in several of the country's institutions. Virtual open learning university (VOLU) can be one of the solutions to the wide ranging and dynamic problem of edu-financial exclusion and its consequent challenge of social exclusion.

1. INTRODUCTION

1.1 General Remarks

Ladies and gentleman, fellow learned friends, South Africa is one of the fast developing countries which has not been able to escape the harsh realities of illiteracy and challenges of access to education. A 2009 report by the South African Council of Higher Education and Training (CHET) about 2.8 million potential students between the age of 18-24 are neither studying, employed nor disabled. Out of this 2.8 million, roughly about 700 000 students **with** Grade 12 or matric are not studying, employed or disabled (CHET 2009). This education grim reality has permeated tertiary education in South Africa. According to the South African Human Sciences Research Council (HSRC), a statutory agency, conducts research on all aspects of human and social development, with particular relevance to public policy, South Africa's university graduation rate of 15% is one of the lowest in the world. (HSRC 2008). Several factors can be attributed to this slow graduation rate in South African universities including study financing and resultant exclusions – financial and academic exclusions. Financial exclusions occur when students have not settled their account during a study year and fail to enter into an agreement to settle that debt by a given date, thus compelling the academic institution to exclude them from registrations because it cannot raise funds to assist such students experiencing financial difficulties despite the fact that the students perform well academically. Academic exclusion occurs when a student fails to make satisfactory progress and cannot account for his/her lack of progress - either based on a credit criterion (not having passed 40% of courses), a major course criterion (not passing majors), a repeat-fail criterion (continuously failing courses), or on a period-rule criterion (not showing sufficient progress over a specified period).

Under the then Minister of Education, Mrs Naledi Pandor, the South African government has committed R3.6 billion (US$500 million) to universities to reverse a funding decline, reward institutions that produce more graduates, improve infrastructure and relieve financial pressure to raise fees. The ministry's efforts should be seen in

the broader context of the country's endeavour to combat exclusions in education through enhancing access and encouraging students to take advantage of all measure that can reduce the cost of education. Be that as it may, the Ministry has indicated that free tertiary education in South Africa is a pipe-dream, at least for now. The common understanding amongst educators, at those exposed and having access to information and communication technologies (ICTs), is that virtual learning environments (VLEs) can offer a range of benefits to educational institutions, including anywhere and anytime access to education, and general access to education facilities.(Becta 2004). ICT based education is a very powerful empowerment tool that societies need to take advantage of. (See generally Hafkin and Huyer, 2006:210. Many South African universities, if not all, have embraced the idea of VLE.

However, the idea of Virtual Open Learning University (VOLU) is yet to be fully embraced in South Africa. This assertion should not be confused with the University of South Africa (UNISA) as Africa's largest provider of open distance learning (ODL) environment which includes the use of technology. UNISA is often regarded as a destination for students who cannot afford to attend residential universities in South Africa for a variety of reasons including the fact that they are fully employed and that they can register courses according to their affordability (Qakisa-Makoe 2005:45). The truth is UNISA, being South Africa's premier distance education institution and one of the largest globally, is not cheaper than any other university. It too experiences a high number of financial exclusions and drop-outs.

At least we should consider something along the lines of the African Virtual University (AVU), established in 1997, with funding from the World Bank, as a means of using ICT to improve the quality of higher education, and to act as an alternative platform for access to education (See generally Laaser 2006:147). As a freestanding, self-financing, virtual education institution the AVU has transformed many lives and eased the challenges of access to education, albeit not exactly in the manner envisioned in this paper. AVU has become more of an ICT broker and advisor for participating institutions, assisting such partner institutions in upgrading their access to "Internet connectivity and in other technology improvements; building the capacity of partner universities to develop and deliver ICT-enhanced distance education programs; facilitating delivery of on-line accredited programs; developing a web-based portal for the African educational community to share information and find new distance learning products; and providing expanded digital library services" (Wolff 2002:24). AVU has participating universities from Franco-Phone Africa – Benin, Mauritania, Niger, and Senegal, and from Sub-Saharan African (SSA) - Ethiopia, Ghana, Kenya, Namibia, Tanzania, Uganda, and Zimbabwe. South African universities are yet to join AVU, but some South African universities have given a serious consideration to joining AVU. Official website of AVU records some commendable achievements. Laaser (2006:150) reports that AVU has had a considerable degree of success since its pilot phase in 1997, with professional in 17 African countries having received interactive educational instruction and more than 24,000 students have completed semester-long courses in technology, engineering, business and the sciences.

1.2 Research Methodology

This paper in effect deals with social facts that are quantitative and qualitative in nature; thus the research falls into both the qualitative paradigms of research. The research area, including theoretical perspectives and methodologies, is based primarily in the disciplines of education, social history, economics, but may include law. This research, with empirical and theoretical insights, aims to contribute and/or inform the South African agenda on combating the pressing problem of illiteracy and financial exclusion in education. In South Africa there are little scientific literature reports on the scarce evidence of efforts to establish VOLU to address the problem or challenge of financial academic exclusions. However, there is abundant evidence of exclusions across South African universities. The information relied on this paper comes from interviews with executive leaders like registrars and student registrations officers at South African universities; targeted leaders from student political organisations such as the South African Students Congress (SACO); and from newspapers and other reports relating to academic exclusions such as reports from the HRSC and the South African National Council for Higher Education (NCHE). Some of the information is based on my personal knowledge and experience of working as a registrations officer at the Tshwane University of Technology (TUT).

2. EDUCATIONAL EXCLUSIONS - GENERAL

South Africa has plenty institutions of higher learning – 23 universities to be exact and about 50 further education and training colleges (FET Colleges). Out of the 23 universities 11 the traditional universities, 6 are universities of technology (UOTs) and 6 are comprehensive universities. In 2007 there were about 757 000 students enrolled in public higher education institutions (HEIs), and approximately 378 000 students enrolled in public FET Colleges. About 30 000 students enrolled with private higher education providers (PHEPs). In light of the broad spectrum of institutions of higher learning in South Africa one would have thought that with South Africa having constitutionally guaranteed access to education and the eradication of social exclusions and disadvantages the issue of academic exclusions due to financial reasons will be the thing of the past. Of cause unfortunately not. Education exclusions due to financial reasons continue to exist in South Africa. In my view, these exclusions and disparities are relics of the past state designed and enforced societal inequalities. When one considers protests and conflict incidents at South African universities you will realise that majority of the students affected are the black and the historically disadvantaged. Surveys show that on average, 70% of the families of the higher education drop-outs were in the category "low economic status". Non-white families were particularly poor, with some parents and guardians earning less than R1 600 a month, and having to financially support their children's study fees from these meager amounts.

2.1 Fee Levels, and Financial Exclusions and Drop-outs

Fee levels are a huge problem for the majority indigent or poor student population in South Africa. This has resulted in a large number of students dropping out every year either because they have been excluded by universities for not paying outstanding fees or because of financial difficulties incurred by the costs of higher education. In order to address the problem of financial exclusions several measures have been introduced by the State and the private sector. The predominant measure is the National Student Financial Aid Scheme (NSFAS). NSFAS is a statutory body established in 1996 to ensure that poor students with academic ability can access higher education through the allocation of loans and bursaries to eligible students at both universities and further education and training colleges (FETCs). The existence of NSFAS does not adequately address the problem, and can contribute to the stifling of professional lives of graduates. NSFAS is reported to be owed about R10 billion in loans, prompting the taking of drastic measures such as credit listing.

The year 2010 was not an exception of finance related student protest. Asked about which institutions of higher learning experienced problems at the start of the academic year, and what types of problems did each specified institution of higher learning experience, the South African Minister of Higher Education (DHE), Dr Blade Nzimande stated that all the institutions had problems either of similar nature or unique to a particular institution. The minister specifically singled out the Universities that had protests, namely, TUT, Durban University of Technology (DUT), Mangosuthu University of Technology (MUT) and University of Zululand. According to the minister the common problems these institutions encountered included the upfront registration fee for students who qualify for NSFAS as well as those who do not qualify for financial aid, financial exclusions (and in some cases academic exclusion). (Parliamentary Monitoring Group, 2010).

3. Virtual Open Learning University as a Solution to Financial Exclusion

Reference to "Open" virtual learning university is to put more emphasis on the need to go beyond the setting up of an online environment or conditions for normal universities enabling students to view lessons, tests, assignments and resources online. This is in line with NCHE's formulation of "open learning" as "a flexible, learner-centered approach education, seeking to increase access to educational opportunities by removing all unnecessary barriers to learning including the use of the full spectrum of available resources to ensure quality and cost effectiveness in meeting the learners' diverse educational need (See de Beer and Bezuidenhout 2009:76). The proposition in this paper is that VOLU must be truly virtual with students predominantly exposed to virtual lecture rooms, and having 100% access to interactive live lecture sessions. It is this type of virtual learning that can address the plight of indigent learners in South Africa, and nothing else.

VOLU in South Africa can draw important lessons from similar functional efforts in Africa designed to best use ICT resources to reach those unable or unwilling to come to campus by offering them alternative access to education. VOLU will provide South African higher education landscape to deal more effectively with the plight of indigent

learners. The following are identifiable benefits for VOLU in South Africa, which go way beyond merely providing an alternative platform for education:

- *Institution of an overt outreach programme of education*: A broader community of students can be reached through VOLU by using any available virtual ICT resources such as screen projectors, televisions monitors, and computers;
- *Full modernisation of education landscape through ICT enabled environment*:
- *Flexibility and independent learning:* Learning anytime, and anyway from any available ICT resource 'giving learners freedom of access, pace, place and time" within the context of the principles of virtual learning (See de Beer and Bezuidenhout 2006: 74).
- *Easy access to up-to-date learning materials*: In South Africa, several of SSA countries, many rural communities have little or no access to current literature. Moreover, generally the majority of the traditional print libraries have deteriorated. (Wolff 220:23). VOLU will provide learners with a full access digital library as a gateway to sort-after literature;
- *Improvement of the quality of teaching*: The quality of tertiary teaching in South Africa is best and in some instances excellent. More excellency in tuition can be achieved through VOLU.

4. RIPE ICT ENVIRONMNET FOR VOLU

Any successful VOLU establishment will require an appropriate ICT environment, and the e-learning capacity of learners or communities. There should be policy and institutional infrastructure to support VOLU establishment. Perhaps we should from the onset indicate that the level of commitment to e-service delivery in South Africa ranks very high amongst the nations of the world. This commitment provides legitimacy for calls for VOLU-based learning approaches as a means to addressing financial exclusions in the South African education sector.

4.1 Television as a study tool

Almost every household in South Africa has a television, and some televisions are partly interactive, used largely for entertainment and for general information purposes. For households without computers the television can become handy. Currently there is a television programme running in South Africa offering primarily science subjects such as biology, physical science and mathematics to matriculants. The idea behind the provision of such programme through television monitors arguers well for VOLU, and has made the learning in this subject areas very practical and interesting for learners.

In Africa access to internet is concentrated mostly in major cities to some exclusion or sidelining of about 70% of rural communities (Laaser 2006: 148; Pitout 2009:73). Similarly, in South Africa the majority of rural communities have no easy access to ICT facilities such as computers. ITC exclusion is evident at tertiary institutions where internet access of white and European students is better than that of Black counterparts particularly those from rural areas and poor communities, so is the ownership of instruments such as laptops by these different groups of learners.(See generally Sibanda 2009). However, the majority of these communities have access to television monitors.

4.2 ICT-based school background

New Partnership for Africa's Development (NEPAD) calls for the intensification of ICT usage as a medium of education or at least a tool enabling effective education. The NEPAD e-Africa commission, a multi-stakeholder, embarks on continental initiative to develop ICT infrastructure to "teach ICT skills to young Africans in primary and

secondary schools and improve the provision of education in schools through ICT applications and the use of the internet also a key target of the Second Decade of Education for Africa 2006-2015.

One of the provinces in South Africa, the Gauteng Department of Education, with its education administration seat in Johannesburg (Gauteng Province), has developed a programmed called Gauteng-Online (GoL), whose aim is to provide ICT infrastructure and training to all learners in Gauteng public schools through the provision of mobile computer-laboratories (I-Labs). This initiative has empowered learners and encouraged them to use ICT as a major educational tool. The main goals of GoL is to provide every learner in public schools with an e-mail address; provide every learner in public schools with free internet access; implement a technology enabled learning environment; provide fit-for purpose ICT capability; and to address the digital divide. This has reversed dramatically the situation that prevailed in 2001 when more than 705 of schools in South Africa did not have even one computer or Internet (Pitout 2005:73).

4.3 e-Governments Policy and Infrastructure

In his works on e-governance in South Africa, Professor Sibanda of the University of South Africa paints promising and satisfactory developments in e-governance and ICT in South Africa, which can be argued that it provides a proper foundation for VOLU. The following are noteworthy:

- The country has several running ICT centers for access to the general public and mobile internet units. The mobile Internet units are distributed to communities, and there are few community ICT centers, multi-purpose community centers (MPCC) set up to support special needs and requirements of a particular society. About 355 MPCCs have set up for rural communities (Sibanda 2009:574). If VOLU was to be established, these centers, on which the importance is placed as "vehicle for development for disadvantaged groups in South Africa (Pitout 2005:79) may be further developed and improved to serve as access points for indigent learners.
- South Africa promotes a viable ICT access to its inhabitants through initiatives such as the Universal Access Funds (UAFs). UAFs, or smart subsidies, are incentives to ICT operators to distribute telecommunications access into pooper communities. The South African UAFs are similar to comparable programmes operated in other countries like the United States, which encourages ICT carriers to give discounts to the low income communities and thereafter reimbursing them for such discounts (Sibanda 2009: 576 – 577).

4. CONCLUSION

In this paper it is argued that South Africa's reevaluation of her pedagogical landscape should entail the establishment of a fully interactive virtual open university, to amongst others; redress the plight of indigent learners who are excluded from getting proper and descent education because of their financial situations. It would be rather untruthful to blame financial exclusions at South African tertiary institution solely on the lack of finance. Students themselves are to blame as they often choose high cost institutions such as universities instead of low cost institutions such as further education and training colleges (FET colleges). Be that VOLU can help address many of the challenges experienced by indigent learners in particular the problem of financial exclusion. AVU has shown that tertiary education can be made more accessible with recourse to ICT applications. VOLU can go a step further by providing a fully interactive online education through home television monitors, projectors and computers. NCHE is continuously looking for alternative approaches to making education in South Africa more accessible. VOLU is the answer. Thank you.

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TÜRK VE ÖRNEK AB ÜLKELERİ EĞİTİM SİSTEMLERİNİN BAZI FAKTÖRLER AÇISINDAN KARŞILAŞTIRILMASI

COMPARASION OF THE TURKISH AND SAMPLE EU COUNTRIES EDUCATIONAL SYSTEMS IN TERMS OF SOME FACTORS

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ÖZET

Bu çalışmanın amacı, Türkiye ve örnek AB ülkeleri eğitim sistemlerini etkileyen faktörleri; eğitim kurumlarının birimlere olan uzaklıkları, nüfus artışı ve dağılım oranları, politik, ekonomik ve dil faktörleri açısından karşılaştırmaktır. Bu araştırmada karşılaştırmalı eğitim çalışmalarında sıklıkla kullanılan tarama modeli ve ortaya koyma, tanılayıcı, açıklayıcı teknikler kullanılarak yatay yaklaşım benimsenmiştir. Çünkü eğitim sistemlerindeki çeşitli boyutlar o döneme ait değişkenlerle birlikte yan yana getirilerek farklılıklar saptanmaya çalışılmıştır. Avrupa'da eğitim sistemiyle öne çıkmış olan Almanya, İngiltere, Portekiz, Fransa ve Avusturya'nın eğitim sistemleri ve Türk eğitim sistemi belirlenen faktörler açısından karşılaştırılmıştır. Çalışma kapsamında; ülke ve dünya literatüründe çeşitli kaynaklardan ulaşılan makale, tez, bildiri ve raporlar incelenmiş, çalışmanın içeriğine ilişkin noktalar dikkate alınarak geniş çaplı bir doküman oluşturulmuştur. Sonuçların analizi farklı ülkelerin eğitim sistemlerinde mesleki eğitimin yapısı, okul öncesi eğitim süresi, orta öğretimdeki yönelimler ve eğitim yönetim sistemleri açısından farklılık gösterirken, yüksek öğretime olan talep, özel eğitimin yapısı, eğitim kalitesi ve eğitmen ihtiyacı problemleri benzerlik göstermektedir.

Anahtar kelimeler: Türk Eğitim Sistemi, Karşılaştırmalı Eğitim, AB Ülkeleri Eğitim Sistemleri, Eğitim Reformları

ABSTRACT

The purpose of this study was to compare the factors which effect education systems; distance from educational corporations and dwelling units, population increase and distribution rations, politic, economic and language factors, among sample of EU countries and Turkey. Bu araştırmada karşılaştırmalı eğitim çalışmalarında sıklıkla kullanılan tarama modeli ve ortaya koyma, tanılayıcı, açıklayıcı teknikler kullanılarak yatay yaklaşım benimsenmiştir. The methods were used document observation, descriptive, definition, and demonstrative techniques in this study which often uses in comparative education. Juxtaposition comparison was used because purpose of this study was to compare the factors with in the same time variables. Germany, England, Portugal, France and Austria, which are samples in educational systems in Europe, were compared with Turkey based on defined factors. Content scope of this research; theses, articles, oral presentation and reports from the various references in the literature of the country and the world were examined, and taking into consideration of points for the content of the study an extensive document is constructed. The results showed that there were some differences for contents of vocational education, periods of preschool education, secondary education tendency and education directory systems in the educational systems of countries while there were some similarities for demands to higher education, content of special education, quality of educational systems and teacher necessity.

Key Words: Turkish Educational System, Comparative Education, EU Countries Educational Systems, Educational Reformations

1. GİRİŞ

Eğitim, toplumda değişmelerden sorumlu olması nedeniyle değişime diğer sistemlerden önce uyum sağlamak durumundadır(Ereş, 2005). Bu nedenle gelişim sürecine doğrudan ve devamlı katkısı olan eğitim sistemlerini ele alarak geliştirmeye çalışan ülkeler, diğer ülkelerle sistemlerini karşılaştırarak eksik

ve yetersiz yönlerini irdelemişlerdir. Yaşanan gelişmelerin eğitim sistemi üzerinde de etkili olmasıyla birlikte sistemin daha iyi işlemesine yönelik çalışmalar sürdürülmekte, araştırmalar yapılmakta ve toplumlar eğitim sistemlerini iyileştirmeye dönük süreçleri yaşamaktadırlar (Ünal ve Çolak, 2005).

Eğitimden maksimum düzeyde yararlanabilmek için çeşitli eğitim sistemlerinden ve içeriklerden yararlanılmaktadırlar. Eğitimde hep mükemmelliğe ulaşmaya çalışılmaktadır. Eğitim faaliyetleri statik değil dinamik bir yapıya sahip olduğundan devamlı gelişme ve değişim ihtiyacı vardır. Demirel (2000)' e göre karşılaştırmalı eğitimin amacı, eğitim sistemlerinin sorunlarına ve etkilerine dair geçerli bilgiler elde etmek, eğitimde etkili olan faktörlerin çeşitli ülkelerdeki gelişimini inceleyerek, eğitim politikasının belirlenmesine yardımcı olabilecek görüşler kazandırabilmektir.

Ülkemiz bir yandan bilimsel, teknolojik gelişimlerin toplumumuza etkileri ve ekonomik süreçlerin baskısı, bir yandan da küreselleşme, dünya dengeleri ve Avrupa Birliği faktörü gibi etkenlerle eğitim sistemimizi yapılandırmaktadır. Türkiye, AB ölçütlerine uygun temel becerilere sahip, sosyal sorumlulukları kazanmış, bunun yanında AB ile ortak ekonomik uygulamalara gerekli olan insan gücü kaynağının da sağlanması adına çalışmalar yapmaktadır.(Sağlam ve diğerleri,2006).

Bu bakımdan bu çalışmanın amacı bazı AB ülkeleri ve Türk eğitim sistemleri arasındaki benzerlikleri ve farklılıkları ortaya koymak ve bu amaca yönelik teorik ve pratik olarak katkı sağlayabilecek bazı önerilerde bulunmaktır.

2. YÖNTEM

2.1 Araştırma Modeli ve Teknikleri

Araştırmada, veriler istatistiksel olarak sunup, karşılaştırmalı olarak değerlendirme yapıldığı için tarama modelindedir. Teknik olarak karşılaştırmalı eğitim çalışmalarında kullanılan ortaya koyma, tanılayıcı ve açıklayıcı teknikler benimsenip yatay yaklaşım ön plandadır. Çünkü eğitim sistemlerindeki çeşitli boyutlar o döneme ait değişkenlerle birlikte yan yana getirilerek farklılıklar saptanmaya çalışılmıştır.

2.2. Evren Örneklem

Araştırma evrenini, 25 AB ülkesi oluşturmakta olup, araştırmada örneklem 5 AB üyesi ülke ile sınırlandırılmıştır. Avrupa'da eğitim sistemiyle öne çıkmış olan Almanya, İngiltere, Portekiz, Fransa ve Avusturya örneklemi oluşturmaktadır.

2.3. Verilerin Toplanması ve Çözümlenmesi

Araştırmada verileri; 2009 TÜİK Raporu, 2005-2009 (EURYDICE) Avrupa Komisyonu Raporu, 2004 OECD Raporu, 2005 DİE verileri, 2009-2010 Milli Eğitim İstatistikleri ve 2005 (The World Bank 2005) Dünya Bankası Raporu kullanılarak elde edilmiştir. Bazı eğitim istatistiklerinin geçmiş yıllardaki verileri de derlenerek ele alınmıştır.

Çalışma kapsamında; ülke ve dünya literatüründe çeşitli kaynaklardan ulaşılan makale, tez ve bildiriler (Ereş, 2005; Turan, 2005, Şahin ve Çağlar Özteke, 2003, Çalışkan Maya,2006; Karacaoğlu ve Çabuk, 2002) incelenmiş ve çalışmanın içeriğine ilişkin veriler elde edilmiştir. Elde edilen veriler istatistiksel olarak karşılaştırılmış ve ülkemiz ile AB ülkelerinin eğitim sistemlerini etkileyen faktörler belirlenmeye çalışılmıştır.

3. BULGULAR

Eğitim sistemlerini etkileyen bazı faktörler bulunmaktadır. Karşılaştırmalı eğitim alanında yapılan araştırmalarda AB ülkeleri ve ülkemizdeki eğitim sistemlerini incelerken, gerek ülkelerin durumu gerekse sistemlerin yapısı açısından ele alınması uygun olan faktörler; eğitim kurumlarının birimlere olan uzaklıkları, nüfus, politik, ekonomik ve dil faktörleri olarak sınırlandırılabilir (Karacaoğlu ve Çabuk, 2002; Turan 2005; Türkoğlu, 2005; Onaran, 2005; Küçükali, 2007; Yıldırım, 2010). Bu faktörleri sırasıyla ele alırsak;

3.1. Eğitim kurumlarının en küçük yerleşim birimlerine olan uzaklıkları ile ilgili bulgular:

Eğitim kurumlarının en küçük yerleşim birimlerine olan uzaklıkları ve kurumların yayılış şekilleri eğitim sistemini doğrudan etkileyen önemli bir faktördür (Turan,2005). Bu etki, okul öncesi eğitim, ilköğretim ve ortaöğretimi de görülebilir (Toprak, 2001). Bu etkiyi belirlemek amacıyla ülkemiz

genelinde 2000 veya daha küçük nüfuslu yerleşim birimlerinde yaşayanların genel nüfusa oranın eğitim sistemimizde; zorunlu eğitim süresi, okul öncesi eğitim, ilköğretim, ortaöğretimdeki ve okullaşma oranları arasındaki ilişkiye bakılmıştır. Bu konuda 1980 ve sonrası veriler göz önünde bulundurulmuştur.

Tablo 1: Ülke Genelinde 2000 veya Daha Küçük Nüfuslu Yerleşim Birimlerinde Yaşayan Oranın Sisteme Etkisi (Yükseköğretim verilerine açık öğretim rakamları dahil değildir.)

Yıl	2000 den küçük nüfuslu birimlerde yaşayan nüfus (%)	Zorunlu Eğitim Süresi (Yıl)	Okul Öncesi Eğitimde Okullaşma (%)	İlköğretimde Okullaşma Oranı (%)	Orta Öğretimde Okullaşma Oranı (%)	Yüksek Öğretimde Okullaşma Oranı (%)
1980	56,1	5	3,0*	87,3**	42	3,2
1990	41,4	5	4,6	90,1	46,4	6,4
2000	35,2	8	10,3	95,28	48,95	12,27
2005	28,3	8	21,3	92,58	56, 63	18,85
2010	23,6	8	28,5	98,1	58.52	27,69***

Kaynak: DİE, 2005; TÜİK,2009; Milli Eğitim İstatistikleri, 2009-2010 ; *1982-1983 Eğitim ve Öğretim yılına ait veridir.
**İlkokulda okullaşma oranı olarak belirtilmiştir.; ***2008-2009 Eğitim ve Öğretim yılına ait veridir.

Tablo 1'deki verilere göre; ülkemizde, 2000 veya daha küçük yerleşim birimlerinde yaşayanların oranları 1980'lerden günümüze kadar istikrarlı bir düşüş göstermektedir. Aynı zamanda zorunlu eğitimin 2000'li yıllardan itibaren sekiz yıla çıktığı görülmektedir. Bu süreçte; okul öncesi eğitim, ilköğretim, ortaöğretim ve yükseköğretimde oranları yıllara göre artmakta ve nüfusu 2000 den küçük birimlerde yaşayanların oranlarındaki düşüş ile de paralellik göstermektedir.

Türkiye ve AB ülkelerinin bu faktörden nasıl etkilendiğini belirlemek amacıyla; ülkelerde yaşayan halkın 2000 veya daha küçük nüfuslu birimlerde yaşama oranları bakılmıştır ve bu oranın Türkiye ve AB ülkeleri eğitim sistemine nasıl etkilediği zorunlu eğitim süresi, okul öncesi eğitim, ilköğretim, ortaöğretimdeki ve okullaşma oranları arasındaki ilişkiye bakılarak tespit edilmeye çalışılmıştır.

Tablo 2: Ülke Genelinde 2000 veya Daha Küçük Nüfuslu Yerleşim Birimlerinde Yaşayan Oranın Sisteme Etkisi

Ülke	2000 den küçük nüfuslu birimlerde yaşayan nüfus (%)	Zorunlu Eğitim Süresi(Yıl)	Okul Öncesi Eğitimde Okullaşma(%)	İlköğretimde Okullaşma Oranı(%)	Orta Öğretimde Okullaşma Oranı (%)	Yükseköğretimde Okullaşma Oranı (%)
Türkiye	23,6	8	28,5	98,1	58.52	27,69*
Almanya	9,4	12	89,8	99,7	88,6	47,8
İngiltere	11,2	11	94,3	100	92,9	64,6
Portekiz	36	9	91,3	100	87,2	39,87**
Fransa	12	10	100	100	95,2	73,2
Avusturya	----	9	72,3	99.1	93,4	48,4

Kaynak: Milli Eğitim İstatistikleri, 2009-2010; EURYDICE,2005; The World Bank, 2005; Midgley,Ward and Atterton,2005; Gedikoğlu, 2005; Çalışkan Maya,2006. Sağlam,1993.; *2008-2009 Eğitim ve Öğretim yılına ait veridir ; **1998 yılına ait verilerdir.

Tablo 2 deki verilere göre; Türkiye ve AB ülkelerinde nüfusu 2000 den küçük birimlerde yaşayan nüfusun oranı ülkeler arasında değişkenlik göstermektedir. Zorunlu eğitim süresinde, okul öncesi eğitimde, orta öğretimde ve yükseköğretimde okullaşmada Türkiye AB ülkelerine göre en düşük rakamlara sahipken; ilköğretimde okullaşma oranında AB ülkeleri seviyesinde olduğu görülmektedir. Zorunlu eğitim süresi, okulöncesi ve ortaöğretimde okullaşma; 2000 den küçük nüfuslu birimlerde yaşayan oranla paralellik gösterirken, ilköğretimde okullaşma bu faktörden bağımsız olarak değişkenlik gösterdiği görülmektedir. Portekiz ve Türkiye'nin 2000 den küçük nüfuslu birimlerde yaşayan nüfus oranıyla yüksek öğretimde okullaşma oranları arasında bir paralellik olduğu da tablodan elde edilen bir bulgudur.

3.2. Nüfus Faktörü İle İlgili Bulgular

Eğitim sistemini etkileyen diğer bir faktörde nüfustur. Bu faktörün içinde nüfus yoğunluğu, nüfus dağılımı ve kentsel nüfus oranı gibi içerikler yer alır (Küçükali,2007). Ülkemizde 2007 adrese dayalı nüfus sayım sonuçlarına göre; nüfusun %26,4'ünü 0-14 yaş grubu çocuklar oluşturmaktadır. 6-21 arası yaş grubu nüfusun %29,1'ini oluşturmaktadır (EURYDICE, 2008). Bu ülkemizin genç bir nüfus yoğunluğuna sahip olduğunu gösterir. Bu oran eğitim kurumu, eğitmen ve eğitim sisteminin kalitesini etkilemektedir (EURYDICE, 2008,s.45; Sağlam, 1999).

Nüfusun eğitim sistemine etkisini belirlemek amacıyla; ülkemizde yıllara göre nüfus verilerinin okuryazarlık oranına, genel ve meslek liselerinin oranına ve yüksek öğretimde okullaşmaya etkisine bakılmıştır.

Tablo 3: Ülkemizde Nüfus Faktörünün (Nüfus artış oranı, genç nüfus oranı, kırsal nüfus oranı) Okuryazarlık Oranına, Genel ve Mesleki Ortaöğretime Yönelim ve Yüksek Öğretimde Okullaşmaya Etkisi

Yıl	Nüfus Artış Oranı (%)	Genç Nüfus Oranı* (Yıl)	Kırsal Nüfus Oranı*** (%)	Okur Yazarlık Oranı (%)		Ortaöğretimde Okullaşma Oranları (%)		Yüksek Öğretimde Okullaşma Oranı (%)
				E	K	Genel Liseler	Mesleki Liseler	
1980	2,6	62,2	50,4	80,21	65,33	50,3	49,4	3,2
1990	2,1	60,3	43,7	88,19	78,02	58,5	43,7	6,4
2000	1,8	59,6	32,4	94,14	81,36	63,8	36,4	12,27
2005	1,2	59,1	31,3	96,2	88,3	66,8	31,4	18,85
2010	1,4	56,4	30,3	96,9	89,4	68,2	33,1	27,69**

Kaynak: TÜİK, 2009; EURYDICE,2008; Milli Eğitim İstatistikleri, 2009-2010; Gediklioğlu,2005 ; *Genç Nüfus oranı 28 yaş altı değerleri kapsamaktadır;**2008-2009 Eğitim ve Öğretim yılına ait veridir ;***Kırsal nüfus: Nüfusu 10.000 altı yerleşim birimlerindeki oran

Tablo 3'deki verilere göre; nüfus artış oranında, genç nüfus oranında ve kırsal nüfus oranında 1980'li yıllardan günümüze istikrarlı bir azalma olduğu görülmektedir. Bununla birlikte; erkek ve kadınlarda okuryazarlık oranında ve yüksek öğretimde okullaşma da düzenli bir artış söz konusudur. Verilere göre yüksek öğretimde okullaşmanın artmasına rağmen, bu faktörü etkileyen ortaöğretimde yönelim ise meslek liseleri yönünden genel liselere doğru kaymaktadır. Meslek liselerine talepteki bu azalma kırsal nüfus oranının azalması ile de paralellik göstermektedir.

Tablo 4: Türkiye ve AB Ülkelerinde; Nüfus Faktörünün Okuryazarlık, Ortaöğretimde Genel ve Mesleki Eğitime Yönelim ve Yükseköğretimde Okullaşmaya Etkisi

Ülke	Nüfus Artış Oranı (%)	Genç Nüfus Oranı* (Yıl)	Kırsal Nüfus Oranı (%)	Okur Yazarlık Oranı (%)	Genel Liselere Yönelim (%)	Mesleki Liselere Yönelim (%)	Yüksek Öğretimde Okullaşma Oranı (%)
Türkiye	1,4	58,4	30,3	94,01	60,6	39,4	27,69*
Almanya	-0,2	32,5	25,4	98,5	37,0	63,6	47,8
İngiltere	0,1	48,1	36,2	99,2	100	---	64,6
Portekiz	-0,1	38,1	42,1	88,4	71,2	28,8	39,87**
Fransa	0,2	42,5	23,2	99,3	43,7	56,3	73,2
Avustrya	-0,1	53,2	35,4	98,1	21,2	72,3	48,4

Kaynak: Milli Eğitim İstatistikleri,2009-2010; EURYDICE,2008; The World Bank,2005; Gediklioğlu,2005 ; * 2008-2009 Eğitim ve Öğretim yılına ait veridir; **1998 yılına ait verilerdir.; *** Genç Nüfus oranı 28 yaş altı değerleri kapsamaktadır.

Tablo 4'e göre; nüfus artış oranı ve genç nüfus oranı Türkiye ve AB ülkeleri açısından kısmen paralellik gösterirken bu oranlarda ülkemiz 1,4 ve 58,4 ile ilk sıradadır. Okuryazarlık oranı nüfus faktörüne göre herhangi bir paralellik göstermezken, Portekiz'de kırsal nüfus oranının okuryazarlıkla paralellik gösterdiği görülmektedir. AB ülkelerinde sadece Portekiz ve Avusturya'da diğer ülkelere göre kırsal nüfus oranı ve meslek liselerine yönelim paralellik gösterirken, Almanya'da tersi bir durum söz konusudur. Yüksek öğretimde okullaşma ise; nüfus faktöründen bağımsız olarak değişkenlik göstermektedir.

3.3. Ekonomik Faktöre Ait Bulgular

Ekonomik faktörde eğitim sistemini etkilemektedir(Türkoğlu,2005;AB Müktesetına Uyum Komisyonu, 2006). Bu faktörün sisteme etkisini ve ülkemiz ile diğer AB ülkeleri arasındaki durumu belirlemek amacıyla; eğitim faktöründe özel ve kamu tarafında finanse edilen eğitim ile GSYİH içinde eğitimin aldığı orana bakılarak; ortalama eğitim süresi ve yükseköğretimde okullaşma oranları analiz edilmiştir. Öncelikle ülkemizdeki durumu belirlemek için Türkiye'de özel sektörün payının ilköğretim, ortaöğretim ve yükseköğretimdeki oranlarına bakılmıştır.

Tablo 5: Türkiye'de İlköğretim, Ortaöğretim ve Yükseköğretimde Özel Sektörün Öğrenci ve Kurum Boyutlarında Payı

	Özel Sektörün payı* (%)		
	İlköğretim	Ortaöğretim	Yükseköğretim
Öğrenci	1,5	1,89	2,75
Kurum	3,82	5,75	13,36

Kaynak: Milli Eğitim İstatistikleri,2002-2003 ; * 2002-2003 verileridir

Tablo 5'e göre, ülkemizde ilköğretim ve ortaöğretimdeki özel sektörün payının yükseköğretime göre düşük olduğu görülmektedir. AB ülkelerindeki durumu görmek için; eğitim harcamalarının GSYİH içindeki payına, özel sektörün eğitimdeki payına, nüfusun ortalama eğitim süresine ve yükseköğretimdeki okullaşmaya bakılmıştır.

Tablo 6: Türkiye ve Örnek AB ülkelerindeki Eğitim Harcamalarının Gayri Safi Yurtiçi Hâsılat İçindeki Oranları, Özel Sektörün payı ve Bu Oranların Ortalama Eğitim Süresine, Zorunlu Eğitim Süresine ve Yükseköğretimde Okullaşmaya Etkisi

Ülke	Eğitim Harcamaları (GSYİH İçinde) (%)			Özel Sektörün Eğitimdeki Payı(öğrenci)*** (%)	Nüfusun Ortalama Eğitim Süresi (yıl)	Zorunlu Eğitim Süresi (Yıl)	Yüksek Öğretimde Okullaşma Oranı (%)
	İlköğretim ve Ortaöğretim	Yüksek Öğretim	Toplam				
Türkiye	2,5	1,2	3,7	1,9	9,6	8	27,69*
Almanya	3,0	3	5,3	6	13,4	12	47,8
İngiltere	3,4	3,4	5,2	----	12,7	11	64,6
Portekiz	4,3	4,3	5,9	18	8	9	39,87**
Fransa	4	4	5,7	13,5	10,9	10	73,2
Avusturya	3,8	3,8	5,8	11	11,3	9	48,4

Kaynak: EURYDICE,2008; OECD, 2004; TÜİK, 2009; DİE, 2005, Ereş,2005.s.324
*2008-2009 Eğitim ve Öğretim yılına ait veridir
**2000 yılına ait verilerdir.
***2002-2003 Eurydice verileridir.

Tablo 6' da verilen değerlere göre Türkiye ve AB ülkelerinin eğitim harcamalarına ayırdıkları pay göz önüne alınırsa; ilköğretim, ortaöğretim ve yükseköğretimde en düşük rakamların Türkiye'de olduğu görülmektedir. Özel sektörün eğitime katkısı verilerinde en büyük değeri %18 ile Portekiz sahiptir. Nüfusun ortalama eğitim süresi ve zorunlu eğitimin süresi; eğitim harcamalarının payı ve özel sektörün eğitime katkısından kısmen etkilenmiştir. Özel sektörün eğitime katkısının ve eğitime ayrılan pay oranının yükseköğretimde okullaşma etkisine de bakılmış ve yükseköğretim kademesindeki okullaşma oranı ekonomik oranların artışıyla paralellik göstermiştir.

3.4. Politik Faktöre İlişkin Bulgular

Eğitim sistemi politik faktörlerden de etkilenmektedir. Her ülke yönetildiği siyasi rejimin gereksinimlerine uygun bir eğitim sistemi geliştirir ve uygular (Türkoğlu, 2005,s.10). AB'ye üye ve aday ülkeler eğitim politikaları konusunda kendi sistem ve organizasyonundan sorumludur. Temel amaç ise üyelerin başarı ve deneyimlerinden faydalanmaktır. Farklı eğitim sistemlerinden yararlanmak, ulusal, bölgesel ve yerel eğitimcilerin birbirleriyle iletişimini ve işbirliğini özendirmek birliğin temel amaçları arasındadır (Gülcan, 2005,32).

AB ülkelerinin, Türk eğitim sistemiyle karşılaştırılmasında; AB ülkelerinin mesleki eğitime daha fazla değer verdiği görülmektedir. Ülkemizde ise politik faktörler bunun tersi bir duruma sistemi yönlendirmiştir. AB ülkelerinin, uluslar arası başarıya odaklanmış yapılar geliştirdikleri, merkeziyetçi yapıdan ziyade yerel yönetim odaklı eğitim sistemlerinin amaçlandığı, özel sektörün eğitime teşvik edilmesi gibi farklılıklar görülmektedir (Demirel,2005, s.71; Turan,2005; Arı, 2005). Bunun yanında; yüksek öğretimde okullaşmayı arttırma ve eğitmen kalitesini arttırarak AB ülkeleriyle ortak kaliteyi hedefleme gibi ortak eğitim politikaları görülmektedir (Gülcan, 2005,s.3).

3.5. Dil Faktörüne İlişkin Bulgular

Dil sorunu da eğitimi etkileyen diğer bir faktördür. Ülkemizde resmi dil Türkçe olmakla birlikte bazı ortaöğretim ve yükseköğretim kurumları yabancı dilde eğitim yapmaktadır. Avusturya'da Almanya 'da göçmen oranının ortalama % 9,2 olması nedeniyle içinde bulundukları dili öğrenemeyen yabancılar için eğitim bir sorun haline gelmiştir. Fransa'da öğretim dili Fransızca'dır. Bölgesel dillerde eğitim ise modern diller çalışma dalının bir parçası olarak verilmektedir. AB ülkelerinde genellikle halkın kullandığı dillerde eğitim yapmaktadırlar ve fazla oranlarda olmayan yabancı öğrenciler için özel sektör okul açabilir (EURYDICE, 2008).

4. TARTIŞMA VE YORUM

Türkiye'ye AB 'ye uyum sürecinde eğitim sisteminin iyileştirilmesi ve bu amaca yönelik yaptırımlar büyük rol oynamaktadır. Sistemi etkileyen faktörler ve bunların etki boyutlarının belirlenmesi ülkemizin

AB üyelik sürecinde ve en önemlisi eğitim kalitesinin artırılması yolunda büyük rol oynayacaktır. Türkiye zorunlu eğitimin süresinin yanında hem okuma yazma oranı hem de okullaşma oranları bazında AB ülkelerine göre çok düşük rakamlara sahiptir. Bunun altında yatan faktörlerden birinin eğitim kurumlarının en küçük yerleşim birimlerine olan uzaklığı olduğu görülmektedir. Bulgulara göre ilköğretimdeki okullaşma oranları bu faktörden etkilenmemiştir. Çünkü ülkemizde küçük yerleşim birimlerinin merkezlere olan uzaklıkları, bu yerlerde ilköğretimin 3 ya da 5 yıllık sürelerini kapsayan kurumların bulunmasına, devamının ise merkezi birimlerde tamamlanmasına ve taşımalı eğitimi gündeme getirmiştir. Zorunlu eğitim, ortaöğretimde ve yükseköğretimdeki okullaşma oranında ise ülkemizde etkili olurken diğer AB ülkelerinde etkili olduğu söylenemez. Toprak (2001)'de eğitimin hizmetinin ülkenin her yerleşim birimine ulaştırılamamasının okullaşmayı etkilediğini belirtmiştir.

Ülkemizin diğer AB ülkelerine oranla en çok farklılık gösterdiği faktör nüfustur. Ülkemiz diğer ülkelere göre daha çok genç bir nüfus oranına sahip ve nüfus artış hızı yüksek olan bir ülkedir. Ülkemizde kırsal nüfus oranının azalması okuma yazma oranını arttırmıştır. Fakat mesleki eğitime olan talebi de azalttığı görülmektedir. AB ülkelerinde ise Almanya haricinde durum aynıdır. Yükseköğretimde okullaşma nüfus faktörünü ülkemizde etkilerken diğer ülkelerde aynı durum söz konusu değildir.

Özel sektörün eğitime katkısı ve eğitime GSYİH İçinden ayrılan pay oranlarında da ülkemiz AB ülkelerinden daha düşük rakamlara sahiptir. Türkiye'de özel sektörün en fazla etkili olduğu kademe yükseköğretimdir. Bunun bazı ticari amaçlardan kaynaklandığı söylenebilir. Ekonomik faktör; okullaşma ve zorunlu eğitim süresini ülkemizde ve AB ülkelerinde sistemi etkilemiştir. Fakat Türkiye son zamanlarda en çok yükseköğretim kademesinde okullaşma düzeyinde özel sektörün katkısından yararlanmıştır. Ereş (2005)' in ekonomik faktörün ülkemizde zorunlu eğitim süresi ve okullaşma oranını olumsuz etkilediği ve artan nüfusun kişi başına düşen harcamayı azalttığı yönündeki görüşü de durumu destekler niteliktedir. Bazı AB ülkelerinde aile destekleri etkilidir. Avusturya da eğitim imkânları aileye yapılan yüksek yardımlarla kolaylaşmaktadır (Sağlam,1999).

Politik faktörlerden sistemimizin AB ülkelerinden daha fazla etkilendiği söylenebilir. Ülkemizde ortaöğretimde mesleki eğitime az talebin olması politik nedenlerdendir. Endüstrileşmenin hedeflendiği bir ülkenin mesleki eğitime önem vermesi gerekir(Ültanır,2005,s.140).Üstün (2004)' e göre, ülkemizde mesleki eğitim oranının azalmasının eğitim sistemimizdeki rehberlik boyutunun sonucu olduğu da söylenebilir. AB sürecinde Türkiye'de yükseköğretime önem verildiği görülmektedir. Bu durum AB ülkelerinde de paralellik göstermektedir. Dil faktörü ülkemizde sistemi etkilememiştir. Çünkü ülkemizde yabancı oranının düşük olması sisteme avantaj sağlamıştır. AB ülkelerinde ise özellikle Almanya'da nüfusun yaklaşık olarak %9,2 sini yabancıların oluşturması nedeniyle, bu ülkenin dilini öğrenememe gibi problemler öne çıkmaktadır. Genel olarak ab ülkelerinde dil sorunu eğitim sistemlerini olumsuz etkilemiştir. Kanat(2005); AB ülkelerinin yabancı oranlarının ülkelerdeki eğitimi olumsuz etkilediğini belirtmiştir.

5. SONUÇ VE ÖNERİLER

- Eğitim kurumlarının en küçük yerleşim birimlerine olan uzaklıkları faktörü ülkemizde zorunlu eğitim, ortaöğretimde ve yükseköğretimdeki okullaşma oranını etkilerken AB ülkelerinde bu faktörün etkili olduğu söylenemez. Bu faktörün etkisini azaltabilmek için YİBO tarzı ortaöğretim kurumlarının sayıları arttırılabilir.
- Nüfus faktörü, ülkemizde okuma yazma oranını ve mesleki eğitime olan talebi etkilemiştir. Aynı durum Almanya içinde söz konusudur. Aynı zamanda yükseköğretimde okullaşmayı ülkemizde etkilerken AB ülkelerinde bu etkiden bahsedilemez. Ayrıca kırsal nüfusun azalmasıyla, kadınlarda okuryazarlık oranının hızlı bir şekilde arttığı görülmektedir.
- Ekonomik faktörler hem ülkemizde hem de AB ülkelerinde okullaşmayı ve zorunlu eğitim süresini etkilemiştir. Aynı zamanda yükseköğretimde okullaşma ülkemizde ekonomik faktörlerden etkilenirken, AB ülkelerinde etkilenmemiştir. Ülkemiz AB standartlarını yakalayabilmek için eğitime ayrılan payı artırmalı ve özel sektörü de işin içine dahil etmelidir.
- Politik faktörler ülkemizde mesleki eğitimde okullaşmayı olumsuz etkilerken, hem Türkiye'de hem de AB ülkelerinde yükseköğretime olan talebi artırmıştır. Türkiye endüstrileşmede ve sanayileşmede yol kat edebilmek için mesleki eğitimi geliştirme politikaları izlemelidir. Yükseköğretimde özel sektör teşvik edilmelidir. Eğitim kalitesi ve eğitmen yeterliliklerinin arttırılması ortak amaç olmalıdır.

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TÜRKİYE'DE MESLEKİ EĞİTİM VE YÜKSEK ÖĞRETİM'DE MESLEKİ EĞİTİM PROGRAMLARI İLE YENİ DÜZENLEME

VOCATIONAL TRAINING IN TURKEY AND NEW ARRANGEMENT IN VOCATIONAL TRAINING PROGRAMS IN HIGHER EDUCATION

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ÖZET

Her bireyin kendi varlığını sürdürebilmek için, harcamak zorunda olduğu çaba ve emek vardır. Bu çaba aynı zamanda eğitim yolu ile de olmaktadır. Eğitimin niteliği, bireyi ruhça ve bedence güçlendirerek ona geçimini sürdürmeye yarayacak olumlu ve yararlı bilgiyi kazandırmaktır. Böylece birey, hayatının gerektirdiği pratik bilgi ve becerileri öğrenecektir.

Gelişen teknolojinin en çok ihtiyaç duyduğu kalifiye eleman, bir mesleğe yönelik bilgi ve becerilerin kazandırıldığı mesleki eğitim yoluyla iş hayatına kazandırılmaktadır.

Mesleki eğitim; bireye, iş hayatındaki belirli bir meslek ile ilgili bilgi, beceri ve iş alışkanlıkları kazandıran ve bireyin yeteneklerini çeşitli yönleri ile geliştiren eğitim sürecidir (Sezgin, 1983:21). Mesleki eğitim ile; iş piyasasının ihtiyacı olan ara eleman ve konusunda yetişmiş insan gücüne sahip olunmaktadır.

Mesleki eğitim bu açıdan gelişmekte olan ekonomiler için hayati önem taşımaktadır. Türkiye gelişen sanayisinde nitelikli iş gücü sıkıntısı çekmektedir. Ancak Türkiye de Mesleki eğitim alanında ve gerekse yüksek öğretim düzeyinde karşı karşıya olduğu sorunlar vardır. Yapılan çalışmada Türkiye'deki Mesleki eğitimin mevcut durumu tespit edilmiş ve yüksek öğretimde, lisans düzeyindeki eğitim programları incelenerek, mevcut yeni düzenleme hakkında bilgi verilmeye çalışılmıştır.

Anahtar Kelimeler: Mesleki Eğitim, Eğitim

ABTSRACT

Every individual needs to make effort and endeavor to sustain their existence. This effort is also acquired through education. The quality of education is to enable the individual to acquire positive and beneficial information which will strengthen the individual psychologically and physically and will help him/her to earn his/her life. Thus, an individual will learn the practical knowledge and skills necessary for life.

Qualified personnel, who are most demanded by the developing technology, are offered to working life through vocational training, during which vocational information and skills are acquired.

Vocational training is a process of education which enables the individuals to acquire information, skills and working habits about a certain profession and develops the abilities of a person in various aspects (Sezgin, 1983:21). Vocational training provides intermediate staff and qualified work force that are demanded by the labor market.

From this aspect, vocational training has a vital role for the developing economies. Turkey experiences the problem of qualified work force in its developing industry. However, there are some problems in the field of vocational training and also at the level of higher education. In this study, the current situation of vocational training in Turkey was determined; training programs in higher education at undergraduate level were analyzed and information was tried to be given on the new arrangement.

Key Words: Vocational Education, Education.

1.GİRİŞ

Her bireyin kendi varlığını sürdürebilmek için, harcamak zorunda olduğu çaba ve emek vardır. Bu çaba aynı zamanda eğitim yolu ile de olmaktadır. Eğitimin niteliği, bireyi ruhça ve bedence güçlendirerek ona geçimini sürdürmeye yarayacak olumlu ve yararlı bilgiyi kazandırmaktır. Böylece birey, hayatın gerektirdiği pratik bilgi ve becerileri öğrenecektir.

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2. MESLEKİ EĞİTİMİN KAPSAMI

Eğitimin genel amacı bireyi kültürlü kılmak, bilgiyi ve kültürü genişletmektir. Bunların yanı sıra bireyi mesleğe hazırlamak yaşam için gerekli becerileri kazandırmak da söz konusudur. Eğitim, bireylere sağladığı bu temel hizmetin yanı sıra, mesleksel bilgi ve becerilerin geliştirilmesini de sağlamalıdır. Toplumların gelişmesi için diplomalı işsizler değil, diplomalı ve becerili mezunlar, kalifiye elemanlar yetiştirmek gereği vardır.

Günümüzde, teknoloji ve endüstri çağdaş toplum kültürünün ayrılmaz öğeleridir. Bu çağdaş oluşum, eğitimi, kurumsal, işlevsel ve yapısal yönden etkilemeye devam etmektedir. Çağdaş eğitim anlayışında ekonomik boyut da önem kazanmaktadır. Bu nedenle toplumların çağdaşlaşma girişimlerinden, sanayileşme sürecini geliştirme ve ileri teknolojiyi kullanmaları gerekmektedir (Sezgin, 1983:27).

Gelişen ve değişen ortama uygun olarak, planlı ve kaliteli bir meslek eğitimi önemlidir. Bugün birçok toplumun eğitim sisteminde köklü değişikliklerin yapıldığı ve geliştirilen yeni sistemlerde mesleki ve teknik öğretime önem verildiği görülmektedir.

Mesleki eğitim:

1. İş için eğitimdir
2. Belirli özel konuların eğitimidir
3. El becerisini gerektiren işler için eğitimdir
4. Pratik sanatlar eğitimidir
5. Üretim için eğitimdir
6. Çalışanların eğitimidir
7. Bireyi sosyal yönden faydalı bir işe hazırlamak veya çalışanların etkinliğini artırmak amacıyla düzenlenmiş bir dizi kontrollü ve sistemli yaşantılar bütünüdür
8. Bireyin tercih ettiği bir meslek alanındaki faaliyetleri etkili bir şekilde yürütebilmesi için gerekli bilgi, beceri ve tavırlarla ilgili kabiliyetlerini geliştirmesini amaç edinen eğitim şeklidir.

Bu kavramlarda değişik noktalar üzerinde durulmaktadır. Mesleki eğitim çalışanların katıldığı her çeşit eğitim faaliyeti olarak görülmekte; bazı kavramlar 19. yy'daki mesleki eğitim anlayışına daha yakın bir anlam taşımaktadır. Burada görünen, mesleki eğitim geniş anlamda kullanılmakta ve bireyi işe hazırlayan herhangi bir eğitim şekli olarak düşünülmektedir (Alkan, 1976:1-2).

Mesleki eğitim, eğitim süresi boyunca toplumda ve çağdaş yaşamda gereksinmelerin en önemlilerini gerçekleştirmekte, meslek konusunda, bilgi ve beceriye sahip elemanlar yetiştirmektedir. Böylece mesleki eğitim; bir toplumda yaşayan bireylere belirli bir mesleğin gerektirdiği, bilgi becer, ve pratik uygulama yeteneklerini kazandırmak amacıyla birey kabiliyetlerini, zihinsel, duygusal, ekonomik ve kişisel yönlerden geliştirme sürecinin bütünüdür(Aynı,s.3).

3. AMACI

Mesleki eğitimin amacı, bireyi aktif bir yaşama hazırlamaktır. İnsan kaynaklarını yararlı toplumsal amaçlar için değerlendirme ve geliştirme yoluyla kültürel, ekonomik ve bireysel gelişmeye hizmet etme amacı da beraberinde gelmektedir.

Toplumda, bireylerin günlük yaşamlarının da ayrılmaz bir parçası haline gelen, çalışma, iş, meslek gibi terimler, eğitimin bireylere meslek, iş kazandırmaya yönelik olmasını güncel ve gerekli kılmaktadır. Çağımızda bir çok nedenden dolayı gün geçtikçe toplumlarda ve toplumumuzda önemli bir sorun olan işsizlik ve kalifiye, işçi yetersizliği, ara insan gücü, meslek adamı gereksinmesini karşılayamama meslek eğitimini başlı başına önemli kılmaktadır.

Ulusal eğitim uygulamalarımız, Atatürk ilkeleri doğrultusunda Türk toplumunun çağdaş uygarlık düzeyinin üstüne çıkmasını amaçladığına göre çağdaş bilim ve teknoloji ile uğraşacak , mesleki bilgi ve becerisini çağdaş yaşama uyarlayacak meslek sahibi bireyler yetiştirmek gerekmektedir Eğitim bireylere

yaşamda uygulanabilir işe yarar bilgiler vermeli ve beceriler kazandırmalı, onları sosyal yaşamda geçerli meslek sahibi yapmalıdır.

Eğitimde, çağdaş ve bilimsel yöntemlerle öğrencilere, eleştirici bakış, akılcılık, özgür ve yaratıcı düşünme gibi niteliklerin yanısıra estetik duyguları da kazandırmak gerekmektedir (TED,1987:4). Çağın gerektirdiği koşullar doğrultusunda, mesleğiyle ilgili bilgi, beceri ve bunun yanısıra estetik boyut, tüm eğitim sistemi içinde oldukça önemlidir.

Eğitimin temel amacı, bireyin bir bütün olarak mümkün olan en yüksek mükemmeliyet düzeyine ulaştırmak olduğundan, her çeşit eğitim programının da bu amaca hizmet etmesi gerekmektedir. Böylece, mesleki eğitimin temel amacı da bireyin mesleki bilgi ve ihtiyacını güdüleme faktörü olarak kullanmak yoluyla, onu bütünüyle eğitmektir (Alkan,Doğan,Sezgin, 1991:8).

Mesleki eğitimin, üç ana hedefi şunlardır;

1. Uygun öğrenme ortamını gerçekleştirmek,
2. Gerekli becerileri geliştirmek
3. İstenilen davranışları oluşturmak.

Tüm eğitim kurumlarının bu üç temel hedefi gerçekleştirecek şekilde çalışmaları ve gençlerin bu Doğrultuda yetiştirilmeleri gerekmektedir.

4. TÜRKİYE DE MESLEKİ EĞİTİM

Osmanlı imparatorluğu döneminde meslek eğitimi, önceleri yaygın eğitim kurumlarıyla sağlanırken, 1860'lı yıllardan sonra örgün eğitim kurumları niteliğini taşıyan meslek ve sanat okullarında uygulanan değişik yöntemlerle gerçekleştirildiği görülmüştür (Turan,1992:25). Selçuklu döneminde ahilik, Osmanlı döneminde ise Lonca teşkilatları tarafından yürütülmüştür. Bu yapıda anne ve babaları meslek öğrenmek üzere bir ustanın yanına verilen çocuklar, belli bir süre burada çalışarak önce kalfalığa sonra da ustalığa terfi ederdi. Bunun yanı sıra devlete bağlı bazı büyük kuruluşlar da kurs ya da okullar açarak ihtiyaç duyduklar kalifiye elemanları yetiştirmekteydiler (http://perweb.fırat.edu.tr).

Sanayi devriminin etkilerinin Türk toplumunda hissedilmesiyle birlikte mesleki eğitimin okul disiplini içinde yürütülmesi zorunluluğu ortaya çıkmıştır (http://etogm.meb.gov.tr). Osmanlı devletinde modern anlamda Mesleki Teknik Eğitim kuruluşlarının izlerine 19.yy'ın ikinci yarısında rastlanabilir. Mithat Paşanın Tuna valisi iken 1860 yılında Niş'te, 1864 yılında Rusçuk ve Sofya'da açtığı Islahhaneler Mesleki teknik Eğitim kuruluşlarının temeli sayılır. Yine Mithat Paşa tarafından 1865 'te Rusçuk'ta öksüz kızlar için açılan Islahhane Kız Sanat okullarının öncüsüdür. Paşa'nın 1868 yılında İstanbul'da açılmasına öncülük ettiği İstanbul sanayi Mektebi ise sanatlar, sanayi, demircilik, döşemecilik, makinecilik, mimarlık, her türlü maden imalat gibi derslerin bulunduğu müfredatla eğitime başlayan ilk modern sanat okuludur. Cumhuriyet dönemine kadar bu okulları örnek alan pek çok meslek okulu imparatorluk döneminde açılmıştır. Cumhuriyet sonrası Atatürk'ün direktifleri doğrultusunda Mesleki Eğitimin daha modern bir yapıya kavuşturulması çalışmaları hız kazanmıştır. 1931 Yılında; 1867 Sayılı kanunla iller 9 bölgeye ayrılmış ve her bölgede, mali ve yönetimi bölgeye dahil illerce karşılanmak üzere, birer sanat okulu faaliyete geçirilmiştir. Böylece sanat okulları, "Bölge Sanat Okulları" haline getirilmiştir (http://perweb.fırat.edu.tr).

Bu çalışmalar okullaşma yanında, Mesleki Teknik Eğitimin kurumsal bir yapıya kavuşturulmasını da kapsamıştır. 1993 yılında 2287 sayılı kanunla, Mesleki ve Teknik Öğretim Genel Müdürlüğü kurulmuştur. Bakanlık Merkez Örgütü Müsteşarlığı kurulmuştur. 1942 yılında başlatılan planlı çalışmalar neticesinde mesleki ve teknik öğretim kurumları günümüze kadar büyük gelişmeler göstermiştir. 7. Beş yıllık kalkınma planında, ileri teknoloji gelişmeleri, üretimi ve kullanımında gereksinim duyulan nitelikli insan gücünün yetiştirilmesinin önemine değinilmiş bu amaçla orta ve yüksek öğretimde mesleki ve teknik eğitime önem verilmesi öngörülmüştür. 8. Beş yıllık kalkınma planında ise meslek yüksek okulları ve mesleki orta öğretim kurumlarının program bütünlüğünü sağlamak için kurumlar arası işbirliği kurulmasına yönelik kararlar alınmıştır

Ortaöğretim düzeyindeki meslek okullarının ihtiyacını karşılamak amacıyla meslek ve teknik öğretmen okullarının açılmasına karar verilmiştir. Bu amaçla, 1934-1935 öğretim yılında Ankara'da Kız Enstitülerine ve Akşam Sanat okullarına öğretmen yetiştirmek üzere, Kız Teknik Öğretmen Okulu, Erkek Sanat ve Yapı Enstitüleriyle akşam erkek sanat okullarının öğretmenlerinin yetiştirilmesi amacıyla Erkek Teknik Öğretmen Okulu açılmıştır (İstifoğlu,1997:26-27).

5.YÜKSEK ÖĞRETİMDE MESLEKİ EĞİTİM PROGRAMLARI

1982 yılına kadar Kız Teknik Yüksek Öğretmen Okulu adı ile Kız Meslek Liselerine öğretmen yetiştiren, Kız Teknik Öğretmen Okulu, yüksek öğretim kurumu'nun (YÖK) faaliyete geçmesi ile aynı yıl YÖK'e bağlanmıştır. Böylece Kız Teknik Yüksek Öğretmen Okulu, Gazi Üniversitesi'ne bağlı Mesleki Eğitim fakültesi adını almıştır. Erkek Teknik Yüksek Öğretmen Okulu da bu süreçte Teknik Eğitim, Endüstriyel Sanatlar ve Ticaret- Turizm Eğitimi Fakülteleri olarak yapılandırılmışlardır. Bu fakülteler, Meslek, Anadolu

Meslek, Meslek Teknik liselere öğretmen yetiştiren kurumlar olarak faaliyet göstermişlerdir. Daha sonra , 1990-1991 öğretim yılında , Selçuk Üniversitesi Mesleki Eğitim Fakültesi eğitim öğretim faaliyetlerine başlamıştır.

Mesleki yüksek öğretim iki yıllık meslek okulları ve dört yıllık mesleki ve teknik eğitim fakülteleri ile eğitim vermektedir. Meslek yüksek okulları ile sanayinin ihtiyaç duyduğu nitelikli ara eleman yetiştirilmesi amaçlanmıştır.

Mesleki ve Teknik eğitim fakülteleri ise mesleki ve teknik ortaöğretimin öğretmen ihtiyacını karşılamayı amaçlamıştır. Mesleki ve teknik eğitim fakültelerinin son yıllarda öğretmen olarak atanamaması ile bu fakültelerin öğrencileri mezun olduklarında iş ortamlarında da yer bulmaya çalışmışlardır.

SONUÇ

Ekonomik gelişmelerden kaynaklanan talebi ve nitelikli iş gücü ihtiyacına artan sebeplerden ötürü mesleki eğitime olan ilginin artması beklenirken Türkiye'de tam tersi bir durum yaşanmaktadır. Dünya'da mesleki eğitim önem kazanırken Türkiye'de mesleki eğitime olan ilginin azalmasının temelinde sorunlu bir eğitim sistemine sahip olmamızdır.

Ülkemizde mesleki yönlendirme bireylerin yetenekleri isteklerinden daha çok ailelerin çocukları için istekleri önemlidir. Üniversite seçme sınavlarındaki yanlış tercihleri bilinçsizce okul seçimleri olayları bu durumlara getirmiştir. Üniversite giriş sınavlarında öğrencilerin göreceli olarak dezavantaja sahip olan meslek okullarına yönelmemektedirler. Meslek lisesi öğrencisinin kendi alanlarındaki mühendislik fakültelerine girişte dahi büyük dezavantaja sahip olması meslek liselerindeki sorunları getirmiştir. Mevcut sınav sisteminde ki rehberlik hizmetlerinin yetersizliği de sorunları artırmıştır (http://perveb.fırat.edu.tr).

Ayrıca mesleki eğitimdeki verilen eğitim ihtiyacı karşılayamamakta günün değişen ihtiyaçlarına yeterli gelememeye başlamıştır. Öğrenci mesleği ile ilgili bilgiyi iş hayatında tamamlamaya başlamıştır. Bu durum uygulanan eğitim programlarının ilgili meslek dalının güncel hayatı karşılayamadığını göstermiştir. Gerek ortaöğretimde gerekse yüksek öğretimde içerikleri aynı adları farklı olan, programlar açılmıştır. Bu durum birbirinin tekrarı olan programları ortaya çıkarmaktadır. Farklı disiplinlerden gelen içerik aynı olan mezun sayıları da artmıştır. Mezun sayılarının artmasıyla, var olan ihtiyaç azalmıştır. Gelişen teknolojik ihtiyaçlar doğrultusunda yeni mesleki alanların belirlenip yüksek öğretimde de bölüm ihtiyaçları belirlenmiş olmalıydı. Bu ve benzer çalışmaları Milli Eğitim Bakanlığı değişik projelerle yapmıştır.

Mesleki Yüksek Eğitim'de Bakanlar Kurulunun 2009/15546 karar sayısı ve 02.11.2009 tarihinde almış olduğu karar gereğince (http://rega.basbakanlik.gov.tr), Yüksek Öğretim Kurulu (YÖK), dört yıllık lisans eğitimi veren "Endüstriyel Sanatlar Eğitimi Fakültesi", "Mesleki Eğitim Fakültesi", "Mesleki ve Teknik Eğitim Fakültesi", Teknik Eğitim Fakültesi", "Ticaret ve Turizm Eğitim Fakültesi" kapatılacak. Kapatılan fakültelerin bulunduğu üniversite bünyesinde, alanlarında meslek elemanı yetiştirmek ve aynı zamanda kapatılan fakültelerin işlevini yerine getirmek üzere üç tip yeni fakülte kurulacak. Bünyesinde teknik eğitim fakültesi veya mesleki ve teknik eğitim fakültesi bulunan üniversitelerin bu fakültelerinin kapatılıp yerine "Teknoloji Fakültesi", mesleki eğitim fakültesi bulunan üniversitelerin bu fakültesinin kapatılarak yerine " Sanat ve Tasarım Fakültesi", bünyesinde ticaret ve turizm fakültesi bulunan üniversitelerin, bu fakültelerin kapatılarak yerine " Turizm Fakültesi" kurulmasına, "Endüstriyel Sanatlar Eğitimi" fakültesi bulunan üniversitelerin bu fakültesinin kapatılmasına karar verildi (www.atlasedu.com).

Yeni kurulacak fakülteler, kapatılan fakültelerin eşiti olan fakülteler olmayacak. Bu fakülteler, uygulama bilgi ve beceri niteliği yüksek elemanlar yetiştirecek. Mesleki ve teknik ortaöğretimin öğretmen ihtiyacı, kurulacak fakültelerin veya diğer fakültelerin mezunlarından 1 yıl (2 yarıyıl) pedagoji eğitimi görerek pedogoji sertifikası alanlar tarafından karşılanacak. Mühenislik fakültesi mezunları mesleki ve teknik ortaöğretime öğretmen olmak istedikleri takdirde, ilgili mühendislik teknolojisi programının uygulama farkını tamamlamak (veya alanında belirli bir süre uygulama deneyimi kazanmak) ve pedagoji eğitimi almak koşuluyla öğretmen olabilecekler.Kapatılan Fakültelerin öğrencileri, bulundukları fakültenin giriş şartlarına uyacaklardır. Giriş şartları çerçevesinde eğitimlerini tamamlayacaklardır. Meslek Yüksek Okulları 6 yarıyıl olacak, öğrenciler sigortalanacak ve Meslek Yüksek Okullarına sınavsız geçiş hakkı da kaldırılacaktır (www.atlasedu.com).
Alınan bu karalarla mesleki yükseköğretimde yeniden bir yapılanmaya gidilmiştir.

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INTE 2010

TÜRKİYE'DEKİ İLKÖĞRETİM PROGRAMINA YENİ BİR BAKIŞ AÇISI: KARAKTER EĞİTİMİ PROGRAM TASARISI

SCHOOL PROGRAMS IN TURKEY INTO A NEW PERSPECTIVE: THE CHARACTER EDUCATION PROGRAM DESIGN

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Özet

Eğitim sistemleri içerisinde yetişen bireylerin, toplumun gelişimine katkı sağlamaları beklenir. Hazırlanan programlarla bireylere ihtiyaç duydukları bilgi ve becerilerin yanında ahlaki değerlerin de kazandırılması gerekmektedir. Okullar, eğitim programlarında karakter eğitimine yer vererek bu alanda oluşan eksikliği gidermeye çalışmalıdır. İnsan ilişkilerinin azaldığı, şiddetin arttığı ve ahlaki değerlerin yozlaştığı bugünlerde, karakter eğitimi ile bireylere olumlu karakteristik özellikler kazandırılmanın önemi giderek artmaktadır. Türkiye'de İlköğretim programında yer almayan karakter eğitimi dersi için bir öğretim programı tasarısı hazırlanması, çalışmanın temel amacıdır. Program taslağının öğelerini belirlemekte ihtiyaç duyulan veriler nitel araştırma yöntemlerinden olan doküman analizi ve görüşme tekniğiyle elde edilmiştir. Literatürden ulaşılan verilerin yanı sıra Türkiye'deki devlet üniversitelerinde görev yapan ve bu konuda görüş bildirebilecek 10 öğretim üyesine yarı yapılandırılmış görüşme formu uygulanmıştır. Program taslağı kavramlar, beceriler, öğrenme alanları ve değer tutumlar üzerine inşa edilmiştir. Taslak programa ilişkin bulgular açıkça ortaya koymaktadır ki; Türkiye'de İlköğretim programına konulması tasarlanan karakter eğitimi dersi amaçları ile öğrencilerin sosyal yaşamlarında etkili olacak birçok ahlaki değerlerin yanında problem çözebilme, eleştirel düşünme ve karar verebilme becerilerini geliştirecektir. Taslak programın içeriğini belirlenen karakter bileşenleri oluşturmaktadır. Sarmal programlama yaklaşımı ile düzenlenen içeriğin buluş yolu ve araştırma inceleme stratejilerine uygun yöntem ve tekniklerle aktarılması önerilmiştir. Ürün değerlendirmesinin yanında sürecin değerlendirilmesini ön plana çıkarılmıştır. Çalışma bulguları sonucu karakter eğitimi dersinin ayrı bir ders olarak Türkiye'deki ilköğretim programına eklenmesi önerisinde bulunulmuştur.

Anahtar Kelimeler: İlköğretim Programı, Karakter Eğitimi, Program Tasarısı

Abstract

İndivudials who growing within the education system are supposed to contribute to development of society. Education programs gain to indivuduals knowledge and skills in addition to require moral values. Schools gives to place character education in education programs in order to make up a shortage in this area. İn these days decrease in human relationships, increased violence and become corrupt moral values, character education and gain to positive characteristics have been increased importance to indivuduals. Primary education programs in Turkey are not in a character education curriculum for the course of preparing the draft, is the main aim of the study. The draft program is needed to determine their methods of qualitative research data analysis and the documents were obtained by interview. The semi-

structured interview form was implemented to ten faculty members who working in state universities in Turkey to comment on this issue as well as accessed data from the literature. The draft program concepts, skills, attitudes and values learning areas have been built. Experience-based curriculum development approach, based according to the draft schedule of findings clearly reveal that, in Turkey, primary education programs be put designed character education lesson objectives with the students' social lives will be effective many moral values besides problem solving, critical thinking and decision making skills will improve. Determine the content of the draft program components consist of the characters. Spiral approach to programming content of the meeting held with the path analysis and research strategies have been proposed to be transferred to the appropriate methods and techniques.Product evaluation together with evaluation process has been put forward. As a result of Study findings have been proposed that character education lessons as a separate course in Turkey to be added to the primary school curriculum.

Key words: Primary Education Curriculum, Character Education, Curriculum Draft

Giriş

Kimilerine göre karakter, basitçe "kuralları takip etmek" anlamındadır. Karakter, tavırlardan, davranışlardan, motivasyonlardan ve özelliklerden çok daha geniş bir kavramı yansıtır. Toplumun kabul etmediği sosyal davranışlardan kaçınmaktan daha fazlasıdır. Karakter, kişinin sosyal, düşünsel, zihinsel ve ahlaki anlayışının olumlu yönde gelişimi olarak tanımlanabilir (Battistich, s.2). Bireyin karakterini oluşturan özellikler okul, aile ve toplum üçgeni arasında şekillenmektedir. Çocukların neyin doğru neyin yanlış olduğu düşünceleri üzerinde geleneksel olarak aileleri son derece etkilidir. Ancak, günümüzde çocuklar okula sık sık sorunlu davranış ve tutumlarla geliyorlar. Bu yüzden karakter eğitimi bir gereklilik haline gelmiştir.(Brannon, 2008).Temel insanî değerleri benimsemiş bireyler yetiştirmek aile, toplum ve okulun başlıca misyonları arasındadır. Bu perspektiften hareketle okulların temel iki amacından bahsetmek yanlış olmaz: Akademik açıdan başarılı ve temel değerleri benimsemiş bireylerin yetiştirilmesi (Ekşi, 2003). Okullarda bu iki temel amacı gerçekleştirmeye yönelik eğitimler verilemektedir. Akademik açıdan başarılı bireylerin yetiştirilmesi için temel disiplinlerin iyi bir şekilde öğrencilere verilmesi ile yeterli olacaktır. Ancak temel değerleri benimsemiş bireylerin yetiştirmesi içinde eğitim programımıza sadece karakter eğitimini amaçlayan bir dersin konulmasıyla sağlıklı sonuçlar alınabilecektir. Karakter eğitimi, öğrencilerin sorumluluklarını taşıyabilecekleri makul seçimler yapabilmelerine imkan sağlayan bilgi, beceri ve yeteneklerinin geliştirilmesi demektir (Ryan ve Bohlin 1999; Akt. Ekşi 2003:81). Karakter eğitiminin amacı; çocukken anlayışlı, ilgili, ahlaki değerleri olan, üretken, gençlik çağında kapasitelerini en iyisini yapmak için kullanan, doğru şeyler yapan ve hayatın amacını anlayarak buna göre yaşayan iyi birer çocuk yetiştirmektir. Etkin karakter eğitimi, tüm öğrencilerin herhangi bir beklenti olmadan kendi potansiyellerini keşfetmelerini sağlamak amacı ile sınıflar ve okul ortamları oluşturulmasını içermektedir (Battistich, s.3).

Milli eğitim temel kanununda; "Atatürk inkılâp ve ilkelerine ve Anayasada ifadesini bulan Atatürk milliyetçiliğine bağlı; Türk Milletinin milli, ahlaki, insani, manevi ve kültürel değerlerini benimseyen, koruyan ve geliştiren; ailesini, vatanını, milletini seven ve daima yüceltmeye çalışan, insan haklarına ve Anayasanın başlangıcındaki temel ilkelere dayanan demokratik, laik ve sosyal bir hukuk Devleti olan Türkiye Cumhuriyetine karşı görev ve sorumluluklarını bilen ve bunları davranış haline getirmiş yurttaşlar olarak yetiştirmek" ve "Beden, zihin, ahlak, ruh ve duygu bakımlarından dengeli ve sağlıklı şekilde gelişmiş bir kişiliğe ve karaktere, hür ve bilimsel düşünme gücüne, geniş bir dünya görüşüne sahip, insan haklarına saygılı, kişilik ve teşebbüse değer veren, topluma karşı sorumluluk duyan;yapıcı, yaratıcı ve verimli kişiler olarak yetiştirmek" (http://mevzuat.meb.gov.tr/html/88.html) ifadeleri ilk iki maddeyi oluşturmaktadır. Bu maddelerden anlaşılacağı gibi karakter eğitimi milli eğitimimizin temel amaçlarındandır.

Yurtdışında zorunlu eğitim kademelerinde uygulanmakta olan karakter eğitimi amaçlayan birçok program bulunmaktadır. Amerika'da karakter eğitimi, eğitim reformunun en önemli ayağını teşkil etmektedir. 1990'ın sonlarında, 47 eyalet ve Kolombiya Bölgesi, karakter eğitimi pilot projesinde, A.B.D. Eğitim Bakanlığı Ortaklığı yoluyla eğitim fonu almıştır. Karakter eğitiminin organizesini desteklemek için 37 milyon dolar dağıtılmıştır (Sherblom, 2004). Dünya'da uygulanmakta olan bazı karakter eğitimi program ve organizasyonları şunlardır:

- Karakter Eğitimi Ortaklığı (The Character Education Partnership=CEP) (www.character.org)
- Karakter Önemlidir (Character Counts!) (www.charactercounts.org)

- Duyarlı Sınıflar (The Responsive Classroom)(responsiveclassroom.org/about/research.html)
- Pozitif Eylem (Positive Action) (www.positiveaction.net)
- Duyarlı Toplum (Community of Caring) (http://www.communityofcaring.org/about/index.html).
- Zürafa Kahramanlar (Giraffe Heroes) Programı (www.giraffe.org)
- Heartwood Ahlak (Heartwood Ethics) Programı (www.heartwoodethics.org)
- En Önemli Beceriler (MegaSkills) (http://www.megaskillshsi.org)

Yurtdışında uygulanmakta olan Karakter Eğitimi ile ilgili bu kadar çok proje ve program bulunmasına rağmen; Türkiye'de Karakter Eğitimi ile ilgili çok az sayıda çalışma yapılmıştır. Yapılan bu çalışmalarda elde edilen sonuçların hepsi Karakter Eğitimi'nin önemini ve gerekliliğini vurgulamaktadır. Yapılan bazı çalışmaların sonuçları şunlardır; Üstünyer (2005)'de hazırlamış olduğu yüksek lisans tezinde karakter eğitiminin çok acil bir ihtiyaç olduğunu, ailelerin çocuklarına evrensel değerleri vermede yetersiz kaldıkları sonucuna ulaşmıştır. Çağatay (2009)'da yapmış olduğu yüksek lisans tezinde şu sonuçları elde etmiştir: Okul, öğrencinin karakter gelişiminde etkilidir. Öğretmenler, öğrencinin karakter gelişiminde, okul içerisinde en çok etkili olan kişilerdir. Öğretmenlerin sınıf içi uygulamaları ve sınıf yönetimi anlayışı da öğrencinin karakter gelişiminde etkilidir. Karakter bileşenlerinden en çok yardımseverlik ve sorumluluğun geliştirildiği ifade edilmiştir. Öğrencilerin karakter gelişiminde Sosyal Bilgiler ve Görsel Sanatlar, Müzik ve Beden Eğitimi dersleri önemli role sahiptir. Ders dışı etkinlikler, öğrencinin karakter gelişiminde önemli olmasına rağmen yeterli önem verilmemektedir. Gökçek(2007)'de hazırlamış olduğu yüksek lisans çalışması sonucunda; ailelerin karakter eğitiminin okul müfredatı içinde yer alması gerektiğini ve karakter eğitiminin okul öncesi eğitimimin bir parçası olması gerektiğini düşündükleri söylenebilir. Aileler; Okul öncesi eğitiminin pozitif karakter gelişimine yardımcı olduğunu, evde verilen karakter eğitiminin yetersiz olduğunu, okul öncesi eğitimcisinin karakter eğitimi konusunda ebeveyn kadar iyi eğitim verebileceğini belirtmiş ve karakter eğitiminin sadece aile tarafından verilmesine katılmadıklarını da ifade etmişlerdir.

Yapılan görüşmeler sonucu karakter eğitimi konusunda okulun büyük bir öneme sahip olduğu ve ilköğretim eğitim sisteminde ilköğretim 1. kademede (hayat bilgisi, sosyal bilgiler ve türkçe) ve ilköğretim II. Kademede (sosyal bilgiler, türkçe ve vatandaşlık bilgisi) bazı dersler aracılığı ile karakter eğitimi verilmeye çalışıldığı fakat yeterli olmadığı sonuçları elde edilmiştir.

Yöntem

Bu çalışmanın amacı, Türkiye'de ilköğretim programında yer almayan karakter eğitimi dersi için bir taslak program hazırlanmasıdır.

Verilerin Toplanması

Program taslağının genel amaçlarını, içeriğini, eğitim durumlarını ve ölçme değerlendirme yaklaşımlarını belirlemek için ihtiyaç duyulan veriler nitel araştırma yöntemlerinden olan doküman analizi ve görüşme tekniği ile elde edilmiştir. Doküman analizi (belgesel tarama); var olan kayıt ve belgeleri inceleyerek veri toplamaya denir. Hemen her araştırma için kaçınılmaz olan bir veri toplama tekniğidir (Karasar, 2009).

Çalışmada ihtiyaç duyulan verilere ilgili alan yazının incelenmesi ve Türkiye'de farklı devlet üniversitelerinde görev yapan sekiz öğretim üyesi ve farklı ilköğretim okullarında çalışan sekiz sınıf öğretmeni ile yapılan yarı yapılandırılmış görüşme sonucu elde edilen görüşlerden ulaşılmıştır. Yarı-yapılandırılmış görüşme, sorular önceden belirlenip ve bu sorularla veriler toplanmaya çalışıldığı bir tekniktir (Karasar, 2009). Görüşmeler ses kayıt cihazı ile kaydedilmiş ve daha sonra çalışmanın cevap aradığı sorular çerçevesinde veriler analiz edilmiştir.

Bulgular ve Yorum

Bu bölümde Türkiye'deki ilköğretim programına eklenmesi önerilen karakter eğitimi dersi program taslağının vizyonu,,temel öğeleri, genel amaçları, içeriği, öğretim süreçleri ile ölçme değerlendirme boyutu ana başlıklarıyla ele alınmıştır.

Karakter Eğitimi Dersi Program Tasarısının Vizyonu ve İlkeleri

Önerilen karakter eğitimi dersi programının vizyonu; toplumsal düzen içinde temel ahlaki değerlere sahip ve bu değerleri karşılaştıkları problem durumlarında uygulayabilen ahlaki ve duygusal gelişimini tamamlamış bireyler yetiştirebilmektir. Karakter eğitimi dersi program tasarısında benimsenen ilkelere bakıldığında ise; programın öğrencilerde ahlaki değerlere yönelik genel bir farkındalık kazandırmaya çalıştığı,öğrenci merkezli yaklaşımları temele alan,.bilgi aktarımından çok, öğrencilerin yaşantıları yoluyla bilgiyi yapılandırmalarının amaç edinildiği. milli ve evrensel değerlere duyarlı bir program taslağı olduğu görülmektedir. Karakter eğitimi dersi taslak programı'nın temel öğeleri beceriler, kavramlar, öğrenme alanları, değerler ve tutumlardan oluşmaktadır.

Beceriler

Beceri kavramı, öğretim etkinlikleri sonucunda öğrencilerde oluşturulması amaçlanan yeteneklerdir. Karakter eğitimi programında yer alan beceriler, bu dersi oluşturan tüm alt alanların gerektirdiği becerileri kapsamalıdır.

Kavramlar

Bilindiği üzere kavramlar programlarının temel öğelerinden biridir. Kavramlar yoluyla ilgili bilim dalının yapısı ve içeriği öğrencilere yansıtılır. Karakter eğitimi dersini oluşturan tüm alt alanlara ait kavramlar, kavram haritaları oluşturularak öğrencilere öğrenme yaşantıları sunulmalıdır karakter eğitimi dersine ait önemli bir özellik ise de bu derse ait kavramların ulusal özellikler taşımasının yanında evrensel bir boyutunun da olması zorunluluğudur.

Değerler ve Tutumlar

Karakter eğitimi taslak programı'nın üzerine yapılandırıldığı bir diğer temel ise tutumlar ve değerlerdir. Program beceri ve kavram öğretimiyle birlikte hoşgörü, bilimsellik, duyarlılık, barış, estetik ve sorumluluk gibi değerleri de kazandırmayı önemsemektedir:

Öğrenme Alanları

Karakter eğitimi dersi program taslağı "öğrenme alanı" adı altında organize edilmiş yapılardan oluşmaktadır. Öğrenme alanları, karakter eğitiminin verilmesinde öngörülen bilgi, beceri, kavram, değerler ve tutumların sistematik bir şekilde ilişkilendirildiği tema ve konu alanlarından oluşur. Sözü edilen bu öğrenme alanları; Dürüstlük, sorumluluk, adalet, yardımseverlik vatandaşlık empati, özgüven, hoşgörüdür.

Karakter Eğitimi Ders Programı Tasarısının Amaçları

Taslak programın genel amaçları toplumun karşılanmamış ihtiyaçlarını temele almıştır. Uzmanlar tarafından "Karakter Eğitimi" dersinin programımıza eklenmesi durumunda dersin genel amaçlarının karakter bileşenlerini öğrenciye kazandırılmasına yönelik olması gerektiği ve ailelerinde bu sürece dahil edilmesi gerektiği bulgularına varılmıştır. Ayrıca kazanımların bilişsel hedef davranışlardan daha üst düzeyde olan duyuşsal ve devinişsel hedef davranışları kapsaması gerektiği vurgulanmıştır. Elde edilen bulgulara dayanarak şu genel amaçlar önerilmiştir.

- İyi karakterli bireyler yetiştirmek
- Sınıf düzeyine uygun olarak karakter eğitimi bileşenlerini anlayabilmek, toplumsal problemleri saptayabilmek, sorunlara karşı çözüm önerileri sunabilmelerini sağlamak
- İnsani değerlerin öğrenciler tarafından içselleştirilmesini ve davranışa dönüştürmelerine olanak sağlamak
- Öğrencilerde insani değerlere karşı duyarlılık geliştirmek
- Öğrencilerin sosyal olaylar karşısında sorumluluk almalarını sağlamak
- Öğrenci ile birlikte ailenin de bu programa dahil edilmesini sağlamak

Karakter Eğitimi Ders Programı Tasarısının İçeriği

Hedeflere ulaşılabilmesi için seçilen içeriğin düzenlenmesinde içerik düzenleme yaklaşımlarından olan Sarmal Programlama Yaklaşımı merkeze alınmıştır. Bu yaklaşımda konuların ve kavramların yeri geldikçe tekrarı söz konusudur. Ön öğrenmeler, sonraki öğrenmeler için temel oluşturmaktadır. Bu dersin içeriğinde belirlenen temaların kullanılması düşünülmektedir. Tematik yaklaşım düşünüldüğü için sarmal programlama yaklaşımı daha uygun görülmüştür.

"Dürüstlük, saygı, sorumluluk, adalet, yardımseverlik ve vatandaşlık" karakter bileşenlerinin okullarda yeterli düzeyde geliştirilemediği genel düşünceyi oluşturmaktadır. Bu bileşenlerin yanında "Empati, Özgüven, Hoşgörü ve Sabır" bileşenlerinde okullarda geliştirilmesi gerektiği bulgusuna ulaşılmıştır.

Karakter Eğitimi ders içeriğinin karakter bileşenlerinde oluşması gerektiği ve bu bileşenlerin sınıf düzeyine uygun etkinliklerle desteklenmesi öngörülmektedir.

Hedeflerin gerçekleşmesi için taslak programın öğrenme alanları "Dürüstlük, sorumluluk, adalet, yardımseverlik vatandaşlık empati, özgüven, hoşgörü olarak belirlenmiştir. İlköğretim birinci kademede masal ve hikaye kahramanları üzerinden işlenen bu temalar sınıflar ilerledikçe gerçek yaşam hikayeleri ve gerçek hayatta yaşanan olaylar sınıfa getirilerek öğrencilerle işlenebilir. Son aşama olarak da ilköğretim ikinci kademe son sınıf öğrencilerinin toplumdaki bir problemi tanımlayıp, bunun için bir hizmet projesi hazırlamaları istenebilir.

Karakter eğitimi programı, okul öncesi kademesinden başlayarak, her bir sınıf için ayrı ayrı olmalıdır. Etkililiği ispatlanmış hizmet öğrenimi ve kamu hizmeti gibi yöntemler de kullanılarak, iş dünyası ve toplumun katılımı geliştirilmelidir. Karakter eğitimi ailede başladığı için, aileler; programlara aktif olarak katılmalı, eğitilmeli ve bilgilendirilmelidir (Uysal, 2008).

Karakter Eğitimi Ders Programı Tasarısının Eğitim Durumları

Genel amaçları kazandırmak amacıyla düzenlenen içeriği öğrenci merkezli strateji yöntem ve teknikleri kullanarak vermeyi amaçlayan bu taslak program Buluş/Keşfetme stratejisi ve araştırma inceleme stratejisini temele almıştır. Buluş/Keşfetme stratejisi öğretmenin rehberliğinde, öğrencinin konuyu kendi kendilerine öğrenmeleri stratejisidir.

Öğrenme-öğretme sürecinde en uygun strateji, yöntem ve tekniklerin seçiminde her şeyden önce, tek bir yöntem seçme yoluna gidilmemelidir. Mümkün oldukça fazla sayıda yöntem ve tekniğin seçilmesi önem arz etmektedir. Öğrencilerin farklı öğrenme stilleri vardır. Özellikle alt eğitim kademelerinde bu farklılıklar çok daha fazladır (Tan, 2007: 92). Bu durumu dikkate alarak, taslak programın uygulanması aşamasında önerilen yöntem ve teknikler şunlardır: Örnek Olay Yöntemi, Tartışma Yöntemi, Proje Yöntemi, Problem Çözme Yöntemi, Öykü Yazma Tekniği, Drama Tekniği, Beyin Fırtınası Tekniği, Altı Şapkalı Düşünme Tekniği, Gösteri Tekniği, Rol Yapma Tekniği, Konuşma Halkası Tekniğidir.

Karakter Eğitimi Ders Programı Tasarısının Ölçme ve Değerlendirmesi

Taslak programda ölçme ve değerlendirme işlemleri de geleneksel yaklaşımla birlikte tamamlayıcı (alternatif) tekniklerden oluşmaktadır.

Karakter Eğitimi dersinin ölçme değerlendirme işleminde alternatif ölçme değerlendirme araçlarının kullanılabileceği bunun yanında bu derse özel geliştirilebilecek öz değerlendirme ve akran değerlendirme formaları ile sağlanabileceği bulgusuna ulaşılmıştır.
Ölçme değerlendirme aşamasında kullanılabilecek bazı ölçme araçları önerilmiştir. Bunlar: Bilişsel Alandaki Davranışların Ölçülmesi için; Ödev ve Projeler ve Performans Görevi, Duyuşsal Alandaki Davranışların Ölçülmesi için; İlgi Ölçekleri, Tutum Ölçekleri ve Gözlem Tekniği, Devinişsel Alandaki Davranışları Ölçmek için; Rubrik, İş-Performans Testleri, Derecelendirme Ölçeği, Çeteleme Aracıdır.

Değerlendirme işlemi sadece öğrenci başarısı belirlemek için değil, bunun yanında program hakkında karar vermek amacıyla da yapılabilir. Bu nedenle, karakter eğitimi programlarını uygulamada, değerlendirmede ve geliştirmede etkili stratejiler ve standartlar geliştirilmelidir. Değerlendirilmeyen bir programın, boşa kürek çekmek olduğu unutulmamalıdır (Uysal, 2008).

Sonuç ve Tartışma

Çalışma bulguları sonucu ortaya konulan ihtiyacı gidermek amacıyla hazırlanmış olan bu program taslağı genel amaçlar, içerik, eğitim durumları ve ölçme - değerlendirme teknik öğelerinden oluşmaktadır. Taslak programın genel amaçları iyi karakterli bireyler yetiştirmek ana amaç çerçevesinde şekillendirilmiştir. Hazırlanan taslak programda öğrenci ve öğrenci ihtiyaçları merkeze alınmıştır. Sorun merkezli program gelişme desenlerinden biri olan yaşantı merkezli program geliştirme yaklaşımı temele alınarak hazırlanan

bu taslak programın içeriği sarmal programlama yaklaşımına uygun olarak düzenlenmiştir. Programın uygulanması aşamasında Buluş/Keşfetme Stratejisi ile araştırma inceleme stratejisi merkeze alınmıştır. Bu stratejilere uygun öğrenciyi sınıf içinde aktif kılacak yöntem ve teknikler önerilmiştir. Ölçme değerlendirme aşamasında ise sadece sonucu ele alan değil aynı zamanda da süreci ele alan ölçme araçları önerilmiştir.

Bulgulara dayalı olarak Türkiye'de ilköğretim programına karakter eğitimini amaçlayan bir dersin konması gerekliliği konusunda iki farklı düşünceye ulaşılmıştır. Birinci düşünce karakter eğitimi programının diğer ders içeriklerine yerleştirilerek öğrencilere verilmesi gerektiğidir. İkinci düşünce ise karakter eğitimi konusunda eğitim sistemine bir dersin eklenmesi yönündedir. Fakat iki görüşte de ortak nokta karakter eğitimi Türk eğitim sistemine eklenmeden önce aksaklıkların ortadan kaldırılması gerektiğidir.

Karakter eğitimi ile ilgili görüş ayrılıkları olsa da, ortak noktada buluşulan tek düşünce karakter eğitiminin Türk Eğitim Sistemi içinde yer almasıdır. Elde edilen bulgular sonucunda karakter eğitiminin ayrı bir ders olarak eğitim sistemi içerisinde yer alması daha büyük yarar sağlayacağı görüşüne ulaşılmıştır.

Elde edilen sonuçlara dayalı öneriler şunlardır:

- Karakter eğitimi dersi eğitim programına eklenmeden önce öğretmen adaylarının ve mesleğe devam etmekte olan öğretmenlerin bu konuda yeterli donanıma sahip olmaları sağlanmalıdır.
- Karakter eğitimi ders amaçlarına sadece sınıf ortamındaki çalışmalar ile yeterince ulaşılabileceğine inanılmamaktadır; bu yüzden okul dışı etkinlikler desteklemek amacıyla ülke genelince projeler hazırlanmalı ve okulların bu projelere katılımı sağlanmalıdır.
- Karakter eğitimi dersi ile yalnızca öğrenci gelişimi amaçlanmamalıdır, bu yeterli olmayacaktır; bu yüzden aile katılımın sağlanmasıyla birlikte ailenin de bu ders kapsamında gelişimi sağlanmalıdır.
- Mili Eğitim Bakanlığı'nın bu ders ile ilgili okulların ihtiyaçlarını(araç-gereç, materyal, öğretmenler için kaynak kitaplar) karşılaması ve okulları bu konuda desteklemelidir.
- Türkiye'de Karakter Eğitimi ile ilgili bilimsel nicel olarak yeterli olmadığı düşünülmektedir. Bu konuda daha çok çalışma yapılarak Karakter Eğitimi okulöncesinde ve ortaöğretim düzeyinde de çalışmalar yapılarak programa dahil edilebilir.

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USING ABBREVIATIONS and ACRONYMS in ENGLISH

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Abstract

Abbreviations are simply the shortening of words and expressions. Some common abbreviations come from Latin. Some come from shortened words. Some are pronounced as individual letters. Some abbreviations are acronyms, i.e. they are formed from the first letters (or occasionally syllables) of a word or series of words and pronounced as a word. Some abbreviations can have more than one meaning. Some abbreviations are particularly common in writing. (McCarthy& O'Dell: 2002)

This paper deals with using and teaching common abbreviations and acronyms in English. Types of abbreviations and sample abbreviations will be given. Sources to find common abbreviations will be suggested. Pronunciations of the common abbreviations will be handled.

Key words: abbreviations, acronyms, pronunciations

Introduction

We often see abbreviations and acronyms in many different places in our lives. Abbreviations are simply the shortening of words and expressions. Some abbreviations are acronyms, i.e. they are formed from the first letters (or occasionally syllables) of a word or series of words and are pronounced as a word. (McCarthy&O'Dell: 2002: 20).

In order to understand the things which we read in writings or on newspapers, we must know some of the well known abbreviations or acronyms. We should also teach them to our students in our classes. This paper deals with using and teaching abbreviations and acronyms in English.

Historical and Current Use

As it is defined and informed in Wikipedia, the free encylopedia that (http://en.wikipedia.org/wiki/Acronym_and_initialism#Early_examples_in_English)

> *Acronymy, like retronymy, is a linguistic process that has existed throughout history but for which there was little to no naming, conscious attention, or systematic analysis until relatively recent times. Like retronymy, it became much more common in the 20th century than it had formerly been. Ancient examples of acronymy (regardless of whether there was metalanguage at the time to describe it) include the following:*
>
> - *Initialisms were used in Rome before the Christian era. For example, the official name for the Roman Empire, and the Republic before it, was abbreviated as SPQR (Senatus Populusque Romanus).*
> - *The early Christians in Rome used the image of a fish as a symbol for Jesus in part because of an acronym—fish in Greek is ΙΧΘΥΣ (ichthys), which was said to stand for Ἰησοῦς Χριστός Θεοῦ Υἱός Σωτήρ (Iesous CHristos THeou (h) Uios Soter: Jesus Christ, God's Son, Savior). Evidence of this interpretation dates from the 2nd and 3rd centuries and is preserved in the catacombs of Rome. And for centuries, the Church has used the inscription INRI over the crucifix, which stands for the Latin Iesus Nazarenus Rex Iudaeorum ("Jesus the Nazarene, King of the Jews").*
> - *The Hebrew language has a long history of formation of acronyms pronounced as words, stretching back many centuries. The Hebrew Bible ("Old Testament") is known as "Tanakh", an acronym composed from the Hebrew initial letters of its three major sections: Torah (five books of Moses), Nevi'im (prophets), and K'tuvim (writings). Many rabbinical figures from the Middle Ages onward are referred to in rabbinical*

literature by their pronounced acronyms, such as Rambam (aka Maimonides, from the initial letters of his full Hebrew name (Rabbi Moshe ben Maimon) and Rashi (Rabbi Shlomo Yitzkhaki).

During the mid to late 19th century, an initialism-disseminating trend spread through the American and European business communities: abbreviating corporation names in places where space was limited for writing— such as on the sides of railroad cars (e.g., Richmond, Fredericksburg and Potomac Railroad → RF&P); on the sides of barrels and crates; and on ticker tape and in the small-print newspaper stock listings that got their data from it (e.g., American Telephone and Telegraph Company → AT&T). Some well-known commercial examples dating from the 1890s through 1920s include Nabisco (National Biscuit Company),[21] Esso (from S.O., from Standard Oil), and Sunoco (Sun Oil Company).

The widespread, frequent use of acronyms and initialisms across the whole range of registers is a relatively new linguistic phenomenon in most languages, becoming increasingly evident since the mid-20th century. As literacy rates rose, and as advances in science and technology brought with them a constant stream of new (and sometimes more complex) terms and concepts, the practice of abbreviating terms became increasingly convenient. The Oxford English Dictionary (OED) records the first printed use of the word initialism as occurring in 1899, but it did not come into general use until 1965, well after acronym had become common.

Around 1943, the term acronym was coined to recognize abbreviations and contractions of phrases pronounced as words.[21] (It was formed from the Greek words ἄκρος, akros, "topmost, extreme" and ὄνομα, onoma, "name.") For example, the army offense of being absent without official leave was abbreviated to "A.W.O.L." in reports, but when pronounced as a word ('awol'), it became an acronym.[22] While initial letters are commonly used to form an acronym, the original definition was a word made from the initial letters or syllables of other words,[23] for example UNIVAC from UNIVersal Automatic Computer.[24]

In English, acronyms pronounced as words may be a 20th-century phenomenon. Linguist David Wilton in Word Myths: Debunking Linguistic Urban Legends claims that "forming words from acronyms is a distinctly twentieth- (and now twenty-first-) century phenomenon. There is only one known pre-twentieth-century [English] word with an acronymic origin and it was in vogue for only a short time in 1886. The word is colinderies or colinda, an acronym for the Colonial and Indian Exposition held in London in that year."[25][26]

Samples of Abbreviations and Acronyms

McCarthy& O'Dell (2002: 20) state that

Some common abbreviations come from Latin:

e.g. for example, *for exempli gratia*
i.e. that is, from *id est*
NB note well, from nota bene
AD the year of Our Lord, used to count years since the birth of Christ, from *Anno Domini*

Some come from shortened words:

bedsit: one room which is a bedroom and a sitting room
sitcom: short for situational comedy (a kind of TV programme)
sci-fi: science fiction

Some are pronounced as individual letters:

EU European Union
BC Before Christ, used to count years before the birth of Christ
ID identity document
asap as soon as possible

Some abbreviations are acronyms, i.e. they are formed frrom the first letters (or occasionaly syllables) of a word or series of words and are pronounced as a word:

AIDS acquired immune deficiency syndrome
NATO North Atlantic Treaty Organisation

Some can be pronounced both as an acroyms and as individual letters:
VAT value-added tax, pronunced
UFO unidentified flying object, pronunced

Sometimes abbreviations can have more than one meaning.

AA Alcholics Anonymous [and organisation helping people with alchol-related problems] and
the AA the Automobile Association **[a UK motorists' club]**
PC personal computer *or* Police Constable [the lowest rank of police officer in the UK] or politically correct [avoiding expressions which may suggest prejudice and cause offence]
m metre, mile, million, male, maried
p per, pence, page

Some abbreviations are particularly common in writing.

RSVP reply please [used on invitations, from French, *répondez s'il vous plait*
PTO please turn over
FAQ frequently asked question [found mainly on websites]

These abbreviations are increasingly common in electronic text messages:
FYI for your information
BTW by the way **R** are **C** see **U** you **EZ** easy **4** for **2** to, too, two

Abbreviations are often used in newspaper small ads for accomodation.

£300 **pcm excl:** rent is £300 er calendar month excluding payment for gas, electricity, etc.
£60 **pw inc:** rent is £60 per week including gas, electricity, etc.
f/f: fully furnished s/c: self-contained [has all it needs within itself]
suit n/s prof female: would suit a non-smoking woman in a professional job
all mod cons: all modern conveniences, e.g. wahing machine
ch: central heating **d/g:** double garage **o.n.o.:** or nearest offer

Some words are normally used in an abbreviated form in informal situations. (McCarthy& O'Dell (2005: 34)

Ad/advert (advertisement **bike** (bicycle) **board** (blackboard)
Exam (examination) **fridge** (refrigerator) **lab** (laboratory)
Plane (aeroplane) **rep** (business representative) **TV or telly** (television)

case (suitcase)
phone (telephone)

Some acronyms have become so normal as words that people do not think of them as abbreviations any longer, and so they are not written all in capital letters. (McCarthy& O'Dell (2005: 34)

laser **radar** **yuppy** **Esso**

Sample Exercises on Abbreviations and Acronyms

The following are the exercises prepared by McCarthy& O'Dell (2002: 21)

1.2 How are the abbreviations in these sentences pronounced? What do they stand for?

1. If he can't kick the habit on his own, he should try joining AA.
2. Read pp. 10-22 for homework.
3. Cars must not exceed 30 mph in a built-up area.
4. The film gives a convincing depiction of life BC despite some curious anachronisms.
5. Do you believe in UFOs?
6. Write back asap.

1.3. What do these abbreviations stand for? Choose from the words in the box. Use each word once only.

1. WHO 2 UNESCO 3 IMF 4 OBE 5 GMT 6 IOC 7 RSPCA 8 EST

Animals	Educational	International	Organisation	Standard
British	Empire	Mean	Organisation	Time
Committee	Fund	Monetary	Prevention	Time
Cruelty	Greenwich	Nations	Royal	United
Cultural	Health	Olympic	Scientific	World
Eastern	International	Order	Society	

1.4 Translate this mobile phone text message into Standard English.

c u 4 t at 3, OK? BTW K's going 2 b here 2.

The following are the exercises prepared by me.

A. Please, translate these mobile text messages into Standard English.

1- c u at 2 at the conference.
2- How are u? Pls. Call me asap.

B. Which abbreviation is not related with health?

a- WHO b- AIDS c- AA d- UFO

C- What do these abbreviations stand for?

1- PTO 2- BTW 3- FAQ 4- FYI

D- Which abbreviation is not related with accomodation?

a- f/f b- ch c- bedsit d- sitcom

Useful Books and Web-sites to Find Abbreviations and Acronyms

English Vocabulary in Use: Upper Intermediate by Michael McCarthy and Felicity O'Dell, Cambridge, Cambridge University Press, 2nd edt, 2005.

English Vocabulary in Use: Advanced by Michael McCarthy and Felicity O'Dell, Cambridge, Cambridge University, 2002.

Acronym Finder:
http://www.acronymfinder.com/

For defining abbreviations:
http://www.acronymattic.com/

http://acronyms.thefreedictionary.com/

Acronyms and Abbreviations Directory:
http://www.abbreviations.com/

Wikipedia, the free encylopedia on acronyms and initialism:
http://en.wikipedia.org/wiki/Acronym_and_initialism

Glossary of terms which are commonly used on Wikipedia:
http://en.wikipedia.org/wiki/Wikipedia:Acronyms

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Acronyms and Abbreviations in the yahoo directory:
http://dir.yahoo.com/reference/acronyms_and_abbreviations/

Glossary for Internet Abbreviations: Free acronyms and abbreviations finder and definitions - business, training, medical, military, technical, funny - acronyms, backronyms and abbreviations meanings:

http://www.businessballs.com/acronyms.htm

Acronyms, Initialisms, Alphabetisms and other Abbreviations:
http://www.all-acronyms.com/

http://netforbeginners.about.com/cs/netiquette101/a/abbreviations.htm

The Opaui Guide to lists of Acronyms, Abbreviations, and Initialisms on the world wide web:
http://www.abbreviations.com/opaui.asp

MediLexicon contains searches, information, news and resources for the medical, pharmaceutical and healthcare professional:
http://www.medilexicon.com/

Medical Abbreviations Dictionary:
http://www.medilexicon.com/medicalabbreviations.php

Abbreviations on law:
http://www.abbreviations.com/acronyms/LAW

Abbreviations and Acronyms Used in Law Practice Areas:
http://www.scribd.com/doc/22698260/Abbreviations-and-Acronyms-in-Law-Practice-Areas

Abbreviations and Acronyms Used in Environmental Law:
http://www.springerlink.com/content/y7100k23614q7v51/

Law Enforcement Abbreviations in the USA:
http://www.accuracyproject.org/PoliceAbbreviationsandAcronyms-US.html

University of KWAZULU-NATAL web-site for Law Acronyms and Abbreviations:
http://library.ukzn.ac.za/LawAcronymsandAbbreviations792.aspx

Northwestern Law Pritzker Legal research Center, Identifying Abbreviations and Acronyms: International and Foreign:
http://www.law.northwestern.edu/library/research/international/gettingstarted/abbreviations/

Math abbreviations:
http://www.abbreviations.com/acronyms/MATH

Journal Abbreviation Sources:
http://www.abbreviations.com/jas.asp

Dictionary for Abbreviations and Acronyms:
http://www.yourdictionary.com/diction1.html

Cassell's English Dictionary, completely revised and enlarged by Arthur L. Hayward and John J. Sparkes, Cassell and Company Limited, 1976.

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Suggested Games For Teaching Abbreviations and Acronyms in Our Classes:

Word-killer game:

Skills targeted: speaking, listening, reading, writing, language awareness

Aim: To use four language skills

Students need to know: The meanings of the abbreviations and their pronunciations

Materials: White board, cards or papers written on different kinds of abbreviations

Procedure:
Step 1: Ask 2 volunteers to come to the white board.
The volunteers should bring swatters.
Step 2: Ask the students in the class to say some definitions for the abbreviations written on the papers on the white board.
Step 3: Students try to find the abbreviations on the papers and they swat on the words with their swatters.
The one who swats on the correct abbreviation wins the game.

Enjoyable class activities while teaching abbreviations or acronyms can be found from the following web-site:

http://www.inged.org.tr/index.php?option=com_content&view=article&id=49&Itemid=56#content

Conclusion:

Abbreviations and acronyms are always seen in different areas in our lives. We should learn the meanings of the common abbreviations and we should teach tem to our students. Up to here, history and current use of abbreviations have been told. Samples of abbreviations and acronyms and sample exercises on abbreviations and acronyms have been given. Useful books and web-sites to find abbreviations and acronyms have been suggested. Games and class activities for teaching abbreviations and acronyms have been suggested. Pronunciations of some abbreviations have been handled.

It is hoped that this paper will help colleagues to learn and teach abbreviations and acroyms in English. It is also hoped that colleagues will make more enjoyable and effective courses after the suggested issues in this paper.

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http://acronyms.thefreedictionary.com/

Acronyms and Abbreviations Directory:
http://www.abbreviations.com/

Glossary of terms which are commonly used on Wikipedia:
http://en.wikipedia.org/wiki/Wikipedia:Acronyms

Acronyms and Abbreviations in the yahoo directory:
http://dir.yahoo.com/reference/acronyms_and_abbreviations/

Free acronyms and abbreviations finder and definitions - business, training, medical, military, technical, funny - acronyms, backronyms and abbreviations meanings:http://www.businessballs.com/acronyms.htm

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http://www.all-acronyms.com/

Glossary for Internet Abbreviations:
http://netforbeginners.about.com/cs/netiquette101/a/abbreviations.htm

The Opaui Guide to lists of Acronyms, Abbreviations, and Initialisms on the world wide web:
http://www.abbreviations.com/opaui.asp

MediLexicon contains searches, information, news and resources for the medical, pharmaceutical and healthcare professional:
http://www.medilexicon.com/

Medical Abbreviations Dictionary:
http://www.medilexicon.com/medicalabbreviations.php

Abbreviations on law:
http://www.abbreviations.com/acronyms/LAW

Abbreviations and Acronyms Used in Law Practice Areas:
http://www.scribd.com/doc/22698260/Abbreviations-and-Acronyms-in-Law-Practice-Areas

Abbreviations and Acronyms Used in Environmental Law:
http://www.springerlink.com/content/y7100k23614q7v51/

Law Enforcement Abbreviations in the USA:
http://www.accuracyproject.org/PoliceAbbreviationsandAcronyms-US.html

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USING T SCORES IN COMPUTING FINAL GRADES FOR AN UNDERGRADUATE COURSE: COULD IT BE A MORE RELIABLE WAY OF GRADING?

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According to Blanchard & Aleamony (1985), most current practices of course grading, particularly with respect to computing the final grade, are flawed because they assumed that different grades have identical distribution, means and standard deviations, which is rarely true. They advocated the use of the T score for individual and final grades as a more accurate procedure of course evaluation, provided that objectives are clearly delineated and conveyed to students. This recommended procedure was used retroactively on an undergraduate education course at the Lebanese American University in Beirut with 22 students. Original final grades were compared with the adjusted grades based on the Blanchard & Aleamony's procedure. Significant differences were noted between the old and revised grades. The author recommends that instructors rethink their grading policy and procedures based on the above findings.

Most university courses are evaluated on the basis of a number of course activities (e.g., lecture exams and quizzes, laboratory exams and quizzes, term papers, oral presentations, homework assignments, etc.). At the Lebanese American University, to determine each student's final grade, typically a letter from A to F, the instructor usually performs a ritual involving: (a) a determination of the score (and possibly the letter grade) that the student achieves in each of the separate course activities assigned a point value, and (b) a combining of the individual scores of each student to arrive at a total score which is then converted to a course letter grade. The manner in which the letter grade is assigned varies a great deal from instructor to instructor and is often dictated somewhat by the policies of the individual academic unit. Clearly then, one daunting task faced by nearly all instructors is to decide on some rational basis for assigning grades to students. This is often a hurried activity done at the end of a semester when both student and instructor alike are anxious to bring the semester to a close. This is somewhat paradoxical since assigning grades to students should be an accurate reflection of the information they assimilated in the course, and the culminating activity of the entire course for both faculty and students. Unfortunately, grades are often assigned according to an identical misguided procedure, semester after semester, year after year with little or no attempt to stop and examine the basis for the system being used. On the other hand, faculty who are heavily involved in research or just dedicated to teaching, both make every effort to keep abreast of the latest findings in their field, update their lectures and instructional materials to maintain quality instruction. Unwittingly, they leave their grading procedures unchanged.

The purpose of this article is to provide some "food for thought" concerning the grading process by examining the shortcomings of the methods commonly used to assign final course grades, and making some recommendations for improving the validity and accuracy of the grade assignment task.

The Purpose and Uses of Grades

Students commonly complain that their grades do not reflect their level of learning.

Ideally, grades should be abolished for the following reasons:

(1) Students will become intrinsically motivated to learn

(2) Anxiety is lowered, even completely eliminated, for both faculty who are hard pressed to assign fair grades and students who are eager to see the fruit of their labor being rewarded

(3) Conflict is completely eliminated as faculty will be seen more as imparters of knowledge and less as judges of performance, an invariably thankless task

It is clear for all practical reasons that grades are here to stay because abolishing them would create more problems that it would solve. Our goal is to denounce the misuse of grades, rather than their use. In the final analysis, grades have several advantages:

(1) They provide a great motivation for learning

(2) They provide feedback on student performance which is valuable for both students and instructors. Students can use this feedback to strive for improvement, and instructors to improve the quality of instruction.

(3) They provide useful information to other concerned parties, namely parents who pay tuition, prospective employers and graduate school admissions officers.

(4) They help students plan their future careers since grades play a determining role in choosing an occupation or college major on the basis of their relative success as reflected by school achievement.

Grades are therefore paramount to provide a formal systematic way of transmitting value assessment made by instructors to students and other concerned parties. These value judgments provide a basis for making important personal, academic and professional decisions. Grades must be valid if they are to play that key role. It follows that a high grade must go to the performance that reflects attainment of the greatest number of instructional objectives in the course. Unfortunately assigning grades often reflects a set of complex subjective and sometimes irrelevant variables such as attendance, class participation, and so forth.

Combining and Weighting Scores

Blanchard and Aleamony (1985) advocated in their landmark study for a properly weighted T scores in a criterion-referenced grading system to replace the current practices. The common system typically used in our universities, including LAU, is combining the individual scores attained by each student in the various course activities which have been assigned a point value (e.g., book reports, term papers, quizzes, midterms, and finals). This procedure involves adding up the individual scores to obtain a total score for each student. These total (raw) scores are then used to assign a letter grade to each student. However, Blanchard and Aleamony cautioned that instructors who use this method are ignoring the variability associated with each of the measures of course performance (e.g., tests, quizzes, homework, etc). Variability refers to the degree of spread or dispersion of test scores within the score range (Salvia & Ysseldyke, 2000). The most common measure of this variability is the standard deviation (SD). The effect of basing a student's grade assignment on the total (raw) score tests when each test has a different standard deviation is to assign a disproportionate weighting (i.e., too high) to the test score from the test with the largest variability in scores. This , in effect changes the weighing that the instructor had intended for the test. An example provided by Blanchard and Aleamony will help illustrate this point better. "Assume an instructor wishes to assign equal weighting to two test scores for two hypothetical students, Jim and Margaret. Jim received the highest score in the class on test #1 and lowest score on test #2 whereas Margaret's scores were highest in the class on test #2 and lowest in the class on test #1. Their scores and the SD of attained scores (i.e., the variability of these two tests) are shown in table I.

Table I Student raw scores on two equally weighted tests

Student	Test #1	Test #2	Combined raw scores
Jim	32	40	72
Margaret	14	48	62
SD of scores	6	2	

Since these two students each obtain a lowest and a highest score in the class for two tests intended to be weighted equally, each student should receive about the same combined score, provided the SD of each test was identical. However, Jim's combined score was higher because his best score was obtained on the test with the greater degree of variability. In order to obtain a more meaningful estimate of each student's position relative to their classmates on a combined set of scores, the scores must be converted in such a manner that each test has the same degree of variability, i.e., the original or raw scores must be transformed to a scale which has more or less equal units. This can be achieved through the use of s-called "standard scores." One of the most commonly used transformations converts the raw scores into T-scores using the following formula:

Where, X= an individual raw score, X= the mean of a set of raw scores, and SD= the standard deviation of the set of raw scores. This transforms the original raw scores into a set of T-scores having a mean of 50 and a standard deviation of 10. Using this scale, the range of test scores will be approximately 20 to 80, i.e., -3.0 to +3.0SD units from each test are combined, a new distribution of 'summed' scores will be created which will not necessarily have a SD equal to 10. This will only be true if a normalizing transformation is used which transforms the raw scores in a nonlinear fashion such that the standard scores become normally distributed. However, the normalizing procedure changes the distribution and thus the rankings of students relative to their classmates. This procedure is therefore not recommended since, as will be discussed later, the grade assigned to a student should be based upon their actual performance relative to well defined course objectives rather than their percentile rank in the class. The advantage of using T-scores is illustrated in Table II, where the test scores of two hypothetical students have been compared in terms of both raw scores and standard (T) scores. Note how Margaret has obtained more total (raw score) points over the four tests, whereas Jim has the higher T-score total. This disparity is due to the greater contribution of points on test#4 to Margaret's total raw score. Note also how Jim outscored Margaret by marked differences in standard deviations units i.e., in terms of the quality of their individual performances, on Tests 1, 2, and 3. It's also possible to assign different weighting to different test scores that are to be added together by simply multiplying the standard scores for a given exam by a different weighting factor, e.g., one, two, three, etc,. (8). One common misconception is that the raw score point totals assigned to a given test determine the weighting desired. For example, assigning a maximum value of 200 points to a test does not mean that it will be weighted twice as heavily as a test assigned maximum of 100 points. This will only be true for those students obtaining perfect scores of 200 and 100 points, respectively. In order to have any other combination of scores reflect a two to one ratio the standard deviations of the two tests would have to be equal. The use of different weighting is illustrated in Table II where the "Weighted Summed Scores" were determined by multiplying each test score by 0.25 and then adding them up, since it was desired that each test be worth 25 percent of the total sum of scores in the class. The "Weighted Summed Scores" were calculated by multiplying test #1 raw scores by 0.20, Test #2 by 0.30, Test #3 by 0.30, Test #4 by 0.20 before summing them since these values represent the weighting desired for each test. The use of T-scores weighted either equally or differentially (as shown in Table II) more accurately expresses each student's performance in terms of the number of SD units their score is from the mean and allows the instructor to correctly weight each exam as they see fit. Therefore, student rankings and grades should be based upon properly weighted T scores and not total (raw) scores. Thus, in the example, Jim would rank higher than Margaret even though Margaret's total (raw) scores would be higher.

Table II. A Comparison of the raw scores and T scores of two students on four tests.

Test Number	Total points available	SD	Jim's	Margaret's	Jim's T	Margaret's
	X			X		T
1	200	130 22	152	141	60	55
2	100	75 10	70	60	45	35
3	60	38 7	59	38	80	50
4	400	200 60	140	320	40	70
Unweighted Summed Scores			421	559	225	210
			105.25	139.5	56.25	52.50
Weighted Summed Scores[a]			97.10	121.60	57.50	50.50

Weighted Summed Scoresb

Experiment with an LAU Course

The Blanchard and Aleamony's suggestion was implemented retroactively on a course the author taught in Fall 2007-2008. The course is titled School Counseling. It is an undergraduate, junior or senior level course required by all education majors. The course had four requirements with various weights assigned to them: a midterm (30% of the final grade), two projects (25% and 15%, respectively) and a final exam (30%). Each academic requirement was assigned a grade out of 100. Weighted summed scores were computed then converted to letter grades based on the following scale:

100 – 90	A
89 – 80	B
79 – 70	C
69 – 60	D
< 60	F

The Appendix shows the detailed individual and final grades for each of the 22 students enrolled in the course, along with the T score for each academic task, the adjusted final weighted based on the Blanchard and Aleamony procedure, and the original letter grades that were assigned. Adjusted weighted final averages were based on the following formula: Since 50 is the mean of the T score with a standard deviation of 10, these scores were converted to z scores. A full standard deviation was used to delineate the grade intervals. Half a standard deviation before and after the mean of 50 was chosen as the C range; another full standard deviation for the B, then the A. The same formula applied for the D and F ranges. Accordingly, the C range fell between a T score of 45 to 55, the B range between 55 and 65, the A range between 65 and 75, the D range between 35 and 45, and grades below 35 were considered in the F range.

As the Appendix indicates, 17 of the 22 students had a higher adjusted final grade, typically higher than the original.

Suggestions for an Improved Grading System

Based on Blanchard and Aleamony's suggestion to use the T scores weighted summed scores instead of the total weighted raw scores of a course and it obvious measurable benefits, faculty are urged to rethink the way they compute and assign final course grades. However, this can only be partially achieved if other variables are taken into consideration. Namely, instructors need to have a rational and well-developed set of goals and objectives for the course which is a challenging task. According to Mager (in Blanchard and Aleamony), some of the effective objectives include:

(i) is stated in concrete and unambiguous terms, thereby excluding the greatest number of possible alternatives to your goal;

(ii) defines the terminal behavior expected of the successful student;

(iii) outlines the important conditions under which the behavior will be expected to occur; and

(iv) describes how well the learner must perform to be considered acceptable (p. 21).

As such, it is generally recommended by university accrediting agencies such the New England Association of Schools and Colleges, grades should be assigned based on the following criteria:

A grade of A means that major and minor goals are satisfactorily achieved.

A grade of B means that major goals are achieved, some minor ones are not.

A grade of C means that all major goals are achieved, but many minor ones are not.

A grade of D means that few major goals are achieved, but student is not prepared for advanced work.

A grade of F means that none of the major goals are achieved. The instructor should clearly and explicitly convey to the students all of the factors constituting the assignment of their grade in writing, at the beginning of the course and then adhere to them consistently. Grade variability among students or between courses is usually caused by the lack of consistent standards for evaluating student achievement.

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APPENDIX I

	Project 1 (25%)	T score	Mid-term (30%)	T score	Project II (15%)	T score	Final (30%)	T score	Total grade - T-scores	Adjusted Final Course Grade	Grades Originally Assigned
Student 1	65	39.3	63.5	45.5	70	41.0	80	46.2	43.5	**D**	C
Student 2	85	54.6	93.5	67.6	75	48.1	90.5	58.3	58.6	**B**	B
Student 3	88	56.9	95.5	69.1	77.5	51.6	97.5	66.4	62.6	**B**	A
Student 4	61	36.3	51.5	36.6	70	41.0	70	34.7	36.6	**D**	D
Student 5	75	47.0	77	55.4	90	69.3	76.5	42.2	51.4	**C**	C
Student 6	61	36.3	66.5	47.7	70	41.0	83.5	50.2	44.6	**D**	C
Student 7	65	39.3	60	42.9	70	41.0	75.5	41.0	41.2	**D**	C
Student 8	81	51.6	58.5	41.8	75	48.1	67	31.2	42.0	**D**	C
Student 9	81	51.6	71.5	51.4	75	48.1	84	50.8	50.8	**C**	B
Student 10	100	66.1	54	38.5	85	62.2	70.5	35.2	48.0	**C**	B
Student 11	85	54.6	83.5	60.2	75	48.1	77.5	43.3	51.9	**C**	B
Student 12	81	51.6	70	50.3	75	48.1	83	49.7	50.1	**C**	B
Student 13	100	66.1	71.5	51.4	75	48.1	82.5	49.1	53.9	**C**	B
Student 14	100	66.1	67	48.1	85	62.2	91	58.9	57.9	**B**	B
Student 15	87	56.1	87	62.8	75	48.1	100.5	69.8	61.0	**B**	A
Student 16	65	39.3	48.5	34.4	70	41.0	91.5	59.5	44.2	**D**	C
Student 17	100	66.1	76.5	55.1	77.5	51.6	87	54.3	57.1	**B**	B
Student 18	75	47.0	46.5	33.0	90	69.3	78.5	44.5	45.4	**D**	B
Student 19	65	39.3	81	58.4	70	41.0	80.5	46.8	47.5	**C**	C
Student 20	71	43.9	75	54.0	70	41.0	90.5	58.3	50.8	**C**	B
Student 21	75	47.0	70	50.3	90	69.3	85	52.0	52.8	**C**	B
Student 22	71	43.9	63.5	45.5	70	41.0	90	57.7	48.1	**C**	B
SD	13.09		13.56		7.06		8.67				
Average	78.95		69.61		76.36		83.30				

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UZAKTAN EĞİTİMDE ÖĞRETİM YÖNETİM SİSTEMİ TASARLAMA SÜRECİ VE MODÜLER YAPI BİLEŞENLERİ

LEARNING MANAGEMENT SYSTEM PROCESS AND MODULAR STRUCTURE COMPONENTS IN DISTANCE EDUCATION

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ÖZET

Bu çalışmada, kurum gereksinimleri doğrultusunda, gelişen yeni teknolojileri en iyi ve hızlı şekilde sisteme entegre edebilmek amacıyla uzaktan eğitimde kullanılmak üzere bir Öğretim Yönetim Sistemi (ÖYS) hazırlanmıştır. Hazırlanan ÖYS'nin ön lisans, lisans, yüksek lisans, doktoraya yönelik hizmet verebilme imkânının yanında sertifika programı yönetim ihtiyaçlarını da karşılayabilecek veritabanı ve arayüz potansiyeline kavuşturulması hedeflenmiştir. Sistem modüler yapıda tasarlanarak öğretim yönetim sistemindeki iş yükünün azaltılması amaçlanmıştır.

Öğretim yönetim sistemi geliştirme sürecinde ilk olarak detaylı bir analiz çalışması yapılarak başlanmış ve çalışma grubu tarafından mevcut ÖYS'lerin yapıları incelenmiştir. Devam eden süreçte tasarlanması düşünülen sistemin hangi tür yeteneklere sahip olması gerektiğinin belirlenebilmesi için bu konuda bir ihtiyaç analizi yapılmıştır. İhtiyaç analizinden elde edilen veriler ışığında sistemin sahip olması gereken modüller, kullanıcı rol ve görevleri ve arayüz tasarlanmış, veri tabanı ve kodlama yapılarak bu yapılar birleştirilmiştir. Hazırlanan sistemde her bir kullanıcı profiline göre yetkilendirmenin işlevsel ve esnek olması, ÖYS içi erişimin dinamik ve güncellenebilir olmasını da peşinden getirmiştir.

ÖYS tasarım sürecinin uzun soluklu ve zorlu bir süreç olduğu göz önünde bulundurularak alanında uzman kişilerden oluşan profesyonel bir çalışması yürütülmelidir. Bu noktada, çalışmanın, ileride ÖYS geliştirecek kişiler için özellikle analiz sürecinde ihtiyaçların belirlenmesi aşamasında yardımcı olabileceği düşünülmektedir.

Anahtar Kelimeler: Öğretim Yönetim Sistemleri, Modüler Yapı Bileşenleri, e-öğrenme

ABSTRACT

In this study, with the aim of integrating new technologies into the system in a best and fast way, a Learning Management System (LMS) was prepared for distance education. The aim was to have a potency of an interface and a database which meet the management needs of certificate programme in addition to undergraduate, graduate and postgraduate programmes. The system was a modular-designed so as to reduce workload in learning management system.

In developing the system, first detailed analyses were done and then the structures of existent learning management systems were investigated by workgroup. Meanwhile, a needs analysis was done in order to determine necessary skills required for the system. In the light of data obtained from the needs analysis, necessary modules, user role and functions, interface were designed and also database and coding was completed. Later all of them were combined. In this system, authorization was functional and flexible in each user profile and this brought about the fact that access in-LMS was dynamic and can be updated.

Considering the fact that the development of LMS is longitudinal and challenging process, a professional study should be done with a group of experts in their own field. Therefore, it is thought that the current study can contribute to those who want to develop a LMS especially in determining needs in their analysis process.

Keywords: Learning Management Systems, Modular Structure Components, e-learning

GİRİŞ

Bilgi ve iletişim teknolojilerinin gelişimiyle birlikte internet ağının günden güne yaygınlaşması eğitimde yeni olanakları da peşinden getirmiştir. Özellikle son yılarda internete dayalı teknolojilerde yaşanan gelişmeler uzaktan eğitimde gittikçe önemli bir güç haline gelen e-öğrenme modelini ortaya çıkarmıştır (Aşkar & Halıcı, 2004). E-öğrenmenin gerçekleşebilmesi için temelde iki bileşenin birbiri ile eşgüdüm içinde çalışması gerekir. Bunlardan ilki eğitsel materyalin kendisi (content). Diğeri ise öğrenciyi doğru eğitsel malzemeye yönlendiren, öğrenme sürecini takip eden ve performansı kayıt altına alan öğretim yönetim sistemidir (Learning Management System) (Karadağ, 2008).

Öğretim yönetim sistemlerinin (ÖYS) amacı, e-öğrenme faaliyetlerini kolaylaştırarak, daha sistematik ve planlı bir şekilde gerçekleştirmektir. ÖYS'leri öğrenme materyali sunma, sunulan öğrenme materyalini paylaşma ve tartışma, dersleri yönetme, ödev alma, sınavlara girme, bu ödev ve sınavlara ilişkin geribildirim sağlama, öğrenme materyallerini düzenleme, öğrenci, öğretmen ve sistem kayıtlarını tutma, raporlar alma gibi işlevleri sağlamaktadırlar (Morten, 2002).

Günümüz Öğretim Yönetim Sistemlerinin SCORM paylaşılabilir içerik nesneleri ile uyumlu olması gerekmektedir (Worhten & Sanders, 1987; Doruk, 2006). Ayrıca günümüz ÖYS'lerinde SCORM standartları ile birlikte modülerlik de ön plana çıkmaktadır. Modüler öğretim yönetim sistemlerinin en önemli avantajı, kendi içerisinde belirli iş yüküne sahip parçalara (modüllere) ayrılmasıdır. Bu sayede her bir iş yükü kendi içerisinde genişletilebilir, esnetilebilir ve yönetilebilir hale gelmektedir (İbili vd., 2008).

Büyük firma ve çok nüfuslu üniversiteler kendi ÖYS'lerini geliştirmektedir. Pek çok kurumsa, ticari bir ÖYS satın almayı ya da kiralamayı tercih etmektedir. Ancak, ticari ÖYS'lerin kurumun gereksinimlerine uyarlanması ve veri tabanları gibi kurumun bilgi teknolojileri olanaklarıyla bütünleştirilmesi uzun, pahalı ve engebeli bir süreçtir (Erkunt & Akpınar, 2006). Bunun yanında açık kaynak kodlu ÖYS'lerin kullanım ihtiyaçlarına tam olarak cevap verememesi ve kullanım modüllerinin ilk kez kullanan için kompleks bir yapıya sahip olmasından dolayı kullanımı daha kolay, tasarımı ve içeriğiyle daha özgün, belirlenen minimum ihtiyaçlara sağlıklı bir şekilde cevap veren bir öğretim yönetim sistemi geliştirilmesi amaçlanmıştır.

ÖYS tasarım sürecinin başlangıç aşamasında uygulanması gereken en önemli unsurlardan birisi ÖYS yapısı için yapılması istenilen bileşenleri içeren bir analiz sürecini gerçekleştirmektir. Bu süreç içerisinde kullanılacak verilerin saklanması ve yorumlanması için bir veritabanı çalışması yapılarak kolay güncellenebilir, grup çalışmalarında kolay anlaşılabilir bir veritabanı tasarlanmalıdır (Kantar vd., 2008). Bu çalışmada, kurum gereksinimleri doğrultusunda, gelişen yeni teknolojileri en iyi ve hızlı şekilde sisteme entegre edebilmek amacıyla uzaktan eğitimde kullanılmak üzere bir ÖYS hazırlanmıştır.

ÖĞRETİM YÖNETİM SİSTEMİ TASARIM SÜRECİ

Öğretim yönetim sistemi geliştirme sürecinde ilk olarak detaylı bir analiz çalışması yapılarak başlanmış ve çalışma grubu tarafından mevcut ÖYS'lerin yapıları incelenmiştir. Devam eden süreçte tasarlanması düşünülen sistemin hangi tür yeteneklere sahip olması gerektiğinin belirlenebilmesi için bu konuda bir ihtiyaç analizi yapılmıştır. İhtiyaç analizinden elde edilen veriler ışığında sistemin sahip olması gereken modüller, kullanıcı rol ve görevleri ve arayüz tasarlanmış, veri tabanı ve kodlama yapılarak bu yapılar birleştirilmiştir. Öğretim yönetim sisteminin tasarım süreci Şekil 1'de özetlenmiştir.



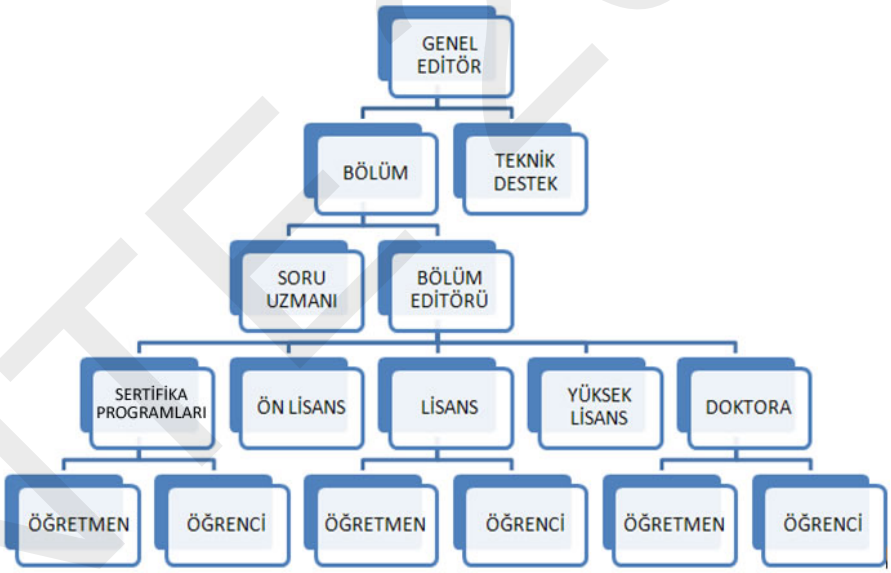
Şekil 1. Öğretim Yönetim Sistemi Tasarım Süreci

Sistem bileşenleri seçilirken, düşük maliyetin yanında, yüksek performans ve güvenlik sağlamasına ve kurumun internet altyapısına uygun olmasına dikkat edilmiştir. Araştırmacılar tarafından yapılan araştırmalarda bu kriterler ışığında en uygun bileşenlerin PHP, Apache ve MySQL olduğuna karar verilmiştir. Ayrıca sistem sayfalarına dinamiklik kazandırmak için Javascript ve Ajax dillerinden de yararlanılmıştır.

Hazırlanan ÖYS'nin ön lisans, lisans, yüksek lisans ve doktoraya yönelik hizmet verebilme imkânının yanında sertifika programı yönetim ihtiyaçlarını da karşılayabilecek veritabanı ve arayüz potansiyeline kavuşturulması hedeflenmiştir. Sistem modüler yapıda tasarlanarak öğretim yönetim sistemindeki iş yükünün azaltılması amaçlanmıştır.

ROLLER VE YETKİLER

Bu çalışmada, roller ve yetkiler belirlenirken, benzer sistemler incelenmiş, var olan yapılar kurum gereksinimleriyle karşılaştırılarak, üniversitedeki hiyerarşiye benzer bir yapı tasarlanmıştır. Hazırlanan sistemde her bir kullanıcı profiline göre yetkilendirmenin işlevsel ve esnek olması, bu yetkilendirme sınırları içinde ÖYS içi erişimin dinamik ve güncellenebilir olmasını peşinden getirmiştir. ÖYS'de toplam 7 rol bulunmaktadır. Bunlar; Genel Editör, Bölüm Editörü, Yönetici Yardımcısı, Öğretmen, Öğrenci, Soru Uzmanı ve Teknik Destektir. Sistemdeki roller; en üstte bir genel editör yönetiminde her bir bölüme ait editör, yönetici yardımcısı, öğretmen, soru uzmanı ve öğrenci olarak belirlenmiştir. Sistemde yer alan rollere ilişkin hiyerarşik yapı Şekil 2'de gösterilmektedir.



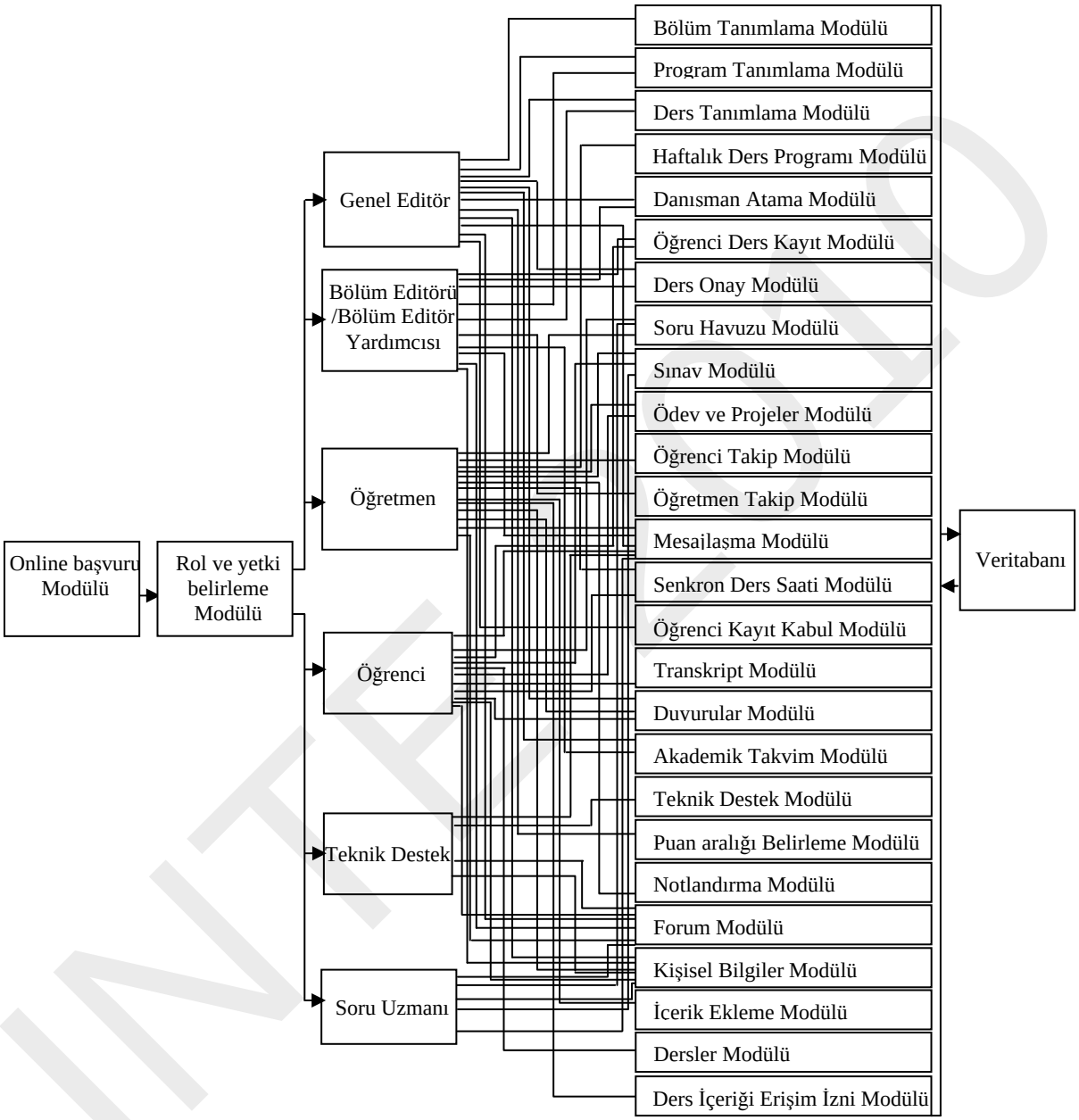
Şekil 2. Kullanıcı Profillerinin Hiyerarşik Yapısı

MODÜLER YAPI BİLEŞENLERİ

Modüler sistem öğretim yönetim sisteminin iş yükünü paylaşan, bütünün performansı için görevleri planlı şekilde üstlenen bir yapıdır. Modüllerin birbirleriyle olan sağlıklı iletişimiyle sistem gereksinimlerine istenilen şekilde cevap verecek düzeyde bir ilişki yapısı geliştirilmiştir. Sistemde yer alan modüller;

Online başvuru modülü, Rol ve yetki belirleme modülü, Bölüm tanımlama modülü, Program tanımlama modülü, Ders tanımlama modülü, Haftalık ders programı modülü, Danışman atama modülü, Öğrenci ders kayıt modülü, Ders onay modülü, Soru havuzu modülü, Sınav modülü, Ödev ve projeler modülü, Öğrenci takip modülü, Öğretmen takip modülü, Mesajlaşma modülü, Senkron ders saati belirleme modülü, Kayıt

kabul modülü, Teknik destek modülü, Duyurular modülü, Akademik takvim modülü, Transkript modülü, Puan aralığı belirleme modülü, Notlandırma modülü, Forum modülü, Kişisel bilgiler modülü, İçerik ekleme modülü, Ders içeriği erişim izni modülü olarak isimlendirilmiştir.



Şekil 3. Modüler Yapı Bileşenleri ve Rollerle İlişkisi

Şekil 3'deki ilişkiler ağında rollerin her biri erişebildikleri modüller içerisinde kendilerine tanımlanan görevleri yapmakla sorumludurlar.

Genel Editör: Sistemin en yetkili kullanıcı profilidir. Bölüm/program/ açma-kapama-güncelleme ve silme işlemlerini gerçekleştirir. Ders tanımlama modülüyle açılan dersi onaylama, kilitleme, silme ve dersle alakalı detayları görme gibi işlemleri yapar. Atanması önerilen danışmanın onay işlemlerini yürütür. Ders onay modülü ile bir dersi almak için başvuruda bulunan öğrencilerin bölüm editörü onayından sonra genel editör tarafından toplu onayını gerçekleştirir. Genel editör akademik takvim modülü sayesinde seçilen bölüm ve programa göre akademik takvim oluşturulmasını sağlar ve sertifika programlarının akademik takvimlerini görüp uygun ise uygulamaya konması için onay verir. Puan aralığı modülü ile seçilen program için puan aralığını oluşturur. Genel editör duyuru modülü ile ilgili bölüm-program ve ders seçeneklerine bağlı olarak kullanıcı profili hiyerarşisinde kendisinden altta bulunan kullanıcılara duyurular gönderip düzenleme-silme işlemlerini yürütür. Kayıt kabul modülünde sisteme kayıt olan öğrencilerin kayıtlarını değerlendirip kullanıcının kaydığını onaylayarak kullanıcı hesabının aktif olmasını sağlar. Kişisel bilgiler modülü ile hem kendi bilgilerini görüp güncelleme yapabilmekte, hem de diğer kullanıcı bilgilerinin denetimini sağlayabilmektedir. Forum/mesajlaşma modülleri ile tüm kullanıcı profilleriyle iletişime girebilmektedir. Genel editör gerektiği zaman tüm modüllere erişebilir.

Bölüm Editörü: Kendi bölümlerinin yönetiminden sorumludur. Bölüm editörleri kendi bölümüne program ve ders ekleyip- düzenleme –silme ve sertifika programları için akademik takvim ekleme gibi yetkilere sahiptir. Öğrencilerin kayıtlı olduğu dersleri görüp onaylar. Bölüm öğrencilerinin ders onaylarını teker teker yaparak program bazında toplu onay için sistem aracılığıyla genel editöre ulaşmasını sağlar. Öğretmen takip modülü ile öğretmenin sistemdeki görev performansını kontrol eder. Danışman ataması için genel editöre danışman ismi sunar. Kişisel bilgiler modülü ile kendi bilgilerini görüp güncelleme yapabilir. Kullanıcı bilgilerine erişim izni vardır. Forum/mesajlaşma modülleri ile tüm kullanıcı profilleriyle iletişime girebilmektedir.

Yönetici (Editör) Yardımcısı: Bu rol, yöneticilere düşen iş yükünü azaltabilmek amacıyla belirlenmiştir. Genel editör ya da bölüm editörü tarafından atanan ve yönetici tarafından izin verilen modüllere erişebilen bir kullanıcı profilidir. Yönetici yardımcısı görevi bir kişiye verilebileceği gibi birden fazla kişiye de verilebilir.

Öğretmen: Verdiği derslere ilişkin alanlara erişim izni olan bir roldür. Sisteme ders içeriği ekleme ve erişim izni verme, haftalık ders programı yapma, senkron ders saatlerini belirleme, öğrenci takip modülü ile atanmış olduğu ders/derslerin öğrenci listesini görüp bilgilerine ulaşma, ilgili program ve derse göre öğrencilere dersle ilgili duyuru yapma, sınav oluşturma ve sınav yüzdeliği belirleme, soru havuzuna soru ekleme, ödev-proje işlemleri ve notlandırma gibi akademik görevlere sahiptir. Ödev ve proje modülü ödev-proje, grup ve ödevlendirme işlemlerinden oluşmaktadır. Ödev-Proje işlemlerinde öğretmenin ödev ya da proje verebileceği, verilen ödevi düzenleyebileceği ve silebileceği formlar bulunmaktadır. Grup işleminde öğretmen öğrencilerden grup oluşturabilmekte ve üzerinde işlemler yapabilmektedir. Ödevlendirme işleminde öğretmen sisteme girdiği ödevleri öğrencilere bireysel ya da grup ödevi olarak verebilmektedir. Notlandırma modülünde öğrenci uygulamaları teslim alınır ve notlandırılma yapılır. Kişisel bilgiler modülü ile kendi bilgilerini görüp güncelleme yapabilir. Forum/mesajlaşma modülleri ile tüm kullanıcı profilleriyle iletişime girebilmektedir.

Öğrenci: Kayıtlı olduğu dersleri sistem üzerinden takip eder. Kullanıcı adı ve şifresiyle sisteme girerek, kendi kişisel bilgilerine, ders kaydını yapacağı bölüme, aldığı derslerle ilgili bilgilere, online sınav sistemine, sınav notlarına, ödev ve projelerini alıp teslim edeceği bölümlere, transkript bilgilerine, derslerle ilgili duyurulara ulaşabilmektedir. Senkron ders saati modülü ile öğrenciler kayıtlı oldukları derslerin senkron saatlerini görebilmekte, zamanı gelmişse senkron derse bağlanabilmektedir. Forum/mesajlaşma modülleri ile tüm kullanıcı profilleriyle iletişime girebilmektedir.

Soru Uzmanı: Soru havuzunun yönetiminden sorumludur. Soru ve sınav bankalarına gelen soruları değerlendirir ve çıkmış soruları belirlenen zaman aralıklarında soru havuzuna aktarır. Forum/mesajlaşma modülleri ile tüm kullanıcı profilleriyle iletişime girebilmektedir.

Teknik Destek: Sıkça sorulan sorular bölümünün yönetimden sorumludur. Sık gelen soruları cevaplar ve yayınlar. Diğer kullanıcıların karşılaştıkları teknik sorunlara çözümler sunar. Forum/mesajlaşma modülleri ile tüm kullanıcı profilleriyle iletişime girebilmektedir.

SONUÇ VE ÖNERİLER

Günümüz gereksinimlerinden olan e-öğrenme içerisinde gerçekleştirilen öğretimin sistemli bir şekilde yönetilmesi gerektiği kaçınılmazdır. Bu gereksinim içerisinde ön-lisans, lisans, yüksek lisans, doktora ve sertifika programlarında hizmet verebilecek bir sistem geliştirilmiştir.

Modüler sistem mantığıyla geliştirilen sistemle hem karmaşık bir yapının geliştirilmesi hem de karşılaşılan olası sorunlar bütünü etkilemeden sorun hangi modül içerisindeyse o birime müdahale edilerek üstesinden gelinmesi kolaylaştırılmıştır.

Oluşturulan öğretim yönetim sisteminin geliştirilmesine halen devam edilmektedir. ÖYS'lerinin geliştirme sürecinde en önemli aşamanın analiz kısmı olduğu açıktır. Bu nedenle böyle bir sistem geliştirecek kişilerin tasarıma başlamadan önce iyi bir ekip kurarak, disiplinler arası işbirliğiyle sistem gereksinimleri belirlenmeli, bu gereksinimler ışığında sistem tasarımı yapılmalıdır. Analiz aşamasının uzun soluklu ve zorlu bir süreç olduğu göz önünde bulundurularak alanında uzman kişilerden oluşan profesyonel bir ekip çalışması yürütülmelidir. Bu noktada, bu çalışmanın ileride ÖYS geliştirecek kişiler için özellikle analiz sürecinde ihtiyaçların belirlenmesinde yardımcı olabileceği düşünülmektedir.

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ÜNİVERSİTE ÖĞRENCİLERİNİN İLETİŞİM BECERİLERİ VE YALNIZLIK DÜZEYLERİNİN BAZI DEĞİŞKENLER AÇISINDAN İNCELENMESİ

THE EXAMINATION OF UNIVERSITY STUDENTS' COMMUNICATION SKILLS AND LONELINESS LEVELS WITH REGARD TO SOME VARIABLES

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ÖZET

Bu çalışmada, üniversite öğrencilerinin iletişim becerileri ile yalnızlık düzeylerinin bazı sosyo demografik değişkenler açısından incelenmesi amaçlanmıştır. Ayrıca, iletişim becerileri ile yalnızlık düzeylerinin ilişkisine de bakılmıştır.

Araştırmanın evrenini, Uluslararası Kıbrıs Üniversitesinde öğrenim görmekte olan öğrenciler oluşturmuştur. Örneklemini, aynı üniversiteden amaçsal örnekleme yöntemi ile belirlenen 242 öğrenci oluşturmuştur. Araştırmada Ersanlı ve Balcı (1998) tarafından geliştirilen ve Cronbach-alpha güvenirlik katsayısı .72 olan "İletişim Becerileri Envanteri" ile adaptasyonu Demir (1989) tarafından yapılan ve Cronbach-alpha güvenirlik katsayısı .96 olan "Yalnızlık Ölçeği" kullanılmıştır. Verilerin analizinde t testi, ANOVA ve korelasyon analizi teknikleri kullanılmıştır. Önem düzeyi .05 olarak alınmıştır. Araştırmada, üniversite öğrencilerinin günlük internet kullanma sıklığının iletişim becerilerini etkilediği belirlenmiştir. Ayrıca, iletişim becerileri ile yalnızlık düzeyleri arasında düşük düzeyde, negatif yönde ve anlamlı bir ilişkinin olduğu, bireylerin iletişim becerileri arttıkça yalnızlık düzeyinin azaldığı saptanmıştır.

Anahtar Kelimeler: İnternet kullanımı, iletişim becerileri, yalnızlık düzeyi, üniversite öğrencisi.

ABSTRACT

The aim of this study is to investigate views of the communication skills and loneliness levels of university students' with regard to socio demografic status. Also the correlation of communication skills and loneliness levels examined.

The population of the study consists of the students at Cyprus International University. The sample consists of 242 students from this university selected according to purposeful sampling. Data collection instruments are "Communication Skills Inventory" developed by Ersanlı and Balcı (1998) with the reliability of .72 and "Loneliness Scale" adapted by Demir (1989) with the reliability of .96. In the analysis of data, t-test, ANOVA and correlation analysis techniques are used. The significance level is .05. As a result of research showed that daily internet usage frequency of university students effects their communication skills it is determined that there is a low level negative and meaningfull correlation between communication skills and loneliness levels of university students for this instance. It was determined that as the students' communication skills increase, their loneliness levels become decrease.

Key words: Internet use, communication skills, loneliness level, university student.

GİRİŞ

Günlük hayatın temelini oluşturan iletişim kavramı "bilgi üretme, aktarma ve anlamlandırma süreci" olarak tanımlanmaktadır. Cüceloğlu (1984) iletişimi, kişilerarasında yer alan düşünce ve duygu alışverişini dile getiren bir terim olarak ele almaktadır. Dökmen' e (2002) göre iletişim, katılanların bilgi veya sembol üreterek birbirlerine aktardıkları ve bu iletileri anlamaya, yorumlamaya çalıştıkları bir süreçtir. Genel bir tanım olarak ise, herhangi bir davranış değişikliği meydana getirmek amacıyla, bireylerin fikir, bilgi, haber, tutum, duygu ve becerilerini akla gelebilecek çeşitli yollarla başkasına aktarma, iletme ve paylaşma sürecidir (Özgüven, 2001). Bu anlamda yaşamın vazgeçilmez unsuru olan iletişimin, bireylerin ilişkilerine yön verdiği söylenebilir.

Kişiler, sosyal yaşam içinde yüzlerce sayıda ve nitelikte sorunla karşı karşıya kalmaktadırlar. Bu sorunların bir çoğuna kaynaklık eden yalnızlık, bireylerin yaşantısında önemli bir yer almaktadır. Sosyal alandaki değişimler ve kültürel hızlılık sosyal ilişkileri olumsuz etkileyerek "Bireyselleşme" ile birlikte "yalnızlaşma" kavramını getirmiştir. Genellikle istenilmeyen bir deneyim olarak kabul edilen yalnızlığın yaygınlığı yanında birey yaşantısının farklı yönleri ile etkileşimi bulunmaktadır. Yalnızlığın fiziksel hastalıklar, stres, anksiyete ve özellikle depresyon gibi psikolojik hastalıklar, madde bağımlılığı ile ilişkisini vurgulayan çalışmalarla, sosyal anksiyete, şizofreni, kişilik bozuklukları, nevrotik rahatsızlıklar ve obezite ile ilişkisini açıklayan çalışma örnekleri de bulunmaktadır (Akt. Kozaklı, 2006). Yalnızlık, üniversite dönemindeki gençliği de etkilemektedir. Yaşamın en dinamik dönemini yaşayan üniversite gençliği, içinde bulunduğu toplumun yapısını etkilemektedir. Ergenlik döneminin sonunda bulunan bu dönem "genç-yetişkin" olarak adlandırılmakta ve 18-22 yaşları arasını kapsamaktadır (Özgüven, 1992). Genç-yetişkin dönemi içinde yaşanan depresyon, anksiyete, stress gibi psikolojik problemlerle yalnızlık arasında ilişkiyi vurgulayan çalışmalar yapılmıştır. Ayrıca yalnızlığın, intihar etme riski ile ilişkili olduğuna dair bulgular da belirtilmiştir (Akt. Kozaklı, 2006).

Teknolojinin gelişme hızına bağlı olarak iletişim araçları da değişikliğe uğramaktadır. İletişim araçlarından olan internet; haber alma, bilgi edinme, araştırma yapma, eğitim alma ve hatta yönetim uygulamalarında kullanıldığı gibi, sohbet etmek, müzik dinlemek, vakit geçirmek gibi amaçlarla da yaygın olarak kullanılmaktadır. Kısa bir zaman içinde hayatın vazgeçilmez bir parçası haline gelen internet, kişileri tembelliğe itmesi, insanlar arasındaki iletişimi azaltması ve insanları asosyal bir varlık haline getirmesiyle taşıdığı dezavantajlar bakımından önemlidir. Alan yazında, internet ya da bilgisayar kullanan bireylerin birçoğunda dürtü kontrol bozukluğu ve/veya obsesif-kompülsif bozukluk belirtilerinin olduğu belirtilmiştir. Bilgisayarın aşırı kullanımıyla psikolojik rahatsızlıklar arasında yüksek bir ilişkinin bulunduğu bildirilmektedir. Diğer bir deyişle bilgisayar veya interneti aşırı kullanmak bazı psikolojik rahatsızlıkların işareti ve habercisi olabileceği gibi; bazı psikolojik rahatsızlıklara sahip olmak da bilgisayar veya internet bağımlılığı riskini yükseltebilir (Özcan ve Buzlu, 2005, Kelleci, 2008, Kelleci ve Gölbaşı, 2009).

İnternet kullanmanın, sosyal ilişkiler kurmak için beceriyi, yetenekleri ve sabrı kaybettirdiğine inanan çalışmacıların sayısı her geçen gün artmaktadır (Kelleci, 2008). Evinde kendine ait bir bilgisayarı olan ve bütün bir günü ekran başında geçiren gençler kolay arkadaş edinememekte, zamanla asosyal ve problemli bireyler haline gelmektedirler. İnternet, çocuk ve gençlerin bilgiye ulaşmalarını, araştırma yapmalarını, problem çözme, yaratıcılık, kritik düşünme gibi kişisel gelişimlerini destekleyen teknolojik bir mucize olarak değerlendirilirken, aynı zamanda aşırı, kontrolsüz, amacı dışında ve bilinçsiz kullanım yönü ile kişisel ve sosyal becerilerin gelişmesinde negatif etkilerinin olduğu da düşünülmektedir.

Geleneksel toplumda hemen her kesimden pek çok kişi, iletişimde sorunlar yaşamakta, başkalarıyla birlikte bulunsa bile, belki fiziksel açıdan değil ama psikolojik açıdan yalnızlık çekmektedir. Bireyselleşmiş bazı kişiler, kabuklarına çekilip hem fiziksel hem de psikolojik yalnızlık içine girebilirler (Dökmen, 2002). Yaşanan bu tür yanlızlık ve dışlanmışlık duyguları bireylerin, sanal ilişkiler kurarak iyi vakit geçirmelerine ortam sağlayan interneti kullanma oranlarını arttırmaktadır. Ayrıca, ailesinden uzakta eğitim alan üniversite öğrencilerinin sosyal uyum, iletişim, yalnızlık gibi konularda daha yoğun problemler yaşamaları nedeniyle (Kozaklı, 2006, Aytekin ve Bulduk 2000), interneti ve internet yoluyla kurulan ilişkileri daha fazla tercih ettikleri düşünülebilir.Bu anlamda Türkiye'den Kuzey Kıbrıs Türk Cumhuriyet'ine gelerek ailelerinden ayrılan üniversite öğrencilerinin psiko-sosyal yönden neler yaşadıkları önem kazanmaktadır.

Bu araştırmadan elde edilecek bilgiler ile bazı sosyo demografik değişkenlerin üniversite öğrencilerinin iletişim becerileri ile yalnızlık düzeylerini nasıl etkilediği incelenecek, ayrıca iletişim becerileri ile yalnızlık düzeylerinin ilişkisine bakılacak ve olası çözüm yolları tartışılacaktır. Araştırmadan elde edilecek verilerin, bu konuda çalışan okul psikologları ile psikolojik danışma ve rehberlik servislerine, akademisyenlere, yöneticilere ve ailelere fikir vererek, ışık tutacağı düşünülmektedir.

Araştırmanın Amacı

Bu çalışmada, üniversite öğrencilerinin iletişim becerileri ile yalnızlık düzeylerinin bazı sosyo demografik değişkenler açısından incelenmesi amaçlanmıştır. Ayrıca, iletişim becerileri ile yalnızlık düzeylerinin ilişkisine de bakılmıştır.

Problem Cümlesi

Araştırmanın problem cümlesi, "Üniversite öğrencilerinin iletişim becerileri ve yalnızlık düzeyleri, cinsiyet, sınıf düzeyi ve günlük internet kullanma sıklığı açısından farklılaşmaktamıdır? Öğrencilerin

iletişim becerileri ile yalnızlık düzeyleri arasında önemli ilişkiler (varsa) nelerdir?" şeklindedir. Bu temel problem doğrultusunda aşağıdaki alt problemlere cevap aranmıştır:
Üniversiteli gençlerin iletişim becerileri ile yalnızlık düzeyleri,

a. cinsiyete göre farklılaşmakta mıdır?
b. sınıf düzeyine göre farklılaşmaktamıdır?
c. günlük internet kullanma sıklığı açısından farklılaşmaktamıdır?
d. arasında istatistiksel olarak anlamlı bir ilişki var mıdır?

ARAŞTIRMA YÖNTEMİ

Araştırma Deseni

Bu araştırma, betimsel türde ilişkisel tarama modeli ile gerçekleştirilmiş bir çalışmadır. Yaygın olarak kullanılan betimleyici yaklaşım, ilgilenilen durumu tanımlamayı amaçlamaktadır. Tarama modelleri ise var olan durumu, var olduğu şekliyle betimlemeyi amaçlayan araştırma yaklaşımıdır (Karasar, 2009).

Evren ve Örneklem

Araştırmanın evrenini, Uluslararası Kıbrıs Üniversitesinde öğrenim görmekte olan öğrenciler oluşturmaktadır. Örneklemini, amaçsal örnekleme yöntemi ile belirlenen 144 kız (%59.5) ve 98 erkek (%40.5) olmak üzere toplam 242 öğrenci oluşturmuştur.

Veri Toplama Araçları

Araştırmada veri toplama aracı olarak, Kişisel Bilgi Formu, İletişim Becerileri Envanteri ve Yalnızlık Ölçeği uygulanmıştır. Ersanlı ve Balcı 1998, tarafından geliştirilen İletişim Becerileri Envanteri'nin geliştirilmesi sırasında pek çok ön çalışma yapılmış ve analizler sonucunda .05 düzeyinde anlamlı olan maddeler seçilerek her biri 15 maddeden oluşan 3 faktörlü likert tipi bir envanter haline getirilmiştir. Ölçeğin güvenirliğini test etmek için tekrar uygulama yapılmış ve güvenirlik katsayısı .64 bulunmuştur. Ölçeğin iç tutarlığını belirlemek amacıyla uygulanan Cronbach Alpha katsayısı .72 bulunmuştur. İletişim Becerileri Envanteri'nin toplam puanı ile alt ölçekler arasında .001 düzeyinde ve alt boyutların kendi içinde de korelasyon bulunmuştur. Bu alt boyutlar, madde içeriklerine göre; zihinsel, duygusal ve davranışsal olarak adlandırılmıştır (Akt: Alper, 2007). Yalnızlık Ölçeği, bireyin algıladığı yalnızlık derecesini belirleyebilmek amacıyla Russell ve arkadaşları 1980, tarafından geliştirilmiş bir ölçektir. Ülkemizde ilk kez Yaparel 1984, tarafından kullanılmıştır. Ölçeğin Türkiye'deki geçerlilik ve güvenirlik çalışması Demir 1989, tarafından yapılmıştır. Ölçekte 20 madde yer almakta ve değerlendirme dörtlü likert tipi bir ölçek üzerinde yapılmaktadır. Ölçeğin geçerlik ve güvenirlik çalışmalarında yalnızlıktan yakınan ve nörotik depresif tanısı almış 36 kişi ile 36 normal denek katılmıştır. Yapılan analizler sonucunda ölçeğin geçerliğine ilişkin bulgularda bireyleri anlamlı düzeyde ayırdığı ($t=6.29$; $p<0.001$) belirtilmiştir. Güvenirliğe ait bulgularda içtutarlılık katsayısının (.96) yeterli düzeyde olduğu belirtilmiştir (Akt.Kozaklı, 2006). Ayrıca öğrencilerin cinsiyetleri, sınıf düzeyleri ve günlük internet kullanma alışkanlıkları ile ilgili bilgi almaya yarayan bir form hazırlanmıştır.

Verilerin Analizi

Verilerin analizinde t testi, ANOVA ve korelasyon analizi teknikleri kullanılmıştır. Önem düzeyi .05 olarak alınmıştır.

BULGULAR

Tablo 1: Üniversiteli Gençlerin İletişim Becerisi İle Yalnızlık Düzeylerinin, Cinsiyete Göre Farklılaşıp Farklılaşmadığını Belirlemek Amacıyla Uygulanan t Testi Sonucu.

	Cinsiyet	n	$\bar{X}$	ss	df	t	p
İletişim	Kız	144	154,527	17,049	240	1,218	0,224
	Erkek	98	151,959	14,584			
Yalnızlık	Kız	144	49,104	8,383	240	1,544	0,124
	Erkek	98	50,744	7,698			

*.05 düzeyinde anlamlı farklılık

İletişim Becerileri Envanteri toplam 45 maddeden oluşmaktadır. 5'li likert tipinde hazırlanan ölçekten alınabilecek en düşük puan 45, en yüksek puan 225'dir. Ölçekten alınan puan yükseldikçe,

iletişim becerileri artmaktadır. Bu anlamda kız ve erkek öğrencilerin iletişim beceri puan ortalamalarına bakıldığında "orta" düzeyde oldukları söylenebilir. Aynı şekilde Yalnızlık Envanteri toplam 20 maddeden oluşmaktadır. 4'lü likert tipinde hazırlanan ölçekten alınabilecek en düşük puan 20, en yüksek puan ise 80'dir. Ölçekten alınan puan yükseldikçe, yalnızlık düzeyi artmaktadır. Bu anlamda kız ve erkek öğrencilerin yalnızlık düzeyi puan ortalamalarına bakıldığında "orta" düzeyde oldukları söylenebilir.

Yapılan t-testi sonucunda, üniversiteli gençlerin iletişim becerileri ile yalnızlık düzeylerinin cinsiyete göre farklılaşmadığı saptanmıştır. Bir başka ifadeyle, öğrencilerin iletişim becerileri ile yalnızlık düzeylerinin cinsiyetlerinden etkilenmediği yani bağımsız olduğu söylenebilir.

Tablo 2: Üniversiteli Gençlerin İletişim Becerileri İle Yalnızlık Düzeylerinin, Sınıf Düzeyine Göre Farklılaşıp Farklılaşmadığını Belirlemek Amacıyla Uygulanan F-Testi Sonucu.

	Sınıf Düzeyi	n	$\bar{X}$	ss	df	F	p
İletişim	1. sınıf	72	153,791	17,552	4	0,949	0,436
	2. sınıf	48	151,979	16,341			
	3. sınıf	36	151,833	15,668	237		
	4. sınıf	61	153,032	15,033			
	Hazırlık	25	159,000	14,462	241		
	Toplam	242	153,487	16,114			
Yalnızlık	1. sınıf	72	50,166	8,912	4	0,957	0,508
	2. sınıf	48	49,187	7,967			
	3. sınıf	36	51,638	6,137	237		
	4. sınıf	61	48,508	9,211			
	Hazırlık	25	50,120	5,286	241		
	Toplam	242	49,768	8,137			

* .05 düzeyinde anlamlı farklılık ** Lehte fark.

Yapılan tek yönlü varyans analizi sonucunda, öğrencilerin iletişim becerilerinin sınıf düzeylerine göre farklılaşmadığı saptanmıştır. Yalnızlık düzeyi ile öğrencilerin devam ettikleri sınıf düzeyi puanlarının Kruskall Wallis testi sonucuna göre de aynı şekilde anlamlı bir farklılığın olmadığı görülmüştür. Tablo 2'den de görüleceği üzere, öğrencilerin iletişim becerileri ile yalnızlık düzeylerinin devam ettikleri sınıflardan etkilenmediği yani bağımsız olduğu söylenebilir.

Tablo 3: Üniversiteli Gençlerin İletişim Becerileri İle Yalnızlık Düzeylerinin, Günlük İnternet Kullanma Sıklığı Açısından Farklılaşıp Farklılaşmadığını Belirlemek Amacıyla Uygulanan F-Tesi Sonucu.

	Günlük internet kullanım sıklığı	n	$\bar{X}$	ss	df	F	p	Anlamlı Fark
İletişim	Hergün (a)	195	154,861	16,297	4	5,411	0,000*	d-a**
	Haftada birkaç gün (b)	19	156,736	15,321				
	Onbeş günde birkaç gün (c)	15	146,533	9,195	237			
	Ayda birkaç gün (d)	6	134,333	5,955				
	Yılda birkaç gün (e)	7	137,714	6,21059	241			
	Toplam	242	153,487	16,114				
Yalnızlık	Hergün (a)	195	50,369	7,852	4	1,982	0,098	-
	Haftada birkaç gün (b)	19	45,578	9,610				
	Onbeş günde birkaç gün (c)	15	48,533	7,945	237			
	Ayda birkaç gün (d)	6	50,666	12,516				
	Yılda birkaç gün (e)	7	46,285	4,956	241			
	Toplam	242	49,768	8,137				

* .05 düzeyinde anlamlı farklılık ** Lehte fark.

Yapılan Kruskall Wallis testi sonucuna göre, üniversite öğrencilerinin iletişim becerilerinin internet kullanma sıklığından etkilendiği, tek yönlü varyans analizi sonucuna göre ise, yalnızlık düzeylerinin internet kullanma sıklığından etkilenmediği saptanmıştır. Üniversite öğrencilerinin iletişim becerilerinde istatistiksel olarak anlamlı bir farklılaşmaya neden olan grupları belirleyebilmek amacıyla verilere schefe anlamlılık testi uygulanmıştır. Scheffe anlamlılık testi sonucunda değişimin internet kullanma sıklığı "her gün" olarak belirten grup öğrencileri ile "ayda bir kaç gün" olarak ifade eden öğrencilerden kaynaklandığı saptanmıştır. Bu değişim internet kullanma sıklığı "her gün" olarak ifade eden öğrenci grubu lehinedir.

Tablo 4. İletişim Becerileri ve Yalnızlık Düzeyleri Arasındaki Korelasyon Sonucu

		Yalnızlık $\bar{X}$=49,768 ss.= 8,137
İletişim $\bar{X}$= 153,487 ss.= 16,114	Korelasyon	-0,184(**)
	Sig. (2-tailed)	0,004
	n	242

** 0.01 düzeyinde anlamlılık (2-tailed)

Tablo 4 incelendiğinde, üniversite öğrencilerinin iletişim becerileri ile yalnızlık düzeyleri arasında düşük düzeyde, negatif yönde ve anlamlı bir ilişkinin olduğu saptanmıştır ($r=0,184$ $p<0,05$). Bu durumda, öğrencilerin iletişim becerisi arttıkça yalnızlık düzeylerinin azaldığı söylenebilir.

SONUÇ VE ÖNERİLER

Sonuç

Araştırmada üniversite öğrencilerinin iletişim becerileri ile yalnızlık düzeylerinin bazı sosyo demografik değişkenler açısından incelenmesi amaçlanmıştır. Ayrıca, iletişim becerileri ile yalnızlık düzeylerinin ilişkisine de bakılmıştır. Öğrencilere uygulanan İletişim Becerileri Envanteri ile Yalnızlık Ölçeği verilerine göre; üniversiteli gençlerin iletişim becerileri ile yalnızlık düzeylerinin cinsiyete ve öğrenim gördükleri sınıf düzeyine göre farklılaşmadığı saptanmıştır. Üniversite öğrencilerinin iletişim becerilerinin internet kullanma sıklığından etkilendiği, bu etkinin internet kullanma sıklığı "her gün" olarak belirten grup öğrencileri ile "ayda bir kaç gün" olarak ifade eden öğrencilerden kaynaklandığı ve internet kullanma sıklığını "her gün" olarak ifade eden öğrenci grubu lehine olduğu, yalnızlık düzeylerinin ise bu değişimden etkilenmediği saptanmıştır. Ayrıca, üniversite öğrencilerinin iletişim becerileri ile yalnızlık düzeyleri arasında düşük düzeyde, negatif yönde ve anlamlı bir ilişkinin olduğu görülmüştür.

Tartışma

Yapılan bu çalışmadan elde edilen bulgularda, üniversite öğrencilerinin iletişim becerileri ve yalnızlık düzeylerinin "orta" düzeyde olduğu, internet kullanım sıklığına bağlı olarak iletişim becerilerinin farklılaştığı, yalnızlık düzeylerinin ise farklılaşmadığı, iletişim becerileri arrtıkça yalnızlık düzeylerinin azalmaya başladığı saptanmıştır.

Alanyazında yapılan benzer çalışmalara bakıldığında, kontrolsüz ve yoğun internet kullanımının iletişim becerisi ve yalnızlık düzeylerinde anlamlı farklılıklara neden olduğu görülmektedir. Bir başka açıdan bakıldığında, yalnızlık yaşamanın ve düşük düzeyde iletişim becerilerine sahip olmanın da kontrolsüz ve yoğun internet. kullanımını arttırdığı görülmektedir. Ayrıca, üniversite öğrencilerinin yaşadıkları psiko-sosyal kaynaklı problemleri belirlemeyi amaçlayan çalışmalarda da özellikle yalnızlık ve ona eşlik eden durumlardan bahsedilmektedir.

Kozaklı (2006) çalışmasında, üniversite öğrencilerinin çeşitli kaynaklardan algıladıkları sosyal destek ve yalnızlık düzeyleri arasındaki ilişkiyi incelemiştir.Araştırmaya yurtta ve ailelerinin yanında barınan üniversite öğrencileri alınmıştır. Araştırmada, sosyal destek (aile, arkadaş ve özel biri) ve yalnızlık düzeyleri arasında negatif korelasyon olduğu saptanmıştır. Benzer bir başka çalışmada, Yılmaz ve arkadaşları (2008) üniversite öğrencilerinin sosyal destek ve yalnızlık düzeylerini incelemişlerdir. Çalışma sonucunda, öğrencilerin yalnızlık düzeylerinin, araştırmamızın sonuçlarından farklı olarak düşük olduğunu saptanmışlardır. Tutuk ve arkadaşlarının (2002) hemşirelik öğrencilerinin iletişim becerisi ve empati düzeylerinin belirlenmesi amacıyla 269 öğrencile ile gerçekleştirdikleri çalışmada, öğrencilerin algıladıkları iletişim becerisi puan ortalamalarının çalışmamızın sonuçlarıyla benzerlik gösterdiği ve orta düzeyde olduğu belirlenmiş. Aytekin ve Bulduk (2000), yüksek öğrenimdeki öğrencilerin önemli bir bölümünün ailelerinden uzakta öğrenim görmeleri nedeniyle, barınma, beslenme, sağlık hizmetleri yanında sosyal uyum ve farklı psikolojik sıkıntılar ile ilgili problemler yaşadıklarını belirtmişlerdir. Ayrıca, öğrencilerinin en yoğun yaşadıkları problemin yalnızlık olduğu da belirtilmiştir. Oğuz ve arkadaşları (2008) tıp öğrencilerinin internette bilişsel durumlarını araştırdığı çalışmada, interneti sohbet etme,oyun oynama gibi amaçlarla, her gün kullanan öğrencilerin, bu aktiviteleri yapmayan öğrencilere göre Sosyal Destek, Azalan Dürtü Kontrolü ve Yalnızlık/ Depresyon gibi ölçek puanlarının, istatistiksel olarak anlamlı ve daha yüksek olduğunu bulmuşlardır.

Yapılan diğer araştırmalarda da gençlerin interneti çoğunlukla, iletişim kurmak, bilgi aramak, sohbet etmek, eğlenmek ve haberleri takip etmek amacı ile kullandığı görülmektedir (Demir, 2001, Kozaklı, 2006, Oğuz ve ark. 2008, Kelleci, 2008).

Öneriler

Araştırma bulguları doğrultusunda, gençlerin arkadaşları ile internet dışı yollarla iletişim kurması sağlanarak, sinema, tiyatro, müzik, gezi ve sportif faaliyetlere katılmalarının özendirilmesi, bu amaçla üniversitelerde öğrenci kulüplerinin etkinliğinin arttırılarak, gençlerin hobi geliştirmelerinin teşvik edilmesi, iletişim becerilerini geliştirmeye yönelik, iyi planlanmış ve farklı konuları konuşmayı ve tartışmayı amaçlayan sohbet gruplarının oluşturulması, yalnızlıkla baş etmede ve iletişim becerilerini arttırmada sosyal destek süreçlerinden aile ve arkadaşlarla olan iletişimlerin önemli bir yer tuttuğu göz önünde bulundurularak, anne ve baba bilinçlenmesi için eğitim çalısmalarının planlanması, yalnızlık ve iletişim becerileri ile internet kullanımı ilişkisi hakkında daha fazla bilgi edinebilmek amacıyla geniş örneklemli ve kültürler arası karşılaştırmalı çalışmaların yapılması, gençlerin kendine güvenli, sağlıklı, sosyal destek kaynaklarına sahip, yalnızlığı sadece istediği ve ihtiyaç duyduğu zamanlarda yaşayabilen bağımsız bireyler olmaları için aile ve eğitimcilerin bilinçlendirilmeleri ve bu sürecin topluma yaygınlaştırılmasının sağlanması, üniversite eğitimi için farklı bölgelerden hatta farklı ülkelerden gelen öğrenciler için iyi planlanmış ve süreklilik taşıyan oryantasyon ve rehberlik hizmetlerine yer verilmesi önerilebilir.

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ÜNİVERSİTE VE ORTAÖĞRETİM ÖĞRENCİLERİNİN BİLGİSAYAR-İNTERNET BAĞIMLILIĞI VE AİLE FONKSİYONLARI ARASINDAKİ İLİŞKİ

THE RELATIONSHIP BETWEEN COMPUTER-INTERNET ADDICTION AND FAMILY FUNCTIONS AMONG UNIVERSITY AND HIGH SCHOOL STUDENTS

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ÖZET

Bu araştırmanın amacı, üniversite ve ortaöğretim öğrencilerinin bilgisayar-internet bağımlılığı ve aile fonksiyonları arasındaki ilişkinin incelenmesidir.

Araştırma evreni KKTC'de eğitim gören ortaöğretim ve üniversite öğrencilerini kapsamaktadır. Araştırma örneklemi ölçüt örnekleme yöntemiyle belirlenen %56.3 (n=229) kız, %43.7 (n=178) erkek toplam 407 üniversite ve ortaoğretim öğrencisinden oluşmaktadır. Araştırmada veri toplama aracı olarak Epstein ve Bishop (1983) tarafından geliştirilmiş, Bulut (1990) tarafından Türkçeye adapte edilmiş Cronbach Alfa Güvenirlik Katsayısı .72 ve .92 arasında değişen "McMaster Aile Değerlendirme Ölçeği" (ADÖ), Yılmaz (2008) tarafından geliştirilmiş, Cronbach Alfa Güvenirlik Katsayısı .87 olan "Bilgisayar Bağımlılığı Ölçeği" (BBÖ), Young (1996) tarafından geliştirilmiş, Bayraktar (2001) tarafından Türkçeye adaptasyonu yapılmış, Cronbach Alfa Güvenirlik Katsayısı .90 olan "İnternet Bağımlılığı Ölçeği" (İBÖ) ve "Kişisel Bilgi Formu" kullanılmıştır.

Verilerin analizinde yüzdelik dökümleri, aritmetik ortalama, t-testi ve tek yönlü varyans analizi (ANOVA), Scheffe ve Pearson Momentler Çarpımı Korelasyon katsayısı hesaplama yöntemleri kullanmıştır. Bu araştırmada önem düzeyi .05 olarak alınmıştır.

Araştırmanın bulgularına göre üniversite ve ortaöğretim öğrencilerinde bilgisayar-internet bağımlılığı ve aile fonksiyonları arasında anlamlı ilişki saptanmıştır. Üniversite ve ortaöğretim öğrencilerinde günlük bilgisayar ve internet kullanımı sıklığına göre bilgisayar ve internet bağımlılığında anlamlı farklılaşmaların olduğu saptanmıştır.

Anahtar Kelimeler: Aile fonksiyonu, bilgisayar bağımlılığı, internet bağımlılığı.

ABSTRACT

The aim of this study is to investigate the relationship between computer-internet addiction and family structure among university and high school students.

The research was conducted among high school and university students in TRNC. The sample for the research consists of 56.3% (n=229) female, 43.7% (n=178) male, 407 university and high school students by using the criterion sampling method.

In this study the "McMaster Family Assessment Device (FAD)" adapted by Bulut (1990) and the Cronbach's alpha reliability coefficient of which is changed between .72, .92, "Internet Addiction Scale (IAS)" adapted by Bayraktar (2001) with a Cronbach alpha reliability coefficient of .90, "Computer Addiction Scale (CAS)" developed by Yılmaz (2008) with a Cronbach alpha reliability coefficient of .87 and "Demografic Information Form" were used as a means of collecting data.

Considering purposes of the study percentage documentation average, t-test, ANOVA, Scheffe and Pearson moment's correlation were figured out in data analysis. The statistical significance level was accepted as .05 in the study.

The result of this study showed that there is a significant correlation between perceived family functions and the computer-internet addiction to the university and high school students. It was determined that there is significant difference to the computer and internet usage duration and internet-computer addiction.

Keywords: Family functions, computer addiction, internet addiction.

GİRİŞ

Günümüzde "Bilgisayar ve İnternet Bağımlılığı"nın terimsel anlamda tanımı henüz yapılmamıştır. Ancak araştırmacılar aşırı internet ve bilgisayar kullanımının diğer bağımlılık türlerinde olduğu gibi kullanıcılarda aşırı bilgisayar oyunu oynama ve internet formlarını kullanma olarak görüldüğünü saptamışlardır (Kelleci, 2008).

1996 yılında Young ilk kez internet bağımlılığı terimini tanımlamıştır. Cengizhan ve Young'ın tanımlamış olduğu internet bağımlılığı semptomları şu şekildedir;

- İnternette aşırı zihinsel çaba harcama,
- Bir kaç dakikalığına internette kalmayı planlayıp saatlerini harcama,
- Ekran karşısında geçirilen saatlerin sağlık problemlerine sebebiyet vermesi,
- Sürekli olarak bir sonraki bağlanma süresini düşünme,
- Yüz yüze konuşmak yerine kişilerle internette görüşürken kendini daha rahat hissetme,
- Sürekli olarak e-postasında yeni mektuplar var mı diye kontrol etme isteği duyma,
- İnternet kullanımı nedeniyle iştahının, ders başarısının veya iş gücünün düşmesi,
- E-posta adresini, sohbet odası adını vs. gibi bilgilerini tüm kişlerle paylaşma isteği,
- Geç saatlere kadar internette kalmak sebebiyle sürekli uykulu ve yorgun hissetme,
- İnternet kullanımı düştüğünde kendini eksik hissetme,
- İnternet kullanım süresi azaldığında yoksunluk sendromu oluşması,
- İnternette bağlı kalmak için aile üyelerine, terapiste veya diğer kişilere yalan söyleme,
- İnternet kullanım süresinin değişme durumundan etkilenme (Young, 1999; akt. Öztürk *ve ark.* 2007; akt. Balta & Horzum, 2008).

1994 yılında Amerikan Psikiyatri Birliği bağımlılık tanısını tolerans, yoksunluk ve mecburu kullanım isteğinin olması olarak belirlemiştir. Psikolojik tolerans, bilgisayar oyunu oynama, sürekli dökümanları düzenleme veya etkileşimli tartışma gruplarında sürekli bulunma gibi bilgisayar aktivitelerinde kullanım süresinin giderek artması olarak tanımlanmaktadır. Bilgisayar kullanıcıları bu problemli davranışlarının farkındadırlar ancak sürekli olarak bilgisayar kullanmaya devam etmektedirler. Bu kişiler bilgisayara ulaşamadığı zamanlarda sinirlilik ve kaygı gibi yoksunluk semptomları sergilemektedirler (akt. Orzack, 1998) Türk Aile Yapısı Özel İhtisas Komisyonu tarafından yapılan aile tanımına göre; aile kan bağlılığı, evlilik ve diğer yasal yollardan, aralarında akrabalık ilişkisi bulunan ve genelde aynı evde yaşayan bireylerden oluşan; aile üyelerinin cinsel, psikolojik, sosyal ve ekonomik ihtiyaçlarının karşılandığı, topluma uyum ve katılımlarının sağlandığı ve düzenlendiği temel bir sosyal birimdir (akt. Nazlı, 2001).

Aile evrensel olarak gelişim süreçlerinin deneyimlendiği sosyal bir birimdir. "Aile" aralarında kanbağı bulunan eş, çocuk, kardeş ilişkisi olarak tanımlanan toplumun küçük bir birimidir (Gülerce, 1996; Özgüven, 2001; Öztürk 2001).

Aile çocukların ilk öğrendiği sosyal sistemdir. Aile, çocuğun toplumda yaşarken anne, baba, evlat, kız, erkek, karı, koca vb. gibi rollerin kazanılmasını sağlar (Lidz, 1968).

Ailenin, üyelerinin fiziksel ihtiyaçlarını gidermek, çocukların özerkliğini geliştirmek, kişiklik gelişimini ve dengesini sağlamak üzere üç temel işlevi vardır (Özgüven, 2001; Kulaksızoğlu, 2004).

Fitzpatrick ve Badzinski yaptıkları çalışmada aileyi, kanbağı ilişkisi, yeni doğmuş bebeği beslemek ve sosyalleştirmek fonksiyonu olan küçük bir sosyal grup olarak açıklamışlardır (akt. Gülerce, 1996).

McMaster Aile Modeline göre ailenin birincil işlevi aile üyelerinin sosyal, biyolojik ve psikolojik düzeylerini geliştirmek ve devam ettirmektir (Epstein, Bishop & Levin, 1978; Hinde & Akister, 1995; Zeitlin, 1995). Bu modele göre aile işlevleri yedi boyutta açıklanmaktadır. Bunlar problem çözme; aile işlevlerini en etkili şekilde kullanıp problemleri çözme becerisi, iletişim; bilgileri açık ve direkt şekilde paylaşımı, roller; gerekli sorumluluğu almakla ilgili ailenin ihityaçlarına bağlı davranış kalıplarını, duygusal tepki verebilme; olaylar karşısında uygun duygulanım ifadesini göstermeyi, gereken ilgiyi gösterme; iş ve aktiviteler karşısında takdir etmeyi, davranış kontrolü; belirli davranış kalıplarını sürdürmeyi ve genel fonksiyonlar; genel anlamda ailedeki sağlık ve patoloji durumunu ifade etmektedir (Epstein, Bishop & Levin, 1978; Hinde & Akister, 1995; Zeitlin, 1995).

Young'a göre bilgisayar ve internet bağımlılığı ailesel problemler, okul ve iş başarısındaki düşüşler gibi birçok olumsuz neticeler ortaya çıkarmaktadır. İnternet bağımlılığından kaynaklanan ilişkisel problemlerde popülerliğini devam ettirmektedir. Young tarafından yapılan çalışmada bağımlıların ilişkisel

problemlerininin olduğu ve çevrelerindeki insanlarla çok az zaman geçirmekte olduklarını saptanmıştır (akt. Aslanbay, 2006).

Bilgisayar ve internet bağımlılığı yeni bir bağımlılık türü olarak açıklanmakta olup psikoloji, sosyoloji ve iletişim gibi disiplinlerin dikkatini çeken bir çalışma alanıdır (Balcı & Gülnar, 2009). Bu bağlamda, yapılan çalışma akademisyen, program geliştirici, yönetici, eğitimci vs. yapacakları araştırmalarda ışık tutar niteliktedir.

Araştırmanın Amacı: Bu araştırmanın amacı, üniversite ve ortaöğretim öğrencilerinin bilgisayar-internet bağımlılığı ve aile fonksiyonları olan problem çözme, iletişim, roller, duygusal tepki verebilme, gereken ilgiyi gösterme, davranış kontrolü, genel fonksiyonlar arasındaki ilişkinin incelenmesidir.

Araştırmanın Problemi: Araştırmanın temel problem cümlesi "Üniversite ve oratöğretim öğrencilerinde bilgisayar ve internet bağımlılığı eğiliminin aile yapısıyla ilişkisi (varsa) nelerdir?" dir.

Alt Problemler: Bu temel probleme dayalı olarak şu alt problemlere cevap aranmıştır:

1. Bilgisayar ve internet bağımlılığı eğilimi ile aile yapısı arasında anlamlı ilişki varmıdır?
2. Bilgisayar ve internet bağımlılığı eğilimi ile günlük bilgisayar kullanım süresi arasında anlamlı farklılaşmalar varmıdır?
3. Bilgisayar ve internet bağımlılığı eğilimi ile günlük internet kullanım süresi arasında anlamlı farklılaşmalar varmıdır?" dır.

YÖNTEM

Araştırmanın Modeli

Araştırma betimsel türde ilişkisel tarama modeli ile yapılmıştır.

Evren ve Örneklem

Araştırma evreni KKTC'de eğitim gören üniversite ve ortaöğretim öğrencilerini kapsamaktadır. Araştırma örneklemi amaçsal örnekleme modellerinden ölçüt örnekleme yöntemiyle belirlenen %56.3 (n=229) kız, %43.7 (n=178) erkek toplam 407 üniversite ve ortaoğretim öğrencisinden oluşmaktadır. Öğrencilerin kendilerine ait bilgisayarlarının olması kriter olarak alınmıştır.

Veri Toplama Araçları

Araştırmada veri toplama aracı olarak "McMaster Aile Değerlendirme Ölçeği", "Bilgisayar Bağımlılığı Ölçeği" "İnternet Bağımlılığı Ölçeği" ve "Kişisel Bilgi Formu" kullanılmıştır. Epstein ve Bishop (1983) tarafından geliştirilmiş "McMaster Aile Değerlendirme Ölçeği" (ADÖ), Bulut (1990) tarafından Türkçeye adapte edilmiştir. Cronbach Alfa Güvenirlik Katsayısı.72 ve .92 arasında değişen 60 soru ve 7 alt ölçeği vardır (Öner, 1994). Alt ölçekler; problem çözme, iletişim, roller, duygusal tepki verebilme, gereken ilgiyi gösterme, davranış kontrolü ve genel fonksiyonlardır. 1-4 arası puanlanan ölçeğin alt skalalarından alınacak yüksek puan sağlıksızlığı ifade etmektedir (Hinde & Akister, 1995). "Bilgisayar Bağımlılığı Ölçeği" (BBÖ) Yılmaz (2008) tarafından geliştirilmiştir. Cronbach Alfa Güvenirlik Katsayısı .87'dir. 1-5 arası puanlanan 9 sorudan oluşmaktadır. Ölçekten alınacak yüksek puanlar bilgisayar bağımlılığı eğilimini ifade etmektedir (Yılmaz, 2008). Young (1996) tarafından geliştirilmiş "İnternet Bağımlılığı Ölçeği" (İBÖ), Bayraktar (2001) tarafından Türkçeye adaptasyonu yapılmıştır. Cronbach Alfa Güvenirlik Katsayısı .90'dır. 0-6 arası puanlanan 20 sorudan oluşmaktadır. Ölçekten alınacak yüksek puanlar internet bağımlılığı eğilimini ifade etmektedir (akt. Kurtaran, 2008). Araştırmacı tarafından geliştirilen araştırmanın amacına uygun 13 maddeden oluşan "Kişisel Bilgi Formu" uygulanmıştır.

Verilerin Analizi ve Yorumlanması

Verilerin analizinde araştırmanın amaçları doğrultusunda yüzdelik dökümleri, aritmetik ortalama, t-testi, tek yönlü varyans analizi (ANOVA), Scheffe ve Pearson Momentler Çarpımı Korelasyon katsayısı hesaplama yöntemleri kullanmıştır. Bu araştırmada önem düzeyi .05 olarak alınmıştır.

BULGULAR

Yapılan çalışmada kendilerine ait bilgisayarlarının olması kriter olarak alınan 407 öğrenci dahil edilmiştir. Çalışma grubu %56.3 (n=229) kız, %43.7 (n=178) erkek toplam 407 üniversite ve ortaöğretim öğrencisinden oluşmaktadır.

Tablo 1. ADÖ, İBÖ ve BBÖ Test Skorları Korelasyon Tablosu

Ölçekler	ADÖ Problem Çözme	ADÖ İletişim	ADÖ Roller	ADÖ Duygusal Tepki Verebilme	ADÖ Gereken İlgiyi Gösterme	ADÖ Davranış Kontorlü	ADÖ Genel Fonkiyonlar
Bilgisayar Bağımlılığı Ölçeği							
r	-.246**	.115*	.200**	.133**	.306**	.225**	.036
n	407	407	407	407	407	407	407
p	.000	.020	.000	.007	.000	.000	.472
İnternet Bağımlılığı Ölçeği							
r	-.247**	.008	.064	.023	.182**	.069	-.124*
n	407	407	407	407	407	407	407
p	.000	.877	.194	.650	.000	.166	.012

** p<.001 istatistiksel anlamlı ilişki
*p<.05 istatistiksel anlamlı ilişki

Pearson Korelasyon Katsayısı hesaplamalarına göre, McMaster Aile Değerlendirme Ölçeği (ADÖ), İnternet Bağımlılığı Ölçeği (İBÖ) ve Bilgisayar Bağımlılığı Ölçeği (BBÖ) arasındaki korelasyon sonuçları şu şekildedir;

Korelasyon analizi sonucu; BBÖ ve İletişim (r=.115), Roller (r=.200), Duygusal Tepki Verebilme (r=.133) ve Davranış Kontrolü (r=.225) olan ADÖ alt ölçekleri arasında pozitif yönde düşük düzeyde anlamlı ilişki saptanmıştır. BBÖ ve ADÖ alt ölçeği Gereken İlgiyi Gösterme (r=.306) arasında pozitif yönde orta düzeyde anlamlı ilişki saptanmıştır. BBÖ ve Problem Çözme (r=-.246) arasında negatif yönde düşük düzeyde anlamlı ilişki saptanmıştır. BBÖ ve Genel Fonksiyonlar (r=.036) alt ölçeği arasında anlamlı ilişki saptanmamıştır.

İBÖ ve Gereken İlgili Gösterme (r=.182) alt ölçeği arasında pozitif yönde düşük düzeyde anlamlı ilişki saptanmıştır. İBÖ ve ADÖ alt ölçeklerinden Problem Çözme (r=-247) ve Genel Fonksiyonlar (r=-.124) arasında negatif yönde düşük düzeyde anlamlı ilişki saptanmıştır. İBÖ ve İletişim (r=.008), Roller (r=.064), Duygusal Tepki Verebilme (r=.023) ve Davranış Kontrolü (r=.069) alt ölçekleri arasında anlamlı ilişki saptanmamıştır.

Tablo 2. Öğrencilerin Günlük Bilgisayar Kullanım Sürelerinin BBÖ ve İBÖ Skorları Karşılaştırma Tablosu

Günlük Bilgisayar Kullanım Süresi		n	$\bar{X}$	ss	sd	F	p
Bilgisayar Bağımlılığı Ölçeği	**Hergün kullanmayan**	54	16.94	6.55	4	17.763	.000**
	1-3 saat	140	18.61	6.28			
	4-5 saat	106	21.38	6.75	402		
	6-8 saat	69	23.07	6.23			
	8 saat ve üzeri	38	26.23	6.54			
	Toplam	407	20.58	6.97	406		
İnternet Bağımlılığı Ölçeği	**Hergün kullanmayan**	54	20.96	15.55	4	18.050	.000**
	1-3 saat	140	25.95	16.35			
	4-5 saat	106	31.02	17.33	402		
	6-8 saat	69	38.49	16.41			
	8 saat ve üzeri	38	45.71	21.56			
	Toplam	407	30.58	18.44	406		

** p<.001 istatistiksel farklılık

Tek yönlü varyans analizi ANOVA sonucu günlük bilgisayar kullanımı ile BBÖ ve İBÖ ölçek puanları karşılaştırılmıştır.

Yapılan analiz sonucunda günlük bilgisayar kullanımı açısından hergün kullanmayan ($\bar{X}$=16.94 ± 6.55), 1-3 saat ($\bar{X}$=18.61 ± 6.28), 4-5 saat ($\bar{X}$=21.38 ± 6.75), 6-8 saat ($\bar{X}$=23.07 ± 6.23), 8 saat ve üzeri ($\bar{X}$ =26.23±6.54) ve BBÖ puanları arasında anlamlı olarak farklılaştığı saptanmıştır (p=.000).

Yapılan analiz sonucunda günlük bilgisayar kullanımı açısından hergün kullanmayan ($\bar{X}$=20.96 ± 15.55), 1-3 saat ($\bar{X}$=25.95 ± 16.35), 4-5 saat ($\bar{X}$=31.02 ± 17.33), 6-8 saat ($\bar{X}$=38.49 ±16.41), 8 saat ve üzeri ($\bar{X}$=45.71±21.56) ve İBÖ puanları arasında anlamlı olarak farklılaştığı saptanmıştır (p=.000).

Tablo 3. Öğrencilerin Günlük İnternet Kullanım Sürelerinin BBÖ ve İBÖ Skorları Karşılaştırma

Günlük İnternet Kullanım Süresi		n	$\bar{X}$	ss	sd	F	p
Bilgisayar Bağımlılığı Ölçeği	**Hergün kullanmayan**	50	17.00	6.50	4	22.484	.000**
	1-3 saat	138	18.19	6.02			
	4-5 saat	125	21.24	6.95	402		
	6-8 saat	59	23.96	5.24			
	8 saat ve üzeri	35	27.02	6.68			
	Toplam	407	20.58	6.98	406		
İnternet Bağımlılığı Ölçeği	**Hergün kullanmayan**	50	21.08	16.16	4	20.019	.000**
	1-3 saat	138	24.36	16.39			
	4-5 saat	125	32.88	16.42	402		
	6-8 saat	59	39.44	16.68			
	8 saat ve üzeri	35	45.51	21.64			
	Toplam	407	30.58	18.44	406		

** p<.001 istatistiksel farklılık

Tek yönlü varyans analizi ANOVA sonucu günlük internet kullanımı ile BBÖ ve İBÖ ölçek puanları karşılaştırılmıştır.

Analiz sonucunda günlük internet kullanımı bakımından hergün kullanmayan ($\bar{X}$=17.00 ± 6.50), 1-3 saat ($\bar{X}$=18.19 ± 6.02), 4-5 saat ($\bar{X}$=21.24 ± 6.95), 6-8 saat ($\bar{X}$=23.96 ± 5.24), 8 saat ve üzeri ($\bar{X}$=27.02±6.68) ve BBÖ puanları arasında anlamlı olarak farklılaştığı saptanmıştır (p=.000).

Yapılan analiz sonucunda günlük internet kullanımı açısından hergün kullanmayan ($\bar{X}$=21.08 ± 16.16), 1-3 saat ($\bar{X}$=24.36 ± 16.39), 4-5 saat ($\bar{X}$=32.88 ± 16.42), 6-8 saat ($\bar{X}$=39.44 ±16.68), 8 saat ve üzeri ($\bar{X}$=45.51±21.64) ve İBÖ puanları arasında anlamlı olarak farklılaştığı saptanmıştır (p=.000).

TARTIŞMA

Yapılan araştırmada, çağımızın önemli bir problemi olan bağımlılığın yeni türlerinden olan bilgisayar ve internet bağımlılığı üzerine çalışılmıştır. Bu çalışmada üniversite ve ortaöğretim öğrencilerinin bilgisayar-internet bağımlılığı ve aile fonksiyonları olan problem çözme, iletişim, roller, duygusal tepki verebilme, gereken ilgiyi gösterme, davranış kontrolü, genel fonksiyonlar arasındaki ilişkinin incelenmesi amaç edinilmiştir. Yapılan analizler sonucunda bilgisayar kullanımı ve internet kullanımı arttıkça iletişim, roller, duygusal tepki verebilme gereken ilgiyi gösterme, davranış kontrolü işlevlerinin sağlıksızlık yönünde arttığı bulunmuştur.

Fidancıoğlu ve ark.'larının yapmış olduğu çalışmada sağlık yüksek okulu öğrencilerinin bir kısmı internete her gün bağlandığını ve geneli ise bilgisayar ve internet kullanmanın ileride meslekleri için gerekli olduğunu ifade etmişlerdir (Fidancıoğlu ve ark., 2009). Yapılan çalışma sonuçları da bu bilgileri destekler nitelikte olup öğrencilerin büyük bir çoğunluğunun günlük sekiz saat ve üzeri ineternete bağlandıkları veya bilgisayarda vakit geçirdikleri görülmektedir.

Gökçeaslan'ın yapmış olduğu çalışmada ailelerin yarısınıdan fazlasının bilgisayar kullanımında çocuklarının çevreleriyle ve aileleriyle iletişimlerini sınırladığını rapor etmiştir (Gökçearslan, 2005). Yapılan çalışmada da bilgisayar kullanımının aile işlevlerinden iletişime etkisi olduğu bulunmuş olup önceki çalışmaları destekler niteliktedir.

Block'un Güney Koredeki ortaöğretim öğrenicileri ile yaptığı çalışmada öğrencilerin haftalık 23 saat bilgisayar kullandıklarını tesbit etmiştir. Buna bağlı olarak 1.2 milyon öğrencinin bağımlılık riski taşımakta olduğu bulunmuştur. Terapistler, bilgisayarla zaman geçiren öğrencilerin okulu dondurma ve okul başarılarındaki düşüşten endişe duyduklarını rapor edilmiştir (Block, 2008). Yapılan çalışmada ise öğrencilerin büyük bir çoğunluğunun günlük olarak bilgisayar ve internet kullanımı açısından 8 saat ve üzeri bilgisayarda zaman geçirdikleri tesbit edilmiştir. Bu da öğrencilerin büyük bir çoğunluğunun internet ve bilgisayar bağımlısı olma riski taşıdıklarını göstermektedir.

SONUÇ VE ÖNERİLER

Yapılan çalışmanın sonucunda ortaöğretim ve üniversite öğrencilerinde bilgisayar bağımlılığı eğiliminin iletişim, roller, duygusal tepki verebilme, gereken ilgiyi gösterme ve davranış kontrolü aile işlevlerinin sağlıksızlığıyla ilişkili olduğu bulunmuştur. Ortaöğretim ve üniversite öğrencilerinin internet bağımlılığı eğiliminin ise sadece gereken ilgiyi gösterme aile işlevinin sağlıksızlığıyla ilişkili olduğu bulunmuştur. Aynı zamanda öğrencilerin büyük bir çoğunluğunun günde 8 saat ve üzeri internet ve bilgisayar kullandığı sonucu

bulunmuştur. Bu sonuçlar öğrencilerin bir kısmının bilgisayar ve internet bağımlısı olduğunu, bir kısmının ise risk altında olduğunu göstermektedir.

Araştırmada, şahısına ait bilgisayarı olan ortaöğretim ve üniversite öğrencilerinin, kendi aile fonksiyonlarını algılamalarına odaklanılmıştır. Sonuçlara bağlı olarak internet ve bilgisayar kullanımının belirli aile fonksiyonlarıyla ilişkili olduğunun bilincine varılmıştır. Bu bağlamda ailelere ve öğrencilere eğitimler düzenlenmesi, bu eğitimlerde öğrencilerin gelişimsel özelliklerine, bilgisayar ve internet bağımlılığını önleme stratejilerine ve sağlıklı bilgisayar-internet kullanımı gibi konulara yer verilmesi önerilmektedir.

Bu çalışmaya yüksek eğitim ve sosyo-ekonomik seviyeye sahip öğrenciler dahil edilmiştir. Eğitim seviyesi ve sosyo-ekonomik düzeyi düşük ailelere sahip öğrencilere uygulanması farklı sonuçlar ortaya çıkarabilecektir. Daha geniş bir örneklem, sonuçların genellenmesine olanak sağlayabilecektir. Ayrıca yapılan çalışma öğrencilerin bilgisayar-internet kullanımı ve aile yapılarıyla ilgili bakış açıları üzerine odaklanılmış, ailelerinde bakış açısına yer verilen çalışmalar yapılmasıda önerilmektedir.

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VARIATIONS AND ADDITIONS FOR THE E-LEARNING SOURCE MOODLE WITH A PERSPECTIVE TOWARDS THE TURKISH EDUCATION SYSTEM

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ABSTRACT

Global and future orientated changes in the field of (universal) education need understanding and design of the existing methods and systems. Moodle, an already existing online-education-system, which is already used by many education institutions worldwide (including Turkey) implies possibilities for additions, which release different actions, that can lead into a better education.

The aim of this paper is to evaluate how the connection of universities and their education with the global world is done and furthermore, how data can be provided in an organized, easy and structured way at the same time within the Moodle® system. Modifications towards the variation and structure of Moodle® have to be done. The potential of "clever" additions and their usage will be shown in this paper.

Keywords: E-learning system, Moodle, virtual classrooms, education strategy.

1. INTRODUCTION

Moodle is a free learning management system that enables you to create powerful, flexible, and engaging online learning experiences. It is more common to use the phrase "online learning experiences" instead of "online courses" consciously. Moodle's name gives you insight into its approach to e-learning. "The word Moodle was originally an acronym for ***Modular Object-Oriented Dynamic Learning Environment***, which is mostly useful to programmers and education theorists" [1]. Moodle is also a verb that describes the process of lazily meandering through something, doing things as it occurs to you to do them, an enjoyable tinkering that often leads to insight and creativity [2].

Moodle involves the basic advantages of a distance learning system. Its basic features include the followings:

- *Uploading and sharing materials*
- *Forums and chats*
- *Quizzes and polls*
- *Gathering and reviewing assignments*
- *Recording grades*
- *Virtual classroom abilities*

The advantages listed above can bring higher quality on higher education courses. Students have a high knowledge on internet media, and they have the wish to get many of their course materials off the web. Once online, they can access the latest information at any time and make as any copies of the materials as they need. With rising tuition, many students are working more hours to make ends meet while they are in university and furthermore many students now work in the week to meet school and living expenses. If the course management and distance e-learning systems are used well, they can make classes more effective and

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efficient [3]. By moving some parts of the course online, the participants can more effectively take advantage of scheduled face-to-face time to engage their questions and ideas. Besides, Moodle already shares a big community, has an educational philosophy and is an open source program.

2. ADDITIONS TO THE MOODLE SOURCE

In many ways, several critical factors need to be reviewed prior to even considering how the course will be presented and how it will be functional in distance e-learning systems. These include the audience characteristics, geographic dispersion of the audience, the technologies available to the audience, the goals of the learners, the goals and missions of the learning organization, the costs that must be recovered, the political environment at the time for the learning organization, the faculty compensation, and the market competition. All of these factors come into play in designing a course at a distance before we even look at the learning goals and objectives of the actual course.

Since an instructional environment is developed, an idea or definition of the development is needed. The main idea of this work is to make a web-based learning environment different from a web site or any other online e-learning system. Learning environments have very specific goals for students. Most other web environments are there for users to achieve their own goals. They provide information, a way to buy things, or a way to connect with other people. People come to these environments of their own volition and can participate at whatever level they choose. Learning environments are unique because they provide goals for students to achieve, goals they are currently unable to meet on their own [4]. The course objectives define a set of goals for all participants, goals they would not normally set for themselves. These goals define how students will interact with the material, other students and teachers as well.

The expenditures of the severe-used old system and its inefficient handling on the universities web site needed to be re-arranged. The main idea was to handle several sections under page, which is easily understandable and straightforward. By this way, a new interactive e-learning environment has been created for Hacettepe University. The following screen shot shows the ‘welcome-page’ of the designed system.



Fig.1 Welcome screen of the designed system

This welcome-page covers and structures e-learning system. The designed system fulfills the integration process of Moodle free e-learning technology. The main goal to combine systems as shown in the Fig.1 is to highlight the crucial effect of learners’ perceptions of the Internet on their attitudes toward Internet-based

learning environments and, eventually, their performances in these learning environments and furthermore to let authorized academicians and student to share all knowledge over and Internet-based system. The interactive education page is split into three sections.

2.1 Hacettepe Moodle Sub-system

In the first section system, an interactive course management including all fundamental features of e-learning distance interaction that are common is offered for Hacettepe University. The system has been created in Turkish language for now. It is possible to create all courses in any language as well. Fig.2 shows the screenshot of "Hacettepe Moodle" sub-system. On the left side of the page, a system and student help page was created. And also a link to conference, symposium and congress page is given.

As in all distance e-learning systems, remote access to learning materials, databases and libraries, electronic communication, computer-connected workgroups, archived lectures and other features of distance learning used in the designed system has been authorized by a username and password. The creation of such an academic knowledge exchange and sharing over internet and under the meaning of "open brain pool" gives scientists the opportunity to communicate and research on several topics within the system such as dissertation courses, global or national scientific exchange and projects. The emphases can vary according to each lesson; so conversely, Moodle has features for enforcing a specific order upon a course.

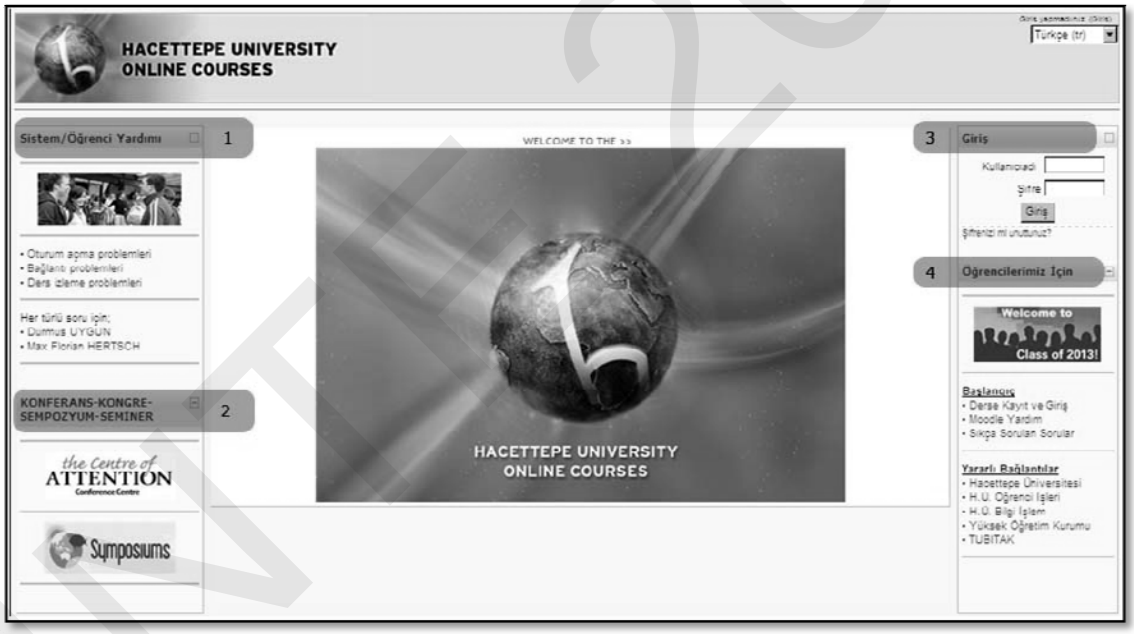


Fig. 2 Hacettepe Moodle sub-system

One of the most important developments in the designed e-learning system is video conference possibility and online virtual classrooms. Easily, this platform uses a free package called DimDim. It is a synchronous and simple e-learning tool which does not require users to install software on their computers to attend web. The Dimdim Web Meeting Service is available in open source, and capable of supporting theoretically unlimited attendees. Today's modern learning milieu with constant learning and training needs considers face-to-face meetings with all learning participants present in one place as an idealistic approach. This is valid for University learning environments, too. The following image shows the DimDim activity area.



Fig.3 DimDim virtual classroom

First, it is needed to have admin or teacher access so as to customize and apply skinning on the DimDim virtual classroom and web conference page. Once the Course manager has scheduled the video conference, the student will be able to see the meeting as he/she views any other activity for the corresponding courses. And so, student can join the conference after starting the meeting.

2.2 Conferences and Symposiums Sub-system

Conferences and symposiums can be structured and organized easily within the designed e-learning platform. It provides a clear arrangement for all conferences that were and will be held at the Hacettepe University. According international education structures and scientific measures conferences assume a high contingent of academic duties. Most of the global universities run more than just on faculty to increase their image and income. A high number of faculties entail the demand of international meetings or conferences in which academicians interchange their latest results. Hacettepe University is belonging to the biggest, oldest and most traditional ones in Turkey. For this reasons, the variation of faculties is large and the organization of all conferences difficult.

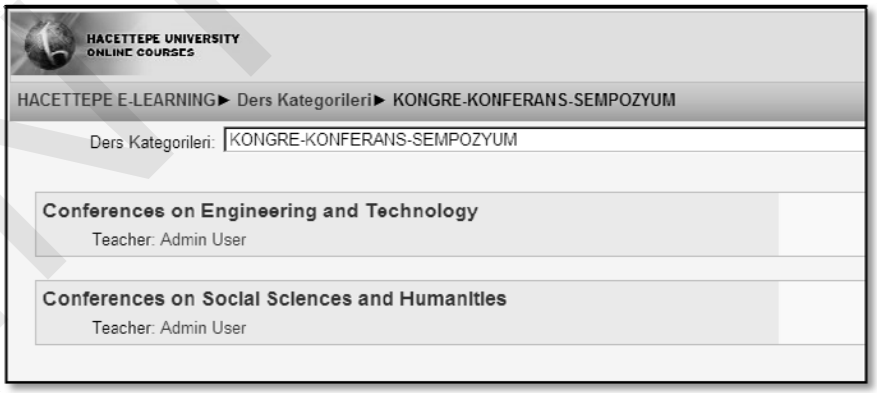


Fig.3 Conferences and Symposiums sub-system

It is a fact in nowadays that a huge variation of so called symposiums and conferences are taking part in the global world. For an individual it is quite hard to follow the most recent papers. Next to this it'll be a challenge to take these papers. The conference section, combined with Moodle, organizes a well-arranged structure for all articles and papers of conferences. It even offers video uploads, that prospective listeners,

who could not take part, may read (or watch) the articles. A screenshot of the conference segment is given in Fig.3.

2.3 Academic Research Platform

One of the most important activities inside a university is scientific research. Academy accreditation is one of the main goals for university, as it attests the quality and performances of the academic activities and its position through similar educational institutions [5].

During the last years, the academic research and information sharing over web has been the main approach of giving added value to the higher education. Due to this fact, a novel sub-system has been added to help academicians and students to share occupational and professional knowledge over web. This addition is not fully active in design but will be effective to increase academicians' participation in the international academic research platform.

3. CONCLUSION

In this study; as different academic research activities has spread all over the Internet through Web sites, Web Services and portals, a way has been found to bring all this information together inside an integrated system in order to be used by Hacettepe University at first and all other universities as well when involving into scientific research activities such as "Academic Research Platform", "Conferences and Symposiums Platform".

The main objectives set for the proposed integration and research architecture are the following:

- Combining systems to highlight the crucial effect of learners' perceptions of the Internet on their attitudes toward Moodle-based learning environment,
- Including the audience characteristics, geographic dispersion of the audience, the technologies available to the audience, the goals of the learners, the goals and missions of the learning organization,
- Providing a heterogeneous research and educational services,
- Providing academician with easier and efficient access to a unified educational and research system, no matter the position from which they use system's services.

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WHAT ARE THE EFFICIENT EDUCATIONAL SYSTEMS TO ANSWER THE MARKET DEMANDS AFTER GLOBALISATION? CASE STUDY OF CO-OP EDUCATION IN THE UNIVERSITY OF WATERLOO

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Abstract

With the advent of globalisation and industrialization new fields have appeared at the workplaces. To be successful at work employees require being expert and specialized in these new fields. To fulfill this need new educational systems are required. These new educational systems should be able to provide the fundamental information and knowledge as well as know-how skills and sensitivity to leadership and political structures for their graduates. This article is trying to demonstrate the efficiency of cooperative educational system in higher education. Co-op education is one of the work integrated learning methods. The competitive advantage for the students in this educational system is the real work experience while studying. This article is based on a case study of the University of Waterloo in Canada. The hypothesis is students in cooperative educational system become more prepared to enter the market after their graduation than those who studied in non-co-op educational systems.

Key words: Globalisation, Work Integrated Learning, Co-op Educational System

INTRODUCTION

With the advent of globalisation and due to the rise of industrialization a greater degree of openness and social and geographical mobility have emerged and traditional systems of inequality such as those related to gender, age, caste, ethnic group, and patronage have become supplanted (CLMS, M5 U2). Globalisation has increased social and economic interdependence (CLMS, M5 U1). Globalisation is one of such concepts for which different authors have proposed different definitions and they have yet to agree on one specific definition (CLMS, M5 U1). Guillen (2001) defined globalization as '… a process leading to greater interdependence and mutual awareness (reflexivity) among economic, political, and social units in the world, and among [people] in general' (cited in CLMS, M5 U1: 1-2). This definition of globalisation is the one that will be used in this article. In general, rather than social and economic interdependence, globalisation includes the integration of world trade into a single global economy as well as the change of local relationships to global relationships and vice versa. In addition it also includes the increasing cultural and social awareness of the globe as a whole, and decreases the importance of geographical distance to global communications and economic transactions (CLMS, M5 U1).

In 1960s Kerr at al. talked about 'world-wide industrial society'. In this society there would be no boundary and people would speak in a universal language (CLMS, M5 U2: 2-3). New technologies especially in communications and transportation have given the opportunity to transfer wide range of data

in a couple of seconds. The geographical distance is not a barrier anymore. Reordering of the time and distance has given this feeling to some people that the whole world is not bigger than a village. To survive in the current competitive market in such a world and overcome the pressure of globalisation many organisations are trying to recruit employees who have proper knowledge as well as know-how skills (Thang et al., 2007).

In globalisation the importance of knowledge and information is increasing. Many studies have been carried out to show the importance of knowledge in the current world, e.g. Nelson and Winter (1982 cited in Inkpen and Dinur, 1998) and Nokata (1994 cited in Inkpen and Dinur, 1998). Employees should have the required knowledge and know-how skills when they enter the organisation and moreover they should keep their knowledge and skills improved while working. Inkpen concluded in his study that sharing information in an organisation is very important for the performance of the organisation (cited in Inkepen and Dinur, 1998). Acquiring and sharing and dissemination of knowledge and information as well as know-how skills are related to the educational system that the employees studied in.

Training which will be discussed here can be divided to two categories; one category is about training practices which are related to transferring information and knowledge, and the other is about those practices which are involved with the know-how skills. Information and knowledge includes facts, symbols, etc. and know-how is involved with the process of doing a task (Inkpen and Dinur, 1998). Happel (1988) proposed that know-how is mostly practical skills or expertise that prepare someone to do a task efficiently (cited in Inkpen and Dinur, 1998). The second one can be gained through work integrated learning (WIL) methods. WIL is the one this market needs.

In the next section traditional educational systems will be compared with the modern ones. After that co-op educational system and the trend that students will be prepared for the market will be discussed by giving the University of Waterloo as an example.

TRADITIONAL EDUCATIONAL SYSTEMS VS. MODERN EDUCATIONAL SYSTEMS

Traditional educational systems have lasted even after globalization and they are fading out gradually. These educational systems can be seen mostly in non-industrialized societies. In traditional educational systems usually there is a teacher who is supposed to know everything. The worse hypothesis in these kinds of educational systems is usually there is just one correct answer for a particular question (Glasser, 1975). They do not allow the students to be creative. The harms that these kinds of educational systems can cause especially in primary schools will be ignored since the focus of this essay is on higher education.

Gradually educational systems have become more interactive. The invention of new communication tools has helped the educational systems to be interact with the students more and encourage their creativities. The pace of change is so high in the current market so; the students as well as the graduates should be able to adjust themselves with this pace and try to keep their knowledge and skills up to date. The issue here is the knowledge by itself is not sufficient for surviving and being successful in this market. The usage of knowledge is an important factor as well. It was the reason that know-how skills have become important in new educational systems, but these skills cannot be taught in the classrooms. They should be gained through experience and experience can be gained through real work.

In a cooperative educational system students have to integrate their study semesters with real-world-practical experience, in an alternating mechanism whereby they gain two valuable work experience by the time they graduate with their respective degrees. Students receive in-depth interview-management counseling and are subsequently trained for job interviews and go through the actual job-hunting

experience by applying for various different jobs in order to secure successful co-op work terms. Prior to this phase they have an opportunity to attend several interview-critiquing workshops where they get a chance to build a dynamic resume which will equip them to stand their own ground in the job market and the actual job interviews. These potential job or work-terms need to have several criteria in order for them to be qualified as proper work terms. One of these criteria and the most crucial one is that the students must be able to contribute value to the organization that they must be joining; they cannot be involved in perpetual training, rather be able to execute tasks which will help offload pressure from existing employees or be in charge of some projects that will change the way certain areas managed currently. As such, remuneration also becomes a key component for students in their respective co-op work-terms. In a four years or more degree, usually students spend five semesters doing co-op work terms. In the next section the progress of students of the University of Waterloo during their co-op semesters will be shown.

CASE STUDY

University of Waterloo has eight academic units and thirteen undergraduate programs. It has two thousand m^2 facilities. In terms of faculty members and the students, it has 257 leading faculty members, 5,942 undergraduate students, 1,742 graduate (post-graduate) students, and 30,601 successful alumni. The Ontario Council of Academic Vice Presidents (OCAV) requires universities to review all of their programs in terms of **U**ndergraduate **D**egree **L**evel **E**xpectations (short UDLES). University of Waterloo also has to evaluate all aspects of its programs, including how the co-op program contributes to the success of the learning outcomes of its students (short CUDLES). The UDLES competencies that require the schools to examine include Depth and breadth of knowledge, Knowledge of methodologies, Application of knowledge, Communication skills, Limits of knowledge, Autonomy and professional capacity, Experiential learning, and Diversity (Wu et a;, 2010).

One way to evaluate the programs in terms of these competencies is evaluation of the students' performance in their work terms. Statistically it can be unbiased because the employers are outsiders and they do not know about the academic performance of the students, but also it has limitations, e.g. the evaluations do not give unified instructions to employers on how to evaluate their students. Every employer evaluates their student differently due to the fact that there were no standard for evaluating (i.e. some employers might compare their student to previous students whereas others compare their student to other employees). These evaluations feature eighteen categories that every employer rates their students according to. They are Interest in Work, Initiative, Planning and Organizing, Setting Goals, Ability to Learn, Quality of Work, Quantity of Work, Creativity, Judgement, Reflection and Integration from prior Learning, Adaptation to Formal Organizations, Rules and Policies, Problem Solving Skills, Dependability, Handling Conflict, Response to Supervision, Communication –Written and Oral, and Leadership Qualities (Wu et al., 2010).

By factor analysis some these eighteen competencies were merged to reflect particular categories from the UDLES. Witten and oral communications, and interpersonal behaviour were categorized under the communication skills, and ability to learn, problem solving skills, and adaptation to formal organizations rules and policies were considered as autonomy and professional capacity. After the factor analysis all data should be put into a usable database. Following steps were taken to measure the results:

- Record the existing hard-copy evaluation into student JobMine file;
- Migrate all employers to on-line completion of the evaluation going forward;
- Standardize the method and instructions for evaluating students to employers;

- Correlate the UDLES outcomes to the relevant skills and competencies listed on the evaluation form (Wu et al., 2010).

The hypothesis was as a student progresses from one work term to another, the co-op program would help the student advance in competencies (Wu et al., 2010). Entering data was taken three and a half months for three co-op students who were recruited by co-op department of UW for this purpose. They entered more than 15,000 evaluation forms to the database so; the data was enough to evaluate the hypothesis. The case study wanted to find out whether there is a trend within the data. The co-op programs that were chosen for this case study were Arts and Business, Electrical Engineering, and Actuarial Science. The averages for each work term were calculated and then they were compared to find a trend. Below are the tables for the results for average overall evaluations.

Table 1: Results for average evaluation of Arts and Business students (Wu et al., 2010: 15)

Student Evaluation Data for Arts and Business							
	By Work Term						
	Term	1	2	3	4	5	6
	average	2.495	2.308	2.196	2.106	1.942	1.913
Outstanding	% of 1s	11.532%	19.170%	21.531%	24.845%	30.804%	32.039%
Excellent	% of 2s	43.964%	43.676%	46.172%	49.068%	48.661%	50.485%
Very Good	% of 3s	32.252%	27.273%	25.837%	19.876%	16.964%	12.621%
Good	% of 4s	8.829%	7.510%	4.545%	3.727%	2.679%	3.883%
Satisfactory	% of 5s	2.883%	1.976%	1.675%	1.863%	0.893%	0.971%
Marginal	% of 6s	0.180%	0.198%	0.000%	0.621%	0.000%	0.000%
Unsatisfactory	% of 7s	0.360%	0.198%	0.239%	0.000%	0.000%	0.000%
	Population	555	506	418	322	224	103
	Sum	100.000%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 2: Results for average evaluation of Electrical Engineering students (Wu et al., 2010:16)

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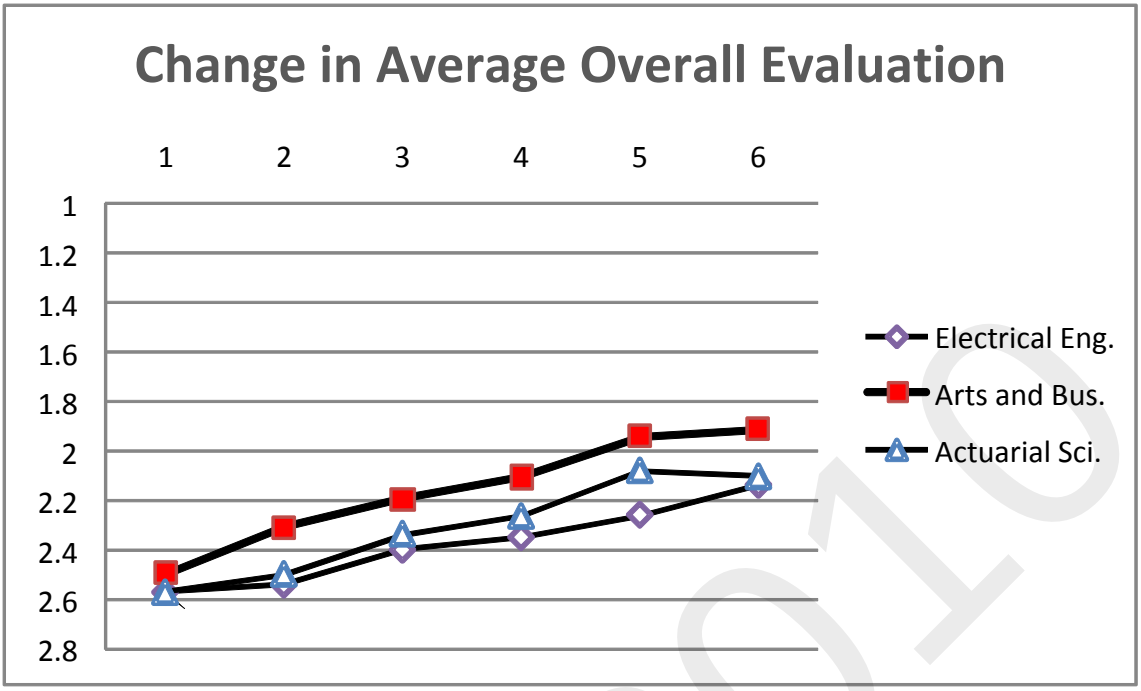
Student Evaluation Data for Electrical Engineering							
	Term	1	2	3	4	5	6
	Average	2.57	2.54	2.4	2.35	2.26	2.14
Outstanding	% of 1s	10.759%	10.700%	15.486%	14.175%	16.797%	21.557%
Excellent	% of 2s	40.506%	43.065%	44.316%	48.738%	52.344%	51.697%
Very Good	% of 3s	34.557%	32.497%	28.830%	27.961%	21.484%	19.960%
Good	% of 4s	9.873%	9.775%	7.743%	6.796%	7.422%	5.589%
Satisfactory	% of 5s	3.418%	3.435%	3.295%	1.942%	1.758%	0.998%
Marginal	% of 6s	0.759%	0.528%	0.329%	0.194%	0.195%	0.000%
Unsatisfactory	% of 7s	0.127%	0.000%	0.000%	0.194%	0.000%	0.200%
	Population	791	758	607	515	512	501
	Sum	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 3: Results for average evaluation of Actuarial Science students (Wu et al., 2010:17)

Student Evaluation Data for Actuarial Science							
	Term	1	2	3	4	5	6
	average	2.572	2.499	2.336	2.265	2.081	2.105
Outstanding	% of 1s	11.00%	12.46%	16.21%	18.97%	23.18%	26.00%
Excellent	% of 2s	41.74%	43.84%	47.32%	47.78%	52.48%	47.66%
Very Good	% of 3s	31.48%	29.41%	26.50%	24.32%	18.83%	19.48%
Good	% of 4s	11.70%	10.88%	7.38%	6.51%	4.42%	4.43%
Satisfactory	% of 5s	3.26%	2.75%	1.93%	1.82%	0.79%	1.84%
Marginal	% of 6s	0.54%	0.37%	0.52%	0.35%	0.24%	0.25%
Unsatisfactory	% of 7s	0.29%	0.28%	0.14%	0.25%	0.06%	0.33%
	Population	2427	2142	2128	1982	1652	1196
	Sum	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Below is the chart which shows the trend within the data for each co-op program:

Figure 1: Trend in Overall Average of each major (Wu et al., 2010: 18)



From the above it can be inferred that the competencies were improved during the co-op semesters so; the hypothesis can be accepted.

CONCLUSION

With the advent of globalization new tools of communication and transportation appeared which removed the obstacles of time and distance to transfer the knowledge across borders in a short time. At the same time it created new demands and new fields in the market so; new human resource is needed with different kinds of abilities for the current market. In order to prepare this human resource new educational systems should be implemented to interact with students more. The new educational systems should be able to give the necessary knowledge along with the usage of this knowledge in the form of know-how skills to the students. In this regards cooperative educational system was suggested in this article as an effective educational system. The competitive advantage of co-op educational system is combining study and work together. The students can gain necessary theoretical and practical proficiency to enter the market. In the case study which was conducted by co-op students of the University of Waterloo it was found that the required competencies have been improved in students during their co-op semesters.

Still a lot of aspects of work integrated learning methods are ambiguous. More studies are needed to prove the efficiency of work integrated learning programs like cooperative educations in different cultures.

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YANSITICI SOSYAL BİLGİLER VE TARİH ÖĞRETMENİ YETİŞTİRME: ALAN F. GRIFFIN'İn MODELİNİN DEĞERLENDİRİLMESİ

Dr. Ayten KİRİŞ[1]

ÖZET

Teoride ve pratikte yansıtma öğretmen yetiştirmenin önemli amaçlarından birisidir. 1980 lerde artan bir şekilde öğretmen eğitiminde yansıtıcı uygulamalar üzerinde durulmuştur. Temelini John Dewey'in oluşturduğu yansıtıcı eğitim sisteminde öğrenciler kendi öğrenme amaçlarını belirleyerek, demokratik bir ortam içerisinde görüşlerini özgürce açıklayabilirler. Tarih öğretiminin etkili ve verimli olabilmesi için de yansıtıcı uygulamaların etkili bir şekilde kullanılması gerekir. Bu çalışmada öğretmen eğitiminde popüler bir kavram haline gelmiş olan "yansıtma" kavramına ilişkin literatür taranarak sosyal bilgiler ve tarih öğretmeni adaylarının yetiştirilmesinde yansıtıcı düşünmenin üzerinde durulmuştur. Ayrıca özellikle demokrasi ve tarih öğretmeni eğitiminde yansıtıcı düşünmenin belirgin bir kavramsallaştırmasını sunan Alan Francis Griffin'in görüşleri üzerinde durulmuştur.

Anahtar kelimler: Tarih Öğretimi, Tarih öğretmeni yetiştirme, yansıtıcı düşünme, Alan F. Griffin

ABSTRACT

Reflection in theory and practice is one of the most important objectives of teacher education. In an increasing manner, greater emphasis has been put on reflective applications in teacher education since 1980s. In the reflective education system, based on the views of John Dewey, students are allowed to set their learning goals and freely explain their opinions in democratic setting. For history teaching to be effective and efficient there is a need for the effective use of reflective applications. Alan F. Griffin's thesis has an important role in the formation of the theoretical aspect of the reflective thinking in the field of History and Social Sciences. The present study aims to investigate the concept of "reflection" which is still very popular, especially in teacher education and based on Alan F. Griffin (1907-1964) and other research on reflective thinking, the importance of reflective teaching in history teacher education will be explained.

Key words: Reflective teaching, teaching history, pre-service history teacher, Alan F. Griffin,

GİRİŞ

Günümüzde "yansıtma" kavramı öğretmen yetiştirme tartışmaları içerisinde anahtar kavramlardan bir tanesidir. Ayrıca son yirmi yıldır, yansıtıcı uygulayıcıların yetiştirilmesi çok sayıda kitabın, makalenin, konferansın, sempozyumun ve tezin konusu olmuştur. Özellikle 1990 lardan sonra öğretmen eğitiminde reflektif model etkin bir biçimde kullanılmaya başlanmıştır (Ekiz,2003). Öncesinde Donald Schon'ün 1983 yılında yayınlamış olduğu "The Reflective Practationer" (Yansıtıcı Uygulayıcılar) adlı eseri öğretmen eğitiminde bir dönüm noktası olmuştur. Bu eser, öğretmenin düşünen ve bilen imajı

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üzerine büyük ilginin yönelmesine neden olmuştur. Bu eserde, Dewey'in 1910 yılında yayınlanan "Nasıl Düşünürüz" (How We Think) adlı eserinde belirttiği düşünceleri Schön tarafından genişletilerek yaygınlaştırılmıştır.

Dewey (1933), yansıtıcı düşünmeyi herhangi bir düşünce ya da bilgiyi ve onun amaçladığı sonuçlara ulaşmayı destekleyen bir bilgi yapısını aktif, tutarlı ve dikkatli bir biçimde düşünme olarak tanımlamaktadır.. Yansıtma öğretmenlerin çalışmaları hakkında düşünmelerini, kendilerinin ve öğrencilerinin ne yaptıklarını anlamalarını, öğrenme ve öğretimin kalitesini artırmanın yollarına dikkat etmeyi içerir. Yansıtma deneyim ve şüpheyi içeren hem bireysel hem de işbirliği içerisinde gerçekleşebilen bir süreçtir. Bu süreç; soruların tanımlanmasından, kişinin kendisi ile ya da diğerleri ile diyalog kurması sonucu ortaya çıkan önemli konunun temel unsurlarının tanımlanmasından ve sonra kişinin kendisi ya da başkaları ile düşüncelerini tartışmasından oluşmaktadır (McAninch, 2004). Kısacası yansıtma, deneyim, pratikleri paylaşma ve tartışmayı gerektirir.

Öğretmen yetiştirmede yansıtıcı düşünmenin vurgulanmasının amacı hizmet öncesinde öğretmenlere çeşitli yollarla "öğretmen gibi düşünmeyi" öğretip öğretmenlerin bunları yansıtmasını sağlamaktır (Köksal ve Demirel, 2008). Öte yandan öğretmen eğitiminde yansıtıcı öğretimin bir diğer önemi bilişsel bilgi ile uygulama arasında köprü kurulmasına katkı sağladığı için önemli görülmektedir (Duban ve Yelken, 2010). Bu sayede yansıtıcı olan bir öğretmen adayı yaptığı sınıf içi uygulamasını, uygulamadan önce, uygulama sırasında ve uygulamadan sonra bilinçli ve sistematik olarak düşünür. Özellikle öğretmen adaylarının eğitiminde yansıtma modeli ile profesyonelleşebilmeleri için öğretmen adaylarının "bir konu belli bir yolla nasıl öğretilir" ve "niçin bu metotlar etkilidir" sorularının cevaplarını bilmelerini sağlamak amaçlanır (Phillips, 2003).

Yansıtma öğretimi sorgulamayı içerir. Öğretmen adaylarının öğretimi öğrenme yollarından bir tanesi sınıftaki öğretim ile ortaya çıkan deneyimler vasıtasıyla öğrenmedir. Öğretmen deneyimlerinden yola çıkarak sürekli kendini değerlendirmeli, eleştirel arkadaş modunda kendisine şu soruları sormalıdır: öğrenciler nasıl öğrendiler?, öğrenciler ne öğrendiler?, daha fazla öğrenmeleri için nasıl yardımcı olabilirim?, öğrencilerimi nasıl motive edebilirim? soruları ile kendini sorgulamalıdır (Phillips, 2003). Daha sonra öğretmen yansıtıcı pratik çerçevesinde elde etmiş olduğu bilgi ve deneyimi düzenler; kullandığı bilgiyi yeniden düşünür; ders planlarını yeniden şekillendirir; derslerini yeniden yapılandırır; öğrencilerin tarihi nasıl öğrenecekleri ile ilgili düşüncelerini yeniden düzenler; öğrenimi ve öğretiminde kullanacağı ölçme ve değerlendirmeyi yeniden düşünür (Phillips, 2003).

Yansıtıcı düşünme becerileri gelişmiş bir öğretmen adayı meslek yaşamı içerisinde etkili bir şekilde yansıtma becerilerini kullanır. Zeichner ve Liston (1996) yansıtıcı uygulayıcı olarak bir öğretmenin şu özelliklere sahip olması gerektiğini vurgulamıştır:

"Sınıf ortamı içersinde ikilemleri çözmek için girişimde bulunur, incelemeler yapar; sınıfa gelen kız ya da erkeklerin değerleri ve varsayımlarının bilincinde olur; erkek ya da kızlara öğretilen geleneksel ve kültürel içerik hakkında dikkatli olur; okul değiştirme çabalarına katılır ve müfredat geliştirmede yer alır; kendi profesyonel gelişimi için sorumluluk üstlenir."

Dewey'e göre yansıtma açıkfikirlilik, içtenlik ve sorumluluk gerektirir. Yansıtıcı düşünen bir öğretmen; öğrencilerin sınıf ortamına uyumunu ve derse olan ilgisini artırır; öğretim sürecini sürekli

değerlendirir, kullandıkları yöntem ve araç-gereçleri gözden geçirerek uygun kararları alır; açık fikirlidir. Kendi görüşlerine ve sınıf uygulamalarına yapılan eleştirilere karşı açıktır, yapılan eleştirileri düşünür ve alternatif çözümler üretir; içten-samimidir, öğrencilerin zihinsel, duygusal ve fiziksel kaynaklı sorunlarına kendisini adar ve çözümlemek için çaba harcar; entelektüel sorumluluğa sahiptir, alınan kararların kısa ya da uzun vadede doğurabileceği her türlü sonucu göz önünde bulundurup, planlamalarını ona göre yapar; yansıtmayı önemser. Yaptıkları yansıtma kendisini güdüler ve bundan mutluluk duyar; geleceği görür, öğrencilerini de dış dünyaya hazırlar ve onların da geleceği görmeleri için uğraşır (Norton, 1996; Duban ve Yelken, 2010). Yansıtma ile öğretmen niçin bazı pratiklerin etkili olduğunu bazılarının olmadığını anlama kapasitesine sahip olur.

Tarih ve sosyal bilimler eğitimi alanlarında, yansıtıcı öğretim için onlarca yıl önce sosyal eğitimciler tarafından önemli teoriler geliştirilmiştir – bunların içinde Alan Francis Griffin (1940, 1992), Maurice Hunt ve Lawrence Metcalf (1963, 1995), ve Shirley Engle (1968) nin çalışmaları da yer almaktadır. Dewey'in ortaya koymuş olduğu Nasıl Düşünürüz (*How We Think)* adlı eserini temel alan araştırmacılar açık bir biçimde yansıtıcı düşünmeyi demokrasi talepleri ile bağlantılandırmakta ve her ikisinin de geliştirilmesi için sosyal eğitime önemli bir rol atfetmektedir. 1940 ve 60 lı yılların bu bilim adamları Dewey'in fikirlerini netleştirmenin, genişletmenin ve uygulamanın yollarını aramışlardır. Griffin üzerine bir çalışma yapan Martorella'ya (1992) göre özellikle demokrasi ile sosyal bilgiler ve tarih öğretmeni eğitiminde yansıtıcı düşünme ile ilgili sözleri ile, Griffin "Dewey'in fikirlerinin ortaya çıkmasını sağlayan kıvılcım görevi görmüştür" (McAninch, 2004). Griffin'in doktora öğrencileri ve saygın bilim adamları tarafından Kuzey Amerika'da sosyal bilgiler öğretimine katkısı olanlar arasında gösterilen (Ata ve Bağcı, 2007). Hunt ve Metcalf (1955) çalışmaları ile Griffin'in çalışmalarına katkıda bulunmuşlardır. Hem Maurice Hunt hem de Lawrence Metcalf, Ohio State Üniversitesinde Griffin'in doktora öğrencisi oldukları için kendi çalışmaları ile Griffinin yapmış olduğu çalışmalar arasında var olan bağlantılar özellikle önemlidir. Bu çalışmada da Griffin'in görüşleri üzerinde durulacaktır.

1907 yılında Ohio'da doğan Griffin, 1936'da Ohio'da yüksek lisans derecesini aldı ve ölüm yılı olan 1964 yılına kadar Ohio Devlet Üniversitesinin elemanı olarak görev yaptı. 1942 de doktora, 1946 da bölüm asistanlığı ve 1949 da profesörlüğe yükseldi. Boyd Bode'nin öğrencisi olarak İlerlemeci Eğitim Hareketi içerisinde Bode'nin çalışmalarından dolayısıyla ek olarak John Dewey'in çalışmalarından etkilenmiştir. Sivil hayat içerisinde vatandaşların aktif katılımına inanan biri olarak Griffin'in çalışmalarının amacı temel sosyal bilgiler yaklaşımlarından biri olan yansıtıcı düşünmeyi vurgulamak için tarih ve sosyal bilgiler öğretmenlerini yönlendirmek olmuştur.

Griffin'in "Tarih Öğretmenlerinin Yetiştirme Konusuna Felsefik Bir Yaklaşım" (A Philosophical Approach to the Subject-matter Preparation of Teachers of History)[2] adlı doktora tezi tarih ve sosyal bilgiler öğretmenlerine, temel konularla yüzleşmelerini ve demokratik toplum içerisinde gerçek iddiaları değerlendirme ve oluşturma için temel metod olarak yansıtıcı öğretimi kullanmak için teorik çerçeve sağlamaktadır. 1942 yılında Griffin doktora tezini tamamladığında 6 yıl boyunca sosyal bilgiler eğitimi

[2] Griffin'in doktora tezi 1992 yılında National Council for the Social Studies tarafından basılmıştır.

programı içerisinde lisans ve lisansüstü öğrencilerine öğretim yapmaktadır ve bu süre içerisinde yansıtıcı pedagojiyi burada test etme imkânı bulmuştur.

1935'de Griffin ile tanışan ve doktora öğrencisi olan Robert Jewett'a göre; Griffin sosyal bilgilerde temel yöntem olarak kullandığı yansıtıcı düşüncenin savunuculuğunu kendi sınıfında günlük olarak pratik ettiği için kuramcı Griffin ile öğretmen Griffin arasında bir fark yoktur. Jewett'in belirttiğine göre, *"Derste Griffin'in öğretim yöntemi genellikle sınıfta bir konu ile başlar fakat kısa bir süre sonra sınıf üyeleri ile diyalog içerisinde gelişir. O tartışma ve ders arasında gider gelir ve öğrencilerin sonuç çıkarması konusunda son derece yeteneklidir. Şunu söyleyebilirim ki sınıf gayrı resmidir ve örnekleme açısından zengindir. Yine şunu diyebilirim ki, 50 dakikalık zaman içerisinde muhtemelen dersin 10 dakikasında konuşur geri kalanı diyalog içerisinde gelişir. Hem lisans hem de lisansüstü öğrencileri kendilerini görüş söyleme ve soru sorma konusunda özgür hissederler."* (Akt. Fernekes, 2007).

Yansıtıcı eğitim sisteminde öğrenciler kendi düşüncelerini özgürce açıklayabilirler. İyi bir öğretmen öğrencilerin demokratik kazanımları gerçekleştirebilmeleri için özendirici bir ortam ve uygun fırsatlar hazırlamalıdır (Genç, 2006, milli eğitim dergisi). Yansıtıcı öğretmenler öğrencilerinin edinmek istedikleri bilgiye ulaşmalarında yol gösterir ve öğrencilerinin düşüncelerini özgürce paylaşabilecekleri ortamlar oluştururlar (Ersözlü, 2008). Yansıtıcı öğretmenler, öğrencilerine yansıtıcı düşünme becerileri kazandırmaya çalışarak böylece onların analiz, sentez ve değerlendirme gibi üst düzey düşünme becerilerini destekleyerek, üretken toplumların kazanmayı arzuladıkları vatandaşların yetiştirilmesine katkı sağlanmış olmaktadır (Duban ve Yelken, 2010) Zeichner ve Liston'a (1996) göre ,yansıtıcı öğretim, öğretimin içeriği, anlamı ve sonuçları hakkında eleştirel soru sormayı artırır. Ayrıca onlara göre iyi yansıtıcı öğretim öğretmenin bütün öğrencilere aynı yüksek akademik standartlarda demokratik bir şekilde yaklaşımını gerektirir (Poblete, 1999: 265)

Dewey'e (1933) göre; yansıtıcı düşünmede iki aşama vardır: 1. aşama; şüphe, şaşkınlık ve zihinsel zorluk durumu; 2. aşama; bu şüpheyi, şaşkınlığı ve zorluğu gidermek için materyal bulma, arama, araştırma ve sorgulama eylemini içerir (1933:12). John Dewey'in yansıtıcı düşünme tanımını benimseyen Griffin'e göre yansıtıcı düşünmenin gerekli elemanlarından birincisi şüphe ya da çelişki, ikincisi ise şüpheyi azaltacak olguları araştırmaktır. Demokrasinin varlığını koruyabilmesi için kafa karışıklığının ve şüphenin desteklendiği fırsatların eğitim metodunun merkezinde yer alması gerektiğini belirten Griffin'in inancına göre "yansıtma ancak kişinin inançları hakkında şüphe duymasıyla başlar. Griffin ile bir süre birlikte çalışan ve Ohio Eyaletinde sosyal bilgiler alanında profesör olan Eugeune Gilliom, onun öğretimi ile ilgili şunları söylemiştir:

"O genellikle öğrencilerin zihinlerinde var olan ya da kendisinin oluşturduğu bir çelişki ya da problemi öğrencilere sunarak sokratik rol ile ya da sorular ile öğrencilerin problem üzerinde düşüncelerini söylemesini sağlard.ı. İnsanlara bir çok cevap sunmaktan ve onlarında bunları papağan gibi tekrarlamalarından kaçınmakta idi. Daha ziyade onları düşünmeye ve hayal güçlerini kullanmaya itecek sorular ortaya koymakta idi ve buradaki temel amaçta onların düşünme kalitesini artırmaktı." (Fernekes, 2007).

Griffin' e göre tarih öğretmeni öğrenciler ile diyolog halinde tarih içerisindeki bir olayı sıçrama tahtası olarak kullanarak öğrencilerin olayın yol açtığı gerçek problemleri tartışmalarını sağlayabilir. Öğretmen diyalog halinde öğrencilerle ilişki kurarak onları soru sorma, hipotez oluşturma ve olay hakkında derinlemesine düşünmeye cesaretlendirmelidir (Toews, 1996: 120). Pek çok eğitim araştırmacısı hem öğretmen ile öğrenciler arasında hem de öğrencilerin kendi arasında diyalog ve etkileşimin özgüven ve anlamayı geliştirmek açısından önemi üzerinde durmaktadır.

Yansıtma üzerine birçok araştırmacının düşünce ve açıklamalarını göz önüne alan McIntyre (1993; akt. Ekiz, 2006) yansıtmanın üç seviyede gerçekleştiğini ileri sürer: Teknik, pratik ve eleştirel. İlk aşamada öğretmenler ilk deneyimlerinde yansıtmanın teknik seviyede gerçekleştiğini; çünkü, onların temel görevlerinin onlara verilen sorumlulukları (sınıf yönetimini sağlama, sınıf zamanının etkin kullanımı vb.) yerine getirme olduğunu ileri sürer. Pratik yansıtma aşamasında, öğretmen kendi ölçütlerini açıkladıklarında, uygulamalarını incelediklerinde ve geliştirdiklerinde meydana gelir. Eleştirel yansıtma ise etik (ahlak), sosyal ve politik konular gibi daha kapsamlı etkenler düşünüldüğünde ortaya çıkar. Özellikle eleştirel yansıtıcı düşünme yeteneğine sahip bir öğretmen sınıf ortamının sürekli aktif olmasını sağlayabilir (Şahin, 2009). Eleştirel yansıtmanın amacı öğretmen adaylarının etik ve ahlaki konular hakkında karar verme sürecinde geleneksel düşüncelerinden ziyade düşünmelerini sağlar (Dinkelman, 2010). Ancak öğretmen eğitiminde de yansıtıcı düşünmenin büyük ölçüde teknik seviyede olduğu bilinmektedir.

Griffin yetişkinlerde demokrasinin anlaşılmasını artırmak için tarihçiler tarafından verilen içeriğe çok fazla önem vermez. Ona göre, demokrasinin yaşayabilmesi için gerekli olan şey eğitim yöntemlerinin merkezinde yer verilecek olan şüphe ve şaşkınlığı artırma fırsatlarıdır. Bu amaçla öğretim fırsatlarını kullanmak, anlamlı bilginin oluşturulmasının ilk basamağıdır. Griffin'e göre, öğrencilere düşündürülmedikçe sınıf öğretmenleri tarafından oluşturulan yansıtıcı düşünme süreçlerinin kullanımı aracılık etmedikçe bir okul disiplini olarak tarih demokrasinin gelişmesi hiçbir doğal değere sahip değildir. Griffin, tarihin ve sosyal bilimlerin temel fikirlerinin basitleştirilerek ve demokratik davranışların artmasına neden olacak bilgilerin öğrencilere gösterilmesi gibi yansıtıcı yöntemlerin etkili bir şekilde kullanılması vasıtasıyla, kavramsal öğrenmenin etkili bir şekilde yapılacağına inanmaktadır (Engle, 1982).

Griffin (1992), hem otoriter hem de demokratik kültürlerde, küçük çocukların yansıtma yapmak için gerekli olan soyut düşünceye sahip olmadıklarını, çocukların inanışları üzerinde yansıtma yapmadan kabul ettiklerini ifade etmektedir: *"İnanışları düşünmeden kabul ederiz, çünkü çocuk olarak başka yapabileceğimiz bir şey yoktur. Bir kültürün içinde harman olmak ve ondan alabildiklerini almak dışında, çocuklar yansıtmanın olası olabileceği bir noktaya varamazlar. Erken dönemlerde edindiğimiz inanışları seçmeyi istemek anne ve babamızın kim olacağı ile ilgili tercihte bulunma isteğinden daha fazla uygulanabilir değildir. Amerika da biz çocuğun başlangıçta sahip oldukları inanışlardan daha ziyade o çocuğun sonraki yaşlarında bu inanışları doğru bir biçimde uyarlayabilme yetisi ile ilgilenmekteyiz" (p.34)*

Başka bir ifade ile, bir demokrasi içinde, yansıtma sürecine diğer her türlü değerin içeriğinden daha fazla önem atfedilmektedir. Yansıtıcı düşünmenin öğretmen ve toplumun arzu ettiği sonuçlar ile

sonuçlanacağının bir garantisi yoktur. Lise öğretmenlerinin önünde duran problemi Griffin şöyle tanımlamaktadır:

Sıradan bir lise öğrencisi eleştiriye tabii tutmaksızın inandığı şeylerin çoğunu kültüründen almıştır. Başka bir şekilde davranması da beklenemez. Günümüzün problemlerinin üstesinden etkin bir biçimde gelmesini sağlayacak olan inanışların eksikliği korkunçtur .. çocuğun kendisi inancı destekleyen temeller ve inancın empoze ettiği eğilimler temelinde bu inancın ya da varsayılan bilgi biçiminin aktif, dikkatli ve ısrarcı bir sorgulaması sürecini yürütebilecek kadar yeti sahibi olmaz ise, o da biz de çaresiziz demektir (McAninch, 2004).

Öğrenciler kendi düşüncelerini, değerlerini ve tavırlarını incelemeye davet edildikten sonra, Griffin öğrenci için sosyal konuları ya da moden problemleri incelemenin vaktinin geldiğini iddia etmektedir Griffin'in bakış açısına göre, uzun zamandan beri doğru olarak kabul edilip değer verilmiş olan inanışları eleştirel bir biçimde incelemek eğitimli bireyler için bile güç bir iştir. Bu sebepten, Griffin lise öğretmenlerinin "bu öğrencilerin devam eden tecrübelerine her düzeyde herhangi bir miktar yansıtmayı enjekte etmesinin" onlar için tatmin edici olması gerektiğini ifade etmektedir (Fernekes, 2007). Aynı problem ile öğretmen eğitmenleri de karşı karşıyadırlar. Öğretmen adayları sadece çok fazla sayıda kültürel inanışı sorgulamadan kabul etmekle kalmazlar ayrıca kendi öğrenim süreleri boyunca yaşadıkları tecrübeler vasıtası ile öğretme ile ilgili geleneksel görüşleri de benimserler (Lortie, 1975). Belki de en fazla dikkat çekilen yazısında Griffin bu gelenekselliğin dışına çıkmayı arzulayan öğretmenlere zırh verilmesini önermektedir:

Griffin demokrasi açısından zararlı olan diğer bir unsurun yansıtma da bulunmanın reddedilmesi olduğunu ifade etmektedir. Öğretmen yetiştirmenin kabul edilebilir her hangi bir algılaması altında, öğretmenler birazcık yardım ile kendi benimsedikleri algılamaların sadece sorgulanmadan insanlar tarafından kabul edilmiş olan pek çok algılamadan bir kaçı olduğunu fark edebilme şansına sahiptirler ve ayrıca bu oturmuş inanışları sorgulamadan kabullenmenin bir rahatlama duygusu vermenin yanı sıra Nazi tarzı bir ideolojiyi haklı gösterdiğini de fark edebilirler. Onlar ayrıca, sorgulama yapmadan her hangi bir algılamayı kabul ettiklerinde, biz onları davranışlarının mantıksız bir temelini kabul etmeye zorlamış oluruz, onlarda inancın test edilmesini reddetme vasıtası ile inancı devam ettirirler. Onların şu soru ile karşı karşıya kalmaları sağlanır: "temel bağlılığınız ideal demokrasiye mi yoksa rastgele edinilmiş alışkanlıkları mı?" (1992, p.35).

Bu paragrafta, Griffin açıkça belirtmektedir ki özgürce yansıtma için öğrencilerin kapasitelerinin geliştirilmesi okulların yaşamın demokratikleşmesine yaptıkları özel bir katkıdır. Griffin'e göre resmi eğitimin temel rolü çocukların yansıtıcı kapasitelerinin geliştirilmesi vasıtasıyla çocukluk dönemlerinin ilk yıllarında oluşmuş sorgulamadan kabul edilen inançlarını sorgulamalarını sağlamaktır. Bu bağlamda içeriğin seçimi öğrencilere "öyleyse ne?" (so what) tepkisini vermelerine teşvik edecek olan bilgilere odaklanmalı ya da öğrencilerin eylem açısından bilginin önemi ve anlamı üzerinde düşünmelerini teşvik edecek biçimde olmalıdır (Akt. Fernekes, 2007)

Okulun sınıfta, okul yönetiminde ve okulun çevre ile olan ilişkilerinde örgün eğitimi demokratik deneyimlerle birleştiren demokratik bir ortam olduğu fikri Avrupa'da gittikçe yaygınlaşmaktadır. Temel

düşünce demokrasi öğrenimine okulun görev tanımında, okul yönetiminde ve sadece yurttaşlık eğitimi dersinde değil de müfredatın tamamında yer verilmesidir (Jones, 2010).

Griffin'e göre otokratik ve demokratik toplumlarda öğretmene verilen görevler arasında öğrencilerin değerlerini, tutumlarını, davranışlarını ve inançlarını değiştirme yer almaktadır. Özellikle demokratik toplumlarda öğretmenin rolü bir şekilde yansıtıcı düşünmeye dayalı olarak öğrencinin bilgisini geliştirmeye yardım etmektir. Ona göre öğrencilerin inanç ve değerleri ciddi bir biçimde test edilmezse anlamlı bir yansıtma söz konusu olamaz (McAninch, 2004). Bu yüzden öğretmen öğrencilerin şüphe duymaları yönünde provoke etmelidir ve daha sonra da onları şüpheyi azaltmak için gerçeklerin araştırılması ile uğraştırmalıdır. Sınıfta bu atmosferi sağlamalıdır.

Tarih ve sosyal bilgiler öğretmenleri aktif bir biçimde temel öğretim metodu olarak yansıtmacı sorgulamayı kullanırlarsa, Griffin aktif ve katılımcı demokrasiyi devam ettirmede katkı sağlayacak üç temel faydanın gerçekleşeceğini iddia etmektedir. Bunlar:

1. öğrencilerin fikirlerini, inanışlarını ve hipotezlerini ortaya koymalarını cesaretlendiren ve onları ciddiye alan öğretmenler toplumda var olan problemlerin yansıtıcı incelemesinde aktif bir biçimde katılımda bulunmaları için öğrencileri cesaretlendirirler.
2. geleneğin tutsağı olarak görülen sorgulanmayan inanç, tavır ve değerlerin kritik sorgulaması öğrencilerin sosyal tutarlılığın üzerine kurulduğu bilgi kaynaklarını sorgulama yönünde cesaretlenmesini ve böylece de öğrencilerin inançlarını sorgulama ve yeniden formüle etmelerini sağlayacaktır, ki, bu da Griffin tarafından demokratik yaşamın temel ilkesi olarak görülmektedir.
3. yansıtıcı metodun düzenli olarak kullanımı öğrencilerin yansıtmayı kavramsallaştırmalarına olanak sağlayacaktır ve böylece bu süreçte demokrasiye bağlı kalmalarını sağlayacaktır (Akt. Fernekes, 2007)

Griffin'in belirttiğine göre, "öğrencilerin bilinen tartışmalı konulara örnek oluşturmak üzere kendi inanışları arasında var olan çatışmaları görmeleri sağlanmalı ve kültürümüz içinde var olan tartışmalı konular ders içerikleri içinde tercihli bir yer edinmelidir. Griffin in bu ifadesi problem temelli öğretime verdiği önemi açıkça ortaya koymaktadır. Ona göre etkili tarih öğretimi öğrencilerin içerik hakkında düşünmesini gerektirir (Fernekes, 2007).

Demokratik yaşamı geliştirme amacını yüceltmek için, okullar bir taraftan öğrencilerin gelecekte doğru davranışlara rehberlik etmeleri için kendi inanışlarını sorgulamaya yardımcı olmalıdırlar. Griffin'e (1992) göre, bir tarih öğretmeni öğrencilerin anlayışlarının yansıtıcı sorgulanmasında tarihsel materyalleri kullanmalı (ders kitapları, el eserleri, filimler ya da diğer kaynaklar). Öğrencilerin inanışları ele alınan konunun temel bir bileşenini oluşturmaktadır – bu inanışlar yansıtıcı süreçte şüphe kaynağıdırlar. Diğer taraftan, tarihin çalışılması öğrencileri kendi kültürleri hakkında daha bilgili kılma görevini de yerine getirmelidir. Kültürel gelenekler ve kurumlar ile alakalı inanışların test edilmesi için tarihsel materyallerin fırsatlar yarattığı fikri tarihsel konu algılamasını yaklaşımı ile tam bir tezat içindedir:

Biz bu çocuklara saptırılmış bilgileri sunup bunları almalarını söylediğimiz de, yaptığımız tek şey kültürümüz içinde çocukların her türlü biçimde bolca maruz kaldıkları öğrenilmeyen anlamsız önermeler kütlesine ekleme yapmaktır. Radyo, basın, kilise, Pazar okulu, sinema, tiyatro, aileler, akrabalar, komşular, ve köşedeki bakkal yada eczacı hepsi çarpıtılmış bilgileri gençlere aktarmaktadırlar.

Geleneksel ders algılaması kapsamında, okulların onlara sunduğu bundan başka bir şey değildir." (1992, p.44).

Burada Griffin tarafından vurgulanan nokta ezberleme yoluyla gerçekleşen öğrenme ile sorgulama vasıtası ile çocukların kavramlara anlam atfettikleri durumda gerçekleşen öğrenme arasında büyük bir farkın olduğudur: Jefforson'un Louisiana bölgesini aldığını söylemeyi öğrenmek ile gerçekten nasıl yaptığını öğrenmek arasında büyük bir fark vardır. İnsanı diğer hayvanlardan farklı kılan temel özellik sadece söylemeyi öğrenmekten ziyade nasıl olduğunu öğrenmektir. Örneğin bir papağan "Jefferson Louisiana yı aldı" demeyi öğrenebilir ancak fakat hiçbir papağan bir şeyin doğru olduğunu öğrenemez"(McAninch, 2004).

Bu yüzdendir ki, tarih öğretimi tarihsel bilgilerin öğrencilerin zihinlerine aktarılması olarak algılanmamalı daha ziyade temelleri olup olmadığını görmeleri için kendi inançlarını inceleme de onlara yardımcı olmalı ve böylece onlarda davranış biçimlerini destekleyen bir temel olup olmadığını görmelidir. Tarihsel materyallerin inanışları yeniden yapılandırmak için bu biçimde kullanımı Dewey'in (1959) etkileşim ilkesinin mükemmel bir biçimde sergilenmesidir ki bu ilke içinde Dewey her türlü eğitimsel tecrübenin tecrübede yer alan her iki faktöre de (objektif ve içsel şartlar) eşit haklar atfettiğini iddia etmektedir" (pp.38-39). Griffin ne sadece tek başına tarih disiplinine vurgu yapmakta, nede yalnız başına öğrenci tavır ve davranışlarına vurgu yapmaktadır. O düşünceyi ileri doğru taşımada öğrenci inançları ile tarihsel konu arasında var olan etkileşime odaklanmaktadır.

Griffin (1992) potansiyel kanıt olarak bilginin kullanılması ile "eylem biçiminin yapısı" nın bilgisinin kullanılması arasında önemli bir ayrım yapmaktadır. Eylem tarzı yapısı bilgisi amaçların belirlenmiş olduğu durumlarda prosedürel bilgi olarak işlev görür. Kaybolduğumuz zaman yönleri nasıl bulacağımızı bilmek, bir kelimeyi bilmediğimiz de yazılışının nasıl olacağını anlamak için bir sözlükte tanımlara nasıl bakacağını bilmek, yada bir kavramın nasıl öğretileceğini öğrenmek için ders kitaplarından yardım almak, bunların hepsi bu "davranış tarzı yapısı tip bilgi altına girmektedir. Bu iki bilgi türü arasında var olan fark Griffin tarafından ortaya koyulduğu biçimi ile tarih öğretimi yaklaşımını anlamak için gereklidir (McAninch, 2004; Fernekes, 2007).

Tarihsel bilgileri inançların test edilmesi için kanıt olarak kullanan bir lise öğretmeninin görevi ilk olarak öğrencileri dinleyerek ya da onları tartışmalara dahil ederek ve daha sonra da bu inanışlar ile ilgili şüphelerin ortaya çıkmasını sağlayacak olan bir miktar gerilim yaratarak yansıtmanın gerçekleşmesi için fırsatlar sunmaktadır. Griffin'in modeli şu biçimde anlatılabilir:

"Varsayalım ki bir sınıfta öğrenciler 1800 seçimleri üzerine bilgiler veren bir ders kitabını okumaktadır. Tabiî ki seçim kampanyasının bazı rahatsız edici noktaları hakkında ve "bir radikal ve ateist" olan Jeffirson'un seçilmesi durumunda ortaya çıkacak olan korkunç sonuçlar hakkında da bir şeyler olacaktır. Bir öğretmen şu soruyu gündeme getirmek için burada müdahale edebilir "Bu insanların, örneğin Dwight, söylediklerine inanıyor musunuz? Yoksa bu insanlar sadece seçilmek için mi bu şeyleri yaptılar? Öğrenciler arasında bu sorulara verilecek cevaplar ile ilgili bölünme yaşanacaktır. Bazıları federalistlerin ortaya atmış oldukları suçlamaların abartılı olmasının propaganda amaçlı olduğunu iddia edecek buna karşın diğer bazıları ise Adams ve Hamilton gibi adamların düşüncelerinde

samimi olduklarını iddia edecektir. …..Şimdi öğretmenin ortaya yeni bir soru attığını varsayalım: "Eğer insanlar belirli bir adayın seçiminin ülkeyi mahvedeceğine gerçekten inanıyorlarsa, bu kişinin seçilmesini önlemek için vatanseverlikte ne kadar ileri giderlerdi?" (Akt. McAninch, 2004).

Bu verilen örnekte ve Griffin tarafından verilen diğer örneklerde vurgulanmak istenen nokta "tam bir düşünme, düşünce temelli bir referans çerçevesi sunmaktır.

Sınıfta yapılan yansıtıcı tartışmalarda öğretmen, öğrencilerden sorular sormalarını, kanıtlarından bahsetmelerini, bilgilerinin geçerliliği ve anlamı hakkındaki sorgulamaları cevaplamalarını ister (Shermis, 1992: 52). Genellikle öğretmenler derslerinde sorgulama metodunu yaygın bir biçimde uygulamamaktadır. Kennedy (1997) şunu işaret etmektedir:

"Yapılan araştırmalardan elde edilen önemli bir bulgu çoğu öğretmen dersleri anlaşılması için değil de sadece öğrencileri konulara maruz bırakmak için öğretmekte…… yani, onların amacı öğrencilerin sundukları kavramları gerçekten anlamalarını sağlamak değil sadece maruz kalmalarını sağlamaktır. Ayrıca, öğrettikleri içerik kavramlardan daha çok becerilerdir. Matematikte, öğretmenler kavramlar yada uygulamalara atfettikleri önemin on kat fazlasını becerilere vermektedirler. Ve onlar böyle yapmaları konusunda var olan nispeten az bir baskı olmasına rağmen içerik çıkarmaktan ziyade içerik ekleme yönünde isteklidirler." (McAninch, 2004).

Halbuki yansıtıcı uygulayıcı olarak bir öğretmen ilgi çekici içerik ile pedegojik deneyimlerini nasıl birleştirebileceği hakkında düşünür; öğrencilerin ilgilerine ve seviyelerine göre içerik ve metodolojiyi en iyi nasıl adapte edeceğini planlar (Drake and McBride, 2000).

Sınıf tartışmalarında sınıf kuralları, tartışma kuralları ve öğretmenin tartışmayı yönlendirebilecek nitelikleri ve becerilerinin arkasında yansıtıcı düşünme yeteneği etkili bir faktördür (Şahin, 2009). Bu nedenlerle tarih öğretmen adaylarına öğretmen eğitimleri süresince yansıtıcı düşünme becerilerini kazandırmaya yönelik çalışmalara yer verilmelidir. Booth ve Hyland (2000) tarih dersinde öğretmenlerin, günlük yazma, portfolyo oluşturma, çeşitli yollarla kendini değerlendirme, öğrenci geribildirimleri, iş arkadaşları ile resmi ve resmi olmayan tartışmalar ve akran gözlemleme gibi etkinlikleri uygulamaları gerektiğini vurgulamıştır. Problem temelli öğrenme, yansıtıcı günlük yazma (reflective journaling), online günlükler, öğrenci gelişim dosyası (portfolyo) hazırlama ve müfredat oluşturma ve demokrasinin eleştirel tartışması üzerine odaklı dersler oluşturma, ses ve görüntü kayıtları, gözlem yapma tarih öğretmeni eğitiminde yansıtmayı artırmak için yapılabilecek çalışmalardır.

SONUÇ

Öğretmen eğitiminde önemli bir yere sahip olan yansıtıcı düşünme tarih ve sosyal bilgiler öğretmenlerinin yetiştirilmesinde de etkin bir şekilde kullanılmalıdır. Dünyada belli başlı öğretmen yeterliliklerinden biri olarak kabul edilen "yansıtma becerilerine sahip olma" hem öğretmen eğitiminde hem de meslek yaşamı içerisinde öğretmenin deneyimlerinden hareketle sürekli kendini sorgulayarak öğretim ortamlarını düzenlemesini mümkün kılar. Sosyal bilgiler ve tarih derslerinde yansıtıcı öğretmen yansıtıcı tartışma ortamları oluşturarak öğrencilerin ne bildikleri hakkında düşünmelerini sağlar. Bu konuda önemli bir çalışma ortaya koyan Alan F. Griffin'in düşünceleri dikkate değerdir.

Sosyal Bilgiler ve tarih öğretmeni yetiştirmede yansıtmacı uygulamanın bir kuramcısı ve konu-merkezli müfredatın bir destekçisi olarak Alan Griffin'in çalışmaları yansıtıcı düşünmenin nasıl demokratik vatandaşlığın temeli olarak hizmet vereceğini gösteren önemli bir çalışmadır.

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INTE 2010

YILDIZ TECHNICAL UNIVERSITY MARINE ENGINEERING OPERATIONS DEPARTMENT AND ITS POSITION IN MARITIME EDUCATION OF TURKEY

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ABSTRACT

Nowadays qualified manpower requirement for the marine industry has been increasing fast around the world. Due to the priority of marine industry progress in development plans and strategies of our country, this increasement rate is more than other countries. Marine education is carried on within the Standards of Training, Certification and Watchkeeping (STCW) regulation of International Maritime Organization (IMO) as it occurs in the same way all around the world. Requirements for oceangoing watchkeeping engineers and officers who have been educated so have been raised in recent years.

The highest degree responsible people for engineering operations are masters and **marine chief engineers**. Moreover, 90% of international trade operations have been done with ships. In this study marine engineering and any other institutes related to this particular area is considered to emphasize its importance.

Marine Engineering Operations Department was founded in 2008 beneath the Mechanical Engineering Faculty of Yıldız Technical University in order to meet the requirements regarding qualified manpower for the maritime industry in our country and in the world.

In this study, it will be mentioned about our national maritime education and will be emphasized the position of Yıldız Technical University Marine Engineering Operations Department. In addition to this, it will be specified the role of new Marine Engineering Operations Department over educating and training well educated seafarers.

Key Words: Yıldız Technical University, Maritime Education, Marine Engineer, Department of Marine Engineering Operations

1.INTRODUCTION

Recent researches and industrial reports show that demand for *marine engineers* reached its peek and some precaution should be taken. Best precaution at first sight is to open new departments in our universities.

Demand for marine operations engineers in the maritime industry is increasing day by day. According to the Undersecretariat for Maritime Affairs, BIMCO (The Baltic and International Maritime Council) and Chamber of Maritime Trade data, demand for qualified seafarer is 15.000 since the beginning of 2008. Forecasts claim that this requirement will go up to 25.000 in 2015. [Ozcan, 2008] And mostly required are “Marine Engineers”.

According to BIMCO/International Shipping Federation (ISF) datas, requirement for oceangoing watchkeeping officer was approximately 10.000 in 2005 and will be 21.000 in 2010 and based on a research 27.000 in 2015 or 46.000 for another research.

The aim of “Marine Operations Engineering Department” which has been opened recently in Yıldız Technical University is to train qualified “marine engineers” for the sake of our country and world merchant maritime industry.

2. CLASSIFICATION OF MARINE ENGINEERING PROGRAMS

A marine engineer is responsible for operating and maintaining a vessel's structure, machinery and equipments to make sure the vessel is operating safely and effectively at any times.

Choosing a career in maritime industry is a special decision, and selecting the best education partner to support you throughout your career is very important.

Marine engineers need to have mechanical, problem-solving and good communication skills, an eye for detail, and decision-taking ability.

Marine engineers:

- are in charge of equipment in a ship's engine-room and all deck machinery
- prepare machinery, such as boilers and diesel engines for use
- set automatic controls and alarms
- test, maintain and repair machinery, electrical and electronics systems
- operate the engines which drive the ship as instructed and keep the ship at the required speed
- look after systems, such as fuel, oil, refrigeration and fresh water

Marine engineers have to know about: maths, physics and chemistry, machine operation and maintenance, safety rules and methods, hydraulics and pneumatics, engineering, electrics, electronics and computers, deck and safety equipment.

2.1 Types of Educational Institutions

Several hundred educational institutions in the world provide various types of maritime education. It is possible to subdivide into four groups: [Butman, 2005]

a. Maritime academies, offering complete program leading to a license of a marine engineering officer.
b. Maritime academies and universities, offering programs leading to an engineering license and to an academic degree.
c. Vocational maritime schools, certificate programs for sailing sail boats, motor boats, etc.
d. Maritime schools, union schools and training centers, offering individual marine engineering courses. There is a wide variety of such courses:

- advanced courses intended for upgrading license;
- various certificate courses, such as ISM, safety, new engine/equipment operation, etc;
- re-training courses, etc.

The second group of the educational institutions is the subject of this study.

2.2 Maritime Education in Turkey

In Turkey, maritime education is given by Private courses, Military academies, High schools and Universities (faculties, academies, vocational schools). [Sener 2008]

Several branches of maritime education can be seen in 13 universities. These branches are shown in Table 1, such as; Naval Architecture and Marine Engineering, Ocean Engineering, Marine Transportation Engineering, Marine Engineering, Maritime, Maritime Business Administration, Maritime Transportation and Management Engineering, Fishing & Processing, Aquaculture, Fish Breeding, Fisheries Technology Engineering & Marine and Harbour Management. The graduate education with master and doctorate degree is also carried out in several universities. [Poyraz, 2007]

Table 1. Maritime education institutions in universities of Turkey

No	University	Faculty / Vocational College	Department	Language
1	Canakkale Onsekiz Mart University	Faculty of Fisheries	Aquaculture	T
			Fishing & Processing	
			Fish Breeding	
		Gelibolu Piri Reis Vocational College	Shipping & Harbour Management	
2	Dokuz Eylul University	Maritime Faculty	Department of Maritime Business Administration	E
			Department of Marine Transportation Engineering	
			Department of Marine Engineering	
3	Ege University	Faculty of Fisheries	Aquaculture	T
			Fishing & Processing	
			Fish Breeding	
4	Istanbul University	Faculty of Engineering	Maritime Transportation and Management Engineering	T
		Faculty of Fisheries	Fishing & Processing	
			Aquaculture	
			Fish Breeding	
5	Istanbul Technical University	Faculty of Naval Architecture and Ocean Engineering	Naval Architecture	T
			Ocean Engineering	
		Maritime Faculty	Maritime Trans. and Management Eng.	
			Marine Engineering	
		Maritime Vocational College	Maritime	
6	Karadeniz Technical University	Surmene Faculty of Marine Sciences	Fisheries Technology Engineering	T
			Naval Architecture and Marine Engineering	
			Maritime Transportation and Management Engineering	
7	Kocaeli University	Yildiz Bilge Barbaros Maritime Vocational College Karamürsel Vocational College	Marine and Harbour Management	T
			Ship Construction	
			Marine Engineering	
			Maritime Transportation and Management (Deck)	
			Maritime Transportation and Management Engineering	
8	Uludag University	Gemlik Asim Kocabiyik Community College	Marine and Port Management Program	T
9	Near East University (KKTC)	Maritime Faculty	Department of Maritime Business Administration and Governance	E
			Department of Deck	
			Department of Vessel Motor Maintenance Engineering	

No	University	Faculty / Vocational College	Department	Language
10	Yildiz Technical University	Faculty of Naval Architecture and Maritime	**Naval Architecture and Marine Engineering**	T
			Department of Marine Engineering Operations	
11	Piri Reis University	Faculty of Engineering	**Naval Architecture and Marine Engineering**	T
		Maritime College (4 years)	Department of Deck	
			Marine Engineering	
12	Rize University	Turgut Kiran Maritime College	**Department of Marine Engineering Operations**	T
			Maritime Transportation and Management Engineering	
			Maritime Business Administration	
13	Yalova University	Yalova Community College	Marine and Port Management Program	T

3. DEPARTMENT OF MARINE ENGINEERING OPERATIONS IN YILDIZ TECHNICAL UNIVERSITY

Marine Engineering Operations Department was founded in 2008 beneath the Mechanical Engineering Faculty of Yıldız Technical University in order to meet the requirements regarding qualified manpower for the maritime industry in our country and in the World. Since the 2009-2010 academic years, our department started the education beneath the Naval Architecture and Maritime Faculty with 50 students in the Central Campus (Besiktas) of Yıldız Technical University.

Our department accommodates students according to their numerical scores gained from the Student Selection Exam and the candidates who qualify to have education in our department should provide the pre-conditions. The detailed information about application conditions are in the booklet of OSYM.

In the department of Marine Engineering Operations, after 1 year English Preparation and 4 years bachelor education, bachelor diploma is given to the graduates. Students receive training for 7 half years period with the teoric lectures in ashore and in addition to laboratory & engine room simulator practices, they also receive practical ocean - going training for 6 months period in commercial vessels.

Our graduates also serve engineering facilities in oceangoing vessels or similar foundations after getting their bachelor degree diplomas. Education facilities are executed beneath the Marine Engineering Operations Division.

The education program is adequate to the STCW Agreement of the International Maritime Organization (IMO) A-III/1 and A-III/2 curriculums.

An area which graduates will be employed for;

- In oceangoing ships, they make part as 4. Engineer up to chief engineer.
- After seafaring experience, as machine inspectors in the companies dealing with marine or as outfitting employees in navy yards.
- Furthermore in areas like Lloyds, insurance companies, ship maintenance and sub-industries.

The main goals of the Yıldız Technical University Marine Engineering Operations department are to entitle the students;

- Providing students all fundamental knowledge and practical skills required for design, production and administration of a ship.

- Providing required skills for defining and solving problems and decision making.
- Providing comprehension of importance of lifelong education and research skills.
- Fostering teamwork for research and development, written and verbal communication.
- Providing skills for using modern engineering equipments and methods.
- Providing ethic view that prioritizes global and environmental effects of occupation with social benefits.

The Yıldız Technical University Marine Engineering Operations Department's curriculum has been prepared by considering the department mission and vision besides taking into account of opinions of the sector representatives. Under these conditions, the students graduated from YTU Marine Engineering Operations department are appreciated in the maritime sector in Turkey. [Bayraktar, 2006]

3.1 Laboratory Facilities

Laboratories in our faculty are listed below as existing and planned.

Existing laboratories:

- Ship Engine Laboratory
- Safety at Sea Education Laboratory
- First Aid Special Training Class
- Experimental and Computational Fluid Dynamics Laboratory
- CAD (Computer Aided Design) - CAM (Computer Aided Manufacturing) Laboratory

Future planned laboratories:

- Engine Room Simulator Laboratory
- Fire Preventing and Fire Fighting Center
- Life Saving Special Training Class
- Hydraulics-Pneumatics & Automatic Control Laboratory
- Thermodynamics & cooling – Refrigeration Air-Conditioner Laboratory
- Ship Strength Laboratory
- Ship Hydrodynamics Laboratory

3.2 Academic Background

Yıldız Technical University Marine Engineering Operations Department has 1 professor, 1 associate professor, 1 assistant professor, 1 expert engineer and 3 research assistants as academic staff. Number of academic staff for next three years is shown in Table 2. Our department is supported by Department of Naval Architecture & Marine Engineering by means of academic staff.

Table 2. Academic staff background

	2008-09	2009-10	2010-11	2011-12	TOTAL
Professor	1	-	1	-	2
Assoc. Professor	-	1	1	1	3
Assist. Professor	2	1	1	1	5
Expert Engineer	-	1	-	2	3
Res. Assistants	3	1	1	1	6

4. SIMILAR EDUCATION APPLICATION IN OUR COUNTRY AND IN THE WORLD

There are similar programs in maritime faculties and universities worldwide. Some of them are shown below in Table 3.

Table 3. Some of Maritime education institutions in the World according to IAMU (International Association Of Maritime Universities)

ASIA / PACIFIC	Australia	Australian Maritime College
	India	AMET University
	China	Dalian Maritime University
		Shanghai Maritime University
		Tianjin University of Technology
	Japan	Tokyo University of Marine Science and Technology, Faculty of Marine Technology
	Vietnam	Vietnam Maritime University
	Korea	Mokpo National Maritime University
EUROPE	Poland	Szczecin Maritime University
		Gdynia Maritime University
	Sweden	World Maritime University
	Germany	Wismar University of Technology, Business and Design
	Bulgaria	Nicola Y. Vaptsarov Naval Academy
	Romania	Constanta Maritime University
	Denmark	Svendborg International Maritime Academy
	Estonia	Estonian Maritime Academy
AMERICAS	USA	US Merchant Marine Academy
		Maine Maritime Academy
		State University of New York Maritime College
		The California Maritime Academy
	Canada	Marine Institute of Memorial University of Newfoundland
Africa, Central Europe (excluding EU members), Eastern Mediterranean, Middle East and Russia	Russia	Admiral Makarov State Maritime Academy
	Georgia	Batumi State Maritime Academy
	Iran	Islamic Republic of Iran Shipping Lines Maritime Training and Research Institute
	Ukraine	Kyiv State Maritime Academy
		Odessa National Maritime University
	Croatia	University of Rijeka, Faculty of Maritime Studies
	Egypt	Arab Academy for Science & Technology and Maritime Transport

...

In our country, similar education programs about marine engineering operations are found in Istanbul Technical University Maritime Faculty, Dokuz Eylul University Maritime Business and Management School and Piri Reis University Maritime College (4 years). Also Near East University Maritime Faculty is located in KKTC.

5. CONCLUSION

Education of seafarers is important for world transportation. Since, transportation of goods is mainly done on ships and is in their hands.

It can be clearly understood from the researches and numbers mentioned above, existing number of seafarer and education institutions, especially seafarer education institutions, cannot answer the demand in Turkey. Recent researches and industrial reports show that demand for marine engineers reached its peek and some precaution should be taken. Best precaution at first sight is to open new departments in our universities.

As a conclusion in this study, maritime education in Turkey is presented and emphasized the position of Yıldız Technical University Marine Engineering Operations Department. And marine engineering operations are expressed in terms of responsibilities, education requirements, especially practical trainings. Moreover, infrastructure of Yıldız Technical University Marine Engineering Operations Department is given as an illustration for maritime education institutes.

6. REFERENCES

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STRENGTHS AND WEAKNESSES OF PROBLEM-BASED LEARNING: STUDENTS' AND TUTORS' PERSPECTIVES

Dr. Özlem ATEŞ
Ass. Prof. Dr. Ali ERYILMAZ

This study aims to analyze the strengths and weaknesses of problem-based learning (PBL) implementations in engineering education and problems encountered in it from the perspectives of tutors and students. A case study design was employed in this study. To this end, four tutors, their five PBL modules, and fourteen students were selected. The data were collected by means of observations, interviews, and documents. The results indicated that gaining engineer's viewpoint and self confidence; improvement of communication skills, problem-solving skills, and collaboration skills were commonly mentioned strengths of PBL. On the other hand, weaknesses of PBL and problems encountered in it were gathered under seven sections such as tutors' weaknesses, students' weaknesses, scenarios'/sessions' weaknesses, assessment weaknesses, presentation weaknesses, tutors' problems, and students' problems in PBL. Those results should be taken into account by the curriculum developers and administrators while preparing/evaluating their PBL curriculum and making necessary revisions to overcome these weaknesses and solve problems.

Keywords: Problem based learning, tutor perspectives, student perspectives, engineering education

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Conference Programme

23.06.2010	10:00 - 10:30	**Opening Ceremony**		
23.06.2010	10:30 - 11:30	**Keynote** Öğretim Yeterlikleri ve Sakarya Üniversitesi Örneği **Prof. Dr. Aytekin İŞMAN**		
23.06.2010	11:30 - 12:30	**Round Table Discussion** New Horizons in Education **Prof. Dr. Aytekin İŞMAN** , **Prof. Dr. Zeki KAYA** , **Chief Public Prosecutor Mehmet DEMİR** , **Prof. Dr. Nezahat GÜÇLÜ**		
23.06.2010	12:30 - 14:00	**Lunch**		
23.06.2010	14:00 - 15:00	(1) SALAMIS Session Chair: **Ülkü KÖYMEN**	DEALING WITH THE COMPLEXITIES OF INTEGRATION IN CULTURAL DIVERSE RURAL SCHOOL COMMUNITIES IN SOUTH AFRICA	GREGORY ALEXANDER
			TEACHERS AND THE INFLUENCE OF AGE	BOHIMURA LAZAROVA
			THE SPECIFICS OF PROFESSIONAL CHOICE OF PUPILS WITH A DISABILITY	ZDENEK FRIEDMANN
				BOHUMIRA LAZAROVA
23.06.2010	14:00 - 15:00	(2) AKKULE Session Chair: **Mübin KIYICI**	DİSİPLİNLERİN KESİŞMESİNDE BİR UYGULAMA ALANI: İLKÖĞRETİM GÜNCEL OLAYLAR DERS PROGRAMI TASARISI	ŞENOL CEYLAN
				METİN AŞÇI
				ALİ ÇOBAN
				BUKET ÇİFTER
			YANSITICI SOSYAL BİLGİLER VE TARİH ÖĞRETMENİ YETİŞTİRME: ALAN F. GRIFFIN\'İN MODELİNİN DEĞERLENDİRİLMESİ	AYTEN KİRİŞ
			6. SINIF MATEMATİK DERS KİTABINDAKİ ALIŞTIRMALARIN ANALİZİ	NİHAN COŞAR
				AHMET DELİL

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23.06.2010	14:00 - 15:00	(3) ST. BARNABAS Session Chair: **Zehra ALTINAY GAZİ**	ACADEMIC WRITING WITH "NON" ACADEMIC LEARNERS	S.PINAR ÇALGAN
				ZEYNEP CANSEVER
			AN ANALYSIS OF GEOMETRY PROBLEMS IN 6TH – 8TH GRADES TURKISH MATHEMATICS TEXTBOOKS	HÜSEYİN DELİL
			A BLENDED LEARNING APPROACH USING MAPLE T.A. TO IMPROVE THE MATHEMATIC SKILLS OF ENGINEERING STUDENTS	PETER KRISTOFEL
				FELIX BREITENECKER
				ANDREAS KORNER
				VİLMA URBONAITE
				ANDREAS ZİMMERMANN
23.06.2010	14:00 - 15:00	(4) CANBULAT Session Chair: **Vahdettin SEVİNÇ**	TÜRKİYE'DEKİ İLKÖĞRETİM PROGRAMINA YENİ BİR BAKIŞ AÇISI: KARAKTER EĞİTİMİ PROGRAM TASARISI	GÖKHAN ARDIÇ
				ŞERİFE ÖNBAŞ
				METİN AŞÇI
				FÜSUN KÖSE ADLI
			SANAL GERÇEKLİK İLE EĞİTİM : SECOND LIFE	AYTEKİN İŞMAN
				TUĞRA KARADEMİR
				MÜBİN KIYICI
			İLKÖĞRETIM OKULU ÖĞRETMENLERIN E-OKUL HAKKINDAKI GÖRÜŞLERI.	AYTEKİN İŞMAN
				NEŞE AYDOĞAN
				MÜBİN KIYICI
23.06.2010	14:00 - 15:00	(5) NAMIK KEMAL Session Chair: **Özcan Erkan AKGÜN**	ÖĞRETMEN ADAYLARININ YARATICI DRAMAYA YÖNELİK TUTUMLARININ ÇEŞİTLİ DEĞİŞKENLER AÇISINDAN İNCELENMESİ	SEVİL ÖZCAN
				ÜMMÜHAN ORMANCI
				ÖZNUR BAYKAN
			EĞİTİMDE ERGONOMİ VE ERGONOMİK FAKTÖRLERİN VERİMLİLİK ÜZERİNDEKİ ETKİLİLİĞİ HAKKINDA ÖĞRENCİ GÖRÜŞLERİ (GAZİ ÜNİVERSİTESİ ENDÜSTRİYEL SANATLAR EĞİTİM FAKÜLTESİ ÖRNEĞİ)	ZEKAİ ÖZTÜRK
				VURAL HOŞGÖRÜR
				ÖZNUR ŞAKLAK
			BILIŞIM TEKNOLOJILERI ÖĞRETMENLERININ ÖĞRETIM SÜRECINDE YAŞADIKLARI SORUNLARIN BELIRLENMESI	OZNUR KUVAN
				OZCAN ERKAN AKGUN
23.06.2010	14:00 - 15:00	(6) KANTARA Session Chair: **Oğuz SERİN**	ÇOCUKLAR İÇİN YENİ ÖĞRENME ÇEVRELERİ YARATMAK	BURCU GULAY
				HİKMET GÖKMEN
			OKUL ÖNCESİ EĞİTİM KURUMLARINA DEVAM EDEN VE DEVAM ETMEYEN 6 YAŞ ÇOCUKLARIN RESİMLERİNDEKİ FARKLILIKLAR	MEDERA HALMATOV
				NACİ EDİ
			UZAKTAN EĞİTİMDE ÖĞRETİM YÖNETİM SİSTEMİ TASARLAMA SÜRECİ VE MODÜLER YAPI BİLEŞENLERİ	AYÇA ÇEBİ
				MEMNÜNE PEKŞEN
23.06.2010	15:00 - 15:20	**Break**		
23.06.2010	15:20 - 16:20	(1) SALAMIS Session Chair: **Fahriye ALTINAY AKSAL**	TURKEY AND THE EU EDUCATIONAL SPACE	ÖZGE ONURSAL
			COMPARISION OF DEVELOPMENT OF PHYSICAL FITNESS PARAMETERS IN DIFFERENT SUMMER SCHOOL PROGRAMS	İLKER YILMAZ
			A SEARCH FOR EFFECTIVE HIGHER EDUCATION TO MEET THE PRIORITIES OF THE PROFESSIONAL WORLD	MUSTAFA KALKAN

23.06.2010	15:20 - 16:20	(2) AKKULE Session Chair: **Nergüz BULUT SERİN**	MÜZİK EĞİTİMİNDE YENİ YAKLAŞIMLAR: İLKÖĞRETİM VE KONSERVATUAR EĞİTİM MODELLERİ ÜZERİNE KARŞILAŞTIRMALI ANALİZ	ÖZLEM DOĞUŞ VARLI ERSEN VARLI
			MÜZIK ÖĞRETMENI ADAYLARININ ÜSTBILIŞSEL FARKINDALIK DÜZEYLERI VE AKADEMIK BAŞARI PUANLARI ARASINDAKI İLIŞKININ İNCELENMESI	TUBA YOKUŞ
			MÜZİK ÖĞRETMENİ ADAYLARININ PİYANO REPERTUARININ ÖĞRENİLMESİNE YÖNELİK ÖĞRENME STRATEJİLERİNİ KULLANMA DÜZEYLERİNİN İNCELENMESİ	HAMİT YOKUŞ
23.06.2010	15:20 - 16:20	(3) ST. BARNABAS Session Chair: **Cem BİROL**	İLKÖĞRETIM 6., 7. VE 8. SINIF ÖĞRENCILERININ FOTOSENTEZ-SOLUNUM KONUSUNDAKI KAVRAM YANILGILARININ KAVRAM KARIKATÜRLERIYLE BELIRLENMESI	FATMA ŞAŞMAZ ÖREN ÜMMÜHAN ORMANCI PINAR KARATEKİN ŞULE ERDEM
			KAVRAM KARIKATÜRLERI, ÇIZIM, KELIME İLIŞKILENDIRME TESTI VE KAVRAM HARITALARININ ÖLÇME-DEĞERLENDIRME AMAÇLI KULLANIMINA YÖNELIK BIR PUANLAMA ÇALIŞMASI	ÜMMÜHAN ORMANCI FATMA ŞAŞMAZ ÖREN
			BİLGİ TOPLUMUNDA ÖĞRETMEN ADAYLARININ MEDYAYI TAKİP ETME DÜZEYLERİ	AHMET ESKİCUMALI SERHAT ARSLAN DUYGU GÜR ERDOĞAN
23.06.2010	15:20 - 16:20	(4) CANBULAT Session Chair: **Fatime Balkan KIYICI**	EKONOMİ KAZANIMLARI İÇİN YÜKSEK ÖĞRETİMİ BEKLEMEK: GENEL LİSE EKONOMİ DERSİ PROGRAM TASARISI	İHSAN YILMAZ MERVE AKSOY NİLAY ÖZGÖREN METİN AŞÇI
			İLKÖĞRETİM 4. SINIF SOSYAL BİLGİLER DERS PROGRAMI'NDA ÖNERİLEN ETKİNLİKLERİN YAPILANDIRMACI ANLAYIŞ AÇISINDAN İNCELENMESİ	IŞLAK OKAY
			FEN BİLGİSİ ÖĞRETMEN ADAYLARININ ÇEVRE OKURYAZARLIK DÜZEYLERİNİN BELİRLENMESİ	NİHAT ALTINÖZ VAHDETTİN SEVİNÇ FATİME BALKAN KIYICI SABİHA SEVİNÇ ALTAŞ
			BİR DERS ARAŞTIRMASI DENEMESİ: MATEMATİK ÖĞRETMEN ADAYLARI HANGİ ÖĞRETMENLİK BİLGİLERİNİ SERGİLİYOR?	AYFER BUDAK İBRAHİM BUDAK BÜLENT KAYGIN
23.06.2010	15:20 - 16:20	(5) NAMIK KEMAL Session Chair: **Nezahat GÜÇLÜ**	EXPLORING SAFETY IN TOWNSHIP SECONDARY SCHOOLS IN THE FREE STATE PROVINCE	GİLBERT MBOTHO MASİTSA
			INVESTIGATING ELEMENTARY STUDENTS MISCONCEPTIONS OF AGRICULTURE CULTURE	MEHMET AKİF HAŞILOĞLU SALİH ÇEPNİ SÜLEYMAN AYDIN PINAR URAL KELEŞ
			GEOMETRİ DERSLERİNİN MATEMATİK ÖĞRETMEN ADAYLARININ GEOMETRİK DÜŞÜNMELERİNE ETKİSİ	AYFER BUDAK İBRAHİM BUDAK FURKAN DEMİR

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23.06.2010	15:20 - 16:20	(6) KANTARA Session Chair: **Zehra ALTINAY GAZİ**	THE RESEARCH OF PRIMARY SCHOOL TEACHERS' ATTITUDES AND PERCEPTION LEVEL OF SELF EFFICACY TOWARDS COMPUTER ASSISTED INSTRUCTION	MEHMET BEYAZSAÇLI
				SERKAN MUTLUOĞLU
				SAİT COŞANER
				OĞUZ SERİN
			YILDIZ TECHNICAL UNVERSITY MARINE ENGINEERING OPERATIONS DEPARTMENT AND ITS POSITION IN MARITIME EDUCATION OF TURKEY	KAAN ÜNLÜGENÇOĞLU
				BURAK YILDIZ
				TARIK KOÇAL
			MECHATRONICS ENGINEERING EDUCATION AND ITS IMPORTANCE IN TURKEY	TARIK KOÇAL
				KAAN ÜNLÜGENÇOĞLU
				BURAK YILDIZ
24.06.2010	09:30 - 10:30	**Keynote** Gifted Case Studies **Prof. Dr. Hanna David**		
24.06.2010	10:30 - 10:50	**Break**		
24.06.2010	10:50 - 11:50	(1) SALAMIS Session Chair: **Metin AŞÇI**	TEACHING PRONUNCIATION THROUGH THE INTERNET FROM EFL TEACHERS' PERSPECTIVES	MURAT HİSMANOĞLU
			THE IMPACT OF THE ANALOGIES IN CHEMİSTRY ACHİEVEMENT	ESİN ŞAHİN PEKMEZ
				MUSTAFA TOPRAK
				GÜLTEN ŞENDUR
			ARE CONDUCTING SCIENTIFIC RESEARCH STUDIES AND STUDYING IN GRADUATE PROGRAMS ENOUGH TO ACQUIRE SOPHISTICATED UNDERSTANDINGS ABOUT THE NATURE OF SCIENCE?	CANAN TUNÇ ŞAHİN
				MUSTAFA SERDAR KÖKSAL
24.06.2010	10:50 - 11:50	(2) AKKULE Session Chair: **Hasan Basri GÜNDÜZ**	STUDYO: TASARIM EĞİTİMİNİN KALBİ	AYLA AYYILDIZ POTUR
				ÖMÜR BARKUL
			TASARIM EĞİTİMİ VE OYUN TABANLI ÖĞRENME	AYLA AYYILDIZ POTUR
				ÖMÜR BARKUL
			EĞİTİM VE MİMARLIK: ÜÇ BOYUTLU EĞİTİM ARAÇLARI OLARAK OKUL BİNALARI	KUTLU SEVİNÇ KAYIHAN

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24.06.2010	10:50 - 11:50	(3) ST. BARNABAS Session Chair: **Zehra ALTINAY GAZİ**	THE EFFECT OF PROBLEM POSING METHOD IN THE IDENTIFICATION OF MATHEMATICALLY GIFTED 7TH GRADE STUDENTS(KAZAKHSTAN	SELİM GÜVERCİN
			MATHEMATICS PERFORMANCE OF FOURTH GRADERS IN NORTH CYPRUS LOATED ON A GIS SOLUTION, A PROPOSAL	MEHMET ALİ TUT
				PARHAM ABOLHASSANI MONFARED
				SİNEM UNUL
				MANI MEHRAEI
			MATHEMATICS E-HOMEWORK	EVA ZMAZEK
				JAN ZMAZEK
24.06.2010	10:50 - 11:50	(4) CANBULAT Session Chair: **Fahriye ALTINAY AKSAL**	DIGITAL COMPETENCES AND MULTIMEDIA	MARJAN KRAŠNA
			DETERMINE OF FINE ARTS TEACHER CANDIDATES' SOCIAL SKILLS LEVEL	IŞIL GÜNEŞ MODİRİ
			DETERMINE OF FINE ARTS TEACHER CANDIDATES' INTERNET ADDICTION LEVEL	IŞIL GÜNEŞ MODİRİ
24.06.2010	10:50 - 11:50	(5) NAMIK KEMAL Session Chair: **Fatma ŞAŞMAZ ÖREN**	ORTAÖĞRETIM OKULU YÖNETICILERININ ÖĞRETMENLER TARAFINDAN ALGILANAN ETIK LIDERLIK UYGULAMALARI İLE ÖĞRETMENLERIN ÖRGÜTSEL BAĞLILIKLARI ARASINDAKI İLIŞKI	NEZAHAT GÜÇLÜ
				VEYSEL OKÇU
			ÖĞRENCİ TAKIMLARI VE BAŞARI BÖLÜMLERİ TEKNİĞİNİN İLKÖĞRETİM 5. SINIF ÖĞRENCİLERİNİN MOTİVASYON STİLLERİNE ETKİSİNİN İNCELENMESİ	İBRAHİM BİLGİN
				İDRİS AKTAŞ
				ABDULLAH ÇETİN
			MERSIN ÜNIVERSITESI MERSIN MESLEK YÜKSEKOKULU UZAKTAN ÖĞRETIM SISTEMI VE ÖĞRENCI ÖZELLIKLERI	ZEHRA ALAKOÇ BURMA
24.06.2010	10:50 - 11:50	(6) KANTARA Session Chair: **Zehra ALAKOÇ BURMA**	FEN VE TEKNOLOJİ DERSLERİNDE KULLANILAN DRAMA TEKNİĞİ HAKKINDA ÖĞRETMEN VE ÖĞRENCİLERİN GÖRÜŞLERİN BELİRLENMESİ	PINAR URAL KELEŞ
				SÜLEYMAN AYDIN
				SALİH ÇEPNİ
				MEHMET AKİF HAŞILOĞLU
			ÖĞRETMEN ADAYLARININ BILGISAYAR KULLANMA ALIŞKANLIKLARI İLE DEMOGRAFIK ÖZELLIKLERI ARASINDAKI İLIŞKI	NİLGUN TOSUN
				DEMİRALİ YAŞAR ERGİN
			EĞİTİMDE E-PORTFOLYO UYGULAMALARI	NİLGÜN TOSUN
				M. FATİH BARIŞ
24.06.2010	11:50 - 13:00	**Lunch**		
24.06.2010	13:00 - 14:00	(1) SALAMIS Session Chair: **Fatoş SİLMAN**	STRENGTHS AND WEAKNESSES OF PROBLEM-BASED LEARNING: STUDENTS' AND TUTORS' PERSPECTIVES	ÖZLEM ATEŞ
				ALİ ERYILMAZ
			DIGITAL COMPETENCE IN THE NATIONAL PROJECT DEVELOPMENT OF NATURAL SCIENCE COMPETENCES - PHYSICS	MİLAN AMBROŽİČ
				MATEJ CVETKO
				ROBERT REPNIK
			DIGITAL PORTFOLIO AS TOOL IN DISTRIBUTED EDUCATION	HALLSTEIN HEGERHOLM

24.06.2010	13:00 - 14:00	(2) AKKULE Session Chair: **Nilgün TOSUN**	MESLEK LİSELERİNDE ELEKTRONİK BİLGİSAYAR BÖLÜMLERİNDEKİ ÖĞRENCİLERİN EĞİTİM TEKNOLOJİLERİNİN KULLANIM DÜZEY VE GÖRÜŞLERİNİN BELİRLENMESİ	SEZGİN ERSOY
			EĞİTİM BİLİMLERİ FAKÜLTESİ ÖĞRENCİLERİNİN FAKÜLTE KÜLTÜRÜNE İLİŞKİN ALGILARI(KARS KAFKAS ÜNİVERSİTESİ EĞİTİM FAKÜLTESİ ÖRNEĞİ)	SİBEL GÜRBÜZOĞLU YALMANCI
				ALİ İBRAHİM CAN GÖZÜM
			İLKOKUL 5. SINIF ÖĞRENCILERININ PROBLEM ÇÖZME BECERILERI (KKTC ÖRNEĞI)	SERKAN MUTLUOĞLU
24.06.2010	13:00 - 14:00	(3) ST. BARNABAS Session Chair: **HANNA DAVID**	THE ACQUISITION OF SUPRASEGMENTALS	MARTA BALCELLS MARCE
			THE RELATIONSHIP BETWEEN DOMINANT INTELLIGENCES AND LEARNING STYLES OF SECONDARY SCHOOL STUDENTS	IŞIL GÜNEŞ MODİRİ
			A CRITICAL INQUIRY INTO EDUCATION -AN ACTIVE LEARNING PERSPECTIVE-	AKBAŞ EMRAH
				İL SUNAY
24.06.2010	13:00 - 14:00	(4) CANBULAT Session Chair: **Hüseyin YARATAN**	MISCONCEPTIONS IN EXPONENTS AND RADICALS IN UNIVERSITY MATHEMATICS	MEHMET ALİ TUT
				SİNEM UNUL
			PLANISPHERE IN ASTRONOMY TEACHING IN PRIMARY SCHOOL – A SUCCESSFUL TOOL FOR DEVELOPMENT OF NATURAL SCIENCE COMPETENCES	EVA FERK
				DAMJAN OSRAJNIK
				ROBERT REPNIK
			MODELING OF REALISTIC DYNAMICAL SYSTEMS AND DEVELOPMENT OF NATURAL SCIENCE COMPETENCES IN EDUCATION	VLADİMİR GRUBELNIK
				MARKO MARHL
				ROBERT REPNİK
24.06.2010	13:00 - 14:00	(5) NAMIK KEMAL Session Chair: **Özlem YAĞCIOĞLU**	ÜNİVERSİTE ÖĞRENCİLERİNİN İLETİŞİM BECERİLERİ VE YALNIZLIK DÜZEYLERİNİN BAZI DEĞİŞKENLER AÇISINDAN İNCELENMESİ	ELİF BOZCAN
			İNSAN HAKLARI EĞITIMI İÇIN ALTERNATIF BIR YOL: DERS KITAPLARINI İNSAN HAKLARI AÇISINDAN GÖZDEN GEÇIRMEK	MELİKE TÜRKAN BAĞLI
			ÜNİVERSİTE VE ORTAÖĞRETİM ÖĞRENCİLERİNİN BİLGİSAYAR-İNTERNET BAĞIMLILIĞI VE AİLE FONKSİYONLARI ARASINDAKİ İLİŞKİ	EMRE BALKAN
24.06.2010	13:00 - 14:00	(6) KANTARA Session Chair: **IZTOK TOMAžlč**	DO YOUR WORDS REFLECT OR NEGLECT YOUR ACCENT?	SİBEL HİSMANOGLU
			THE HIGHER EDUCATION AND UNIVERSITIES IN TURKEY	NUR YELİZ GÜLCAN
			ARE BELIEFS THAT MUCH EFFECTIVE IN LANGUAGE LEARNING?	NAZAN DOĞRUER
				İPEK MENEVİŞ
				RAMADAN EYYAM
24.06.2010	14:00 - 14:20	**Break**		

24.06.2010	14:20 - 15:20	(1) SALAMIS Session Chair: **MARJAN KRAšNA**	TEACHING PSYCHOLOGY IN THE ARAB COLLEGE IN ISRAEL	HANNA DAVID
			THE RELATIONSHIP BETWEEN DOMINANT INTELLIGENCES AND ACADEMİC SUCCESS OF SECONDARY SCHOOL STUDENTS IN RELATED LESSONS	IŞIL GÜNEŞ MODİRİ
			THE EFFECTS OF MUSIC ON COMPUTER BASED INSTRUCTION	GAMZE SARMAŞIK
				HANDE SARMAŞIK
24.06.2010	14:20 - 15:20	(2) AKKULE Session Chair: **MURAT HISMANOĞLU**	OKUMA GÜÇLÜKLERİNİN TEKRARLI OKUMA YÖNTEMİYLE GİDERİLMESİNE YÖNELİK BİR META ANALİZ ÇALIŞMASI	MUAMBER YILMAZ
			MİMARLIK LİSANS VE LİSANSÜSTÜ PROGRAMLARINDA YAPI MALZEMESİ DERSLERİNE YÖNELİK BİR DEĞERLENDİRME	TÜLAY ESİN
				CAHİDE AYDIN İPEKÇİ
			GENEL EĞITIM ÖĞRENCILERININ ÖZEL EĞITIM ÖĞRENCILERI ILE ETKILEŞIMLERI SONUCUNDA ALGILADIKLARI DEĞIŞIKLIKLER VE KAZANIMLAR	HATİCE GÜNAYER ŞENEL
24.06.2010	14:20 - 15:20	(3) ST. BARNABAS Session Chair: **ROBERT REPNIK**	VARIATIONS AND ADDITIONS FOR THE E-LEARNING SOURCE MOODLE® WITH A PERSPECTIVE TOWARDS THE TURKISH EDUCATION SYSTEM	MAX FLORIAN HERTSCH
			POSSIBLE ROLE OF SHORT COMPUTERIZED VIRTUAL EXPERIMENTS IN DEVELOPMENT OF BASIC COMPETENCES IN SCIENCE AND TECHNOLOGY	ANDREJ ŠORGO
				MIRO PUHEK
				ANDREJA ŠPERNJAK
			PRE-SERVICE BIOLOGY TEACHERS' ATTITUDE, FEAR AND DISGUST TOWARD ANIMALS AND DIRECT EXPERIENCE WITH LIVE ANIMALS	IZTOK TOMAŽIČ
24.06.2010	14:20 - 15:20	(4) CANBULAT Session Chair: **Hasan Basri GÜNDÜZ**	10.SINIF KİMYA KONULARINDAN "KARIŞIMLAR" ÜNİTESİ İLE İLGİLİ PROBLEM SENARYOLARI GELİŞTİRİLMESİ	MESUT KUŞDEMİR
				CENGİZ TÜYSÜZ
				BİLAL YILDIRIM
			BİTKİLERDE ÜREME KONUSUNUN ÖĞRETİMİNDE BİLGİSAYAR DESTEKLİ ÖĞRETİM MATERYALİNİN ÖĞRENCİ BAŞARISI ÜZERİNE ETKİSİ	HASAN KARAL
				SEMRA FİŞ ERÜMİT
				ALİ KÜRŞAT ERÜMİT
			FEN BİLGİSİ ÖĞRETİMİNDE BİLGİSAYAR DESTEKLİ SİMÜLASYON UYGULAMALARININ İLKÖĞRETİM 7.SINIF DÜZEYİNDEKİ ÖĞRENCİLERİN AKADEMİK BAŞARISINA VE KAZANIMLARINA ETKİSİ	BÜLENT KANDEMİR
				HALİL İBRAHİM OKUMUŞ
				NECATİ TAŞKIN
24.06.2010	14:20 - 15:20	(5) NAMIK KEMAL Session Chair: **Emre BALKAN**	3D VISUALIZATION AS A PART OF NATURAL SCIENCE COMPETENCES	ROBERT REPNIK
				MİLAN AMBROŽIČ
				MATEJ CVETKO
				IVAN GERLIČ
			MULTIMEDIA SKILLS AND BASIC COMPETENCES IN SCIENCE AND TECHNOLOGY	TOMAŽ BRATİNA
			CONCEPTUAL LEARNING OF SCIENCE AND DEVELOPMENT OF SCIENCE COMPETENCES	IVAN GERLIČ
				ROBERT REPNIK
				MARJAN KRAŠNA
				SIMON ULEN

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24.06.2010	14:20 - 15:20	(6) KANTARA Session Chair: **EVA FERK**	DO THE ACADEMIC ACHIEVEMENT SCORES REGRESSION OF LEVEL EXAMINATION?	MELTEM ACAR
				YEŞİM ÖZER
			ANALOGIES AND RECURRING MATHEMATICAL MODELS IN PHYSICS AS A PART OF NATURAL SCIENCE COMPETENCIES	SERGEJ FALETIČ
			INTELLIGENCE STUDIES IN HIGHER EDUCATION DESIGNING AN INTELLIGENCE STUDIES CURRICULUM FOR THE ROMANIAN CIVILIAN UNIVERSITIES	CLAUDIA CRISTESCU
24.06.2010	15:20 - 15:40	**Break**		
24.06.2010	15:40 - 16:40	(1) SALAMIS Session Chair: **TOMAž BRATINA**	THE ROLE OF GENDER, PROFICIENCY LEVEL AND ACADEMIC SUCCESS ON STUDENT INVOLVEMENT IN ENGLISH LANGUAGE CLASSROOMS	ARZU ERYILMAZ
				FUNDA DÖRTKULAK
			TEACHING NEW WORDS IN ENGLISH TO UNIVERSITY STUDENTS	ÖZLEM YAĞCIOĞLU
			USING ABBREVIATIONS AND ACRONYMS IN ENGLISH	ÖZLEM YAĞCIOĞLU
24.06.2010	15:40 - 16:40	(2) AKKULE Session Chair: **Nezahat GÜÇLÜ**	ÇOKLU ZEKÂ: KİNESTETİK ZEKÂ YOLUYLA SAYISAL BECERİLERİ GERÇEKLEŞTİRMEYE İLİŞKİN ÇALIŞMA ÖRNEĞİ	MEHMET ALİ ÇELİKSOY
				SEMA ÇELİKSOY
			E-OKUL UYGULAMALARINDA KARŞILAŞILAN SORUNLAR(İSTANBUL İLI ANADOLU YAKASI ÖRNEĞI)	HASAN BASRİ GÜNDÜZ
				YASİN IRMAK
			ARTİKÜLASYON PROBLEMİ GEÇMİŞİNE SAHİP BİREYLER: BİR TAKİP ÇALIŞMASI ÖRNEĞİ	HASAN KARAL
				YASEMİN AYDIN
				TUĞBA BAHÇEKAPILI
				İLKNUR REİSOĞLU
24.06.2010	15:40 - 16:40	(3) ST. BARNABAS Session Chair: **VLADIMIR GRUBELNIK**	DEVELOPING SCIENCE COMPETENCES BY DRAWING CONCEPT MAPS FOR BETTER UNDERSTANDING OF INTERMOLECULAR FORCES	KORNELIA ŽARIĆ
			THE RELATIONSHIP BETWEEN PIANO LESSON MOTIVATION AND PIANO LESSON ACADEMİC SUCCESS OF MUSİC TEACHER CANDIDATES	IŞIL GÜNEŞ MODİRİ
			COMPARE OF FINE ARTS TEACHER CANDIDATES' AND CLASSROOM TEACHER CANDIDATES' ACADEMIC DISHONESTY TENDENCIES	IŞIL GÜNEŞ MODİRİ
24.06.2010	15:40 - 16:40	(4) CANBULAT Session Chair: **EVA FERK**	DEVELOPMENT OF BASIC COMPETENCES IN SCIENCE AND TECHNOLOGY IN MINORITIES WITH LANGUAGE-INDEPENDENT COMPUTER SIMULATIONS	MIRO PUHEK
				ANDREJ ŠORGO
			GENERIC COMPETENCES CAN IMPROVE THE QUALITY OF KNOWLEDGE ON AND ATTITUDES TOWARD BIOTECHNOLOGY IN SECONDARY SCHOOL STUDENTS	JANA AMBROŽIČ-DOLINŠEK
				ANDREJ ŠORGO
			DEVELOPMENT OF CRITICAL THINKING AND REASONING WITH A HELP OF CHEMICAL EXPERIMENTS	NIKA GOLOB

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24.06.2010	15:40 - 16:40	(5) NAMIK KEMAL Session Chair: **ORIT SCHWARZ-FRANCO**	ESTABLISHMENT FOR MISCONCEPTIONS THAT SCIENCE TEACHER CANDIDATES HAVE ABOUT GEOMETRIC OPTICS	SÜLEYMAN AYDIN
				PINAR URAL KELEŞ
				MEHMET AKİF HAŞILOĞLU
			INDIVIDUAL VALUES VS. SOCIAL LEGITIMACY:IS EDUCATION JUST AN INTEGRATION PROCESS IN MODERN SOCIETY?	GÜNCEL ÖNKAL
			DETERMINING LANGUAGE LEARNING STRATEGIES USED BY THE STUDENTS AT FACULTY OF EDUCATIONAL SCIENCES BASED ON SOME VARIABLES	DENİZ TUĞÇE ÖZMEN
				DENİZ GÜLLEROĞLU
24.06.2010	15:40 - 16:40	(6) KANTARA Session Chair: **Hasan KARAL**	DOKTOR VE HEMŞİRELERİN TÜKENMİŞLİK DÜZEYLERİNİN İNCELENMESİ	MEHMET BEYAZSACLİ
			EĞİTİLEBİLİR ZİHİNSEL ENGELLİ BİREYLERE KARMAŞIK BECERİ EĞİTİMİNDE BİLGİSAYAR DESTEKLİ MATERYALİN ETKİSİ	MEHMET KOKOÇ
				HASAN KARAL
				AHMET SARAÇ
				GÜLSEN GÜÇ
				BEKİR BOGOÇLU
				HALİDE NUR BAKİ
25.06.2010	10:30 - 11:30	(1) SALAMIS Session Chair: **Zehra ALTINAY GAZİ**	THE MORAL EDUCATION OF AN EMBODIED SUBJECT	ORIT SCHWARZ-FRANCO
			TOWARDS THE ESTABLISHMENT OF A VIRTUAL OPEN UNIVERSITY IN SOUTH AFRICA AS THE PRIMARY LEARNING ENVIRONMENT FOR INDIGENT SCHOLARS	GLADYS SIBANDA
			LANGUAGE LEARNING - A TOOL TO PROMOTE EUROPEAN AWARENESS AND CO-OPERATION	PATRICK LAVRITS
				MONICA BOLDEA
				IONUT DRAGOI
				RODICA DRAGOI
25.06.2010	10:30 - 11:30	(2) AKKULE Session Chair: **Fahriye ALTINAY AKSAL**	MULTILINGUAL LEARNING ENVIRONMENT IN FRENCH AND GERMAN LANGUAGE TEACHING DEPARTMENTS	BASTURK MEHMET
				GULMEZ RECEP
			ASSESSMENT IN EARLY CHILDHOOD EDUCATION: CURRICULUM MODELS AND TURKISH CURRICULUM	HASIBE ÖZLEN DEMİRCAN
				REFİKA OLGAN
			EXPLORING ORGANIZATIONAL COMMUNICATION THROUGH WEBSITE ANALYSIS: A PROBLEM-BASED LEARNING COMMUNITY EXERCISE	CATHERINE NICKERSON
				VALERIE PRISCILLA GOBY
25.06.2010	10:30 - 11:30	(3) ST. BARNABAS Session Chair: **Nergüz BULUT SERİN**	ÖĞRENCİ TAKIMLARI VE BAŞARI BÖLÜMLERİ TEKNİĞİNİN İLKÖĞRETİM 5. SINIF ÖĞRENCİLERİNİN ÇATIŞMA ÇÖZME VE EMPATİK EĞİLİMLERİNE ETKİSİNİN İNCELENMESİ	YUNUS KARAKUYU
				İBRAHİM BİLGİN
				ABDULLAH ÇETİN
			MUHASEBEDE İLK DERS	AYSEL GÜNEY
			HEDEFİ GERÇEKLİŞTİRME TEORİSİNİN BEDEN EĞİTİMİ VE SPOR YÜKSEKOKULU ÖĞRENCİLERİNİN UYGULAMALI DERSLERDE PERFORMANS TAHMİNİ OLARAK UYGULANMASI: ANADOLU ÜNİVERSİTESİ BESYO ÖRNEĞİ	İLKER YILMAZ
				BÜLENT AĞBUĞA
				FERMAN KONUKMAN
				MERT ERKAN

25.06.2010	10:30 - 11:30	(4) CANBULAT Session Chair: **Bilal DUMAN**	21.YÜZYILDA MÜHENDİSLİK ÖĞRENCİLERİ İÇİN MATEMATİK EĞİTİMİ	FİGEN UYSAL
			MÜZE EĞITIMI BAĞLAMINDA ÇOCUK MÜZELERI	ZEKİYE ÇILDIR
				CEREN KARADENİZ
			FEN EDEBİYAT FAKÜLTESİ MATEMATİK BÖLÜMÜ ÖĞRENCİLERİNİN PROBLEM ÇÖZME BECERİLERİ İLE MATEMATİĞE KARŞI TUTUM PUANLARI ARASINDAKİ İLİŞKİNİN ÇEŞİTLİ DEĞİŞKENLER AÇISINDAN İNCELENMESİ	BİLAL DUMAN
				NEŞE İŞLER
				ÖZLEM IŞIK
				GÜLNUR YEL
25.06.2010	10:30 - 11:30	(5) NAMIK KEMAL Session Chair: **Hüseyin YARATAN**	TEACH ONLY WHEN UNDERSTANDING: THE STRATEGIES OF TEACHING INDUSTRIAL DESIGN TO THE NET GENERATION	SHU-WEN TZENG
			M-LEARNING PORTAL DEVELOPMENT BY USING ADAPTIVE WEB INTERFACES	MUSA KARAKELLE
				ADEM KARAHOCA
				DİLEK KARAHOCA
			EXPERT SYSTEM DESIGN FOR WRITING ASSESSMENT	A. FEVZİ BABA
				F. MELİS CİN
				EMRE ORDUKAYA
25.06.2010	10:30 - 11:30	(6) KANTARA Session Chair: **Hasan Basri GÜNDÜZ**	ERGENLERDEKİ CİNSİYET VE AİLE YAPISININ BOYUN EĞİCİ DAVRANIŞLARI YORDAMA GÜCÜNÜN ARAŞTIRILMASI	BERRİN EMRAN ÖZBULAK
				NERGÜZ BULUT SERİN
				ALİ CEYLAN
			TÜRKİYE'DE MESLEKİ EĞİTİM VE YÜKSEK ÖĞRETİM'DE MESLEKİ EĞİTİM PROGRAMLARI İLE YENİ DÜZENLEME	H.BERNA İSTİFOĞLU ORHON
			SANAT VE TASARIM OKULU BAUHAUS' DA KADIN OLGUSU	AYŞEGÜL TÜRK
25.06.2010	11:30 - 13:00	**Lunch**		
25.06.2010	13:00 - 14:00	(1) SALAMIS Session Chair: **Bayram ÖZER**	OKULÖNCESİ EĞİTİMİ ALMIŞ VE ALMAMIŞ İLKÖĞRETİM 1.SINIF ÖĞRENCİLERİNİN BAŞARILARININ DEĞERLENDİRİLMESİ	BAYRAM ÖZER
				HABİB MANCIR
				NECATİ BOZKURT
			MUHASEBE MESLEK MENSUPLARININ SÜREKLİ MESLEKİ EĞİTİMİ	ŞERİFE SUBAŞI
			TÜRK VE ÖRNEK AB ÜLKELERİ EĞİTİM SİSTEMLERİNİN BAZI FAKTÖRLER AÇISINDAN KARŞILAŞTIRILMASI	YUSUF AY
				İBRAHİM BİLGİN
				ERDAL TATAR
25.06.2010	13:00 - 14:00	(2) AKKULE Session Chair: **Cengiz TÜYSÜZ**	İSTATISTIKI VERILERDEN YARARLANILARAK ALINAN VERITABANI BILGILERININ PIVOT TABLE ILE ANALIZ EDILMESI, GRAFIK ILE SENTEZI	İSMAİL SARI
				ŞEVKET YILMAZ
			CLIENT/SERVER PROGRAMLAMA	İSMAİL SARI
				İHSAN ÖZER
			İLKÖĞRETİM 7. SINIF ÖĞRENCİLERİNE YÖNELİK "MADDENİN YAPISI VE ÖZELLİKLERİ" ÜNİTESİ İLE İLGİLİ BİLGİSAYAR TABANLI MATERYAL GELİŞTİRİLMESİ	CENGİZ TÜYSÜZ
				FATİH BALAMAN

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25.06.2010	13:00 - 14:00	(3) ST. BARNABAS Session Chair: **Sevil ÖZCAN**	EĞİTİM FAKÜLTESİ ÖĞRENCİLERİNİN DARWİN'İN EVRİM TEORİSİ HAKKINDAKİ GÖRÜŞLERİ	SEVİL ÖZCAN
				MERAL ÖZTÜRK
			DINAMIK WEB PROGRAMLAMA DERSINDE ÖZ DÜZENLEYICI ÖĞRENME STRATEJILERI VE ÖĞRENCI BEKLENTILERI ARASINDAKI İLIŞKININ INCLENEMESI	DİLEK KARAHOCA
				ZEHRA ÖZÇINAR
				ADEM KARAHOCA
			MOBIL ÖĞRENME TEKNOLOJILERI VE MOBIL AYGITLAR	AHMET AĞIR
				YUNUS ŞEN
25.06.2010	13:00 - 14:00	(4) CANBULAT Session Chair: **Bayram ÖZER**	KLASIK MÜZIK EĞITIMINDE ZAYIF NOKTA:DOĞAÇLAMA	ÖMÜR BÜTEV DOLĞUN
			SINIF ÖĞRETMENLERİNİN SINIFLARINDA KARŞILAŞTIKLARI İSTENMEYEN DAVRANIŞLAR VE BU DAVRANIŞLARIN NEDENLERİNE İLİŞKİN GÖRÜŞLERİ	LÜTFÜ İLGAR
				YAVUZ YAMAN
			İLKÖĞRETİMİN I. KADEMESİNDE SINIFLARA GÖRE UZMANLAŞMA KONUSUNDAKİ ÖĞRETMEN GÖRÜŞLERİ	BAYRAM ÖZER
				RECEP KAHRAMANOĞLU
				SELÇUK ALKAN
25.06.2010	13:00 - 14:00	(5) NAMIK KEMAL Session Chair: **CARLOS FRANCISCO DE SOUSA REİS**	TELLING IS NOT TEACHING, LISTENING IS NOT LEARNING: E-TUTORING APPLICATION FOR INTRODUCTION TO ACCOUNTING COURSE	ARMAN AZİZ KARAGÜL
				ERGÜN KAYA
			THE INCLUSIVE CULTURE IN GUARDA'S COUNTY: TEACHERS\' PERCEPTIONS AND PRACTICES	CARLOS FRANCISCO DE SOUSA REIS
				JOÃO CARLOS MIRA LEIRÃO
				JOSÉ MIGUEL SALGADO
				CARLA RAVASCO
			EDUCATION IN A MULTICULTURAL CONTEXT AND THE GLOBALIZATION CHALLENGE	MARIA DAS DORES FORMOSINHO SANCHES SIMÕES
				CARLOS FRANCISCO DE SOUSA REIS
			STUDENT ENGAGEMENT IN THE CONTEXT OF WORK BASED LEARNING AS AN UNCONVENTIONAL FORM OF HIGHER EDUCATION	İREM İNCEOĞLU
				NATASHA SHUKLA
25.06.2010	13:00 - 14:00	(6) KANTARA Session Chair: **Zehre ALTINAY GAZİ**	EFFECT OF PROBLEM CONTEXTS ON STUDENT'S MATHEMATICAL MODELING AND SOLVING PROCESSES	IMAN OSTA
			PREDICTION OF DISASTER? - CONTEMPORARY HISTORY OF THE POLISH HIGHER EDUCATION	FILIP NALASKOWSKI
			AN INVESTIGATION AND ASSESSMENT OF THE IMPORTANCE OF RESEARCH PROJECT STUDIES AND TEAM WORK IN THE NAVAL ARCHITECTURE EDUCATION	YASEMİN ARIKAN
				EDA TURAN
				AHMET DURSUN ALKAN
			USING T SCORES IN COMPUTING FINAL GRADES FOR AN UNDERGRADUATE COURSE: COULD IT BE A MORE RELIABLE WAY OF GRADING?	AHMAD OWEINI
25.06.2010	14:00 - 14:20	**Break**		

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25.06.2010	14:20 - 15:20	(1) SALAMIS Session Chair: **CARLOS FRANCISCO DE SOUSA REİS**	CAN ACADEMIA AND HIGH-TECH INDUSTRY HAVE CONVERGENT VIEWS ON OPEN ACCESS?	BRUNO JACOBFEUERBORN
				MIECZYSLAW MURASZKIEWICZ
			A GENERIC MODEL OF COOPERATION BETWEEN ACADEMIA, INDUSTRY AND NGOS TO BOOST EDUCATION	BRUNO JACOBFEUERBORN
				MIECZYSLAW MURASZKIEWICZ
			AN INVESTIGATION OF THE LEARNING STYLES OF PROSPECTIVE EDUCATORS	RAMADAN EYYAM
				İPEK MENEVİŞ
				NAZAN DOĞRUER
25.06.2010	14:20 - 15:20	(2) AKKULE Session Chair: **Oğuz SERİN**	İLKOKUL ÖĞRENCİLERİNİN ŞİDDET ALGILARI (KKTC ÖRNEĞİ)	SAİT COŞANER
			BİLGİSAYAR KULLANIM AMAÇLARIYLA ELEŞTİREL DÜŞÜNME BECERİLERİ ARASINDAKİ İLİŞKİ	ŞENGÜL İLGAR
				YAVUZ YAMAN
				İSMAİL ÖZSARI
			LİSE ÖĞRENCİLERİNİN DİSİPLİN SUÇLARI İLE BENLİK İMGELERİ ARASINDAKİ İLİŞKİ	ASUMAN BOLKAN
25.06.2010	14:20 - 15:20	(3) ST. BARNABAS Session Chair: **Hüseyin YARATAN**	WHAT ARE THE EFFICIENT EDUCATIONAL SYSTEMS TO ANSWER THE MARKET DEMANDS AFTER GLOBALISATION? CASE STUDY OF CO-OP EDUCATION IN THE UNIVERSITY OF WATERLOO	ELNAZ ZAHED
			EXAMINATION OF THE LEVEL OF TEACHERS, WORKING IN SECONDARY SCHOOLS, LIFE SATISFACTION AND JOB SATISFACTION	NERGÜZ BULUT SERİN
				BERRİN EMRAN OZBULAK
				GÜLŞAH KARABURUN
			CULTURAL IDENTITY – SOME QUESTIONS AND NOTES. TOWARDS MULTICULTURAL EDUCATION	PIOTR PETRYKOWSKI
			IMPROVING THE EDUCATIONAL SYSTEM THROUGH INITIATIVES FROM NON-PROFIT SECTOR	ANDREA RUSSO
				RANKO MILIC
				MARIJA MARTINIC
25.06.2010	14:20 - 15:20	(4) CANBULAT Session Chair: **Hasan Basri GÜNDÜZ**	THE EFFECT OF VOCATIONAL GUIDANCE ON SECONDARY SCHOOL STUDENTS	GÜLEN UYGARER
				NEŞE GÖK
				BAHİRE ÖZERMAN
				GÖZDE EVRAM
			CURRENT NAVAL ARCHITECTURE EDUCATION, DEMAND AND EXPECTATIONS OF SECTOR	EDA TURAN
				YASEMİN ARIKAN
				SEYFETTİN BAYRAKTAR
			IDEA-MINING AS AN INTUITIVE WAY OF EDUCATION FOR THE DEVELOPMENT OF CREATIVE INNOVATIONS, TEAM WORK AND GROUP PROCESSES.	MARC OLIVER STALLONY
				WILHELM BAUHUS
			THE MATLAB E-LEARNING ENVIRONMENT	KATHARINA BREITENECKER
				FELIX BREITENECKER
				ANDREAS KÖRNER
				NIKOLAS POPPER
				GÜNTHER SCHNECKENREITER
				GÜNTER ZAUNER

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Poster PresentationS	İNFORMAL ÖĞRENME ORTAMLARI: BİLİM MERKEZLERİ	PINAR HUYUGUZEL CAVAS
		ATA ÇİFTÇİ
	İLKÖĞRETİM 4. SINIF MADDEYİ TANIYALIM ÜNİTESİ İÇİN 5E MODELİNE GÖRE ETKİNLİK GELİŞTİRME VE ÖĞRETMENLERİN BU ETKİNLİKLER HAKKINDAKİ GÖRÜŞLERİ	İBRAHİM BİLGİN
		HÜMEYRA COŞKUN
	MUTLAK DEĞER KONUSUNDA YAPILAN KAVRAM YANILGILARI	AYTEN ÖZKAN
		ERDOĞAN MEHMET ÖZKAN
	KİMYA EĞİTİMİ ARAŞTIRMALARINDAKİ YENİ EĞİLİMLER	ERDAL TATAR
	REHBERLİ ARAŞTIRMA VE AÇIK UÇLU ARAŞTIRMA YÖNTEMLERİNİN ÖĞRETMEN ADAYLARININ BİLİMSEL SÜREÇ BECERİLERİNE ETKİSİ	ERDAL TATAR
		İBRAHİM BİLGİN
		YUSUF AY

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