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Dear IJONTE Readers,

International Journal on New Trends in Education and Their Implications- IJONTE appears on your screen now as Volume 5, Number 3. In this issue it publishes 20 articles. And this time, 38 authors from 9 different countries are placed. These are Brunei, Bulgaria, Czech Republıc, Greece, India, Malaysia, Poland, Serbia and Turkey.

Our journal has been published for over five years. It has been followed by many people and a lot of articles have been sent to be published. 262 articles have been sent to referees for forthcoming issues. They will be published according to the order and the results. Articles are sent to referees without names and addresses of the authors. The articles who get positive responses will be published and the authors will be informed. The articles who are not accepted to be published will be returned to their authors.

We wish you success and easiness in your studies.

Cordially,

1st July, 2014

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PSYCHOLOGICAL WELLBEING IN THE CONTEXT OF INCLUSIVE EDUCATION

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ABSTARCT

The scope of this study is to reveal the interconnection between psychological wellbeing and inclusive education. It is important to note that psychological wellbeing is a very complicated phenomenon and as such we need to describe the boundaries of its content. We suggest that the core of wellbeing is the subjective experience of social sufficiency of individual existence. On the other hand, the practice of the inclusive education is loaded with many social expectations, one of the main being to support psychological development and social consistency of the person. In the basis of exclusion stands the social diversity of the person. Negative feelings in the excluded individual provoke a decrease of psychological wellbeing. Thus, if we were to increase the effectiveness of the inclusive education, we would need to improve the psychological wellbeing of the individual. The improving could be realized through systematic social and psychological support, mainly in school and in the family.

Key Words: Psychological wellbeing, inclusive education, social support, personality, family.

INTRODUCTION

The inclusive education model aims to ensure supportive school environment so that successful socialization of children with special educational needs can be guaranteed. Meanwhile, apart from the social dimensions this pedagogy has psychological ones. What is meant are the subjective experiences of children with special educational needs who are included in the educational system. In this sense when the effectiveness of the inclusive education model is discussed, the psychological dimension of the problem should be had in mind, too.

Psychological wellbeing is recognized as a universal indicator for the presence of subjective readiness to perceive a certain social space as important to the individual. This construct still does not have consistent content. Nevertheless, it allows for integration within different explanatory models in connection with individual psychological functioning. It is even possible for separate parameters to be studied as indicators of psychological wellbeing, which would aid the empirical approach.

Inclusive education is an active pedagogical model targeted at all people with deficiencies, regardless of their nature. In this sense inclusive education has not only educational, but also social functions. As far as deficiencies hamper the individual lifestyle, that reflects on the psyche as inner tension and disappointment with the self. This in turn hinders the individuals' social activity and their social integration. The improvement of the psychological wellbeing can catalyze the individual potential and thus promote the better integration of the person. Hence managing the psychological wellbeing turns to be a pivotal point in inclusive education. In this regard it is important that the main activities which have to be performed be ordered in such a way as to pinpoint the priorities and increase the efficiency of pedagogues' and social workers' efforts.

THEORY

A study conducted in Australia in 2011 with 466 teachers predicts that more than 90 per cent of them accept that the care for students' wellbeing improves the learning environment as a whole, as well as the other way round - teachers' wellbeing leads to improvement in the wellbeing of students (Roffey, 2012). The teachers

point out that wellbeing improves learning achievement as well as students' psychological health. Seven main directions for increasing wellbeing at school are delineated: supportive school community, pro-social values, safe school environment, teaching social and emotional intelligence, applying the development of strong points model, improvement of the sensible and goal-oriented behaviour and promoting a healthy way of living (Roffey, 2012). It is of particular importance that the sense of interconnectedness and inclusion in school be developed. This improves both the learning achievement and students' wellbeing.

Social environment is hard for the individual to control, since he/ she is in a space modeled by other people. In this sense it is especially important in the case of adolescents that social support should be ensured, so that the individual can be able to deal successfully with daily tasks. Here school plays a significant part as it has to create an environment of acceptance of and support for the ones who are different. This is the only way these children can get a chance for social inclusion. It can help them not only for increasing their knowledge and developing their social skills, but also for improving their psychological wellbeing. Obviously, it is important that a difference should be made between subjective wellbeing and the objective factors of the environment that exert influence on its state (Pontin et al., 2013). Subjective wellbeing is defined as the individual self-evaluation of experiencing wellbeing. Thus the supportive learning environment is an objective factor which influences the subjective experiencing wellbeing. At the same time it is important to note that positive psychological functioning is related mainly to forming and maintaining a positive attitude towards oneself (Saricaoglu & Arslan, 2013). We cannot expect adolescents with special educational needs to create a positive attitude towards themselves, having in mind that the typical social environment is not understanding and supportive.

Mechanisms of wellbeing

A different approach to understanding wellbeing is presented in Sarah White's article (White, 2010). She appeals for active policy of developing personal potentials and the recognition and integration of differences among individuals. Thus the emphasis is moved from the mere aid to the ones in need aimed at sustaining their existence, but without changing their capacity, to looking into ways of supporting their development, which would provide for them different opportunities for social realization and thus increase their wellbeing. This should be viewed as "a complex of priorities, strategies, influences, activities and results through that" (White, 2010). In this article the author points out that the development of wellbeing can be viewed in three interrelated areas – material, interactive and subjective.

In a study Cummins et al. (2004) assume that subjective wellbeing functions on the homeostatic principle, being supported by a framework of psychological instruments. However, what they mean is an abstract level of wellbeing, which does not have concrete dimensions, but is like a general perception. They also propose the idea that subjective wellbeing is developed along the "proximal-distal" line (Cummins et al. 2004). When the focus is shifted from the shift to the surrounding environment, i.e. when the individual starts perceiving the surrounding factors, his/ her subjective wellbeing decreases. Bourke & Geldens' view (2007)is in the same direction. They claim that for the majority of young people wellbeing is "multidimensional, holistic and centered round their own lives". That increases the role of inclusive education for children with special educational needs even more, since they already have problems with social adaptation and self-realization. They cannot operationalize the referent environment to a sufficient degree either on the cognitive or on the practical plane. Therefore, this holism is fully natural and should be used.

A study by Nielsen, Smyth, Zhai & Zhang (2008) shows that subjective wellbeing should be viewed as a homeostatic system with a lower and an upper limit. In order to sustain homeostasis/ wellbeing a certain level of functioning should be maintained. However, when the lower limit is crossed, this monitor mechanism ceases to exist. There are so called buffers of wellbeing which are external and internal. The main external buffers are income and relationships. The main internal buffers use cognitive instruments for transforming the negative experience. An example confirming this claim is the data from a research on the psychological wellbeing of talented and gifted children (Jones, 2013). Since they have a strong psycho-social potential, they can reach high levels of personal and social activity, which increases their self-esteem, making them positively minded and increasing their wellbeing.

Michalos (2008) draws attention to the role of education in forming social capital. This in turn is a prerequisite for improvement of psychological wellbeing. He also puts emphasis on the social determinants of wellbeing in general, such as labour and social ideas. In this line of thought it is especially important that the wellbeing of children with special educational needs should be viewed and developed in the context of improving their social environment, by investing in the creation of supportive material and spiritual reality in school environment as well. Through acquired knowledge and critical experience education enables the person to transform cognitively the information about the self and the environment. This in turn allows for overcoming negative experience (Stevens et al., 2011). Furthermore, the behaviour of better educated people is more goal-oriented, which enables them to build a clear coordinate system of their own behaviour and thus decrease the risk of random actions (Deci & Ryan, 2011).

The relationships with the close circle of people are assumed to be a serious source of subjective self-esteem, hence of increasing wellbeing (Bourke & Geldens, 2007). On the one hand, this, according to the authors cited is especially valid for school students. On the other hand subjective wellbeing is a matter of individual self-evaluation which is not always adequate (Bourke & Geldens, 2007). Friendship is a very important instrument for social realisation with adolescents. It is especially necessary for children with various deficiencies (Simpson, 2012). They are severely hampered in making and maintaining friendships because of the distant attitude on part of the others. That leads them to groups of similar people where they receive emotional support (Simpson, 2012).

Social environment exerts both a direct and an indirect influence on psychological wellbeing. Among the factors which have a direct link are the home, the street and the neighbourhood (Homel & Burns, 1989). Yet other three components are of importance for adolescents' subjective wellbeing – contentment with life, emotional adaptation and social adaptation (Homel & Burns, 1989). The other space which is supportive for them is the family. However, wellbeing necessitates a representation of a wider range of corresponding spaces. However, in order to achieve greater self-esteem and thus increase their level of subjective wellbeing, adolescents with deficiencies have to be actively included in educational activity, which can only happen in the context of inclusive education. Levy and Sabbagh (2008) demonstrate that the living space, with regard to which wellbeing is projected, is composed of four areas: interpersonal, intrapersonal, social environment and global wellbeing. It has been proven in a number of studies that the socio-economic conditions in a society are important for the formation of psychological wellbeing. Interestingly enough, this is valid for basic necessities only and there is a saturation level, above which the increase of economic resources of the individual does not lead to an increase in his/ her wellbeing (Deci & Ryan, 2011). A specific source of psychological wellbeing is religiousness, which integrates the intrapersonal space by setting clear and sustainable directions of functioning. Thus the individual becomes consistent in his/ her behaviour and experiencing reality, and this orders his/ her daily life and thoughts and thus he/ she achieves psychological wellbeing (Hafeez & Rafique, 2013).

Factors of wellbeing

Wellbeing is an integral phenomenon, which includes both passive-experiential components and active-transforming ones. In this sense we can talk about wellbeing factors which represent namely the active-transforming dimension. This space has been researched into for decades during which time a certain consensus has been reached, which is manifested mainly in the predominant use of the 'social capital' and 'positive psychological functioning' categories.

Social capital is the totality of social relations and practices aimed at developing the individual and the social potentials. (Putnam, 2009). When the individual perceives him-/ herself as a part of supporting social space, he/ she is content with the world and thus increases his/ her psychological wellbeing. Social capital is viewed as a network of social relations as well, which are based on mutual support faith in the other person, social inclusion, commitment on part of local institutions, commitment on part of citizens, good ecological conditions, fighting discrimination and poverty, actively promoting health.

The term 'social capital' has to be grasped as the sum total of the significant, reciprocal and fruitful interconnections and social networks, which are used as an asset for developing society and its members. Those are interactions among citizens which facilitate the solutions to common problems, increase mutual trust, mutual assistance and abiding by social norms. The relation between individual capital and social capital is also important. It is assumed that the well-functioning social capital increases the individual's coping skills. According to Putnam (2009) social capital can be viewed as 'collective asset' or 'common good' for the community.

Another attempt at description presents wellbeing as a characteristic trait of positive psychological functioning, which includes: positive emotionality, contentment with life and meaning of life (Grant et al., 2013). Some sources define the so-called positive psychological capital (Bin et al., 2014). What is meant by it is: the ability to achieve goals (coping-efficacy), orientation towards future success (optimism), active position with regard to the changing environment (hope) and sustainability of aspiration (resilience). It is evident that positive psychological functioning is a factor in the individual's social realization. When the aforementioned personal qualities are present, the person is capable of coping with daily challenges and overcoming the disappointment of failure. In this sense the term 'positive psychological functioning' has to be understood as a totality of personal qualities of cognitive, emotional and conative nature which increase the individual's social and psychological efficiency.

Jones (2013) avers that when psychological wellbeing is discussed, what is meant is the way a person thinks of and feels about him-/ herself, his/ her ecological surrounding and the social networks he/ she participates in.

In addition, in the studies on wellbeing there is also a consensus around the introduction of two basic forms of wellbeing – subjective and psychological (Kallay, 2013).

On the one hand subjective wellbeing is defined as experiencing pleasure-displeasure and presents the valency of wellbeing. On the other hand psychological wellbeing is defined, which presents the presence or absence of certain personal qualities which directly determine its development. This side of wellbeing is construed as functional. In this sense in the case of a particular individual there could be presence of subjective wellbeing, despite functional deficiency (absence of psychological wellbeing). It is deemed that psychological wellbeing has six dimensions: self-acceptance, positive relations with others, autonomy, ability to influence the surrounding environment, goal-orientedness and personal growth (Kallay, 2013).

Subjective wellbeing is measured through experiencing self-acceptance and contentment with achievements in life. At the same time this dimension of wellbeing is rather holistic in nature. It is usually accepted that the perception of joy, security and optimism are the expression of subjective wellbeing. In some cases experiencing happiness is also discussed, but in our opinion this is rather a transient and extraordinary condition.

METHOD

In order to verify our ideas, an empirical study has been carried out, using two main methods – meta-analysis and content analysis.

Meta-analysis presupposes access to a large volume of publications, due to which electronic databases are preferred (Crombie & Huw, 2009). A significant aspect of the meta-analysis is the so called sensitive analysis (Crombie & Huw, 2009), which is aimed at integrating the data studied in such a way as to register the main tendencies in the object of research among analysed publications. Another important aspect of content analysis is its heterogeneity (Crombie & Huw, 2009). That is the degree to which combinable research enters the publications sample, which means that they should be both independent of one another and consistent.

Having taken into account these main methodological directions, the following model of content analysis has been proposed. Electronic databases were chosen for the meta-analysis needs. The EBSCO and JSTOR electronic databases of scientific periodicals were used. The principle on which publications to be included in

the meta-analysis were chosen was the presence of the 'psychological wellbeing' key phrase in the title of the article. The search continued until reaching a page which did not contain the key phrase mentioned in the title. Thus the total number of publications found was 43.

The content analysis was carried out through obtaining descriptors of the 'psychological wellbeing' construct which are present in the articles analysed. The inductive variant of content analysis was used (Elo, Kinga, 2008). The aim of the content analysis is to describe the phenomenon entirely and profoundly, the result being defining a new category or a category framework (Elo, Kinga, 2008). In this case our goal was to make a list of descriptors of psychological wellbeing, attempting to group them around larger categories on the similarity principle at the same time. Grouping is done through interpretation of each of the categories, so that they can ultimately be included in a certain group of descriptors. Semantic analysis is accepted to be complementary to content analysis (Smelser & Baltes, eds., 2001). These authors also draw on a Shapiro's idea. The latter differentiates between instrumental and representative content analysis. This study makes use of instrumental analysis, which is aimed at optimal presentation of the semantic frame of the 'psychological wellbeing' construct. The analysis was performed on words within the topic stated. Initially categories defining wellbeing were obtained from each of the articles analysed. The vast majority of articles contained explicitly stated descriptors. In the rest of them these categories were explicitly pointed out by the authors as semantically related to wellbeing. Out of the initial list of descriptors compiled the synonymous ones were defined. Thus the initial list was reduced and the final list was created, consisting of 47 descriptors presented in Table 1.

FINDINGS AND DISCUSSION

After compiling the list of descriptors quantitative and qualitative analyses of the categories were performed.

The total number of extracted descriptors is 47, having however different object semantics. In this line of thought it is necessary that a latent semantic space should be sought, which would serve as a matrix for structuring them. As it became clear from the analysis done at the beginning, there are different models of structuring of the 'wellbeing' construct. An attempt was made in this study to define several latent factors which describe wellbeing. Thus a 4-dimensional space was formed, which includes: social context, interaction, personality and subjectivity (cf. Table 1).

The 'social context' factor represents the objective social givens which the individual cannot change, since they are beyond his/ her control. At the same time the perimeter of activity that the individual can realise depends to a large extent on the quality of those parameters. When those social parameters are unfavourable, the individual could very difficultly achieve self-efficacy.

The 'interaction' factor represents a space in which the individual has room for activity, which can, however, be beneficial for him/ her only if he/she has social partners in collaboration. Due to this reason interaction is both free, allowing personal expansion, and limited by the interests of others with whom the individual is connected.

The 'personality' factor includes personal qualities which the individual can develop independently and thus increase his/her capacity. Here the ability to manage one's conduct, using those qualities, is of particular importance.

The 'subjectivity' factor actually represents the so called subjective wellbeing. It includes the subjective experiencing of connectedness to the world and internal harmony. In more expressed registers joy or even happiness can be experienced.

Table 1: Wellbeing Descriptors Index

social context		interaction		personality		subjectivity		
category	numbers	category	numbers	category	numbers	category	numbers	t-test
income	22	health	24	work and leisure	24	beauty	11	
education	18	environm. mastery	19	religiousness	7	happiness	7	social
social networks	12	relationships qual.	17	personality	7	self-esteem	7	t=3,010*
city	12	life qual.	14	personal growth	6	positive feelings	5	interrel.
environment	3	family satisfaction	13	physical activity	5	joyful	5	t=4,512**
culture	2	future security	8	coping-efficacy	5	self-acceptance	5	person.
government	2	achievements	6	purpose in life	5	self-identity	2	t=3,430***
business	1	autonomy	4	self-management	3	safe	2	subjective
national security	1	friendships	4	love	3	fame	1	t=4,540****
		good behavior	2	sex	2	optimism	1	
		nutrition	2	sleep	2			
				intelligence	2			
				skills	2			
				commitment	1			
				resilience	1			
				affiliativeness	1			
				assertiveness	1			

*p=.017 **p=.001 ***p=.003 ****p=.001

What makes greatest impression is the uneven distribution of results both among the four dimensions and within them – among the categories included (cf. Table 1). It is clear that they do not have equal values with regard to the phenomenon described. In this sense we can divide the results obtained into three groups. The first group includes categories with high descriptive potential, the second – with medium descriptive potential and the third – with low descriptive potential. The intervals defined are the following: for group one – more than 10 mentions, for group two – from 5 to 9 mentions and for group 3 – from 1 to 4 mentions (cf. Fig. 1).

Descriptors entering the first group are: health (24), work and leisure (24), income (22), environmental mastery (19), education (18), relationships quality (17), life quality (14), family satisfaction (13), social networks (12), city (12), beauty (11).

Descriptors entering the second group are: future security (8), religiousness (7), personality (7), happiness (7), self-esteem (7), personal growth (6), achievements in live (6), physical activity (5), coping-efficacy (5), purpose in life (5), positive feelings (5), joyful (5), self-acceptance (5).

Descriptors entering the third group are: autonomy (4), friendships (4), environment (3), self-management (3), love (3), culture (2), government (2), good behavior (2), nutrition (2), sex (2), sleep (2), intelligence (2), skills (2), self-identity (2), safe (2), fame (1), optimism (1), commitment (1), resilience (1), affiliativeness (1), assertiveness (1), business (1), national security (1).

The largest group is the third one, the second largest is the second one and the smallest is the third one. This provides certain grounds for a claim that the content of the construct is dynamic, allowing for additional prescriptors to be included in the periphery, as well as the individual weight of prescriptors to be changed altogether. Certainly that will not be applicable to the items in the first group which can be defined as hard core. Probably in the second group more empirical data have to be collected in order to verify the representative weight of the descriptors included.

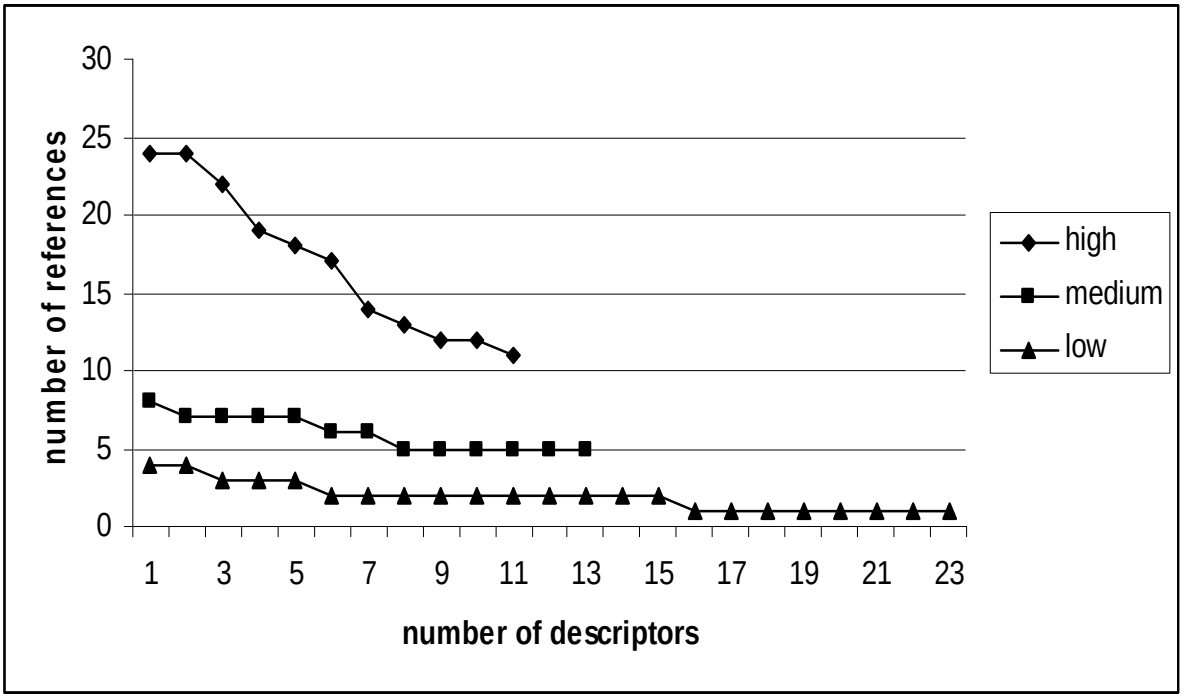
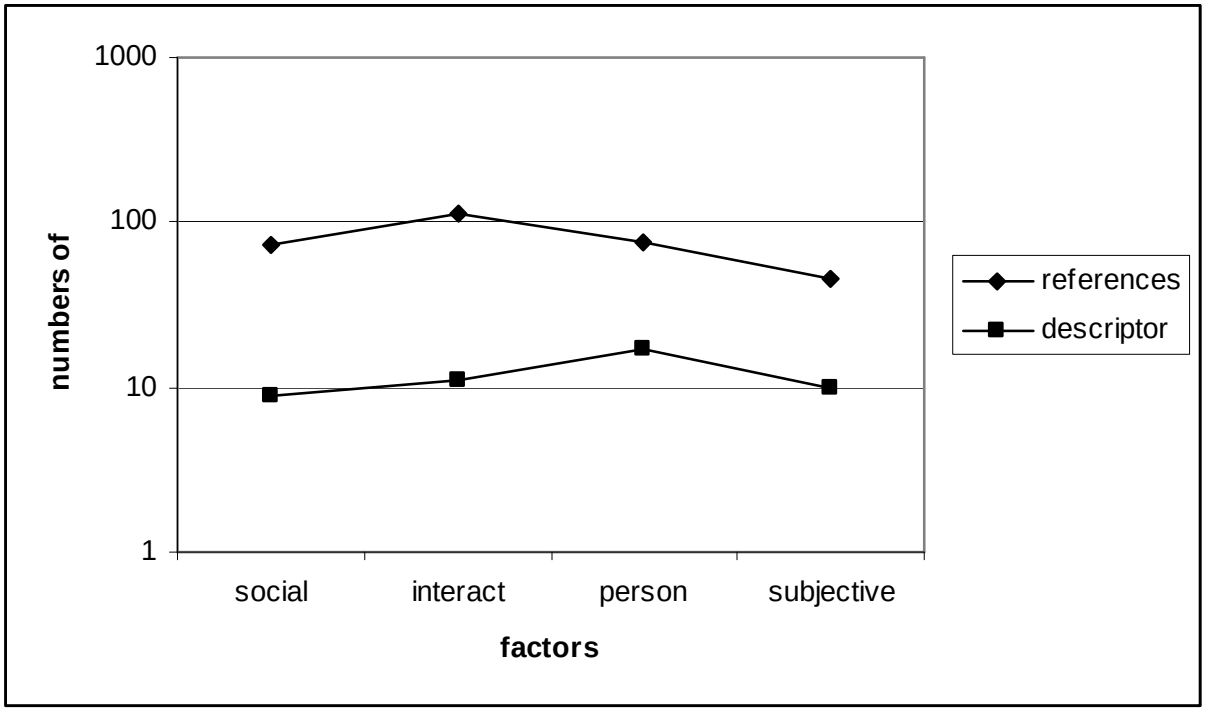


Fig. 1: Groups of Descriptors according Number of References

The first group contains 5 descriptors of the 'interaction' factor, 4 descriptors of the 'social context' factor and 1 descriptor of the 'personality' and 'subjectivity' factors each. The second group contains 6 descriptors of the 'personality' factor, 5 descriptors of the 'subjectivity' factor and 2 descriptors of the 'interaction' factor. The third group contains 10 descriptors of the 'personality' factor, 5 descriptors of the 'social context' factor ad 4 of each of the 'interaction' and 'subjectivity' factors.

This distribution shows that the most volatile descriptors are the ones from the personal space and steadiest – the ones from the interaction space. At the same time of each of the categories has a different length, the largest being the 'personality" category, the smallest one – the 'subjectivity' category.

At the same time it is evident that the content of each of the defined factors are different. This applies both to the structuring semantics , and to the number of the descriptors contained in the factors (see Fig. 2). Thus the total space of the construct "wellbeing" is not equally distributed among the four factors. The largest portion is of the factor "interaction" whose descriptors were selected 113 times. Second factor is the "personality" with 77 selections , the third factor is "social context" with a total of 73 selections and last factor is "subjectivity" with 46 selections. At the same time it should be taken into account and the capacity of the factor. From this perspective, the ratio is different. The largest number of descriptors is contained in the factor " personality" – 17, second factor is " interaction " - 11 , third factor is " subjectivity " - 10 and the fourth factor is "social context" - 9.



t=5,613 p=.0,11, references
t=6,539 p=.0,007, descriptors
Fig. 2: Numbers of References and Descriptors in Factors

CONCLUSION

Having in mind that children with special educational needs have certain difficulties in the process of socialization, it is of great importance that supportive social environment to aid their personal development should be created. Such a system is inclusive education. Wellbeing is an efficient instrument for personal functioning optimisation. That is why it is necessary for pedagogues' efforts to be aimed at managing children's psychological wellbeing. It is evident form the results presented that there are several main points which have to be emphasised.

First, interrelations and interaction with adolescents should be improved. This includes: care for their health, care for their life quality, care for forming and developing friendships. Here pedagogues should also encourage students' self-reliance, form appropriate social skills and cultivate goal-oriented behaviour.

Second, inclusive education should invest in the development of adolescents' personal potential, taking into account, of course, their limitations. The results and analyses given show that this namely is the largest space related to wellbeing. Here attention should be paid to: learning activity, physical activity, free time, personal growth, coping strategies, as well as forming positive attitudes towards the others.

Thirdly, pedagogues could improve the psychological wellbeing of children with special educational needs by showing emotional support for positive subjective feelings related to wellbeing as self-acceptance, optimism, joy and security.

Certainly this can be realized only if pedagogues are motivated and well prepared for work under such circumstances. For this purpose it will be necessary that they should be additionally prepared in the field of psychology and pedagogy of wellbeing.

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THE DEVELOPMENT AND IMPLEMENTATION OF A GUIDANCE COUNSELING PROGRAM AIMING TO SUPPORT *54-66 MONTHS OLD CHILDREN'S* DEVELOPMENT LEVEL AND READINESS FOR PRIMARY SCHOOL

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ABSTRACT

The aim of this study is to develop and implement a guidance-counseling program in line with the objectives of the pre-school education program developed by the National Ministry of Education in order to support ***54-66 months old children's*** development areas and readiness for primary school. Prior to the implementation of the guidance counseling program, specific development areas of the children were investigated through the "Ankara Developmental Screening Inventory", their personal social development was explored using the "School Social Behavior Scales", their visual perception levels were revealed by means of the "Frostig Visual Perception Test" and their school readiness level were investigated through the "Marmara Primary School Readiness Scale". As a result of the data collection, the guidance counseling program supported by some educational materials aiming to improve their fine and gross motor skills as well as their visual perception development was implemented by the children's classroom teachers and student teachers teaching ***54-66-month-old children. At the end of the study, it was found that the*** guidance counseling program developed for the study improved the children's overall development and accelerated the primary school readiness level of the children starting school when they were 66 months old in line with the 4+4+4 education system.

Key Words: Guidance and counseling program, pre-school, school readiness,

INTRODUCTION

Pre-school years refer to a period of rapid development in the physical, mental and psychological characteristics of the children. This period underlies the other periods of their lives. Although the general developmental characteristics of each age group are common, it should be kept in mind that each child has unique developmental characteristics (Aral, Canyaşar, Kandır, 2002). In this period, children's physical, cognitive, social, psychomotor and language development are substantially completed. In order to ensure that the children exhibit the desired behavioral characteristics, their developmental characteristics should be known very well (Alisinanoğlu and Kesicioğlu, 2010). It should also be considered that pre-school children have recently started the school and have been trying to adapt to the environment; thus, necessary support must be

provided by their families and teachers so that they can handle this period successfully (Tan, 1992). The development of the children who are not supported during this period can be regarded as insufficient. In several studies, it was highlighted that pre-school education is vital in terms of the development of the child (Uğur, 1998; Dinç, 2002; Balat Uyanık, Şimşek, Akman, 2008; Akgün, 2010). Not leaving education to chance in this very critical period and implementing a consciously planned pre-school education program will facilitate their transition to primary school and to life in more general terms. Therefore, activities preparing children to school and supporting their development not only enrich their own worlds but also help them easily adapt to primary school that is the next level (Polat, 2010).

It is normal that children encounter various problems in this period in which their lives rapidly change. The importance and the place of the psychological support provided to the children so that they can cope with these problems cannot be denied as it is the indispensable part of the education (Benedict, Horner, Squires, 2007; Carter, Van Norman, Tredwell 2011; Lavigne et al. 1996). These psychological support services can only be possible with the help of guidance and counseling services provided in the educational contexts.

The guidance counseling programs, which are designed in line with the developmental understanding, are maintained within different levels of educational system of the National Education Ministry. Similarly, such programs are planned in line with the developmental understanding for the pre-school level. In pre-school period, special focus should be placed on the activities aiming to meet children's needs for self-acceptance, self-development, creation of the concept of "I", satisfying their curiosity and releasing their imagination and desires. The fact that development is a continuous process requires the continuity of the guidance services. Thus, it would be fair to suggest that the psychological counseling and guidance programs developed for pre-school children should take children's developmental stages into consideration. In other words, activities intended to support pre-school education and the psychological counseling and guidance programs for these children should be designed and implemented taking the developmental understanding into account (TTBK, 2012).

In this study, a model including four developmental modules applied to classes with 54-66-mont-old pre-school children (i.e., fine motor, gross motor, socio-emotional and cognitive development) is proposed directly related to the pre-school education curriculum, implemented and evaluated in order to assess the effectiveness of the psychological counseling and guidance program prepared to be implemented during pre-school education.

It is essential to provide children with effective learner personality services developed considering the specific characteristics of their age group in order that a child can acquire the skills of independence, learn social roles, develop positive attitudes towards the learning environment and the learning process in general as well as interpersonal, cognitive, social, emotional and physical skills (Kuzgun, 2006; Kepçeoğlu,2010; Aydın, 2007). As the psychological counseling and guidance program developed with this study is designed in such a way to support 54-66-month-old children's skills, such as their interpersonal relationship skills, social skills, skills of recognizing and controlling their feelings, fine motor skills, gross motor skills, attention, and visual perception skills; this program meets the need to prepare these students for school, to help discover their abilities and to further develop these abilities. Additionally, it is expected that this program will accelerate the process of getting prepared to school for 66-month-old children as required by the 4+4+4 education system.

In the literature reviewed in our country, no studies dealing with an application-based model proposal for the psychological counseling and guidance program for the pre-school level have been carried out. Thus, the present study has a potential to be a unique study with its contribution to activities about pre-school psychological counseling and guidance. It would be true to state that there is a need for new sources providing pre-school guidance teachers newly appointed to their schools with an understanding of the new educational programs. By means of the data collected in this study, it is hoped that such needs of the guidance teachers in the national context will be met. Moreover, thanks to the data to be obtained regarding the program implemented in the present study, it would be true to state that this study might have an influential and potential role in shaping the teacher education programs heavily focused in recent projects carried out by the National Education Ministry.

The purpose of the study is to develop a guidance program model aiming to support the effectiveness of the "Pre-school Guidance Program" piloted in cities and educational institutions determined by the General Directorate for Special Education Guidance and Counseling Services and the General Directorate for Basic Education in the years 2012-2013 in accordance with the decree (No: 159, Date: 14.09.2012) of the Head Council of Education and Morality. Therefore, the following research questions to which this study seeks answers have been formulated:

1. Are there any differences in 54-66-month-old children's fine and gross motor skills as well as their social, emotional and cognitive abilities following the applied guidance program?
2. Are there any differences in 60-66-month-old children's levels of school readiness following the applied guidance program?

METHOD

Research design

The present study is an experimental research study in which the one group pretest-posttest model was used among other models used in experimental research studies. In this model, a randomly selected group is given the treatment that is the independent variable, and the assessment is carried out both before and after the experiment. If the posttest scores are found to be higher than the pretest scores, the reason of this difference can be attributed to the effect of the independent variable. As the guidance program developed for this study was implemented in the M.U. Prof.Dr. Ayla Oktay Pre-school Practice Unit, all the 54-66-month-old children in the unit took part in the study. Thus, a control group was not necessary in the study.

Participants

The current research study was conducted in the M.U. Prof.Dr. Ayla Oktay pre-school practice unit and 43 54-66-month-old children participated in the study. These children can be grouped into two as 54-60-month-old and 60-66-month-old children. In the 54-60-month-old group, there were 26 children, 13 of whom were girls while the remaining were boys. On the other hand, 17 children were categorized in the 60-66-month-old group. While 8 of these children were girls, 9 of them were boys. A sampling method was not used as all the children at the unit were reached. The assessment instruments used to collect data were filled out by classroom teachers.

Data collection instruments and data collection

The data of the present study was collected via "Ankara Developmental Screening Inventory" (ADSI), "Frostig Visual Perception Test", "School Social Behavior Scales" and "Marmara Primary School Readiness Test".

Ankara Developmental Screening Inventory: This inventory assesses 0-6-year-old children's developmental levels and skills in line with the information obtained from their mothers. This inventory can also be responded by people such as fathers, caregivers and teachers who closely follow the developmental process of the child and know him/her well.

The inventory including 154 items is designed for specific age groups and responded as "yes", "no" or "I do not know". The questions in the inventory were formulated in such a way that they represent interrelated areas such as language-cognitive, fine motor and gross motor skills as well as social skills-self-care (Savaşır, Sezgin and Erol, 1994).

Frostig Visual Perception Test: This test was developed by Marianne Frostig in 1963 in order to identify the visual perception levels of 4-6 year-old children. It assesses five perceptual skills, such as hand-eye coordination, figure-ground separation, shape constancy, perception of space and location in addition to location relationships. "Frostig Visual Perception Test" is a performance test and can be conducted to a group. Having no time limits, the test takes around 40 or 50 minutes (Wiederholt, 1971). The fact that the test was frequently conducted in studies carried out in different cultures lent wings to researchers about the validity of the test although the reliability and validity of it have not been studies in Turkey yet. Sökmen (1995) examined

the reliability of the test for children at the age of 5. All the continuity coefficients of the general and sub-areas of the test were found to be significant at the level of .01.

The standard scoring criteria for each sub-area of the test are available. The raw scores children obtain from each sub-area has an equivalence as standard score (Tuğrul, Erkan, Aral and Etikan, 2002).

Marmara Primary School Readiness Test (MPRT): The test was developed by Ozgul Polat Unutkan in 2003 as a part of her PhD thesis. The scale was designed and standardized specifically for Turkish children so as to reveal to what extent 60-78-month-old children are ready for the primary school in terms of basic skills and each developmental area included in the scale. The Scale includes two forms that are the Application form and the Development form. The item total, item remaining and discriminant analysis of the scale yielded significant results at the level of p<. 001. The confirmatory factor analysis and the validity analysis of the scale were carried out using the data collected from 1002 children. The Cronbach α value of the Development form was found to be .982 while the Cronbach α value of the Application Form was found to be .930. The Application form is comprised of 5 parts as mathematics, science, sound, drawing and the labyrinth and 74 questions. The questions were prepared in line with application areas needed by the children for the preparation for the primary school. The responses given by the children were scored as (1) if they were correct and (0) if they were incorrect. On the other hand, the Development form includes 4 sub-scales that are mind and language development, socio-emotional development, physical development, and self-care skills as well as 175 items. Each item designed to be filled by teachers or parents has four possible responses related to the frequency of the behavior displayed by the child: always (3 points), often (2 points), sometimes (1 point) and never (0 point). The socio-emotional development sub-scale is comprised of 40 items and the maximum score obtained from this scale is 120. The Cronbach α value of the socio-emotional development sub-scale was found to be .942 (Unutkan Polat, 2003).

School Social Behavior Scales (SSBS): School Social Behavior Scales were developed by Kenneth W. Merrell in 1993 and translated into Turkish by Yuksel (2009). Aiming to evaluate the levels of social skills of pre-school and primary school children, the scales designed in line with the five-point Likert model is comprised of 65 items. As a result of the linguistic equivalence analysis, each item was found to be significantly related to one another at the level of p<.001. The item total, item remaining and discriminant analysis of the scale revealed significant results at the level of p<.001. The confirmatory factor analysis and the validity analysis of the scale were done using the data collected from 467 students and teachers. The Cronbach α value for both sub-scales was found to be .98. School Social Behavior Scales is comprised of two sub-scales that are social competence and negative social behavior. The Social Competence sub-scale includes three sub-dimensions, such as interpersonal relationship, self-control skill and academic skills while the Anti Social Behaviors sub-scale has three subdimensions that are assailant-angry, antisocial-aggressive and destructive-demanding.

Data Analysis

In order to assess the four sub-modules of the program developed for this study, the test and the assessment instruments were administered both before and after the treatment.

Children's cognitive skills, fine and gross motor skills were assessed by means of the "Ankara Developmental Screening Inventory" administered to all 54-66-month-old children while their visual-motor skills were assessed using "Frostig Visual Perception Test". Their social and emotional skills were assessed via the "School Social Behavior Scales". On the other hand, the "Marmara Primary School Readiness Test" was applied so that the school readiness level of 60-66-month-old children could be revealed. As the Marmara Primary School Readiness Test was applied to 17 children (n<30), the Wilcoxon matched-pairs signed-ranks test which is among non-parametric statistical methods was applied while the results of other tests were calculated by means of the dependent samples t-test because they were administered to 43 participants.

Treatment

In this study, the materials aiming to achieve the activities of the sub-modules of the psychological counseling and guidance program were prepared and developed by the project coordinator and the project researchers. The project team aimed to create materials that can support the titles of the four sub-modules. Therefore, materials supporting the objectives and outcomes in the existing pre-school program were investigated, and the project team paid attention to the preparation of activities and materials for this study in accordance with this program.

The assessment instruments determined by the project coordinators and the researchers in order to assess the effectiveness of the ten-week program to be implemented within the scope of the study were administered to 54-66-month-old children before the program was initiated and after it was completed.

Development of the Educational Materials

In this study, the major aim was to create effective materials that could attract children's attention, facilitate remembering and save time in the educational context. The cognitive area designed on the Wireless Graphic Tablet and the study pages addressing to children's attention and fine motor skills were transferred to the computer having a tactile screen, and they were organized using the Photoshop CS6 program. The works produced by the children on the tactile tablets were transferred to the computer and the prints of their works were archived in the portfolios prepared for each child for later assessment. Besides, thanks to the cardboard study pages with tactile surfaces which were prepared by means of the cutting and swelling machines, activities supporting children's hand-eye coordination could be created.

Materials pertaining to the social and emotional development of the children were prepared using the stories selected from the training set including four books aiming to support pre-school children's personality development (Yüksel,2012a,b,c,d) as well as the study pages aiming to analyze the problem situations in these stories. Games boosting children's social and emotional skills were recorded by a video camera. Following the activities, the recordings were watched with children so that a discussion about their behavior during the activities could be made. By this means, the researchers aimed to develop children's reasoning skills.

When it comes to the development of the children's gross motor skills; climbing, balancing and the coordination materials available in the gym of the Prof.Dr. Ayla Oktay Pre-school Practice Unit were used.

The program including activities designed in accordance with the National Education Ministry's Pre-school Program also has the goal to identify the children with developmental delays. As a result of the data collected in the preliminary assessment procedure, it was realized that the modules to be implemented offered development opportunities to children in need of support and reinforcement opportunities to children who are do not need support. Rather than supporting the areas every single child needs to develop and meeting the needs of every individual child by using the modules separately, the aim of the program is to implement all the activities of the program to all the children in a holistic manner. By involving student teachers and classroom teachers in the implementation stage, the researchers aimed to ensure that the children taking part in this study would benefit completely from the activities prepared for this study.

1. Fine Motor Development Module: This is the module containing all the activities supporting children's visual-motor skills ranging from simple hand-eye coordination to complicated fine-motor behaviors. Clay, scissors and sand pool activities, activities supporting children's dressing skills in addition to the drawing and painting activities developed by the researchers were included in this module.

2. Gross Motor Development Module: This is the module including activities related to movement and strength, balance and coordination activities that are all related to the general concept of movement. This module also contains materials aiming to boost children's balance, flexibility, speed, agility, strength and coordination skills as well as games developed by the researchers using these materials.

3. Social-Emotional Development: This is the module including activities supporting social skills which are the foundation of the interpersonal relationships and emotional skills which are vital in the personality development of pre-school children; furthermore, values education and activities supporting the solution of behavioral problems are included in this module. The titles focused in these modules can be listed as follows: the skill of initiating and maintaining relationships, self-confidence, friendship relationships, sharing, anger management, coping with the anger of the interlocutor, working in a group, dealing with sadness, the feeling of happiness, self-control and developing empathy.

4. Cognitive Development Module: In this module, activities specifically supporting the visual perception, attention and the organizational skills of the children were included. Frostig visual perception program, various box games and the group games developed by the researchers were also benefited in this module.

FINDINGS

Findings of the study are given below in the order of the research questions. The first research question was "Are there any differences in 54-66-month-old children's fine and gross motor skills as well as their social, emotional and cognitive abilities following the applied guidance program?"

Tables 1, 2 and 3 illustrate the results of the dependent group t-test explaining the answer to this research question.

Table 1: The results of the dependent group t-test applied to find the ADSI pretest-posttest scores

		N	X	ss	sd	t	p
Language Cognitive	Pretest	43	56,37	2,59	42	-5,73	,000
	Posttest	43	58,56	2,32			
Fine Motor	Pretest	43	22,53	1,91	42	-5,66	,000
	Posttest	43	23,77	1,67			
Gross Motor	Pretest	43	23,77	0,43	42	-2,86	,000
	Posttest	43	23,93	0,26			
Social Self-care	Pretest	43	37,16	1,54	42	-5,86	,000
	Posttest	43	38,47	1,10			
General Total	Pretest	43	1,40	5,90	42	-6,60	,000
	Posttest	43	1,45	4,60			

As a result of the dependent group t-test applied to compare all the sub-tests of the ADSI, it was found that the pretests and posttest scores were different from each other.

It was revealed that the posttest scores of the Language-Cognitive area ($\bar{X}$=58,56) were higher than the pretest scores ($\bar{X}$=56,37) ($t_{001:42}$ =-5,73). The posttest scores of the fine motor area ($\bar{X}$=23,77) were higher than the pretest scores ($\bar{X}$=22,53) ($t_{001:42}$ =-5,66). The posttest scores of the gross motor area ($\bar{X}$=23,93) were higher than the pretest scores ($\bar{X}$=23,77) ($t_{001:42}$ =-2,86). Finally, the posttest scores of the social-self-care area ($\bar{X}$=38,47) were higher than pretest scores ($\bar{X}$=37,16) ($t_{001:42}$ =-5,86).

As a result of the t-test applied to compare the total scores of the ADSI, it was realized that the pretest and posttest scores were different from each other ($t_{001:42}$ =-6,60). More specifically, the posttest scores ($\bar{X}$=1,45) were higher than the pretest scores ($\bar{X}$=1,40). As a result of the implementation of the guidance program developed for the study, all the scores of the sub-dimension in the ADSI and the general development total sores of the children significantly increased.

Table 2: Results of the t-test applied for the scores of the pretest-posttest of the Frostig Visual Perception Test

	N	X	ss	sd	t	p
Pretest	43	24,93	12,07	42	-7,15	,000
Posttest	43	34,02	12,38			

As a result of the dependent group t-test applied for the scores of the pretest-posttest of the Frostig Visual Perception Test, it was found that the pretest and the posttest scores were different from each other ($\square_{001:42}$ =-7,15). Namely, posttest scores ($\bar{X}$=34,02) were found to be higher than the pretest scores ($\bar{X}$=24,93). This means that children's visual perception scores of the children significantly increased at the end of the implementation of the guidance program.

Table 3: Results of the t-test applied for the scores of the pretest-posttest of the Social Behavior Scale

	N	X	ss	sd	t	p
Pretest	43	1,68	35,22	42	-4,62	,000
Posttest	43	2,24	62,52			

As a result of the dependent group t-test applied to compare the scores of the Social Behavior Scales, it was found that the pretest and posttest scores were different from each other ($\square_{001:42}$ =-4,62). The posttest scores ($\bar{X}$=2,24) were found to be higher than the pretest scores ($\bar{X}$=1,68). In other words, children's social behavior scores significantly increased at the end of the guidance program implemented in the study.

The second research question of the study was "Are there any differences in 60-66-month-old children's levels of school readiness following the applied guidance program?" Table 4 provides an answer to this research question by showing the results of the Wilcoxon matched-pairs signed-ranks test.

Table 4: Results of the Wilcoxon matched-pairs signed-ranks test applied for the scores of the pretest-posttest of the Marmara primary school readiness scale development form

	N	Mean Rank	Sum of Ranks	z	p
Negative Ranks	0^a	0,00	0,00	-3,62	,001
Positive Ranks	17^b	9,00	153,00		
Ties	0^c				
Total	17				

As can be realized in Table 4, there are statistically significant differences between the pretest and posttest scores of the Marmara Primary School Readiness Scale Development Form (z=-3,62; p<0.001). The findings indicate that the implemented guidance program resulted in significant differences in the posttest applications and caused significant differences in terms of primary school readiness.

DISCUSSION

Considering the data analyzed in this study, it was observed that the activities implemented to 54-66-month-old pre-school children throughout 10 weeks to support their fine and gross motor skills, social-emotional skills and cognitive skills were influential on the development of the children.

Development is a whole, and thus it can be pointed out that each development sub-area affects the other development area. More specifically, supporting children's fine and gross motor skills in early periods helps children to be ready for school and to develop their cognitive and social skills (Siu, Lai, Chiu & Yip, 2011; Piek, Dawson, Smith & Gasson, 2008; Burns, O'Callaghan, McDonell,& Rogers 2004). Similarly, it was found in some other studies that children with poor motor coordination skills come across emotional difficulties and have

poor social skills; therefore, when children's motor skills are supported, their social skills improve and they feel more self-confident (Piek, Bradbury, Elsley & Tate, 2008; Piek, Baynam & Barrett, 2006; Skinner, Piek, 2001). Additionally, it was revealed that individuals who have improved cognitive skills have higher levels of social reasoning ability and positive social behavioral characteristics (Guralnick, 1997; Bellanti & Bierman, 2000).

Research studies investigating the effectiveness of the educational programs for pre-school children corroborate with the findings of the current study. For instance, Esteban, Sidera, Serrano, Amadó and Rostan (2010) carried out group activities involving story reading and the discussion of the stories with 96 39-52-month-old pre-school children attending two different schools in Spain to help them build social reasoning and understand themselves as well as others. As a result of the study, it was observed that the social reasoning skills of the children in the experimental group increased. In another study, Dibek (2012) implemented the "visual perception skills program" for ten weeks to 17 children at the age of five while no training was provided to 16 children in the control group. The study yielded the finding that visual perception, fine motor and motor coordination skills of the children in the experimental group significantly improved. On the other hand, Yüksel and Yurtsever Kılıçgün (2012) explored the effect of the "Frostig Vsiaul Precption Education Program" on the development of pre-school children's visual perception levels. They collected data from 322 pre-school children between the ages of four and six. They had one experiment group including 161 children and a control group. They implemented the "Ankara Developmental Screening Inventory" and the "Frostig Visual Perception Program". They used the "Frostig Visual Perception Program" in the experimental group twice a week throughout five months and came to the conclusion that visual perception skills of the children in the experimental group significantly improved.

The other research question of the study was whether there any differences in 60-66-month-old children's levels of school readiness as a result of the applied guidance program. Considering the analyzed data of the study, it was realized that the differentiation of the school readiness levels of the children subjected to the ten-week program developed for this study was found to be positive.

It would be fair to claim that children's cognitive and social-emotional skills have a positive influence on their school readiness and affect their academic success in the primary school. On the other hand, it was found that pre-school children suffering from attention problems in general have difficulty in language, reading and in the mathematical field in the primary school, and thus have trouble adapting to the school environment (Alexander, Entwisle, & Dauber, 1993; Hinshaw, 1992; Spira & Fischel, 2005). Besides, it was revealed that school maturity is closely related to the social competence during the pre-school period (Ziv,2013), and that social emotional competence has an important role in children's success in the first grade of the primary school (Stan, 2012). In another study, Rhoadesa, Warrenb, Domitrovicha and Greenberg (2011) tried to identify to what extent the emotional development and attention skills of the pre-school children affect the academic success in the first grade of the primary school. They came to the conclusion that an educational program intended to support pre-school children's social-emotional development and attention is an important strategy that may have positive influence on their future academic achievements.

Furthermore, it was revealed that group activities and the educational program aiming to support children's social skills reduce the behavioral problems of the children and teenagers in their lives in and outside the school (Van Vugt, Deković, Prinzie, Stams, Asscher, 2013; Ang & Hughes, 2002; Beelman, Pfingsten & Lösel, 1994; Atılgan, 2011); similarly, the activities and program accelerate the school adaptation process of these children (Yüksel, Küçükoğlu & Ünsal, 2013; Denham, 2006, Eisenberg, Valiente, & Eggum, 2010; Esaspehlivan, 2006).

In conclusion, providing children either individually or in a group with an education program supporting the sub-areas of development during their pre-school education is very likely to contribute not only to the healthy process of adapting to their peers and the environment but also to their positive developmental characteristics. Moreover, developing children's social reasoning skills will positively affect their academic success in the primary school as such skills support their school readiness level. It would be fair to suggest that especially children who will have to start primary school earlier as entailed by the 4+4+4 education program should be

provided with individual and group activities related to their general development, social skills and the school maturity in the pre-school period in order to positively contribute to children's education and social lives.

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SERBIAN LANGUAGE TEACHERS IN NORTHERN KOSOVO ON GENERAL PRIMARY SCHOOL EDUCATION

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ABSTRACT

The importance of general primary school education is reflected in the fact that it is necessary to every person regardless of what they do and what their main occupation is. A wide range of knowledge which is obtained by general education enables man to follow social changes influence them, change their course and adjust to them, and therefore live well in a certain social community.

The research conducted in the schools of the northern part of Kosovska Mitrovica was aimed at analyzing opinion of Serbian language teachers on important matters of general education in the primary school (presence of the content of general education in the curriculum, its compliance with the development of science and technology, the impact on the selection of students' profession, compliance with the evolving capacities of the students and the importance for modern education).

Key Words: Serbian language, teachers, primary school, general education, north Kosovo.

INTRODUCTION

General education is the foundation (basis) for the development of vocational education, of an attitude and outlook on life and the world that surrounds man, and an understanding of his position in the world. Contents of general education are changed with the development of human society and they are affected by a number of factors. There, first of all, we should mention the changes that occur in a given society arising from the development of industry, technology, political structure and others. The rapid development of science, technology, computer science and other areas forces us to constantly monitor their progress, constantly improve and change ourselves.

General education, in the course of historical development, passed through several stages, and is constantly exposed to changes in the content, scope, scale and character. All previous experience in finding solutions to improve the process of general education has shown that changes in this area are slow and accompanied by many difficulties.

SUBJECT AND SIGNIFICANCE OF THE RESEARCH

The subject of this study was the attitude of Serbian language teachers on modern tendencies of general education. What was taken into account was the content of general education, its concepts, structure, and end results.

Defining Basic Terminology

1. *General education* implies acquiring knowledge, habits and skillsas well as values from different fields of science, culture, art, language, social life and work, interpersonal relations, sports, recreation, entertainment, etc. These achievements are essential to every man regardless of the choice of future career; 2. *Primary education* is a compulsory and a general education element of education, intended for all the children in our society; 3. *Compulsory education* is a legal requirement that children attend school; 4. *Basic education* is identical to the concept of primary education and refers to the program of modern basic education and general education.

Research Goal

The aim of the study was to analyze the attitudes of Serbian language teachers on important matters of general primary school education.

Research Tasks

Examination of differences in Serbian language teachers' attitudes on: 1. The presence of the content of general education in the curriculum; 2. Need for harmonization of general education with science and technical development; 3. The impact of general education on the choice of profession (occupation) of students; 4. The need to adjust general education to the evolving capacities of students, and 5. The importance of general education for modern education with regard to gender, educational background and years of service of teachers.

Research Hypothesis

It is expected that gender, qualifications and years of service of Serbian language teachers significantly determine differences in their views regarding: 1. The presence of the content of general education in the curriculum; 2. The need to adjust general education to the development of science and technology; 3. The impact of general education on the choice of profession (occupation) of students; 4. The need to adjust general education to the evolving capacities of students; 5. The importance of general education for modern education.

Research Variables

The first variable is *gender* of Serbian language teachers and its impact on the interpretation of general education and its contents. It occurs in two forms: *male and female.* The second variable is *the level of education* of Serbian language teachers and its impact on the implementation of the content of general education, and it has two versions: *higher and high education*. The third variable consisted of *years of service* of Serbian language teachers, in order to understand how years of service affect clarifying the content of general education. Years of service are divided into: 1 to 10, from 11 to 30, and from 31 to 40.

Research Methods

The study used the following methods: *Theoretical analysis method*, which was necessary for analyzing the curricula, textbooks, magazines, etc.; *Descriptive method* was used to describe and analyze the state of general education and its contents, as well as their implementation in schools. *Genetic (developmental) method* was used in the interpretation of the general state of education today and its impact on the development of the individual.

Research Techniques And Instruments

A questionnaire and interview technique was used as a tool during the research. It included questions that were related to Serbian language teachers' attitudes on the scope, importance and completeness of general education; on compliance of the content of general education with new developments; on general education compliance with the needs and abilities of children; on the influence of the choice of profession, and others.

Research Sample

The study used a *deliberate sample*. Schools were selected that were adequate when it came to the capacity, and the teaching staff, which was essential for this study. Summary of Serbian language teachers' attitudes is a part of a larger study (sample of 250 teachers and 250 subject teachers) conducted with teachers and subject

teachers (teaching math, science, social studies, foreign languages, computer science, art) in elementary school, but due to the volume of that research this paper only represents the views of Serbian language teachers. The questionnaire for Serbian language teachers were answered by 40 teachers working in the following elementary schools: in Leposavic (one elementary school – "Leposavic"), in Socanica (one elementary school – "Vuk Karadzic"), in Lesak (one elementary school – "Stana Bacanin"), in Zvecan (one elementary school – "Vuk Karadzic"), in Kosovska Mitrovica (seven elementary schools – "Sveti Sava", "Branko Radicevic", "Dositej Obradovic", "Veljko Banasevic", "Desanka Maksimovic", "Predrag i Miodrag Mihajlovic", i "Vlado Cetkovic"), in Zubin Potok (two elementary schools – "Jovan Cvijic" i "Blagoje Radic"). Because of the need for more samples, research was extended to Raska (one elementary school – "Raska"), Baljevac (one elementary school – "Josif Pancic") and Novi Pazar (six elementary schools – "Bratstvo", "Stefan Nemanja", "Jovan Jovanovic Zmaj", "Desanka Maksimovic", "Vuk Karadzic" and "Mesa Selimovic").

Data Processing

Statistical data processing was performed using: tables, frequencies, percentages, contingency coefficient and chi-square test.

ANALYSIS AND DISCUSSION OF OBTAINED RESULTS

1. Serbian Language Teachers' Opinions On Major Issues Of General Education In Elementary School

After having conducted the research, collected and analyzed data, this part of the paper analyzed the opinions of Serbian language teachers on important matters of general education.

a) Serbian language teachers' opinions on the presence of the content of the general education in teaching curricula and programs - depending on gender

Table 1:

SERBIAN LANGUAGE							
GENDER	**a) Present in sufficient proportion**		**b) A little present**		**c) Insufficiently present**		**H**
	No.	%	No.	%	No.	%	total
a) Male	7	53.84	4	30.77	2	15.39	13
b) Female	17	62.97	7	25.92	3	11.12	27
T O T A L:	**24**		**11**		**5**		**40**
Chi-square: 0,33; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,09							

Depending on gender, Serbian language teachers think alike about the presence of general education in general education curriculum. The highest percentage of male teachers (53.84%) declared that the contents of general education are *present in sufficient proportion*, a somewhat smaller number of them (30.77%) said that it is *a little present*, - while the smallest number (15.39 %) said that is insufficiently present. Female teachers have similar opinion, so the highest percentage (62,97%) thnks that general education is *present in sufficient,* a somewhat smaller percentage (25,92%) believes that it is a little present, while 11,12% believe it is insufficiently present. The value of chi-square test was 0.33, which tells us that the Serbian language teachers think alike, that is, there was no statistically significant difference in their opinion on the matter. Calculated coefficient of contingency C = 0.09 indicates that there is a low correlation between the gender of Serbian language teachers and their opinion on the presence of the content of the general education in teaching curricula and programs.

b) Serbian language teachers' opinions on the presence of the content of the general education in teaching curricula and programs - depending on education level

Table 2:

SERBIAN LANGUAGE							
EDUCATION LEVEL	**a) Present in sufficient proportion**		**b) A little present**		**c) Insufficiently present**		**H**
	No.	%	No..	%	No.	%	Total
a) Higher school	8	66.67	4	33.33	0	0.00	12
b) University	16	57.14	7	25.00	5	17.86	28
T O T A L:	**24**		**11**		**5**		**40**
Chi-square 5,47; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,34							

Depending on the education level (college and university), Serbian language teachers expressed similar views on the representation of the content of the general education in teaching curricula and programs. 66.67% teachers with higher (college) education have expressed their opinion by choosing the first category of responses *(present in sufficient proportion*), a small percentage of them, 33.33% have chosen the second category (*a little present),* while no one chose the third category (insufficiently present). Teachers with university degree, 57.14% of them expressed their views by choosing the first category of responses (present in sufficient proportion), while smaller percentages of them: 25.00% and 17.86% chose the second and third category (a little present and insufficiently present). Calculated *chi-square* 5,47 is lower than borderline value to be significant on the level 0,05 with df 2º, so it can be concluded that the opinions of Serbian language teachers with college and university degrees do not differ significantly based on the question asked. Calculated coefficient of contingency C = 0.34 tells us that there is a low correlation between education level of Serbian language teachers and their opinion on the presence of the content of the general education in teaching curricula and programs.

c) Serbian language teachers' opinions on the presence of the content of the general education in teaching curricula and programs - depending on years of service.

Table 3:

SERBIAN LANGUAGE							
YEARS OF SERVICE	**a) Present in sufficient proportion**		**b) A little present**		**c) Insufficiently present**		**H**
	No.	%	No.	%	No.	%	total
From 1 to 10 years	8	57.44	5	35.71	1	7.14	14
From 11 to 30 years	8	44.44	9	50.00	1	5.55	18
From 31 to 40 years	5	62.50	2	25.00	1	12.50	8
T O T A L:	**21**		**16**		**3**		**40**
Chi-square:1,77; df 4º: 0,05 –9,49; 0,01 – 13,28; c= 0,20							

Taking into account the years of service as a third variable in the provisions of the Serbian language teachers' opinions on the presence of the content of the general education in teaching curricula and programs, we can conclude that there are no large differences in their opinions. The youngest category of teachers with 1 to 10 years of service gave 57,44% to the first category (*present in sufficient proportion*), while they gave smaller percentage: 35,71% and 7,14% to the second and the third category (*мало a little present and insufficiently present*). The oldest category of teachers who have between 11 and 30 years of service gave the highest percentage of 50,00% to the second category of answers (*a little present*), while they gave smaller percentage 44,44% and 5,55% to the first and third category (*present in sufficient proportion and insufficiently present*). The oldest category of teachers, from 31 to 40 years of service, gave the highest percentage of 62.50% to the first category of responses (*present in sufficient proportion*), and gave smaller percentages of 25.00% and 12.50% to the second and third category (*a little present and insufficiently present*). The value of chi-square test 1.77 does not exceed the borderline value of df 2 º at 0.05 (5.99) and can therefore be concluded that there are

no statistically significant differences in the opinions of Serbian language teachers about the questions, depending on years of service. It can also be concluded that the hypothesis which is related to the presence of the content of general education in teaching curricula and programs is rejected because there were no statistically significant differences in the opinions of teachers, depending on all three variables. Calculated coefficient of contingency C = 0.20 indicates a slight correlation between education level of Serbian language teachers and their opinion on the matter.

2. Compliance Of General Education Content To Science And Technology Development

a) Serbian language teachers' opinions on the compliance of general education content to science and technology development – depending on the gender.

Table 4:

SERBIAN LANGUAGE							
GENDER	**a) Compliant**		**b) Insufficiently compliant**		**c) Non-compliant**		**H**
	No.	%	No.	%	No.	%	total
a) MALE	3	21.42	11	78.58	0	0.00	14
b) FEMALE	5	19.23	18	69.23	3	11.54	26
T O T A L:	**8**		**29**		**3**		**40**
Chi-square: 3,84; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,29							

The results of our research indicate that Serbian language teachers think similarly with regard to gender on compliance of content of general education with the development of science and technology. Most of male teachers, 78.58%, expressed their opinion by choosing the second category (*insufficiently compliant*), and the remaining 21.42% of the teachers chose the first category (*compliant*). Female teachers responded similarly, and 69.23% of them responded by choosing the second category (*insufficiently compliant*), 19.23% chose the first category (compliant), and 11.54% chose the third category thus responding that general education facilities do not comply with the development of science and technology. Also, testing the hypotheses on the significance of the difference between the percentage obtained by using chi-square test showed that they were not statistically significant, because chi-square amounted to 3.84 and it is lower than 2 º df (0.05 to 5.99). This means that gender of teachers in our study did not significantly influence their opinion on the compliance of content of general education with the development of science and technology. The resulting coefficient of contingency, C = 0.29 tells us that there is *a low correlation* between the gender of Serbian language teachers and their opinion on the compliance of the content of general education with the development of science and technology.

b) Serbian language teachers' opinions on the compliance of general education content to science and technology development – depending on education level.

Table 5:

SERBIAN LANGUAGE							
EDUCATION LEVEL	**a) Compliant**		**b) Insufficiently compliant**		**c) Non-compliant**		**H**
	No.	%	No.	%	No.	%	total
a) COLLEGE	5	38.47	8	61.53	0	0.00	13
b) UNIVERSITY	3	11.11	21	77.76	3	11.11	27
T O T A L:	**8**		**29**		**3**		**40**
Chi-square 7,00; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,38							

When it comes to the compliance of the content of general education with the development of science and technology, and depending on the education level, Serbian language teachers think quite differently. Most teachers with college degrees - 61.53% chose the second category (insufficiently compliant), while the

remaining 38.47% chose the first category (compliant). Teachers with university degrees, 77.78% of them, chose the second category *(insufficiently compliant*), while an equal percentage of 11.11% chose the first and the third category, that the content of general education is *compliant and non-compliant* with the development of science and technology. Also, testing hypotheses using *chi-square test* showed that significant differences of opinion among Serbian language teachers with different education level; these were statistically significant because the obtained chi-square 7.00 was higher than the threshold for significance at the 0.05 level (5,99). The obtained *coefficient of contingency*, which was C = 0.30, indicates that there is a *low correlation* between education level of Serbian language teachers and their opinion on compliance of content of general education with the development of science and technology.

c) Serbian language teachers' opinions on the compliance of general education content to science and technology development – depending on years of service.

Table 6:

SERBIAN LANGUAGE							
YEARS OF SERVICE	**a) Compliant**		**b) Insufficiently compliant**		**c) Non-compliant**		**H**
	No..	%	No.	%	No.	%	total
From 1 to 10 years	0	0.00	13	92.86	1	7.14	14
From 11 to 30 yrs	6	75.00	10	0.00	2	25.00	18
From 31 to 40 yrs	2	25.00	6	75.00	0	0.00	8
T O T A L:	**8**		**29**		**3**		**40**
Chi-square:52,03; df 4º: 0,05 –9,49; 0,01 – 13,28; c= 0,75							

The opinions of Serbian language teachers on compliance of content of general education with the development of science and technology, depending on years of service, differ significantly, which can be seen in Table 6. The youngest teachers with a very high percentage of 92.86% expressed their opinion by choosing the second category *(insufficiently compliant)* while 7.14% chose the third category *(non-compliant).* Older teachers, a high percentage of them - 75.00% expressed their opinion by choosing the first category *(compliant*), while 25.00% of them chose the third category (*non-compliant*). The oldest teachers, the highest percentage of them - 75.00% expressed their opinion by choosing the second category of response (*non-compliant)*, while 25.00% of them chose the first category (*compliant).* Also, testing the hypotheses using *chi-square test* showed that the differences in the opinions of Serbian teachers were statistically significant. The resulting chi-square 52.03 is higher than a threshold set at 0.01 (13.28), which means that Serbian language teachers, with various years of service, think differently about compliance of content of general education with the development of science and technology. This hypothesis is partially confirmed because the differences in the opinions of teachers in the Serbian language depending on qualifications and years of experience were statistically significant. The obtained *coefficient of contingency*, C = 0.75, tells us that there is a high correlation between years of service Serbian language teachers and their opinion on the compliance of the content of general education with the development of science and technology.

3. Influence Of General Education Content In The Choice Of Students Profession

a) Opinions of Serbian language teachers on whether general education content influences the choice of students' profession – depending on the gender.

Table 7:

SERBIAN LANGUAGE							
GENDER	**a) Influence significantly**		**b) Influence to a small degree**		**c) No influence**		**H**
	No.	%	No.	%	No.	%	total
a) MALE	7	53.84	6	46.16	0	0.00	13
b) FEMALE	14	51.86	10	37.03	3	11.11	27
T O T A L:	**21**		**16**		**3**		**40**
Chi-square: 2,64; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,24							

When asked if the content of general education has an impact on career choice, depending on gender, Serbian language teachers responded quite similarly. Male teachers, 53.84% of them expressed their opinion by choosing the first category, and the remaining 46.16% chose the second. Female teachers, a high percentage of them - 51.86% chose the first category of responses, a smaller percentage, 37.03%, chose the second and the lowest percentage of them 11.11% chose the third category. Testing hypothesis on the significance of differences, using the *chi-square test* showed that there were no statistically significant differences in the opinions of Serbian language teachers on whether general education activities have an impact on the choice of profession of students, depending on gender, because the chi-square of 2,64 was lower than a threshold set at df 2 º ; 0.05 (5,99). The resulting *contingency coefficient* of S = 0.24 tells us that there is *a low correlation* between the gender of Serbian language teachers and their opinion on whether the content of general education influences the career choice of students.

b) Opinions of Serbian language teachers on whether general education content influences the choice of students' profession – depending on education level.

Table 8:

SERBIAN LANGUAGE							
EDUCATION LEVEL	**a) Influence significantly**		**b) Influence to a small degree**		**c) No influence**		**H**
	No.	%	No.	%	No.	%	Total
a)COLLEGE	8	61.53	4	30.77	1	7.70	13
b) UNIVERSITY	13	48.14	12	44.44	2	7.40	27
T O T A L:	**21**		**16**		**3**		**40**
Chi-square 0,76; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,13							

Teachers with college degrees, 61.53% of them, think that these contents have *a significant influence* 30.77% of them thought that these) *influence it to a small degree,* and only 7.70% of them think that these have *no influence* on the career choice of students. A lower percentage of teachers with higher education, 48.14% of them, expressed their opinion by choosing the first category of responses, 44.44% chose the second, and 7.40% chose the third category. *Chi-square value* 0.76 is lower than a threshold set at df 2 º, 0.05 (5.99), which indicates that there are no statistically significant differences in the opinions of Serbian language teachers as to whether general education activities have an impact on career choice of students, depending on the level of education. The obtained *contingency coefficient* of S = 0.13 indicates that there is a slight correlation between education level of Serbian language teachers and their opinion on whether content of general education influence the career choice of students.

c) Opinions of Serbian language teachers on whether general education content influences the choice of students' profession – depending on years of service.

Table 9:

SERBIAN LANGUAGE							
YEARS OF SERVICE	**a) Influence significantly**		**b) Influence to a small degree**		**c) No influence**		**H**
	No.	%	No.	%	No.	%	total
From 1 to 10 years	8	57.14	5	35.71	1	7.14	14
From 11 to 30 yrs	8	44.44	9	50.00	1	5.55	18
From 31 to 40 yrs	5	62.50	2	25.00	1	12.50	8
T O T A L:	**21**		**16**		**3**		**40**
Chi-square:1,77; df 4º: 0,05 –9,49; 0,01 – 13,28; c= 0,20							

The youngest teachers, a high percentage of them - 57.14% expressed their opinion by choosing the first category of responses (*influence significantly*), while 35.71% and 7.14% of them chose the second and third category respectively (*influence to a small degree and no influence*), so the sum of the second and third category is smaller than the first. Older teachers, 50.00% of them chose the second category (*influence to a small degree*), a somewhat smaller percentage of 44.44% chose the first category (*influence significantly*), and the lowest percentage of 5.55% chose the third category (*no influence*). The oldest teachers, 62.50% of them, expressed their opinion by choosing the first category (*influence significantly*), then the second category *influence to a small degree*) 25.00% of them, and 12.50% chose the third category (*no influence*). *Chi-square value* of 1.77 is lower than the limit value of df 4 º ;0.05 (9.49), which means that depending on years of service there are no statistically significant differences in the opinions of Serbian language teachers on whether general education activities have an impact on the choice of profession of students. The set hypotheses concerning whether general education has an impact on student career choice is rejected because differences in opinions Serbian language teachers are not statistically significant according to the three set variables. The obtained contingency coefficient C = 0.20 indicates that there is *a slight correlation* between years of service of Serbian language teachers and their opinion on whether the content of general education influences the career choice of students.

4. Adjusting General Education Content To Evolving Capacities Of Students

a) Opinions of Serbian language teachers on the adjustment of general education contents to evolving capacities of students – depending on gender.

Table 10:

SERBIAN LANGUAGE							
GENDER	**a) Aligned**		**b) Insufficiently aligned**		**c) Not aligned**		**H**
	No.	%	No.	%	No.	%	total
a) MALE	3	21.42	10	71.42	1	7.14	14
b) FEMALE	10	38.46	13	50.00	3	11.54	26
T O T A L:	**13**		**23**		**4**		**40**
Chi-square: 1,72; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,04							

When it comes to the alignment of the content of general education with the evolving capacities of students, Serbian language teachers, depending on the sex, think roughly the same. The highest percentage of male teachers,71.42% of them, expressed their opinion by choosing the second category *(insufficiently aligned*); a much smaller percentage of 21.42% chose the first category (*aligned*), and the lowest percentage, 7.14%, chose the third category (*not aligned*). The highest percentage of female teachers, too, 50.00% of them, chose the second category (*insufficiently aligned*), while slightly lower percentage of them,38.46%, chose the first category (*aligned*), and the lowest percentage of 11.54% chose the third category of responses claiming that general education content is not aligned with the evolving capacities of students. After having tested the

hypotheses regarding the significance of the difference using the *chi-square test* it has shown that these differences are not statistically significant, because the obtained chi-square of 1.72 is lower than the limit value for df 2 °; significance level of 0.05 to 5.99, and this actually means that, depending on gender, Serbian language teachers have similar opinion regarding the alignment of general education content with evolving capacities of students. The obtained coefficient of contingency, which was C = 0.04, tells us that there is a slight correlation between the gender of Serbian language teachers and their opinion on whether the contents of general education are in line with the evolving capacities of students.

b) Opinions of Serbian language teachers on the adjustment of general education contents to evolving capacities of students – depending on education level.

Table 11:

SERBIAN LANGUAGE							
EDUCATION LEVEL	**a) Aligned**		**b) Insufficiently aligned**		**c) Not aligned**		**H**
	No.	%	No.	%	No.	%	total
a) COLLEGE	8	61.53	5	38.46	0	0.00	13
b) UNIVERSITY	5	18.51	18	66.66	4	14.81	27
T O T A L:	**13**		**23**		**4**		**40**
Chi-square 10,78; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,46							

Depending on the education level, the Serbian language teachers think differently regarding the alignment of the content of general education with the evolving capacities of students. A high percentage of teachers with college degrees, 61.53% of them, expressed their opinions by choosing to the first category of answers and said that the activities are *aligned*, while the remaining 38.46% chose the second category of answers saying that general education contents are *insufficiently aligned*. The highest percentage of female teachers, 66.66% of them answered by choosing the second category (*insufficiently aligned*); a much smaller percentage of them, 18.51%, chose the first category (*aligned*), while the lowest percentage of them,14.81%, chose the third category of answers saying that general education contents are *not aligned* with the evolving capacities of students. The obtained chi-square of 10.78 is higher than the limit specified of df 2 º ;0.05 (5.99), which indicates that, depending on the level of education, there is a statistically significant difference in the opinions of Serbian language teachers regarding the alignment of general education content with evolving capacities of students. The obtained contingency coefficient C = 0.46 tells us that there is *a moderate correlation* between education level of Serbian language teachers and their opinion on whether the contents of general education are in line with the evolving capacities of students.

c) Opinions of Serbian language teachers on the adjustment of general education contents to evolving capacities of students – depending on years of service.

Table 12:

SERBIAN LANGUAGE							
YEARS OF SERVICE	**a) Aligned**		**b) Insufficiently aligned**		**c) Not aligned**		**H**
	No.	%	No.	%	No.	%	total
From 1 to 10 years	1	7.14	10	71.42	3	21.42	14
From 11 to 30 yrs	10	55.55	7	38.89	1	5.55	18
From 31 to 40 yrs	2	25.00	6	75.00	0	0.00	8
T O T A L:	**13**		**23**		**4**		**40**
Chi-squre:12,42; df 4º: 0,05 –9,49; 0,01 – 13,28; c= 0,47							

The highest percentage of the youngest teachers,71.42% of them, believe that the contents are *insufficiently aligned*, and lower percentages of young teachers, 21.42% and 7.14% of them, think they are *not aligned*, or that they are *aligned,* respectively, with the evolving capacities of students. 55.55% of older teachers think that the contents are *aligned*, 38.89% of them think that they are *insufficiently aligned*, with only 5.55% of them who say that they are *not aligned*. However, a very high percentage of the oldest teachers, 75.00% of them, think that the contents are *insufficiently aligned*, while 25.00% of them said that general education contents are *aligned* with the evolving capacities of the students. After having tested the hypotheses regarding the significance of differences using *chi-square test* showed that there are major statistic differences in the statistical level of 0.05 since chi-square value of 12.42 is greater than the limit specified of df º 4; significance level of 0.05 (9.49). The coefficient of contingency is C = 0.47 which indicates that there is *a moderate correlation* between years of service of Serbian language teachers and their opinion on the matter.

5. The Importance Of General Education For Modern Education

a) Opinions of Serbian language teachers on the importance of general education to modern education– depending on gender.

Table 13:

SERBIAN LANGUAGE							
GENDER	**a) High importance**		**b) Low importance**		**c) No importance**		**H**
	Бр.	%	Бр.	%	Бр.	%	total
a) MALE	12	85.71	2	14.29	0	0.00	14
b) FEMALE	21	80.76	4	15.38	1	3.84	26
T O T A L:	**33**		**6**		**1**		**40**
Chi-square: 1,27; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,17							

After being asked about the importance of general education to modern education, depending on the gender of Serbian language teachers they responded very similarly. The highest percentage of both male and female teachers, 85.71% (male) and 80.76% (female) chose the first response category (*high importance*), a much smaller percentage of 14.29% (male) and 15.38 % (female) chose the second category (*low importance*), and the remaining 3.84% (female) chose the third category (*no importance*). The calculated chi-square test of 1.27 was lower than the limit value of df 2 º; 0.05 (5.99), which means that there is no statistically significant difference in the opinions of Serbian language teachers. The calculated coefficient of contingency C = 0.17 tells us that there is a slight correlation between the gender Serbian language teachers and their opinion on the importance of general education to the modern education.

b) Opinions of Serbian language teachers on the importance of general education to modern education– depending on education level.

Table 14.

SERBIAN LANGUAGE							
EDUCATION LEVEL	**a) High importance**		**b) Low importance**		**c) No importance**		**H**
	No.	%	No.	%	No.	%	total
a) COLLEGE	12	92.30	1	7.70	0	0.00	13
b) UNIVERSITY	21	77.78	5	18.51	1	3.70	27
T O T A L:	**33**		**6**		**1**		**40**
Chi-square 1,7; df 2º: 0,05 – 5,99; 0,01 – 9,21; c= 0,20							

Depending on their education level, Serbian languages teachers think similarly about the importance of general education to the modern education. High percentage of teachers with college degree, 92.30% of them, believe that general education is of *high importance* for modern education, while a small percentage of them, 7.70%, think that it is of *low importance*. A large percentage of teachers with university degrees, 77.78% of them, think that general education is of *high importance* for modern education, while is a slightly higher percentage than

the previous group of Serbian language teachers, 18.51% of them, think that it is of *low importance*, and only 3.70% claimed that contents of general education of *no importance* to modern education. After having tested the hypothesis of the significance of differencs, using the *chi-square* test, it showed no statistically significant difference in the opinions of teachers, because the calculated value of chi-square of 1.7 is lower than the limit value of df 2 °; significance level of 0.05 (5, 99). The calculated coefficient of contingency C = 0.20 tells us that there is a slight correlation between education level of Serbian language teachers and their opinion on the importance of general education to the modern education.

c) Opinions of Serbian language teachers on the importance of general education to modern education– depending on years of service.

Table 15:

SERBIAN LANGUAGE							
YEARS OF SERVICE	**a) High importance**		**b)Low importance**		**c) No importance**		**H**
	No.	%	No.	%	No.	%	total
From 1 to 10 years	12	85.71	2	14.29	0	0.00	14
From 11 to 30 yrs	14	77.78	3	16.67	1	5.55	18
From 31 to 40 yrs	7	87.50	1	12.50	0	0.00	8
T O T A L:	**33**		**6**		**1**		**40**
Chi-square: 2,36; df 4º: 0,05 –9,49; 0,01 – 13,28; c= 0,23							

Depending on years of service, Serbian language teachers have similar opinion on how important general education is for modern education. All three categories of teachers gave the highest percentage to the first category of responses (*high importance*): 85.71% of the youngest teachers, 77.78% of older teachers and 87.50% of the oldest teachers. Also, roughly similar percentage was given to the second category (*low importance)* - 14.29% of the youngest teachers, 16.67% of older teachers and 12.50% of the oldest teachers, while only 5.55% of the second category of teachers (from 11 to 30 years of service) chose the third category of responses thus saying that general education contents are *of no importance* to modern education. The obtained *chi-square* test is 2.36 and it is lower than the limit value of df º 4; 0.05 level of significance (9.49), which indicates that there is no statistically significant difference in the opinions of Serbian language teachers depending on years of service. Hypothesis which refers to the importance of general education to modern education was rejected because the calculated differences are not statistically significant. The calculated coefficient of contingency, that is C = 0.23, tells us that there is *a low correlation* between years of service of Serbian language teachers and their opinion on the importance of general education to modern education.

CONCLUSION

The conclusions of the research point to the ongoing problems of modern, general, elementary education and they can contribute to the improvement of its quality. Depending on the three variables, Serbian language teachers think very similarly about the presence of the content of general education teaching curricula and programs, which does not confirm the hypothesis. Serbian language teachers have the same opinion regarding the compliance of general education content with the development of science and technology only when using gender variable; while, they have different opinions when taking into consideration education level and years of service variables. When using gender variable, Serbian language teachers have similar opinions about the influence of general education on students' choice of profession, while they have different opinions when taking into consideration education level and years of service variables. General education is very important to modern education, and all Serbian language teachers agree about that, which means that, when taking into consideration all three variables, they have similar opinion.

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INTEGRATION OF YOUNG STUDENTS WITH OUTSTANDING MATHEMATICAL ABILITIES TO CREATIVE TEAMWORK

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ABSTRACT

In order to respond to the dynamics in the development of economic, social and public life, school education should very quickly and flexibly offer new educational policies and put into practice new technological solutions.

In the context of inclusive education, the development aims to present an idea to include the outstanding students in mathematics to additional creative work in a team, which will best satisfy their needs of: **expression** of their personal potential and opportunities, **communication** in a creative environment of like-minded people, **development** of their mathematical abilities and **acquisition** of key competencies**.**

Key Words: Inclusive education, creativity, mathematics.

INCLUSIVE EDUCATION

A few years ago the Bulgarian Ministry of Education, Youth and Science (MEYS) decided to introduce the concept of Inclusive Education, as part of the new education policy. For people who are interested in educational policies, both in Europe and worldwide, this is not a new concept.

THE "INCLUSIVE EDUCATION IN BULGARIA" report (2006, p.5) issued by the Save the Children Foundation defines the inclusive education as "a process that seeks to eliminate all forms of segregation in education, to include children who feel vulnerable or isolated for any reason, and to encourage and foster the participation of all children in the educational process. Inclusion in education is based on the recognition that all children are different and that schools and the educational system as a whole have to change to meet the individual needs of all learners (with or without special educational needs (SEN). Inclusion is expressed in reorganization of the Bulgarian school policies, practices and culture, so that it can meet the diverse educational needs of school children, and encouragement of active participation on their part. At school base level, this means provision of accessible architectural environment, qualified teaching and support staff, individual training plans tailored to the potential of each child with special educational needs, well-equipped specialized school rooms, permanently employed resource teachers, psychologists, speech therapists, etc."

The term Inclusive Education derives from English and means adapting the school system to the child, and not the child to the system. It means education for all, i.e. it includes all students, regardless of their different characteristics, including race, gender, age, ethnic origin, religion, alleged level of ability or disability, HIV status, etc (Slee, 2001b).

The general concept underlying the inclusive education is that every child should have access to quality education in the mainstream school system and is aided in the learning process. In this regard, every child, regardless of one's differences, can and should be educated in mainstream schools. Inclusive Education seeks to meet the needs of every child by paying special attention to groups of children who are at risk of being socially isolated or excluded from mainstream education.

Inclusion concerns not only the education of children with disabilities, but the provision of quality learning conditions for all learners. The nine guiding principles of inclusive education adopted by the Alliance for Inclusive Education in March 2002 are based on the main principle of respect for each individual:

1. A person's worth is independent of their abilities or achievements.
2. Every human being is able to feel and think.
3. Every human being has a right to communicate and be heard.
4. All human beings need each other.
5. Real education can only happen in the context of real relationships.
6. All people need support and friendship from people of their own age.
7. Progress for all learners is achieved by building on things people can do rather than on what they cannot do.
8. Diversity brings strength to all living systems.
9. Collaboration is more important than competition.

The school is a reflection of the community in which everyone lives. World globalization leads to diversity in the school environment. Now schools provide education to children of different races, cultures and religions, and different abilities and disabilities. Inclusive Education means that all students in a school, regardless of the differences already mentioned, physical and mental characteristics and abilities, become part of school community. They are associated in their sense of belonging to the other students, teachers and non-teaching staff.

No school community can meet the variety of needs of its various students, but it must continue to look for opportunities and solutions, even when it has no resources to address this issue. There is nothing wrong with that, if a school admits its inability to address such issues and seeks external support. However, the support that the school and teachers in particular receive should help the school community to make changes to the way of teaching on its own. No teacher should expect that the external experts (resource teachers, psychologists, speech therapists, etc.), that are available to them, will solve their problems with Inclusive Education. Anyone working in education, or connected in any way with it, must understand that one cannot work as before. It is important to seek professional standards, and not what seems easiest and subject to its own logic.

If a society values children development and their ability to learn and live together, in order to deal with the challenges of life – with its joys and difficulties, then their special educational needs become a natural part of the whole experience. The whole experience which requires teaching competence to work with all children, school hospitality, and confidence that every child can acquire the necessary minimum of knowledge in every academic discipline on the curriculum.

To make this idea a reality it is necessary to produce a mechanism for daily functioning, operating rules and procedures, practical application resources, as well as sanctions for non-compliance. This means:

- To establish an adequate methodology for assessing the child's capabilities and provide the necessary resources for its inclusion;
- To make rules for the interaction between the different institutions that are relevant to the child development;
- To propose various forms of training and selection procedures (in the course of work);
- To provide assurance for meeting the child's needs, and not those of the school or the system (UNESCO, 2009).

Inclusive Education seeks to develop a methodology aimed at all children which recognizes them as individuals with different needs in learning. Inclusive Education seeks to develop a teaching and learning approach which will be more flexible and satisfying for the different needs in learning. If learning and teaching become more effective as a result of changes introduced by the Inclusive Education, then all children will benefit (not just children with special educational needs).
According to the Salamanca Statement (Salamanca, Spain, June 7th-10th, 1994) on Principles, Policy and Practice in Special Needs Education:

- Every child has a fundamental right to education, and must be given the opportunity to achieve and maintain an acceptable level of learning;
- Every child has unique characteristics, interests, abilities, and learning needs;
- Education systems should be designed and educational programs implemented to take into account the wide diversity of these characteristics and needs;
- Those with special educational needs must have access to regular schools. The schools have to provide conditions to satisfy such needs, based on child-centered pedagogy capable of meeting these needs;
- Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating education for all. Moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system.
- Inclusion is a process of increasing the degree of participation of each student in the academic and social life of the school, and decreasing the degree of students isolation in all processes within the school;
- Inclusion calls for restructuring of the school culture, its rules, internal procedures and regulations in order to be able to fully accept all the diversity of students and their personal characteristics and needs;
- Inclusion directly involves all students in the school, not just the vulnerable groups such as children with limited opportunities;
- Inclusion is oriented towards school improvement, not only to students but also to its teachers and additional staff.
- The desire to give access to the environment and the learning process requires a more general and conceptual approach to be taken;
- Each student is entitled to receive education in the school closest to one's home;
- Diversity and differences between the children do not appear to be a problem requiring solutions, but it is rather an important resource that can be used in the educational system;
- Inclusion implies the presence of close relations, based on friendship between schools and the communities in which the schools exist.

"Integration" and "Inclusion" are terms that are often used by teachers as synonyms. The difference between the two terms is essential. Integration programs are intended to attract children with different abilities in an existing school life and school structure. The purpose of these programs is to help the integration of children in the existing educational model.

Inclusion differs from integration in that, that at the outset all children, with no exception, are considered part of the educational system. Children with special educational needs (SEN) do not require special adaptation as they, at the outset, are part of the school system and each school is ready to welcome children with different abilities. This requires substantial changes in the structure and functioning in school, but also in the views of the teachers who are used to working with certain groups of children with no special educational needs.
Thus, inclusion is a process of development of accessible education for everyone, in accessible school and educational institutions. The learning process consists of adequate personalized goals for all students, process of liquidation of the different barriers in order to maintain each student and maximum disclosure of its potential.

INCLUSIVE EDUCATION ISSUES

The problems faced by participants in the educational process in the initial stage of the implementation of Inclusive Education are:

Problems for teachers

The idea of Inclusive Education will actually take its place in the educational process only when it conquers the minds of teachers and become part of their professional thinking. Special effort is required in order to do this. Experience with introducing Inclusive Education shows that teachers and other professionals do not start immediately matching the professional roles that are required for such form of teaching. They go through several stages: starting from the obvious or latent resistance, passing through passive behavior, and then to the active acceptance of what is happening. A large number of teachers in the primary stage of education (7-10 year old students) doubt their abilities: "Can I handle this challenge." They understand the responsibility they must assume and fear that they will not handle the preparation, planning and implementation of the Inclusive Education. They are afraid to take that risk and the consequences of possible unfinished work.

Mainstream school education contains precisely laid standards and criteria for evaluation of learning outcomes in different academic subjects. According to large proportion of teachers, children with more severe disability or mental abnormalities could not meet these standards and criteria, and there are no statutory objectives, goals and expected learning outcomes for the separate subjects by classes for children with special educational needs.

The teachers also express concerns regarding:

- Large differences in the training and abilities of students in the same class;
- According to them the regulated lesson of 40 minutes is insufficient to implement personalized learning approach;
- Lack of experience and specialized psychological and methodological training are obstacle in the implementation of the ongoing inclusive process;
- Lack of solutions to issues emerging in the work process;
- The need to seek help from students, parents, psychologists and resource teachers, recognizing that they cannot handle with the problems.

Advice that they are given in such cases are:

- "You have to do your work, despite everything";
- "You have to face your fears and continue to work through them, and then they will become lesser and disappear."

Problems for children without SEN and their parents

Parents of children without SEN sometimes express concern that the presence of children who need special support in the class may hinder the development of their own child. Parental concerns are mostly related with doubts and hidden mistrust in the teacher, in particular, in his skills in such situation (presence of a child (children) with SEN in the class) to maintain previous cognitive level, and even build-up the knowledge, skills and competencies of their children. In the talks with them, they recognize that children with SEN need more attention and care, but are afraid of ignoring their own children. A few of them react hasty and inconsiderate by moving their child to another class or school.

Of course, that a good teacher training and qualification, such a step by the parents is extreme. In order to avoid such incidents it is necessary for the parents of all children to be familiar with the objectives of Inclusive Education, with its advantages and disadvantages and thus to dispel negative attitudes in some of them. Furthermore, when parents are aware of the new education policy, they become involved and willingly participate in the educational process in one form or another.

Overcoming barriers in learning

Inclusive Education is a process of mainstream education development, which implies access to education for all, by adapting it to the different needs of all children. Thus, the core of Inclusive Education is the ideology that excludes any discrimination of children, provide equal treatment to all children, but also creates special conditions for those who have special educational needs. We are talking primarily of handicapped children having disability in their psychophysical development.

The key principles of Inclusive Education represent the joint training and education of all children in the same age group in kindergarten and school. Inclusion is a natural process and cannot exist in an environment where some children are fully or partially separated from their peers in the learning process. Education of children, some of whom are in special schools, and another in mainstream schools is not inclusion. Education of children in mainstream schools in segregation and special conditions is not inclusion. Education of a child with special needs in an ordinary class under program and content of mainstream education environment cardinally differs from what its peers in this class work with – this is not inclusion (Loreman & Deppler, 2001).

Inclusion means full inclusion of children with different abilities in all aspects of school life in which all other children are involved with pleasure and joy. This requires a real adaptation of school space in order to meet the needs of all children without exception, to appreciate and respect diversity. This does not mean that the inclusion does not require providing children with different abilities with special assistance and support in lessons or training outside the class, if necessary. Different options appear periodically and are required virtually by all students in the class. (Loreman & Deppler, 2001).

Inclusive Education components

Inclusion of all children with different abilities at school they can attend;

- ✓ The amount of children with SEN in school should be proportional to the total number of children in this city or area as a whole;
- ✓ Lack of “triage” and selection of children in mixed groups;
- ✓ Children with special needs are placed in class corresponding to their age;
- ✓ The presence of situational conditioned interaction, coordination of resources and teaching methods;
- ✓ Efficient and decentralized models of learning as style of work at school (Sailor & Skrtic, 1995).

Every teacher with experience in teaching children with SEN in mainstream schools said that the inclusion of such children is a complex and complicated process. In order to succeed, the teacher must be highly qualified and motivated professional. The high qualification and motivation of teachers is necessary for effective training, which is absolutely essential for every school. Improving the quality of education through innovative inclusive educational practices is the primary goal of the activities of each teacher and each school (Loreman & Deppeler, 2006).

The issues most discussed by the teachers were:

- Does the inclusion really work?
- How to organize the inclusion work in schools?

The answer to these two questions is complex and may disappoint those looking for a quick and simple answer. Inclusion in school does not always work. There are a lot of researches, who assume that the inclusion of children even with severe and multiple developmental disorders can be successful, if there is a culture of shared values and sincere passion for improving training technology in the school(Giangreco, 2001; Grenor-Schreyer, 2001; Loreman, 2001).

The most frequently cited reasons of why inclusion does not work are:

- ➢ The advantages of inclusion are not discussed with those involved in the implementation of this process.
- ➢ The changes taking place in the school are excessive or vice versa, limited or insufficient.
- ➢ The required changes are made too quickly or very slowly, which results in reduced enthusiasm.

- Lack of resources, which, even if available, do not always guarantee that the inclusion will work. Resources can be used irrationally.
- Lack of permanent incentives for the formation of attachment to the idea of Inclusive Education.
- Key associates determining the success of inclusion are not attached enough to the idea or vice versa, too much work is implied on them, which gradually alienates them from the implementation of inclusive cause.
- Parents as partners do not participate adequately in the school life.
- Heads of schools frequently carry out excessive control or their management style is ineffective, or does not support the achievement of higher goals by the team.
- The inclusion appears somehow isolated in relation to other school initiatives.
- Teachers lack the necessary skills and qualifications.
- The inclusion requires modification of curricula and programs to suit children with different abilities.
- Insufficient time for planning work on the inclusion of students with different abilities in the educational process (Giangreco,2001; Grenor-Schreyer,2001; Loreman, 2001; Jasutske, 1997).

The second question too has no definite answer. Inclusion depends much on the context; therefore there is no universal formula for successful inclusion of children in each class or school. Inclusion works where teachers understand and demonstrate effective training under conditions of cooperation and support from the whole school community.

CONCEPTUAL PROJECT

In order to respond to the dynamics of the economic, social and public life development, school education should very quickly and flexibly offer new educational policies and implement new technological solutions in practice. It should open its doors wide for elective courses and extracurricular activities for children, which will help to open up new and wider horizons for their future.

The elective courses suggest each child should choose one of several subjects, the one that is of most interest and in which the child wants to enrich its knowledge. In practice, however, the primary teacher is the one who chooses for the whole class what will be the elective course that students will learn and it is included in the class curriculum. This practice is wrong, but it facilitates the teachers in the preparation of classes' curriculum.
Preferred elective courses of the initial stage of a secondary school (SS) are: mathematics, Bulgarian language and literature and English. Classes intended for these subjects are used by some teachers to clarify the new knowledge acquired in regular mathematics classes, in order to exercise algorithms, etc. and very rarely to build-up the students' knowledge, skills and competencies. This leads to the disadvantage of students with outstanding mathematical abilities.

In the context of Inclusive Education the project **aims** to present an idea to include outstanding mathematics students in additional extracurricular creative teamwork, which will best satisfy their needs: **expression** of their personal potential and opportunities, **communication** in creative environment of like-minded, **development** of their mathematical abilities and **acquisition** of key competencies.

For the purpose of the project, as inclusion of talented mathematics students in additional creative work, we will assume the organization and involvement of younger students in extracurricular activities in the form of math club.

Name of project: "Young Mathematician Club"

The idea of establishing a "Young Mathematician Club" was born, after discussion with the primary teachers of a base practicum school for Plovdiv University "Paisii Hilendarski", Plovdiv (Bulgaria), on how to include children with outstanding mathematical abilities in Inclusive Education and how they could to help their peers with the same interests to develop and demonstrate their potential.
Questions that the initiators of the idea of creating a "Young Mathematician Club" had to answer before the initiating the club establishments were:

- Is this extracurricular form of learning by interests will compensate the outstanding mathematics students in terms of developing their mathematical abilities and educational needs;
- Whether the children with special educational needs, but with a keen interest in mathematics, will be involved in this initiative;
- Will the school management and parents welcome and support the idea of a form of learning in which children regardless of gender, ethnicity or religion will communicate and develop their potential together as a team.

Teachers' higher qualification and extensive experience was a guarantee for a successful start of this project. Moreover, they were well motivated and enthusiastically accepted their inclusion in the project.
The project was discussed and coordinated with the school management, teachers and parents of all children in 3rd grade, because these classes have children with SEN. The school management has given its consent to initiate the project and assurance of assistance and support to the team if needed. The parents, after detailed examination of the purpose, features, activities types, rights and obligations of members (in this case their children) in the club, endorsed this initiative and offered their services to support the activities of the club and the performances of their children. All parents (of healthy children and children with disabilities who are interested in mathematics) were unanimous in their opinion that the proposed idea of establishing a "Young Mathematician Club" will bring their children closer, the teamwork will teach them to respect the opinions of others and make them more responsible and tolerant on the one hand and on the other will help improve their basic mathematical competence. Support granted from school management and parents was facilitated with financial support.

The next step towards the realization of the idea of establishing a "Young Mathematician Club" was sharing it with children and the recruitment of club members. Children were explained that membership is voluntary, i.e. each child at its own discretion (with the consent of their parents) can be a member of this club, as the only condition was to like math and be willing to engage in teamwork with its classmates. Children learn that all decisions regarding club membership, chair of the club, elaboration of club rules and regulations, and the activities types will be decided by them. One of the 3rd graders teachers will act as honorary chairman and coordinator and the other as his deputies and honorary members.

Initially, a large number of children expressed desire for membership in the "Young Mathematician Club". Even those who do not have great interest in mathematics and handle the educational math content with some difficulty expressed their desire to enroll in the club. The high interest, we believe, is due to the desire of children to participate in something different and interesting.

Currently the club has 15 members of which 12 children of Bulgarian origin, 2 children of Turkish origin, and one child from Roma origin. Three of the children are with different type and degree of disability. One is suffering Hyperlexia, the second suffers vision disorder, and the third suffers damage to the musculoskeletal system. The child with Hyperlexia is a boy with unusual cognitive and visual-motor abilities, regardless of the overall disparity. Besides the permanent club members, another 5 children signed as associated members, which due to family reasons cannot regularly attend club meetings and be actively involved in its activities.

In the presence of the teacher (Honorary Chairman), other teachers (Honorary Members) and a representative of parents, the children elected the best mathematician among them for club's president. On their own initiative as a member of the club was elected a parent with university degree in mathematics, who has previously assisted and sponsored various activities and events.

At the next meeting of the club, the children elaborated **Rules and Regulations of the "Young Mathematician Club." The Rules** of the club regulate the obligations and rights of each member, namely:

Obligations:
Each club member undertakes to:
- Attend each club meeting;

- Actively participate (to the extent possible) in the club activities;
- Respond to requests for assistance from a classmate;
- Be respectful to other club members;
- Participate in the distribution of assignments among the club members and perform its tasks properly and in due time.

Rights:
Each club member is entitled to:
- Propose amendments to the Rules and Regulations of the of the club;
- Vote for president of the Club;
- Propose activities for the club to perform;
- Express their opinion and vote in decision-making;
- Make suggestions and vote for the inclusion of new club members;
- Receive assistance in case of failing to perform the task assigned by the club;
- Be absent from club meetings, only for valid reasons;
- Invite guests to the club who are interested in the club activities and want to help.

The Rules of the "Young Mathematician Club" state the conditions under which club membership is granted or taken away, number of participants and place of meetings of the club, agenda with activities and events, the form of reporting the club financial costs.

Terms and Conditions of Membership: Any student who shows very good or excellent results in mathematics and wishes to participate in the club activities should submit a request to the President of the club and is approved by its members. The latter collectively discuss and decide whether the applicant classmate is responsible and has the potential to perform the tasks assigned.

Withdrawal of membership is also a collective decision. Any member who does not consider the club activities with due seriousness and commitment and does not fulfill its obligations may no longer be allowed membership in the club.

The Rules and Regulations of the Club will be elaborated and adopted by the members of the club, after review and approval by its honorary chairman and members.

It was decided to hold club meetings once a week. The day of meeting was accepted to be every last day of the school week (Friday). Since the young students at this school are taught all day (morning regular classes and afternoon study activities) it was adopted for the meetings and club activities to take place in the afternoon in the time provided for classes of interest. The place of meetings will be a specially equipped room, the so-called "Igroteka (*Playroom*)" which is modernly furnished and equipped with modern computers and multimedia equipment. The environment there predisposes to creative mood and inspiration. The duration of the club activities is one lesson of 40 minutes. In case of preparation of larger events, the weekly club meetings may be more than one.

Preparing the program and specifying the types of club activities and events took longer than expected. The math teachers, which are directly involved in the project, offered the children a template program with club activities and deadlines. Each club member was tasked to examine the template program alone or with the help of its parents and share its proposals for changes and additions to it with the rest of its classmates of "Young Mathematician Club." After discussion the following work program was adopted for the entire school year.

Program
1. Club Activities.
2. Mathematics board "Math – interesting, easy and useful".
3. Mart Quiz "Every 2nd graded knows that".

4. Collection of assignments "Math Holiday".

Club sessions are once a week. A separate program will be elaborated that fixes the topics that will be considered. In this program elaboration are involved mainly the math teachers who are honorary members and the chairman of the club and is approved by all members. Adoption of the program will take place at the first club session.

Topics included for consideration are directly related to the specific mathematical content included for study in the state educational requirements for the specific class, but also include the additional knowledge and skills in the subject, and rich in content and form competency oriented mathematical assignments. The topic of each session is stated in advance, i.e. at the end of each club session the members are informed about the topic of the next session. This is done in order to enable every member of the club to prepare and submit their materials (problems, puzzles, riddles, drawings, fun games, etc.). The sessions are supervised by the math teacher, the President or a member of the club. The leading figure during the sessions is the math teacher. A club member can lead an activity, if previously stated such wish. The honorary club members or external speakers are invited at least twice a semester as guest lecturers.

For each semester of the school year, the club will prepare two pieces Math Boards "Math – interesting, easy and useful." The boards are entirely designed by the children – members of the club. They are free to choose the Math Boards entries, allocate tasks, perform selection of content, and draw the design. The finished boards are placed at a location that is accessible to all children. A box is placed under the boards in which every child can submit the decision to an assignment or response to a question, riddle or puzzle. After a certain period of time the box is opened and after answers check is announced the name of the student who gave most accurate solutions and answers. The winner receives a prize and a proposal to join the club.

At the end of each semester, the club holds a Mart Quiz "Every 2nd graded knows that." Teams from all second grades in school participate in the quiz (2a, 2b, 2c). The questions for the math quiz are collected by the club members during the whole semester in a folder specially intended for this purpose (hard copy and digital), which is held by the teacher – Honorary President of the Club. Prior to conducting the quiz all collected materials are sorted by theme and difficulty and those that will be included in the quiz are selected. All club members are actively involved in the preparation of the quiz, as each is involved according to its desires and capabilities. Children put imagination and creativity in order to prepare a nice competition with lots of prizes and fun.

At the end of the school year, with the help of the entire school management, teachers, parents, and club members issue a collection of assignments called "Math Holiday." The idea of the club is for every child from the 3rd grade to get a digital version at the end of the school year (and hard copy if possible) of a collection of assignments on various math topics studied during the year. The club kids collect the assignments throughout the entire year. They select the assignments from collections of books on mathematics, mathematical competitions, internet, and other sources. One of the assignments is elaborated by the children with outstanding mathematical abilities. The collection is edited by the Honorary Chairman and club members, which then finance the issue. At the end of the school year every 3rd grader receives a gift for holidays from the "Young Mathematician Club".

CONCLUSION

In conclusion we would like to say that the "Young Mathematician Club" Project works. The stage, at which it is currently implemented, shows more than encouraging results in the inclusion of the "different" children in a unifying cause – mathematics. In a next article(s) we will share details of the project and its results.

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THE VALIDITY AND RELIABILITY OF TURKISH VERSION OF THE THEISTIC FAITH SCALE

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ABSTRACT

The aim of this study is to examine validity and reliability of the Turkish version of the Theistic Faith Scale (Francis, Brockett, & Village, 2013). The sample of this study consisted of 266 undergraduate students. The results of confirmatory factor analysis indicated that the 7 items and uni-dimensional theistic faith model was well fit (x^2= 18.05, *df*= 11, RMSEA= .050, GFI= .98, CFI= .99, AGFI= .95, IFI= .99, and SRMR= .025). The internal consistency reliability coefficient of the scale was .83. The corrected item-total correlations ranged from .33 to .67. Overall findings demonstrated that this scale had high validity and reliability scores.

Key Words: Theistic faith, validity, reliability, confirmatory factor analysis.

INTRODUCTION

Throughout the history of mankind people have come to believe different theistic faith and different religion have expressed (e.g., Buddhism, Christianity, Hinduism, Islam, Judaism, and Sikhism) with many aspects within the forms (say, beliefs, behaviours, and affiliation). Theistic faith is a multi-dimensional construct and researchers try to make clear this concept with different approaches. They have assessed various dimension of theistic faith in different ways and examined theistic faith as practice (what people do), belief (what people believe), attitude (how people feel about their religion), and orientation (what motivates their faith). In these approaches, attitudinal dimension appeared particularly attractive than the others because of accessing attitudes toward theistic faith amount to know about religion in an individuals' life (Francis, Brockett, & Village, 2013; Williams, Billington, & Francis, 2010).

There are a plenty of studies conducted on theistic faith which demonstrated its positive and negative associations with different variables. In these studies it was found that higher levels of theistic faith positively related with rejection of abortion (Arney & Trescher, 1976; Barnartt & Harris, 1982), conservatism (Lewis & Maltby, 2000), dogmatism (Francis & Greer, 2001), general health (Francis, Robbins, Lewis, Quigley, & Wheeler, 2004), paranormal belief (Williams, Francis, & Robbins, 2006), psychological adjustment and well-being (Francis & Robbins, 2005; Farnell, Hopkinson, Jarvis, Martineau, & Hein, 2006; Schludermann, Schludermann, Needham, & Mulenga, 2001), purpose in life (French & Joseph, 1999) and negatively related alcohol consumption (Brown, Parks, Zimmerman, & Phillips, 2001; Mason & Windle, 2002).

Briefly, since theistic faith influences deeply individuals' social, psychological, and physical life, it is very important to measure this construct. Therefore the purpose of this study is to adapt into Turkish and to examine the validity and reliability of the Theistic Faith Scale (Francis et al., 2013).

METHOD

Participant

Participants were 266 undergraduate students (143 (54 %) were female, 123 (46%) were male) who were enrolled in Sakarya University, in Turkey.

Measures

Theistic Faith Scale. The Theistic Faith Scale (Francis, Brockett, & Village, 2013) is a self-report questionnaire with 7 items rated on a 5-point scale. High scores indicate higher levels of Theistic Faith. The Cronbach alpha internal consistency reliability coefficient of the scale was .96.

Translation and adaptation process

Primarily the scale was translated into Turkish by two academicians who know English well. After that the Turkish form was back-translated into English and examined the consistency between the Turkish and English forms. Than Turkish form has been reviewed by four academicians from educational sciences department. Finally they discussed the Turkish form and along with some corrections this scale was prepared for validity and reliability analyses

Procedure

Permission for participation of students was obtained from related chief departments and students voluntarily participated in research. Completion of the scales was anonymous and there was a guarantee of confidentiality. The scales were administered to the students in groups in the classrooms. Prior to administration of scales, all participants were told about purposes of the study. In this study confirmatory factor analysis (CFA) was executed to confirm the original scale's structure in Turkish culture and Cronbach' Alpha reliability coefficient was calculated to examine the reliability. Data were analyzed using LISREL 8.54 and SPSS 15 package programs.

RESULTS

Construct Validity

Confirmatory factor analysis demonstrated that the uni-dimensional Theistic Faith model was well fit (x^2= 18.05, *df*= 11, RMSEA= .050, GFI= .98, CFI= .99, AGFI= .95, IFI= .99, and SRMR= .025). Factor loads of items belonging Turkish version of Theistic Faith Scale are presented in Figure 1.

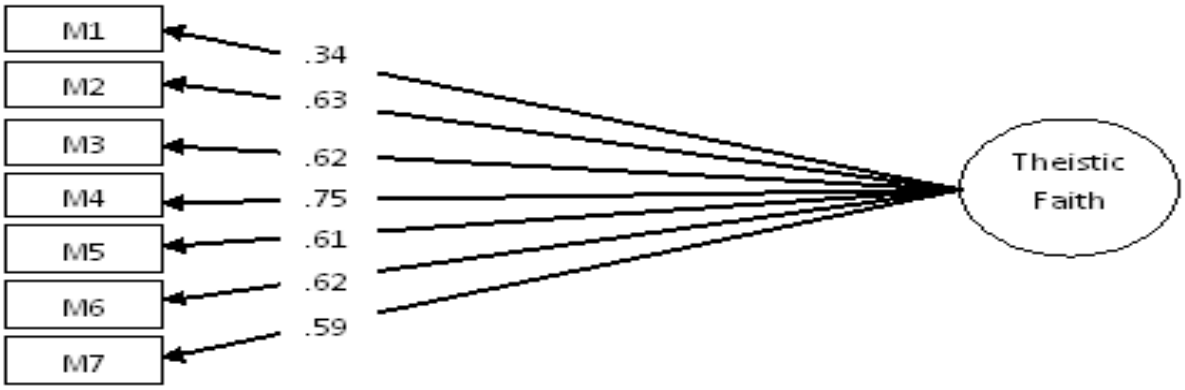

Figure 1: Factor Loadings for the Turkish version of the Theistic Faith Scale

Item Analysis and Reliability

The Cronbach alpha internal consistency reliability coefficients of the Turkish form were .83 for overall scale. The corrected item-total correlations ranged from .33 to .67.

DISCUSSION

The purpose of this study was to translate Theistic Faith Scale into Turkish and to examine its psychometric properties. Overall findings demonstrated that this scale had acceptable validity and reliability scores. Further studies that will examine the convergent validity of the Theistic Faith Scale are important for its measurement force. Also the temporal stability of the Theistic Faith Scale may be calculated using test re-test method.

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IMPLEMENTATION OF CREATIVITY IN SCIENCE TEACHER TRAINING

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ABSTRACT

Creativity of students and teachers plays a very important role in education. The importance of creativity for education is evident from the interest of the OECD. According to experts a creative teacher is necessary to develop students' creativity. Students must feel that they are expected to be creative. Based on our design-based research, inquiry-based science education seems to be the appropriate approach for the development of creativity amongst students and teachers. The core principles of inquiry-based science education such as student activities, meaningful contents, developing critical thinking and motivating towards science correspond to the basic components of creativity. Inquiry-based science education involves basic processes that give rise to creativity. We present the research outcomes of the implementation of creativity development methods in science education and especially in science teacher training. Our research is carried out within the European project "Professional Reflection-Oriented Focus on Inquiry-based Learning and Education through Science" (7FP).

Key Words: Creativity, science education, science teacher training.

INTRODUCTION

Since the end of the 20th century creativity has come to the fore of interest, not only for educational experts, but also for the wider society (Craft, 1999). Creativity, together with human skill, is a critical component for scientific and technological development and is one of the key sources of the development of society (Robinson, 2001). The importance of creativity is confirmed by the opinions of Florida (2006). He holds the view that the USA is currently undergoing an economic transformation, which has been variously described as a transformation to an "information economy," an "internet economy," a "technology economy," a "high-tech economy," a "knowledge economy," or even a "post-industrial society", but he prefers the term "creative economy". He finds it more inclusive, expressing the importance of creativity for economic development. According to his opinion the great challenge of our age is to tap and harness all human creativity because every single human being is creative. This means shifting from an economy based on physical inputs - land, capital, and labour - to an economy based on intellectual inputs, or human creativity. From this perspective, creativity is as important in education as literacy (Robinson, 2006) and therefore it should be included in education as a fundamental life skill (Craft, 1999) that will enable future generations to survive and thrive in the 21st century (Parkhurst, 1999).

Given the importance of creativity our society legitimately expects graduates to be not only educated, but also creative. Based on experts we can state that only creative teachers can develop student creativity (Robinson, 2006). The teacher's attitude greatly influences the development of creativity. But the findings from Czech schools (Laznibatova, 2012) suggest that teachers prefer intelligent students, who are not able to think creatively, to creative ones. Research confirms that good school assessment of students relates more to

intelligence than to creative thinking; it was proven that creativity does not affect school performance positively; it seems more likely that it reduces it (Carrol & Howienson, 1991). According to Sternberg and Williams (1996), it is possible to observe creativity in young children, but it is harder in older children and adults because their creativity potential has been suppressed by a society which supports intellectual conformity. Children's natural creativity is stifled when children start to differ from standard procedures in their activities. It begins in kindergarten when teachers correct children who draw things unusual colours or fancy shapes. This means that creativity is expected primarily from teachers. One possibility in which teacher creativity can be manifested is in their creative work with the educational content of science subjects; this is based on the creative application of subject knowledge in teaching/learning and creative educational practices (Trna, 2012, and 2013). Through their own creativity, teachers naturally affect the creativity development of their students (Al-Suleiman, 2009). Sternberg (2006) says that the creative teacher can be a model for his/her students and develop in them creativity by imitation. First of all the teacher should create a suitable climate. Students have to feel that it is desirable to think and act creatively. Creative education must be understood as an intentional activity, carried out using certain methods, including setting conditions to make these methods effective. Recently researchers have examined the relationship between creativity and cognitive styles.

Many researchers (Guilford, 1980; Kirton, 1976 etc.) think that cognitive styles have an influence on thinking, problem solving, decision making and creating. Current school practice requires a multidimensional development of a teacher's professional competences including creativity. The teacher does not solve a single problem, but a series of tasks. Teachers are now seen as "managers of learning" involved in a range of activities which "stretch beyond the day-to-day business of teaching in a classroom or workshop" (Huddleston & Unwin, 1996, p. 88). The findings of our research suggest that inquiry-based science education (hereinafter IBSE) seems to be the appropriate way for the development of creativity of teachers as well as students. Every teacher and student is creative to a greater or lesser degree (Amabile, 1998) and IBSE enables individual attitudes in the development of creativity as well as creating and supporting a creative classroom environment. IBSE is based on the fact that science learning is more than the memorisation of facts and information, but it is rather about understanding and applying concepts and methods. It provides a forum for asking questions and seeking answers through students' own way of inquiry. The core principles of IBSE such as student activities, linking information into a meaningful context, developing critical thinking, promoting positive attitudes towards science and motivation correspond to the basic components of creativity defined by Amabile (1998). Also, the procedures proposed by Sternberg (2006) for the development of creativity are fully in accordance with ideas of IBSE.

CREATIVITY IN SCIENCE EDUCATION

For the above mentioned reasons, it is clear that the creativity of students and teachers is an important factor influencing science education. It is necessary that teachers have enough knowledge about creativity in order to be able to develop creativity in a suitable way.

Definition of creativity

There is not only one definition of creativity because it is difficult to define creativity. The creation of theoretical foundations of creativity is connected with the pioneering efforts of Guilford (1980) and Torrance (1974). Unfortunately, most researchers dealing with creativity developed their own definitions of this concept. According to an analysis of published materials about creativity carried out by Rhodes (1961), there were more than 40 different definitions of creativity in the second half of the 20th century.

Considering that our study relates to Czech teachers, we quote definitions of Czech experts, reflecting how creativity is perceived in the Czech Republic. In the pedagogical dictionary by Czech authors (Prucha, Walterova, & Mares, 1998, p. 264), creativity is defined as "mental ability based on cognitive and motivational processes where, however, an important role is played by inspiration, imagination, and intuition. Creative solutions are not only correct, but also new, unusual and unexpected."

Other renowned Czech experts on creativity (Skalkova, 1999; Smekal, 2004) say that it prevails when troubleshooting in situations where a solution is not clear or routine solutions are not applicable. The solver has to be able identify the problem, systematically search for possible solutions, test them systematically and choose the solution procedure which was analyzed as the most appropriate for the given problem and conditions. Concerning the multidimensional development of teacher professional competences we find the definition of creativity by Zak (2004) the most comprehensive. He defines creativity as:

a) *Ability:* to imagine or invent something new, which does not mean creating something out of nothing; to generate ideas, solutions, pieces of work, using combinations, changes, replications of existing ideas.
b) *Individual approach characterized by:* agreement, acceptance of changes and news, willingness to play with ideas and thoughts, flexibility in perspective.
c) *Process characterized as:* hard work, continuous mental activity to generate solutions, space for improvisation, order.

We have proceeded from this definition of creativity because it seems to be appropriate for the monitoring and determining of the development of teacher creativity within IBSE.

Development of creativity

Most of the creativity authors concentrate on defining and assessing the level (capacity) of problem solving and creativity. Every teacher and student is creative to a greater or lesser extent. According to experts, personal creativity could be measured in different ways. Very often Torrance tests or different variants are used to measure the level of creativity (Torrance, 1974). Given the focus of continuous professional development (hereinafter CPD) of teachers, the exact level of creativity possessed by individual teachers involved in CPD was not important. Because the purpose of CPD was to increase creativity we aimed to determine whether the creativity of teachers-participants in CPD was developed during the PROFILES CPD programme.

Styles of creativity

Researchers have uncovered that individuals not only differ in the level (capacity) of creativity, but they also differ in their style of creativity. It is obvious that how well one can solve a problem (level) is not the same as in what way it is done (style). Therefore, individuals who possess an equal level of creativity can demonstrate their creativity in different ways (Puccio, 1999). The style of creativity of team members influences the results of the whole team's work. The style of creativity of individual team members has an impact on the work of the team as a whole. Considering that teachers usually work in a team, we tried to identify the style of teacher creativity which can influence teacher cooperation at school.

Style of creativity is connected with cognitive style theories. One of the most important is Kirton's adaptation-innovation distinction (Kirton, 1976). M. J. Kirton developed the theory of cognitive styles called Kirton's Adaptation-Innovation theory (hereinafter KAI). The KAI theory is concerned with differences in creative processes, problem solving and decision-making (Kubes, 1998). Cognitive styles are relatively stable over time in contrast to the level (capacity) of creativity (Kirton, 1994).

Kirton's Adaptation-Innovation Inventory

Kirton's Adaptation-Innovation Inventory is a measurement tool of KAI theory (Kirton, 1987, and 1994; Kubes, 1998) that was developed to measure differences in cognitive styles. On the grounds of the number of points which individuals get in KAI it is possible to classify each of them into two groups, adaptors and innovators (Kirton, 1994). Everyone can be located on a continuum ranging from highly adaptive to highly innovative. Highly innovative individuals prefer to do things differently, to challenge the paradigm or structure. They are sometimes seen as undisciplined, thinking tangentially, and as approaching tasks from unexpected angles. They like radical solutions to problems. Highly adaptive individuals prefer to do things within the given paradigm or structure. They are characterized by precision, reliability, efficiency, discipline and conformity. They are sometimes seen as both responsible and dependable in their work. Adaptors reduce problems by improvement and greater efficiency (Kubes, 1998; Puccio, 1999). To put it briefly, innovators "do things differently" and adaptors "do things better" (Kirton, 1987; Puccio, 1999). Individuals possess a share of each style; however,

each of us prefers one style to the other (Gregorc, 1979). Each style possesses its own strengths and weaknesses. One style is not better than the other; both styles are useful.

Creative classroom environment

The influence of classroom environment on outcomes of education is confirmed by research. Analogous research (de Souza Fleith, 2000) confirms the influence of classroom environment on the development of creativity. The purpose of this research was to investigate teachers' and students perceptions about characteristics which either encourage or inhibit the development of creativity in the classroom environment. The findings suggest that both teachers and students believe that a classroom environment, which enhances creativity, provides students with the possibility of choices, accepts different ideas, boosts self-confidence, and focuses on students' strengths and interests. On the other hand, in an environment which inhibits creativity, ideas are ignored, teachers are controlling, and excessive structure exists.

CREATIVITY INFLUENCES IN SCIENCE EDUCATION

Teachers should be creative people themselves in order to be able to implement creative science education in the classroom, not only using appropriate science content. They should know how to improve creativity in science education, support divergent thinking in students; they should pay attention to students' original, innovative and unusual ideas and encourage them to become creative individuals (Robinson, 2006). According to Sternberg (2006) our creativity is largely determined by our will. He defined 12 basic processes that give rise to creativity:

1. The ability to define a problem differently
2. Analysis of our own ideas
3. Presentation of ideas
4. Understanding of knowledge in context
5. Overcoming barriers
6. Acceptance of acceptable risks
7. Desire to improve ourselves
8. Belief in ourselves
9. Tolerance of ambiguity
10. Search for our own interests
11. Finding time to work
12. Error tolerance

Experts interested in creativity development explore the factors that influence creative teaching and try to find out effective strategies for this kind of school instruction (Jeffrey & Craft, 2004; Starko, 2010; de Souza Fleith, 2000; Esquivel, 1995; Nickerson, 1999; Horng, Hong, ChanLin, Chang, & Chu, 2005; Neber & Neuhaus, 2013). Based on the research findings and the analysis of the available literature, we have defined several factors that are common for creativity development:

- *Suitable environment:* students feel safe, not afraid to ask questions and make mistakes; cultivating, supporting and rewarding environment for creativity, humour, etc.
- *Personality traits of the teacher:* persistence, willingness to develop, acceptance of new experiences, self-confidence, sense of humour, curiosity, depth of ideas, imagination, etc.
- *Family factors:* open and tolerant ways of teaching students, creative performance of parents, encouraging confidence and willingness to take risks, etc.
- *Work groups:* diverse (supportive) teams, where members share enthusiasm, willingness to help and recognize each other's talents, brainstorming among classmates, information sharing, collaboration, etc.
- *School administration:* curriculum supporting creativity; resources – such as time, money, space for teacher creativity; attitudes of school management to creativity of students and teachers, freedom to choose means of achieving goals, etc.
- *Experience of life and education:* inquiry, creativity-solving problems, exploring multiple options, self-created games and stories; creating things, etc.
- *Motivation:* especially intrinsic motivation of teachers, students and parents, etc.

- *Hard work:* intensity and enthusiasm, finding time to work, etc.

The effective teaching strategies influencing creativity are: student-centred activities, link between teaching contents and real life, management of skills in class, open-ended questions, encouragement of creative thinking and use of technology and multimedia.

If we compare effective teaching strategies influencing creativity and the above mentioned factors with the basic principles of IBSE (especially stimulating environment, connection with problems of everyday life, instruction based on inquiry, team work, strong motivation, etc.) we come to the conclusion that IBSE can be considered a suitable method for the support and development of creativity. Based on the above-mentioned ideas in our continuous professional development (hereafter CPD) programme within the PROFILES project, we have developed teacher creativity using IBSE (Bolte, Holbrook, & Rauch, 2012).

IMPLEMENTATION OF CREATIVITY IN TEACHER TRAINING

It is clear that the implementation of creativity in teacher training is a very important part of CPD, especially in science education.

Research questions and methods

The research questions were phrased as follows:

1. *Has there been a development in science teacher creativity after participation in the PROFILES project CPD programme founded on IBSE?*
2. *Which styles of creativity do science teachers involved in the PROFILES project CPD programme founded on IBSE possess?*

The research was carried out from October 2011 to June 2012. The research sample consisted of 25 science teachers from lower secondary schools in the Czech Republic - participants in the PROFILES project CPD programme aged from 29 to 59 years (mean age 42).

When searching for answers to the first research questions, during CPD we applied the above mentioned factors for creativity development and we created appropriate creative materials for the education of teachers – participants in the PROFILES project CPD programme. Based on intensive work with these teachers, observation of their outcomes and inspection of their portfolio, we decided to determine the development of their creativity by using pedagogical qualitative research methods such as observation, content analysis of data, structured interviews with teachers etc. We used the definition of creativity as the basis for determining whether there was any development of creativity at all. In accordance with the definition we compared their ability, individual approach and process. To determine their style of creativity, we used a standardized method, Kirton's Adaptation-Innovation Inventory (KAI) (Kirton, 1987, and 1994).

RESULTS AND DISCUSSION

The findings of our research suggest that the creativity of science teachers involved in the PROFILES project CPD programme founded on IBSE has developed. This statement is supported by the following facts:

- teachers created new original IBSE modules, which is a comprehensive expression of teacher creativity. Innovative components of the PROFILES CPD Programme are integrated here
- teachers changed their style of teaching - they assert more student-centred activities, links between teaching contents and real life, open-ended questions, encouragement of creative thinking
- teachers created a suitable classroom environment increasing creativity; they provide students with the possibility of choices, accept different ideas, boost self-confidence, and focus on students' strengths and interests.

According to our observation, content analysis of data and structured interviews, each participant improved in accordance with the definition of creativity (Zak, 2004) his/her abilities (all participants created new materials),

individual approach (teachers changed worksheets etc.) and process (teachers worked very hard, improvised, etc).

Styles of science teacher creativity were established by using the KAI inventory. We used Kirton's standardized questionnaire validated in research (Kubes, 1992) in the Slovak Republic and we used it exactly according to the instructions described in Kubes (1992). There are 32 items in the KAI measurement. Each item is scored from one to five points. The theoretical measurement interval is between 32 and 160. As a result of the administrations by the researchers, the scores were generally found to vary between 46 and 145. The average score is 96 (Kirton, 1987, 1994, 1999). A person with an adaptive cognitive style will score in the 60-90 range. Someone with an innovative style will score between 110 and 140 (Mudd, 1996). The points for the participants of the study were between 102 and 132. Their scores were presented in Tab. 1. All the scores of the Czech teachers were higher than the average score (96) presented in literature. Their average score was 113.8. According to Mudd, (1996) only five persons were not in the interval (110 – 140) for the innovative style, but their scores were above the interval (60-90) for the adaptive style. We can conclude that the Czech science teachers in our CPD Programme exhibit the innovative style. In our opinion the reason for this result is that participants of the PROFILES project CPD programme were excellent science teachers. Our research was conceived as pilot and currently we are conducting research with a representative sample of Czech science teachers (see Tab. 1) who are going to be evaluated using statistical methods and we are going to compare our results with the available ones presented in literature.

Table 1: Scores of the KAI (SKAI) inventory of Czech teachers (n = 25)

SKAI	102	106	110	111	113	115	117	120	104
SKAI	108	110	112	113	116	118	124	105	110
SKAI	111	112	115	116	120	124	132		
Average score					**113.8**				

To illustrate we are presenting the results of KAI Slovak university students and Czech teachers together (see Tab. 2.). Because of the differences between research groups (low number of Czech teachers and differences in the mean age, point of view, gender) we did not carry out statistical comparisons.

Table 2: Scores of the KAI inventory of Czech teachers and Slovak university students

Population	**Country**	**N**	**Mean**	**Standard deviation**	**Author (year)**
University students - men	Slovak Republic	124	98.7	16.4	Kubes (1992)
University students - women	Slovak Republic	95	91.7	16.6	Kubes (1992)
Teachers (men + women)	Czech Republic	25	113.8	6.7	Trnova (2013)

According to experts, individual persons possess varying degrees of both styles. In accordance with this statement only one teacher has shown a strong preference for innovativeness (score of KAI 132), while the others possess only a slight preference for either style and exhibit characteristics of both adaptive and innovative styles. This finding was confirmed by the results of our pedagogical qualitative research methods. Findings about creativity styles are important for team work (Kirton, 1994). KAI is beneficial to cooperation with others in the task of problem solving. In order to communicate effectively, individuals must understand the tendencies and potential of other team members. This knowledge helped participants in the PROFILES project CPD programme to collaborate more effectively and manage in a better way.

CONCLUSION AND IMPLICATIONS

We have discovered great development of creativity of teachers-participants in the PROFILES project CPD, which is very important for students, because creativity is one of the most important factors for their lifelong learning and future success. According to experts, however, only a creative teacher can bring up a creative student. According to our findings, IBSE is a suitable method for the development of creativity. We found out that IBSE is a suitable method for the development of creativity because it is mainly based on student-centred activities, connection between teaching contents and real life, open-ended questions and encouragement of creative thinking. There is an overlap between factors supporting creativity and core principles of IBSE. Because teamwork currently plays a significant role in creativity, it is important to involve knowledge about the KAI theory and information on how to determine creativity styles of team members in teacher training.

We identified overlap between creativity factors and IBSE characteristics. Our research results verify that implementation of creativity factors in the framework of IBSE into science education is beneficial for science education. The international dimension of the PROFILES project CPD programme provides an opportunity for the development and dissemination of ideas and curricular materials among science teachers. The teachers involved in this CPD express their opinion that IBSE is effective educational technology leading to the upgrading of science education and creativity development. Creative teaching/learning methods have a positive influence on students and science teachers. We have implemented our research results into pre-service and in-service science teacher training.

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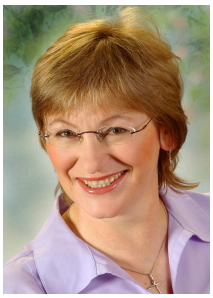

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FUSION CUISINE EDUCATION AND ITS RELATION WITH MOLECULAR GASTRONOMY EDUCATION (COMPARATIVE COURSE CONTENT ANALYSIS)

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ABSTRACT

The development of gastronomy science caused an increase in the diversification and amount of food-beverage production. Increased and diversified food-beverage production provided commercial value to gastronomy. The greatest factor that provided this commercial value is the spendable income of individuals which increased with the industrial revolution and being able to eat outside their homes, due to their free time. The occurrence of this fact triggered food-beverage businesses to operate as commercial enterprises and made the element of gastronomy an important industry. The development of the industry caused new tendencies to occur with the aim of product diversification. Today, the most important movement developed by businesses is described as molecular gastronomy and fusion cuisine practices.

The conceptual relation between fusion cuisine education and molecular gastronomy course contents, the interaction between course contents and course philosophy and course contents in three different programmes of gastronomy education are examined in this study. Within this scope, it is determined that there is a conceptual confusion in defining the courses, and thus there are differences between course content and the basic philosophy of the course. This result revealed the problem of efficiently performing fusion cuisine practices and molecular gastronomy courses. Following the study, recommendations are developed in order to resolve this problem.

Key Words: Gastronomy Education, Fusion Cuisine, Molecular Gastronomy.

FUSION CUISINE AND MOLECULAR GASTRONOMY CONCEPTS

Various social changes caused by technological developments, industrialization and urbanisation are observed in our era. Parallel to these changes, there are changes in our traditional cuisine culture and feeding habits. These changes are also reflected on taste and presentation techniques and caused new cuisine practices in gastronomy to rise (Sarıoğlan, 2013; Kivela and Crotts, 2008).

In addition to the definition of gastronomy, the movement of molecular gastronomy which have risen upon collaborative studies of physics and chemistry, is spreading rapidly throughout the world. The most important feature of this new cuisine is to play with molecular structures of materials by using technology and also to gather the materials which can not be imagined to come together (Sarıoğlan, 2012; Smith and Xiao, 2011).

Fusion cuisine carries the meaning of the mix and combination of various countries' cooking techniques and ingredients to mix and combine on the same plate deliberately. Fusion means "union" (Newman, 2014). Leaving its mark on food culture in recent years, fusion cuisine can be defined as "synthesizing different food understandings of world cuisine and creating new cuisines, new foods and new tastes" (Zairi, 2011; Tomita and Secter, 2002). Fusion cuisine can be classified with three different methods. The first is the combination of the foods of close regions from different cultures. The second method, which is also called eclectic, is being a food culture determiner, yet other cuisine's techniques and materials are also used (Adlam, 2012; İsmail, 2005). The last method is to unite all world cuisines without any cuisine determiner. One of the most important features of Turkish cuisine is that all three methods can be easily used, thanks to its rich diversity of food-beverage and

culture. Based upon all these explanations, it is possible to define fusion cuisine as combining at least two different national cuisine cultures on the same plate, as a result of a deliberate effort, in order to create new, different and authentic tastes, without allowing one cuisine culture to dominate another (Can et all., 2012). Fusion cuisine practices are based upon the principle of combining two national cuisines deliberately in line with delivering new, different and authentic results. Synthesizing the processes such as cuisine material, processing and cooking techniques of different nations, combining them and delivering a food which is completely different from the foods in each cuisine, are the basis in fusion cuisine (Gioffre, et all, 2010).

Molecular Gastronomy is the science that examines and explains the physical and chemical changes of the food or nutrient that occur during cooking (This, 2013; Vega and Ubbink, 2008). Bringing science, art and creativity together, molecular gastronomy deals with the chemical and physical change the food goes through from rawness to being served (Cazor and Lienard, 2011). Molecular gastronomy is a scientific discipline that analyses the physical and chemical processes that occur during cooking (Youssef, 2013; Barham et all. 2010). In the shortest definition, molecular gastronomy can be explained as benefiting from chemistry and physics in preparing any food. Molecular gastronomy means understanding the scientific facts behind the physical and chemical changes that occur in cooking at every stage (Sanchez, 2014; Snitkjer, 2010). It analyses the mechanisms behind the transformation of the materials used in cooking, tries to explain them and studies the social, artistic and technical contents of cuisine and gastronomy phenomenons in general. It can be stated as presenting the food by catching different things in taste and texture, without changing the main structure of the food to much (Miller et all, 2010).

THE INTERACTION BETWEEN FUSION CUISINE AND MOLECULAR GASTRONOMY

The terms of fusion cuisine and molecular gastronomy are generally used instead of each other nowadays. Altough fusion cuisine means the deliberate mixing and combination of cooking techniques and contents of various countries throughout the world on the same plate, molecular gastronomy is the science that analyses and explains the physical and chemical changes of the food or nutrient that occur during cooking (Brown, 2010; Linden et all., 2008).

In consequence of these definitions, differences may rise between fusion cuisine and molecular gastronomy. Though there are differences between two disciplines, the philosophies of their emergence are similar. It can be said that developing the science of gastronomy within the framework of innovativeness approach is the basis of this philosophy (Blank, 2007; Lyer, 2006).

METHOD

Gastronomy education in Turkey is given at two basic educational levels, which are secondary education and higher education. As the accessibility of the sample is effectively realized and because of the lack of scientific studies on gastronomy education at higher education level, this study's area of application focuses on the departments that give gastronomy and food-beverage education at higher education level.

Among 28 programmes that provide gastronomy and food-beverage education at higher education level in Turkey, only 3 of them have molecular gastronomy courses and 7 of them have fusion cuisine courses. This study provides a comparative analysis of the course contents of molecular gastronomy and fusion cuisine in gastronomy and food-beverage departments (Osym Lys-2013 Guide). The content analysis is a scientific approach that provides an objective and systematic examination of verbal, written and other materials. Frequently used in social sciences, content analysis can be defined as a systematic, replicable technique where certain words of a text such as books, book sections, letters, historical documents, newspaper headlines and articles, with smaller content categories via a coding that depends upon certain rules. It is aimed to identify data and reveal facts hidden in data via content analysis. This study tries to measure the relation between fusion cuisine education and molecular gastronomy education and its level of efficiency in consequence of course content analysis (Özdaşlı and Çelikkol, 2012; Sert et all., 2012).

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FINDINGS AND DISCUSSION

This study provides a comparative analysis of the course contents of molecular gastronomy and fusion cuisine, which are taught in gastronomy and food-beverage departments at undergraduate level that show activity in different regions of Turkey.

In consequence of the descriptive analysis, course contents are analysed at three different stages, whcih are practice-theoretical rates, positioning level of courses, and the level of correspondence between the course content and the basic philosophy of the course.

Practical-Theoretical Levels of Fusion Cuisine and Molecular Gastronomy Courses

Among 28 programmes that provide gastronomy and food-beverage education at higher education level in Turkey, only 3 of them have molecular gastronomy courses and 7 of them have fusion cuisine courses. In this section, the current state of these courses' styles of education is revealed as theoretical and practical.

Table 1: Practical-Theoretical Levels of Fusion Cuisine and Molecular Gastronomy Courses

Courses in Departments	T+P	Total	Courses in Departments	T+P	Total
A University	2+1	3	X University	2+1	3
B University	1+1	2	Y University	2+0	2
C University	2+0	2	Z University	2+0	2
D University	3+0	3	General Average	2+,16	2,16
E University	3+1	4	Note: Fusion cuisine course is given in universities indicated as A,B,C,D,E,F,G; molecular gastronomy course is given in departments indicated as X,Y,Z.		
F University	1+2	3			
G University	2+0	2			
General Average	2+,71	2,71	T=Theoretical P=Practice		

In consequence of the revealed data, fusion cuisine course is given for 2,71 hours weekly on average, molecular gastronomy course is given for 2,16 hours weekly on average. It is determined that the course hours of these courses are at desired level and comply with global standards. It is equivalent with the averages in the most important schools of Gasronomy at undergraduate level, such as Le Cordon Blue, The French School of Culinary Arts, International School of Culinary Arts and The Culinary Institıte of America. However, there is a negative correlation observed between the pracice and theory levels of Turkish university programmes and the theoretical and practical rates of fusion cuisine and molecular gastronomy courses given in these schools. In the light of these data, there is a need to decrease the theoretical part of fusion cuisine and molecular gastronomy courses given in Turkey at undergraduate level, and increase the part for practice.

Positioning Levels of Fusion Cuisine and Molecular Gastronomy Courses

This section of study determines in which academic term the fusion cuisine and molecular gastronomy educations in gastronomy and food-beverage departments in Turkish universities are positioned.

Table 2: Positioning Levels of Fusion Cuisine and Molecular Gastronomy Courses

Courses in Departments	Term of Course	Courses in Departments	Term of Course
A University	VIII	X University	V
B University	V	Y University	V
C University	V	Z University	VIII
D University	II		
E University	III		
F University	IV		
G University	V		

Note: Fusion cuisine course is given in universities indicated as A,B,C,D,E,F,G;
molecular gastronomy course is given in departments indicated as X,Y,Z.

When the positioning levels of fusion cuisine and molecular gastronomy courses in world's most important schools on Gastronomy at undergraduate level, such as Le Cordon Blue, The French School of Culinary Arts, International School of Culinary Arts, The Culinary Institıte of America, are examined; it is determined that the positioning is at the last two academic terms. In order to provide fusion cuisine and molecular gastronomy courses efficiently, the basic philosophy of culinary arts and practice skills should have been gained until then, which is the reason behind this positioning. However, it is concluded that in Turkish universities gastronomy and food-beverage departments focus on the fifth term and the fifth term includes efforts to redound the students with culinary arts basic philosophy and practice skills.

The Level of Correspondence Between the Course Contents of Fusion Cuisine and Moleculary Gastronomy Courses and The Basic Philosophy of the Course

This section of study tries to determine which basic points are focused in course contents of fusion cuisine and molecular gastronomy educations in gastronomy and food-beverage departments of Turkish universities. By this means, it aims to measure the level of correspondence between the course contents of fusion cuisine and moleculary gastronomy departments of Turkish universities and the basic philosophy of the course

Table 3: The Level of Correspondence between the Course Contents of Fusion Cuisine and Moleculary Gastronomy Courses and the Basic Philosophy of the Course

Courses in Departments	Focused Course Content	Courses in Departments	Focused Course Content
A University	Decoration	X University	Biochemistry
B University	Cuisine Combination	Y University	Nutritional Principles
C University	Core Competence	Z University	Biochemistry
D University	Spices		
E University	Cuisine Combination		
F University	Creativity		
G University	Terminology		

Note: Fusion cuisine course is given in universities indicated as A,B,C,D,E,F,G;
molecular gastronomy course is given in departments indicated as X,Y,Z.

When the course contents of fusion cuisine and molecular gastronomy courses in world's most important schools on Gastronomy at undergraduate level, such as Le Cordon Blue, The French School of Culinary Arts, International School of Culinary Arts, The Culinary Institıte of America, are examined; it is determined that fusion cuisine course contents are more focused on creativity and cuisine combination, whereas molecular gastronomy course contents are focused on developing the skill of creativity upon physical and chemical changes in cuisines. However, fusion cuisine course contents of gastronomy and food-beverage departments in Turkish universities also focus on skills such as decoration, core competency, spices and terminology as well as developing the necessary skills of cuisine combination and creativity. Molecular gastronomy course contents

focus on biochemistry and nutrition principles instead of developing the skill of creativity upon physical and chemical changes.

CONCLUSION AND RECOMMENDATIONS

The study analyses course contents of undergraduate departments in different regions of Turkey, which give fusion cuisine and molecular gastronomy education, at three different stages, whcih are practice-theoretical rates, positioning level of courses, and the level of correspondence between the course content and the basic philosophy of the course. It is determined that courses in fusion cuisine and molecular gastronomy should be more focused on practice, whereas it is more focused on the theoretical part in Turkey.

When the positioning levels of the courses in fusion cuisine and molecular gastronomy departments at undergraduate level in Turkey are examined, it is determined that they focus on the fifth academic term. However, it is assumed that students can gain the basic philosophy and core competencies in the fifth term in aforementioned departments. Thus, the need rises for giving the aforementioned courses in seventh and eigth terms in order to increase the efficiency.

Fusion cuisine course contents of gastronomy and food-beverage departments in Turkish universities also focus on skills such as decoration, core competency, spices and terminology as well as developing the necessary skills of cuisine combination and creativity. It is determined that molecular gastronomy course contents focus on biochemistry and nutrition principles instead of developing the skill of creativity upon physical and chemical changes.

In consideration of these data, fusion cuisine and molecular gastronomy courses should shift from theoretical to practical implementation and be positioned in the last two academic terms in order to increase the efficiency of fusion cuisine and molecular gastronomy courses in gastronomy and food-beverage departments of Turkish universities. In addition, the course contents of fusion cuisine education should focus on developing skills of cuisine combination and creativity, and the course contents of molecular gastronomy education should focus on developing the skill of creativity upon physical and chemical changes.

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CAREER MANAGEMENT DETERMINED BY FLEXIBLE MODEL OF EMPLOYMENT: EDUCATIONAL AND PROFESSIONAL IMPLICATIONS

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ABSTRACT

Flexibility of employment promotes maintaining motivation to continuous learning, especially when it comes to increasing interdisciplinary knowledge and, the so called, key abilities. However, employees often bear high costs of extra training, performance improvement and retraining. It is so, because employers are rather unlikely to invest in people who have less chance of being employed, part-time employed or employed temporarily. Paradoxically, the flexible model of employment favours people with better qualifications and professional competencies, innovative and knowledgeable people, who provide economy with *know-how*. It is them, who receive support in the process of career planning and professional development.

The conclusions of theoretical analysis, supported by own experience and the ongoing research demonstrate that the approach of Polish people towards the problem of flexible employment is evolving. It is resulting from many changes occurring in the labour market, technology, organization of work and increased awareness, mobility and resourcefulness among workers.

Key Words: Flexibility of employment, professional career, continuing education.

INTRODUCTION

The variety of modern forms of employment and the multitude of their categories arise mostly from a complex developmental source of their origin, determined by economical, social, cultural and demographic phenomena. Among many different factors, accounting for current changes in the field of employment, there are some that should be highlighted: popularization of technologies (especially information and telecommunication technologies); expansion of the service sector, increasing value of knowledge and professional skills, being the most important company assets; new solutions in the organization of work, types of management, types of assigning and handling different tasks (Kryńska, 2003) and changes associated with the potential of employees and people looking for job which are triggered by extending life expectancy, higher level of education, different family model and increasing ratio of employment among women (Orczyk, 2004).

In consequence of fragile stability of businesses and constant pressure of competition, employers are unwilling to invest in the expensive model of permanent employment (characterised by complex standardisation concerning labour law and place and time of work) and choose the alternative model, being cheaper and more flexible. According to U. Beck, pluralist forms of underemployment and forms allowing greater flexibility in handling space and time are becoming more and more popular. Although this process does not eliminate the traditional model (permanent full-time employment in one workplace and working for one employer) – but

only disturbs its framework – it is nonetheless accompanied by a new apportionment of the salary, social benefits, professional position and career perspectives (Beck, 2004; Bąk 2006).

For the purpose of the discussed subject, most attention has been put on the broad concept of career, perceived as „individual property of people who use their activeness, needs and expectations in order to project a sequence of such professional roles and positions which would stimulate their development and expand their scope of professional experience." (Arnold, 1997, p. 16) This definition of career is of subjective character – an individual takes responsibility for their life decisions and their career, in this sense, is unique. According to the proposed approach, career applies also to people who spend their time searching for employment or educate themselves in order to get ready for new challenges. Moreover, career building (defined as career capital) shapes other life areas which consequently influence the career progress (Bańka, 2006). In the constantly changing world of labour, educational and professional decisions are most often determined by market conditions. Therefore, people must be ready to perform more than one type of job, they should be prepared to go along various career paths and should understand that a professional role is now an integral part of a constellation of other roles in life (Paszkowska-Rogacz, 2009).

Commitment to work does not always guarantee career continuity in one place, nor does it guarantee one's professional success. The best job candidate (ready to perform certain amount of work in a specified time) is a person who is, at a given moment, the most effective from a company's point of view (i.e. a person who will generate profit). When planning one's professional, social and institutional development, an employee should diversify the risk and engage different career-developing strategies, depending on his/her social potential and personal qualities (Bańka, 2007). Supporters of the "new", flexible model of employment – who are open for changes and ready to take responsibility for their actions – tend to choose a strategy focusing on future profits in career understood as "harmonious set of various life domains: life, entertainment, family, and social activities." (Bańka, 2007, p. 82).

METHOD

This paper attempts to confront the opinion set by the subject literature and the Polish media on flexible forms of employment, work organization and career management in non-classical employment environment. Its further intention is to present selected results of individual research, conducted as part of a lecture titled: "*Changes in the model of employment and their importance for the quality of human life*." The starting point for discussing the selected problems is a thesis saying that flexible forms of organizing time, place and work – if they have fulfilled certain conditions – can be beneficial to employees and can favour combining professional life with education, family life and social activities. They can also contribute to enhancing activeness, mobility and entrepreneurship among working people.

The reflections following the contents of this paper constitute the continuation of some of the areas discussed in article: "*Organizational innovations in company practice and their influence on adult vocational education. Selected problems*" (Kulpa-Puczyńska, 2011). In order to obtain broader outline of the discussed phenomenon, focus has been put on the opinions of employees – people who have taken advantage of flexible form of employment and organization and who are on different stages of their professional and personal life. In the pilot study a qualitative method (case study) has been used. Data that served for the analysis includes, among other things, transcripts of 45 interviews. Taking into account the volume limit, only selected replies have been quoted in the paper. Nonetheless, they allow to present and understand the discussed problem.

FINDINGS

1. Flexıble Model Of Employment – Possıbılıtıes And Lımıtatıons From Employees' Perspectıve

Due to the variety of forms of flexible employment, it is not easy to give an explicit answer, whether their positive aspects (in employees' perspective) outweigh negative ones. It is necessary to point out that both advantages and costs, associated with a given form of employment or work organization, depend most of all on legislation determining the shape of employment and its security – and also on the nature of work and a

personal situation of an employee (Kulpa-Puczyńska, 2011). What is equally important – despite a common opinion, flexible forms of employment and work organization can be beneficial not only for employers, but also employees. The system of working, adjusted to employees' needs, makes their work more efficient, because less energy is consumed for organizing their own lives (Giddens, 2004). So what do we call a modern model of employment? What is it characterised by? The attempt to answer these questions has been widely presented in this chapter and in charts no 1 and 2.

Chart I: Selected qualities of a flexible model of employment

Analysed quality	**Model of employment flexible, changeable**
Form of employment	Type of contract often depends on employee's position in the company's structure: basic employees (management contracts); non-basic employees (temporary and seasonal contracts);
Place of employment	Working tasks performed at home or other non-office places (e-centres), mobile work (nomadic) – contact with the employer maintained via the Internet or a mobile phone.
Working time	Possibility of part-time employment and working irregular hours; possibility to adjust working time and work schedule with regard to days, weeks and months – according to labour supply.
Duration of employment	Lack of stability and continuity in case of part-time employment or working on a single project; increased risk of being bound to work in conditions other than initial conditions.
Employment costs	Maximum benefits and minimum employment costs (quick and easy contracting, cheap and easy contract termination); lower level of social security.
Payment for work	Based on profits and efficiency; various forms of remuneration, depending on the company and type of work done, for example, work focused on results, basic remuneration plus bonuses for results, participation in company's profits.

(Source: own elaboration on the basis of the literature by: Sekuła, 2001; Kryńska 2003; Bąk, 2006)

The most popular criterion concerning the flexibility of employment is working time. Flexible forms of employment (e.g., reduced working time, individual scheduling, teleworking from home or alternative teleworking) meet the companies' demands regarding adjusting work and time organization to family duties, including the need to be co-responsible for those duties (Jacukowicz, 2005). It is of crucial importance, because in well-developed countries most families function on the basis of partnership, therefore, organization of work must take into account the duties of both parents. Changes of the model of a modern family include the fact that next to a balanced commitment among husbands and wives to increase household income, we can also notice their active participation in non-professional activities (Bańka, 2005).

The lack of rigid time frames in professional activity and a broadened scope of responsibilities among today's employees can eventually lead to workaholism. Nowadays, many people work also in their spare time – engaging themselves in additional work, or doing certain tasks and unriddling company's problems at home. However, the problem of being a work slave, according to the author of this text, refers not only to the flexible model of employment, but also to the traditional model of contract work. This problem may result from inappropriate organization of work or multi-shift work. Nevertheless, flexible organization of work means a huge change in existing ways of playing social roles, which used to be more dispersed and now co-exist on the same territory (Borkowska, 2004). An example of such teleworking has been described in Chart 2.

Chart II: Selected advantages and disadvantages of teleworking in terms of the development of a modern employee

From the point of view of:	Advantages of teleworking	Disadvantages of teleworking
An employee	**Flexibility in terms of selecting place of residence and place of work, (access to larger labour market and educational services);** Adjusting the pace and time of work to one's own capacity; Direct influence on working conditions, which contributes to enhancing one's motivation to work; **Working at home – more time for the family and for one's own personal development;** Reducing costs associated with commuting and possibility to export work abroad; Facilitated access to employment for people with disabilities or people from low-urbanized areas; **Increased satisfaction when working for a company which implements new solutions in work organization and HR management.**	**Melting of borders between work and personal life – risk of workaholism;** Fatigue due to routine and working at home only; Possible problems with effective communication with employer or co-workers; **Transferring the burden of professional training to employees;** Treating teleworking as an opportunity to employ overtime; Teleworking lacks possibility of performing all types of work.

(Source: own elaboration on the basis of the literature by: Machol-Zajda, 2003; Nilles, 2003; Bąk, 2006)

When speaking about the flexible model, one of the concerns is lack of employment stability – this problem is often raised during debates in the media. In Poland, people performing atypical work usually perform low-

profit work that does not provide full social benefits and does not give access to professional training. Thus, in the subject literature "atypical employment" is often accompanied by the notion of "precarious employment". Nevertheless, does a full-time regular job guarantee secure employment? What does "employment security" mean today? According to the author of this paper, a worker should be afforded possibilities to obtain such qualifications and professional competencies which will facilitate finding the best working conditions possible – and that, according to her, is more important than being granted a permanent job (Kulpa-Puczyńska, 2009). Therefore, she agrees with the view that today's employment security depends on creating possibilities of adjusting to the constantly changing labour market – and not on the stability of the working place (Kalina-Prasznic, 2009).

2. Changes In Work Organization And Their Value For Career Planning And Development – Case Studies

Increasing responsibility for performing working duties and product quality stimulates today's workers to be more creative and venturesome. It also makes them believe in their own abilities and encourages to develop their skills. Thus, it is a key prerequisite to expand the scope of self-control and empower employees to make their own decisions, and also provide them with resources that will facilitate reaching their goals. On the other hand, planning modern organization of work requires accounting for both workplace criteria (reliability, cost-effectiveness, company efficiency) and personal criteria, i.e.: creativity, people-to-people communication, workload and use of employee's qualifications (Penc, 2000). Here, it is worth to mention that people with high qualifications and professional competencies are in a good starting position on today's labour market and represent a strong basis for seeking favourable employment conditions. It is assumed that the concept of flexible forms of employment will, in the future, be based primarily on workers who care about their professional development (Drozdowski, 2002). Respective examples – case studies – are presented below.

Jakub (30 y.o.) – a beginning entrepreneur operating in the IT sector. He employs people to perform particular tasks.

When his company receives many orders (e.g., developing applications, designing web-sites, computer hardware servicing), he requires extra staff. Thus, he cooperates with entrusted IT specialists, who support permanent employees, in case of problems with fulfilling orders. Seasonal workers (employed on the basis of commission contracts) perform specific tasks that they are paid for. Remuneration is set upon contract conclusion. However, the young businessman is more and more often refused to cooperate with him. When he asks about the reason, he is given the following replies: lack of permanent employment (and thus, lack of stability and security), lack of social and economical security, limitations associated with taking credits and purchase instalments. He himself also recognizes faults in flexible forms of employment. "*I understand that taking advantage of the above-mentioned measures can undermine my credibility among my business partners. My company's image may deteriorate. However, I prefer to prioritize advantages of flexible forms of employment, i.e.: no obligation to give severance payments, increased adaptability to market changes and cost efficiency associated with creating new working places.*

The modern labour market, being more flexible and offering more atypical work, generates demand for a "new" model of time organization. The emerging model also consists of 5 phases (life stages), but its structure is much more parallel. Breaks between employment periods are reserved for upbringing children, but also for taking advantage of supplementary education or retraining courses. Work life expectancy is longer and the retirement age is moved further in time (European Foundation …, 2003). The described model is also characterised by the following tendency: employees change their working place more often; they also change their functions, acquire new abilities and present an increased level of individual activity. It is quite specific for the middle career stage, a period when people want to work more independently and decide themselves about the time and organization of their work. It seems that the below-mentioned cases reflect this image.

Piotr (40 y.o.) – a car mechanic (learnt occupation). For 4 years, after changing his former working place, he has been taking advantage of flexible forms of employment.

He has worked in his profession since graduation. After a time, work became routine and he started to suffer from professional burnout. He made a risky decision and quit his job. Taking into account high unemployment rate on the local market, he could not be sure of his professional future. After several months of seeking for a job, he received a proposal from the Labour Office. If was an offer with flexible working hours. Initially, he was not convinced whether he should accept the offer, but after consulting the decision with his family, he began working as a security guard. Now he has more time for himself and his daughter, when his wife is at work. He is saying that he sometimes takes also other job offers, which he is able to reconcile with the current employment and his family life. These include hourly contracts (commission contracts and contracts for specific work), which improve home budget. His current schedule looks so fine that he does not want to quit flexible forms of employment. He points out that his work is diversified and he does not suffer from performing routine activities. Each day is different but he knows how to plan it. "*I don't regret the decision I made several years ago. Many people in my age would never quit a job with permanent working hours. My way of working gives me more time for my family and my hobbies. I recommend taking advantage of flexible forms of employment, because every day I face new challenges and learn something new*."

Beata (28 y.o.) – working for two years as a real estate agent's assistant. She works part-time.

She works 4 hours daily, 5 days a week. She has decided for such a form of work organization, because she is a single mother raising two children. When she has a day with no business meetings, she can work outside the office and in case of a real estate presentation, she can go there directly from home. She runs a daily calendar of her work. After each week she reports all her activities she has done over the week. The value of her remuneration is connected with her results. She is happy about this form of work organization, because she can reconcile the role of a mother with performing an interesting job. Moreover, she can also attend part-time studies. According to the respondent, *"full-time work at any working place must be excluded, because little children need mother's care."* She continues: "*thanks to flexible forms of employment I can study and gain professional experience at the same time. I've also learnt how to manage my time. It is possible that in the future, when my kids grow up, I will work on my own account. Starting an own business is quite easy, if you have a good idea for business, you know your potential market – it is worth a risk, provided we do something we really like"*.

Flexible forms of employment is also a way of gaining first experience, necessary for developing one's professional career. It is a basic pillar for building self-confidence and a belief in one's own capabilities (Bańka, 2008). The discussed forms facilitate better understanding of actual working conditions and one does not need to wait for a long time to become employed. It is noteworthy that especially young people are boundaryless and treat their careers very individually – with no strict categorization of jobs and working duties, production and services sectors or specialist and non-specialist activities. New opportunities (melting borders, increasing mobility), often set up by integration processes, encourage them to develop their careers in a broader perspective – an international and intercultural space (Bańka, 2007).

Anna (23 y.o.) – student of pedagogy. She has been taking advantage of flexible forms of employment for the whole time of her studies, now she works in a bookshop.

In order to study she had to move to a bigger city. This was one of the reasons (especially the flat rent) for her to get a job, because she did not want to strain her parents' budget. She found the job by accident, when reading through some job offers published on the Internet. She was attracted by a note saying: "a perfect job for a student", and finally, the salary and the possibility to agree on the working hours helped her accept the offer. Besides, she loves books. Now she works in the afternoons, four times a week, starting at 1–2 pm until the closure. Anna points out: "*I am a student of day courses, so I cannot work full-time from Monday to Friday. I think, many other students think the same and treat their work as an additional source of income*." According to the student, "*it is better to work part-time and at the same time search for a permanent job, than to do nothing and sit at home. Browsing announcements will not give you money and experience*. *Work (each job in fact) gives us an opportunity to develop our interpersonal and organizational skills*."

Unfortunately, people employed on the basis of flexible forms of employment rarely take part in courses and other forms of vocational education, because Polish employers are not willing to invest in people who work for them seasonally. In such a case, according to A. Bańka, we are dealing with the process of transferring the responsibility for personal and professional development from a company to a worker. It leads to substantial antinomies, i.e. expectations that employees should be loyal and devoted, prepared to effective performance of assigned tasks, flexible and innovative – but without being granted any specific training and with no assurance of being at the company for a longer time. The expectations do not match with the individual right to keep distance towards an organization that can at any time resign from worker's services (Bańka, 2006).

FINAL REFLECTION

For some time, in Poland, we have been witnessing a discussion on flexible forms of employment and work organization. It is basically a dispute between two environments: employers and trade unions' representatives. This discussion is crucial, however, it is usually of populist nature. It is a pity, because the discussed problem is important in terms of modern employees' lives. It concerns not only the handicaps of today's employment situation, but also – taking into account the variety of social roles – the dynamically changing needs of workers and expectations associated with professional and non-professional (including family life) activities. Therefore, the situation has to be presented objectively, considering the arguments of all interested parties.

It is worth to highlight that the evolution of flexible forms of employments and work organization is also determined by social changes, such as: moving away from traditional approach to gender roles (today's roles and duties are often settled by life partners and adjusted to their situation), increased level of educational aspirations in the society, higher standard of living. Therefore, employees tend to search for such forms of work organization which will let them reconcile various activity areas (in family and professional life) and adjust them to personal traits of character and individual needs. Thus, one of the most widely disseminated opinions – that it is employers, who are considered to care only about their profits, aim to popularize flexible forms of employments – has been called into question.

Nevertheless, it is care and attention that should be given most: the country should care about the quality and diversity of "new" forms of employment (by introducing clear order to the legislation system), employers should use these forms wisely (i.e. by taking advantage of modern methods of making work more flexible), and employees should be well prepared to perform their duties within flexible forms of employments (they need education on flexibility, mobility and readiness to continuously raise their qualifications). One of the obstacles that makes it more difficult to use flexible forms of employments and work organization is the traditional approach to employments – both by Polish employers and employees, who are also directly responsible for planning and developing their professional careers.

The purpose of this paper was to present selected professional and educational implications associated with career management in the environment of flexible employment. Further analyses and research can also include social and cultural conditions. In fact, cultural diversity can be discussed with regard to age subcultures, supporters of specific systems of values or communication codes. It would also be useful to answer the following questions: How do the people employed in the so called companies of the future – learning, network and intelligent organizations – manage their careers? Do the employee's position in the organizational structure and the specification of his/her job influence the process of career planning and professional development? Taking into account the multi-aspectual nature of this paper, we can raise more questions concerning the problem area.

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THOUGHTS OF PRE-SERVICE CLASSROOM TEACHERS ON TEACHING PROFESSION

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ABSTRACT

The purpose of this research is to identify the thoughts of pre-service teachers studying at the Department of Classroom Teaching, of the Faculty of Education at Muğla Sıtkı Koçman University on the teaching profession, as well as their reasons for selecting it. The data from the research patterned in line with the survey model were collected by means of opinion forms developed by the researchers. The data collection tool was administered to a total of 119 students, 73 of whom were in their 1st year and 46 in their 4th year of their study at the Department of Classroom Teaching, of the Faculty of Education at Muğla Sıtkı Koçman University. Based on the findings of the study, it was found out that more than half of the pre-service classroom teachers attending to the above programme did not select it because they loved the teaching profession, and they would be ready to quit the profession if/when appropriate conditions existed. The findings also showed that almost all pre-service teachers were concerned about their appointment as classroom teachers.

Key Words: Teaching profession, classroom teaching, pre-service teachers, teacher training.

INTRODUCTION

The teaching profession is a professional field of occupation based on a special knowledge and experience in the field, which requires a professional training on pedagogy (Erden, 1998: 27). Teaching is a specialty profession, which is acquired through a pre-service training provided in the faculties of education. Nonetheless, this is not solely sufficient for the profession of teaching. Teachers are expected to carry some special qualifications required for this profession (Maguire & Dillon, 1998). Today, people wish to see more credentials in teachers than merely transferring information and getting students adopt certain skills (Çelikten, Şanal & Yeni, 2005). According to Başaran (1999), the success of an education system depends on qualified teachers having the required credentials as well as applying them adequately. Some of these credentials may be a part of an individual's personal characteristics, while some are acquired through pre-service training.

It is possible to say that the professional performance of teachers are affected not only by their personal characteristics, but also by their attitudes towards the teaching profession. Teachers with positive attitude towards their profession practice it with more enthusiasm and love, and of course in a more efficient manner. They can communicate with their students more effectively, motivate them more easily, manage their time more efficiently, and they can significantly support creativity and innovation (Çeliköz & Çetin, 2004). The professional success of a teacher is closely related to one's perception of the teaching profession. Perhaps just for this reason, the teaching profession should primarily be the preference for an individual (Kuzgun, 2000). Selecting one's profession means an individual selecting a profession with the highest yields from among a number of professions. There are many factors influencing this process. Kıyak (2006), in a study conducted with students of a classical high school, listed these factors as job security, social security conditions, finding a job with no trouble and a good salary. The researcher showed the high unemployment rate in Turkey as the reason

for students' not prioritising such features as ability, interest and personality traits. Thus, the focus should be on an individual's preference of the teaching profession for the right reasons, instead of on the necessity of this preference.

Once an individual with an existing positive attitude towards the teaching profession is trained as a teacher and begins teaching, the individual's previous positive attitude is combined with professional knowledge; and here it is possible to say that this consistency affects all elements relevant to education in a positive way. In this regard, several studies have been conducted to identify thoughts of Turkish pre-service teachers about the teaching profession. It has been seen as a result of such studies conducted to reveal the thoughts about the teaching profession as well as reasons for a preference of this profession, by pre-service teachers attending primary education departments (Celep, Özyılmaz & Çörtük, 2013; Çermik, Doğan & Şahin, 2010; Çetin, 2012; Erkan et. al., 2002; Güneyli & Aslan, 2009; Hacıömeroğlu & Şahin Taşkın, 2010; Kartal & Taşdemir, 2012; Özbek, 2007; Özbek, Kahyaoğlu & Özgen, 2007; Özder, Konedralı & Zeki, 2010; Özsoy, Özsoy, Özkara & Memiş, 2010; Şara & Kocabaş, 2012; Ubuz & Sarı, 2008) and secondary education departments (Boz & Boz, 2008; Celep, Özyılmaz & Çörtük, 2013; Doğan & Çoban, 2009; Hacıömeroğlu & Şahin Taşkın, 2010; Karamustafaoğlu & Özmen, 2004; Tataroğlu, Özgen & Alkan, 2011) of the faculties of education, that the priority particularly about the reasons to prefer the teaching profession broadly differs from each other. Besides, it is considered essential to continue conducting such research studies on the qualifications and attitudes of teachers towards their profession, who are the primary actors of the education process, as long as there is a quality problem in education. This study, designed to provide a different perspective from a different sample, aims to assess the thoughts of pre-service teachers attending the Department of Classroom Teaching, of the Faculty of Education at Muğla Sıtkı Koçman University, as well as the reasons for their preference of this profession. The study seeks answers to the following questions:

- What are the reasons for pre-service teachers' preference for the programme of classroom teaching?
- What is the satisfaction status of pre-service teachers regarding the programme of classroom teaching?
- Are pre-service teachers worried about being appointed as teachers after they are graduated?
- Do pre-service teachers' worries about their appointment vary as to their reasons for preferring the profession?

METHODOLOGY

The research study is designed as a survey model, with a both quantitative and qualitative approach. The quantitative part has included an analysis of the responses of participants to close-ended questions on the data collection tool, while the qualitative part has analysed the data obtained from open-ended questions.

Participants

The participants of the study are students attending the Department of Classroom Teaching of Muğla Sıtkı Koçman University in the autumn semester of the 2012-2013 academic year. Since the study has aimed at identifying pre-service teachers' thoughts on the teaching profession as of the start of their professional training and at the last stage of their training, 1st and 4th year students have been selected as participants. A total of 119 pre-service teachers participated in the study, 73 being in their 1st year and 46 in their 4th year.

Data Collection Tool and Data Analysis

A data collection form involving close and open-ended questions was used to describe the phenomenon explored in this study. Close-ended questions were used to collect personal information and tendencies of the pre-service teachers, while open-ended questions were applied to examine their preference for the teaching profession and their perceptions about it.

The opinion forms were designed in the light of the relevant literature as well as information received from academicians and students. In order to ensure internal validity of the data collection tool, all sentences in the form were read by academicians working in three different sub-areas of educational sciences, and the forms were reviewed and finalised in accordance with their feedback. Opinions of the said academicians for each item were evaluated in terms of measuring the required feature, and it was determined that they concurred

with each other. The finalised form was administered to five students in order to test in advance whether the questions were clear and understandable and whether their responses to the form adequately covered the questions. The findings were found to be positive, and the data collection tool was considered valid without need for further changes before administration to the participants. Participation was on a voluntary basis, and the data collection was conducted in classrooms when the participants were available, so as not to have a negative influence on their responses. Evaluation was made on the basis of participants' responses in order to obtain systematic data on the thoughts of pre-service classroom teachers on the teaching profession, as well as the reasons for their preference, and to make an inference based on this data.

Descriptive analysis technique was used to analyse the data obtained from the open-ended question in the opinion form. Opinions of the participants collected in writing were classified under certain headings, and the frequency was taken. The findings were presented under these headings as well as the frequency of repetition.

FINDINGS

Below are the findings obtained from the analysis of the data collected to evaluate the opinions of the pre-service teachers attending the classroom teaching programme of the Faculty of Education at Muğla Sıtkı Koçman University on the profession of teaching. Looking from a gender perspective, 58.8% of the participants are female and 41.2% are male. It is possible to say that classroom teaching may be considered as a profession more suitable for and more preferable by women. Results from other studies in Turkey (Baykara Pehlivan, 2008; Çermik, Doğan & Şahin, 2010; Çetin, 2012; Şara & Kocabaş, 2012) also support this finding. Table 1 gives information on participants' responses to the question about their preference for classroom teaching profession.

Table 1: Reasons for Pre-Service Teachers' Preference of Classroom Teaching Programme

Reasons for preference	**f**	**%**
Because I wanted to be teacher	53	44.5
Because I wanted to be enrolled in an undergraduate programme	17	14.3
Because my parents wished me to do so	12	10.1
Because there is more free time	9	7.6
Because I am a graduate of teacher training high school	8	6.7
Because it is a respectable profession	7	5.9
Because it is easier to find employment	7	5.9
Because I like children	2	1.7
Because my parent(s) is/are teachers	1	0.8
Other	3	2.5
Total	119	100.0

According to Table 1, based on an overall evaluation of the opinions of students enrolled in the classroom teaching programme as to the teaching profession, it is seen that almost half of the students preferred this profession because they want to be teachers. Şara and Kocabaş (2012) have reached a similar conclusion where 44.5% of pre-service teachers preferred teaching as a profession suitable for themselves. 14.3% of the participants preferred the teaching profession merely because they have wished to be enrolled in an undergraduate programme, and approximately ten per cent preferred this profession because of their families' wishes. More than seven percent of the participants preferred teaching because it is a profession with more free time. A smaller part of the students (5.9%) pointed out that they preferred this profession since it is easier to find a job. After a general assessment of Table 1, it is possible to say that a little less than half of the pre-service teachers continue their training accompanied with positive attitudes toward their profession, whereas an important segment preferred becoming a teacher merely to have an undergraduate degree, to benefit from amenities of being a teacher, or to satisfy their families' wishes. Özbek, Kahyaoğlu and Özgen (2007), in their

study to evaluate pre-service teachers' opinions about their profession, have found out that the majority of pre-service teachers are not enthusiastic enough about their profession. Another study by Çermik, Doğan and Şahin (2010) has shown that pre-service teachers mostly preferred the teaching profession because of self-seeking reasons such as a state-secured, sustainable job, a continuous and regular salary or the availability of free time. Below are examples of participants' opinions to serve as an indicator of the classification done by researchers.

*I had many problems at the preference stage because of my family. They wanted me to become a teacher. I wanted to study in other programmes, but in the end I accepted their wish. (**Because my parents wished so**, 1st year, Female).*

*I preferred the teaching profession because I think I can find employment easily compared to other professions. I wanted to graduate and start working immediately (**Because it is easier to find employment**, 4th year, Male).*

*My score from the university entrance exam was not sufficient to enrol into other programmes I wished to attend. This was the best among the options I had for enrolment. (**Because I wanted to be enrolled in an undergraduate programme**, 1st year, Female).*

Responses of three pre-service teachers, which are grouped under "Other" in Table 1, are shown below:

I preferred teaching because I believed that the vicious circle in my life is going to end if I take this training opportunity (1st year, Male).

I did not want to be a teacher at the beginning. I preferred it because it was the best programme based on my score. Yet, I liked the idea of being a teacher after I enrolled in this department. I changed my mind. (1st year, Female).

I partially wanted to be a teacher but I had other dreams since I thought I could be enrolled to better programmes (than teaching) with my score. I was not really expecting to get this programme (4th year, Female).

Table 2 gives a summary of pre-service teachers' responses by grade as to whether they would have preferred the teaching profession if they had another chance for choosing a profession.

Table 2: Re-preference for Teaching Profession

		YES	**NO**	Total
1st Year	f	52	21	73
	%	71.2	28.8	100.0
4th Year	f	36	10	46
	%	78.3	21.7	100.0
Total	f	88	31	119
	%	73.9	26.1	100.0

From Table 2, it is possible to say that 4th year students would be more willing to choose the teaching profession again compared to 1st year students. Özbek, Kahyaoğlu and Özgen (2007) have also stated that 1st year students less embraced the teaching profession, compared to 4th year students, and they would change their area of study if given the chance. A general assessment of the responses from the participants shows that approximately one-fourth of the pre-service teachers would prefer not to be a teacher if they have an

alternative. They stated that they might prefer to study Law (9.2%), Economics / Business Administration (4.2%), Health Sciences (4.2%) and Guidance and Psychological Counselling (1.7%), instead of Classroom Teaching.

Table 3 shows the participants' responses, as of gender variable, to the question whether they would be willing to quit the teaching profession if they found another job with a higher salary.

Table 3: Quitting Teaching Profession for a Job With Higher Salary

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Female	f	11	20	21	11	7	70
	%	15.7	28.6	30.0	15.7	10.0	100.0
Male	f	4	7	15	9	13	48
	%	8.3	14.6	31.2	18.8	27.1	100.0
Total	f	15	27	36	20	20	118
	%	12.7	22.9	30.5	16.9	16.9	100.0

Based on Table 3, it is possible to say that female students are more determined not to quit the teaching profession, in the case of finding another job with a higher salary, compared to male students. The researchers think that this may be caused by the social perception that it is generally a man's responsibility to provide the financial contribution to a family. A study by Vefikuluçay Yılmaz et. al. (2009) on the gender roles of university students has found out that there is a statistically significant difference between male and female participants on gender on the basis of work life, and that men have a more traditional perspective on gender compared to women. Özbek (2007) has also found out that personal and social factors are important in female pre-service teachers' preference of the teaching profession, whereas economic factors are more important for male pre-service teachers. In general, our study shows that almost half of the pre-service teachers may consider quitting their profession. Besides, the close ratio between the pre-service teachers who consider quitting their profession and those who preferred teaching for reasons other than loving the profession, may indicate a consistency among the findings.

Table 4 shows the participants' responses, as of year, to the question of whether they are worried about being employed after graduation.

Table 4: Worry About Being Employed After Graduation as of Years

Worry about employment	Year				Total	
	1		4			
	f	%	f	%	f	%
Yes	58	79.5	42	91.3	100	84.0
No	15	20.5	4	8.7	19	16.0

As seen in Table 4, 84% of the students are worried about being employed as teachers after graduation. Fourth year students, who are closer to graduation, feel this worry stronger (91.3%) than the 1st year students (79.5%). A study by Güneyli and Aslan (2009) on pre-service teachers attending Turkish Language Teaching has found out that one of the fundamental problems of pre-service teachers is their worry about being employed as teacher. That the majority of pre-service teachers are worried about being employed after graduation even during their training may be considered as having a negative effect, not only on their attitudes towards the teaching profession, but also on their academic achievement.

Table 5 shows the frequency analysis between pre-service teachers' worries of being employed and their reasons for preferring the teaching profession.

Table 5: Relationship Between Employment Worry and Reasons for Preference

Reasons for preference	Employment Worry		Total
	Yes (f)	No (f)	
Because I wanted to be teacher	49	4	53
Because I wanted to be enrolled in an undergraduate programme	14	3	17
Because my parents wished me to do so	10	2	12
Because there is more free time	6	3	9
Because I am a graduate of teacher training high school	8	0	8
Because it is a respectable profession	3	4	7
Because it is easier to find employment	6	1	7
Because I like children	1	1	2
Because my parent(s) is/are teachers	1	0	1
Other	2	1	3
Total	100	19	119

It is seen that the ratio of pre-service teachers with employment worries, who have voluntarily preferred this profession (85.5%), is higher than the ratio of those who preferred the teaching profession due to other reasons (e.g. parents' wish, their wish to be enrolled in an undergraduate programme) (83.3%). Although the difference is not much, this finding may be a result of that pre-service teachers, who have chosen the teaching profession due to external factors or other interests, are not able to embrace teaching as much as others, and accordingly they are less worried about being employed as teachers.

CONCLUSION

Findings from this study have shown that almost half of the pre-service teachers preferred the classroom teaching programme with positive thoughts, such as wishing to be a teacher, respectability of the profession or loving children. On the other hand, the other half of the pre-service teachers have chosen this profession due to other reasons, such as family pressure, just to be enrolled in an undergraduate programme, or even some false perceptions as teaching being a profession with a lot of free time (although not many). In addition, it has been seen that some teacher candidates graduated from teacher training high school have preferred being a teacher just because they were going to receive extra points for placement in an undergraduate programme, or they were going to find employment easier compared to other professions. Boz and Boz (2008) have stated that pre-service teachers who have chosen their profession for sentimental reasons, such as making a contribution to society, a love of teaching, or to work with young people, are more motivated and enthusiastic in the teaching profession, and continue to work as teachers for a longer period of time. It is considered disconcerting, in terms of the importance of their role as classroom teachers having a key role in the educational life of their students, that almost half of the pre-service teachers preferred this profession due to external reasons.

This study has concluded that one-fourth of the participant pre-service teachers, an important segment, would not choose the teaching profession if they had the chance, which is considered quite troubling. On the other hand, the fact that mostly 1st year students have made this decision may be interpreted as teacher training having a positive impact on the thoughts with regard to the teaching profession. Almost half of the pre-service teachers have stated that they would quit working as teachers if they found another job with a higher salary. This finding is thought to be caused by non-voluntary pre-service teachers who preferred the teaching profession due to self-seeking reasons, interests and external factors. These individuals' perception of this

profession as a guarantee for life is considered to make them ready to quit teaching for another employment opportunity with better facilities. The fact that the majority of pre-service teachers who are ready to quit the teaching profession for another job with higher financial benefits are males may be caused by their focus on economic benefits as their bread-winner role in the society.

In Turkey, in order for graduates of faculties of education to be employed as teachers in public schools, they have to take a national examination (Public Personnel Selection Examination) and to achieve a certain score required by their subject area to be appointed as teachers. Pre-service teachers attending faculties of education experience a high level of anxiety for this examination, especially in their 4th year. It is possible to say that this anxiety experienced pre-service may have a negative impact on their motivation and enthusiasm. As a matter of fact, a study by Karamustafaoğlu and Özmen (2004) has concluded that this employment worry of pre-service teachers diminishes their expectations from their profession, which in turn negatively affects their motivation. It is understood that pre-service teachers mostly focus on passing this national exam and give priority to activities related to this exam while they also have work to become a qualified teacher in professional, scientific and cultural terms. Nonetheless, despite the fact that most of the students (73.9%) are anxious and worried about being employed after graduation, it is meaningful for them to state they would prefer classroom teaching profession if they had another opportunity. It is thought that this may be caused, despite all other things, by the fact that it is easier to get an employment as a teacher compared to other professions and that the student quota of most of these programmes is higher than other undergraduate programmes.

According to another result of this study, those who preferred the profession with enthusiasm and motivation experience a stronger worry for being employed after the graduation compared to the pre-service teachers who preferred teaching profession due to external reasons, though the difference is not very significant. Even though not significant, this difference may be caused by the fact that the former group are more motivated and willing to start their teaching career.

An overall assessment of the findings of this study leads us to think that secondary education students should be in closer and more effective contact and communication with guidance services in their schools, in order to make more accurate decisions about their future professions. Being guided to teacher training high schools from middle schools and to faculties of education from high schools, not only on the basis of their abilities but also of their interests and personality traits, would enable them to make more sensible decisions about their preferences for a future profession. Besides, the training programmes of the faculties of education should be redesigned so as to include scientific, social and cultural activities to assist pre-service teachers in developing more positive attitudes towards the teaching profession. Moreover, further comparative studies on the opinions of pre-service teachers on the teaching profession and their professional performance after employment may be able to enlighten other studies in the area.

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A BLENDED LEARNING APPROACH TO MOTIVATION OF MEDICAL STUDENTS TAKING ANATOMY CLASS

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ABSTRACT

The present study aims to put forward environment oriented views, levels of satisfaction and perceptions of the students taking the anatomy class in the Faculty of Medicine in a blended learning environment where they can ask questions to the tutor together with cadaver dissection shootings and related 3-D images that they can use during the hours of independent study so that they can further benefit from the cadaver training. The participants of the present study is comprised of a randomized group out of 213 students of Semester II, who were selected from the students registered for the 2012-2013 Academic Year in Faculty of Medicine, Kocaeli University and divided into four groups for the anatomy laboratory class. The research method used is a quasi-experimental design, in which control and experimental groups were involved and pretest-posttest measurements were performed. The results of the study, based on the instructional materials motivation scale, show that a statistically significant difference in favor of the blended learning group was found. The results of the study also indicate that there is no statistically significant difference between the motivation levels of the students involved in the traditional environment, while there is a significant difference between the pretest-posttest results of the motivation scale of those involved in the blended learning environment. As a result, the motivation of the students was increased by ensuring the student-material and student-student interactions through the videos and animations; student-student and student-tutor interactions through the case study discussions.

Key Words: Blended learning, anatomy education, motivation, medical students.

INTRODUCTION

A standard anatomy education aims to help students gain new qualifications at a certain level in terms of knowledge, skills and attitudes. The students are enabled to get only knowledge through the lectures in the -theatres, cadaver projections and the multiple-choice exam models which are today being applied. The studies on cadaver dissections and living human models that would help the students gain skills and partially positive attitude characteristics cannot be carried out sufficiently due to the reasons such as inadequate number of cadavers etc. but the high number of students, lack of technical equipment, infrastructure and tutors (Arman, Cankur, Celik, Ersoy, İçke, Kopuz, Özbek, & Pınar, 2002).

Sayek, Odabaşı and Kiper (2010) have stated that the methods that would support the anatomy education should be used more extensively so that the anatomy education which has an important role in basic medical education can be performed and the related problems can be solved. One of the methods that can be used to solve these problems is the blended learning environments. This method has the advantages of distance education as well as those of face-to-face.

Blended learning in Medicine

The computer-based technologies center plays an important role in the blended learning method (Graham, 2006). According to Ocak (2011), blended learning is used to explain the consistent balance between the web-based technologies and face-to-face education.

The blended learning supports a wide range of learning models such as situated, relational, systematic, simulative and constructivist learning that help to enhance the quality of medical education (Woltering, Herrler, Spitzer, & Spreckelsen, 2009).

The benefits of using the blended learning method while teaching human anatomy are as follows (Pereira, Pleguezuelos, Meri, Molina-Ros, Molina-Toma's, & Masdeu, 2007):

- It makes the subject more attractive.
- It modernizes the teaching methods used to teach traditional human anatomy.
- It improves cross competencies.
- It provides the students with reliable, always-accessible and updateable materials.
- It helps the students retain an appropriate level of information for their professions.
- It increases the academic performance.
- It enhances the communication processes between the tutor-student, student-student and tutor-tutor.
- It facilitates the compliance to the directives of the Bologna Declaration (within the European framework)

As well as the attraction brought by the environment's being new in learning environments that have changed by the technological improvements, the motivation of the learner is also an important factor for increasing success. An individual in e-learning environments may feel him/herself alone since he/she cannot have instant feedbacks, communicate with other students and the tutor and act individually in structuring the knowledge. This may decrease the motivation of the student. In this sense, motivation should be taken into consideration while designing the learning environments.

Benefits of blended learning

The studies show that the use of e-learning environments in medical education motivates the students and enhances the quality of education. The technology effectively integrated into the curriculum is considered to be important by educators for determining both the teaching strategies related to the learning styles and motivation of the students and open teaching goals in accordance with the students' depth and amount of knowledge level (Guo, Katz, & Maitland, 2002). Woltering et al. (2009) , in a similar study, used the problem-based learning method in a blended learning environment that was applied to the third grade students of faculty of medicine and found that the motivation levels of the students were increasing while there was no change in those of educators. Nicholson, Chalk, Funnell and Daniel (2006) determined that the 3D animations they created in the computer environment selecting one of the anatomy topics positively affected the learning of the students.

More realistic environments can help students be motivated and improve the learning process. On the other hand, it helps to reduce the impact of a tutor's existence, hence it increases flexibility and lessen costs (Woltering et al., 2009).

Motivation

In the present study, the motivational design model of Keller has been used to determine the motivation. According to Keller (2006), motivational design theory is one of the learning design models that can help to improve effective learning systems. Motivational design theory is the process of organizing resources and actions so that changes can be made in motivation. It is systematic and aims at repeatable principles and processes. Motivational design means actions that would make the motivation for learning, strategies, principles and teaching desirable. Its objective is to create an educational environment where time, materials and other resources can be used effectively and efficiently. The design model developed by Keller (2006)

includes four motivation variables: Attention, Relevance, Confidence, Satisfaction. The model is known as ARCS model.

The variables and the sub-concepts used to characterize the human motivation in ARCS model are described as follows:

1. **Attention:** In ARCS model of Keller's (1987), the first step of motivation and the prerequisite of learning is grabbing the attention and sustaining it. Attention can be gained in three ways:

- **Perceptual stimulus:** Novel, Surprising, incongruous and uncertain events are used to grab attention.
- **Inquiry-based stimulus:** To arouse curiosity by posing challenging questions or problems to be solved.
- **Variability:** Using different materials, trying various methods and using different presentation techniques during teaching enable to maintain the attention of students.

2. **Relevance:** If their question "How would I benefit from this?" is left unanswered, the students will have less interest in the subject. A concrete language style and examples that students are familiar with can be used to increase their motivation.
3. **Confidence:** The aim of the confidence step is to help students do their best by making them believe that they will be successful. If the students think that they will fail, their motivation will decrease. Providing challenge level would have a significant success.
4. **Satisfaction:** It is necessary to make the students feel that they will accomplish their research and applications in order to increase their motivation. According to the reinforcement theory, well-defined tasks and awards and timing them with an appropriate reinforcement make students more motivated. However, the extrinsic rewards under control of the tutor do not always have positive results. There are proper ways for using extrinsic rewards in learning case and stimulating intrinsic rewards.

Importance of motivation in medicine education

Motivation plays a key role in meaningful learning. Students' motivation should be taken into consideration so that they could become perfect doctors. According to Brissette and Howes (2010), an educational environment where student's autonomy is supported and the sense of efficacy and relativity needs are considered and the related assessment methods help to increase student's motivation. Motivating the student is one of the most important tasks of a tutor.

According to Kusurkar, Ten Cate, Van Asperen and Croiset (2011), motivation, as an independent variable, affects learning and studying behavior, academic performance, choice of a specialty in medical education and intention to continue medical studies. The current studies in medical education state that learning environments play an important role in motivation; however, the dependent variable on motivation is being researched less and more studies are required to be conducted in this field.

In the present study, the effect of the blended learning environment prepared for the anatomy class on the motivation levels of the students are tried to be determined.

Purpose

The anatomy course included in the medical education at undergraduate level is the basis of medical education and must be well-known in all classes and fields of specialization. One of the best methods to learn human anatomy is to perform cadaver dissection. According to the tutors of the anatomy class, 6-10 students per cadaver should be in the cadaver dissection classes so that they can be effective and efficient. This number could be increased to 20 depending on the operation. However, this number is 30 or even more in the Faculty of Medicine, Kocaeli University due to the insufficient number of cadavers and tutors. Therefore, the students cannot analyze the cadaver in detail and the tutor-student communication decreases. In addition, the students do not have the chance to repeat the cadaver laboratory class.

In solving the problems encountered in the anatomy education, the use of online media with face-to-face learning enables the students to have access to the materials at will, to plan and lead their own learning, to assess themselves, furthermore it helps the student-student and student-tutor communication to increase

owing to forums and the education gets better in quality and grabs more attraction thanks to the images used (Deveci, Ocak, & Çolak, 2012).

The present study aims to determine the level of motivation of students regarding the class prepared in a web environment in accordance with the blended learning environment. The sub-purposes developed to fulfill the aim of the study are as follows:

1. What is the general motivation level of the students in the blended learning environment in faculty of medicine?
2. What is the level of motivation of the students regarding sub-dimensions of attention, confidence, relevance and satisfaction in the blended learning environment?

For that purpose, a web environment has been created, which includes cadaver dissection shoots and related 3-D images that students taking the anatomy class in the Faculty of Medicine can use during the hours of independent study and where students can ask some questions to the tutor, so that they can further benefit from the cadaver training.

METHOD

Context

The anatomy class is compulsory in the first and second grade of the Faculty of Medicine, Kocaeli University and the number of students taking it is 240 and over. The students are divided into four groups to attend the cadaver laboratory class. Moreover, the number of cadaver used for the anatomy class is maximum 1 or 2 and it is quite insufficient when compared to the number of students. There are 4 tutors for this class and the number of students per tutor is above the average in Turkey. While the average number of students per tutor teaching the basic sciences in the faculties of medicine is 22.57, it is 4.45 for clinical sciences (Sayek, Odabaşı, & Kiper, 2010).

Besides, students can take the cadaver training for each subject only once. Those who are not able to understand the subject do not have another chance to repeat it in the laboratory. If the student does not attend the laboratory class, he/she must take making up class and get prepared for it in advance. The students who cannot answer the questions in the making up class are not allowed to attend the practical exam.

Participants

The target population of the present study is comprised of the students of the Faculty of Medicine, Kocaeli University, while the sample is a group randomly selected out of 213 students of Semester II registered for the 2012-2013 Academic Year, who were divided into four groups for the anatomy laboratory class by the management of the Faculty of Medicine. The students in this group were sorted into categories as with low scores (score interval of 22.1-36.3), medium scores (score interval of 37.8-44.8) and high scores (score interval of 45.4-59.1) based on the total scores they got from the previous two board exams of the anatomy class and two groups each with 24 students were created by assigning equal number of students from each score interval into the experimental and control group through random assignment method.

Research method

The classes are performed annually and in 40-day boards in the faculty of medicine. The subjects in the anatomy class are segmented as per anatomical systems in the body. The website prepared for this study according to teaching process involves the purpose of the class, the user entry and user guide, lecturing (with images and animations), two 3D animations, the movies of the cadaver dissections performed in the anatomy laboratory about the "Digestion System and Metabolism" on its main page, problems that the students can discuss with each other or with the tutor in case discussion part and the contact page. The class subjects were designed based on multi-media design principles of Mayer. The students can have access to the system both in and out of the university campus whenever they want. The class model prepared within the context of anatomy class is given in Figure 1.

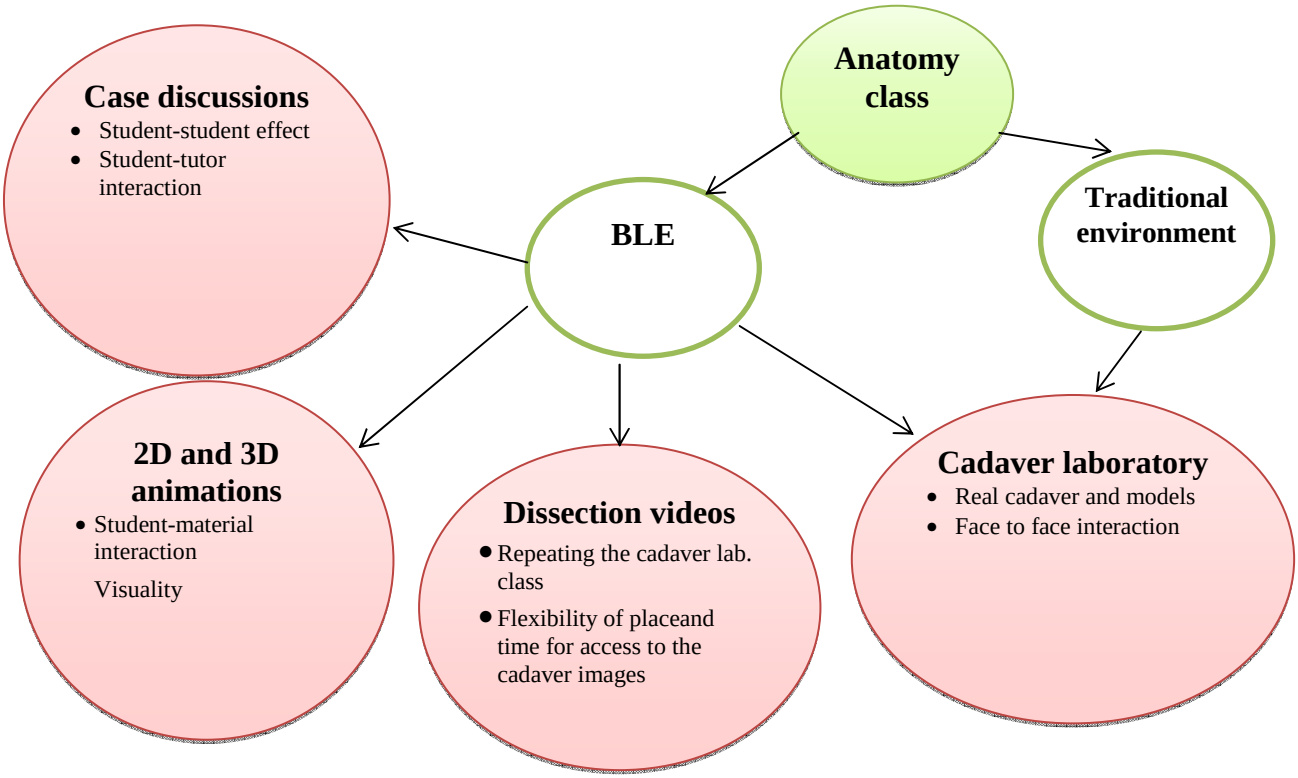

Figure 1: Research model

The study includes some subjects stated in the "digestion system and metabolism" board that lasts 4 weeks. 7 hours of 12-hour anatomy class is performed face to face and 5 hours is online. A great majority of the theoretical lessons are carried out online, while the practical ones are taught face-to-face in the anatomy laboratory. During design process, the learning attainments for each subject, the environment in which these attainments would be provided, the methods and techniques to be used and the reasons why these environments should be used were determined and the study was completed in 4 weeks.

The videos in which the tutor was lecturing in the blended learning environment were shot together with real cadavers, organs and models in the laboratory the students use for the cadaver dissection. The 2D images seen on the website and the 3D animations provided by outsourcing were obtained from the Primal Pictures platform. Figure 2 shows a model of subject with 2D animation which is on the website; Figure 3 shows a subject model that has the images of real cadaver parts (ps).

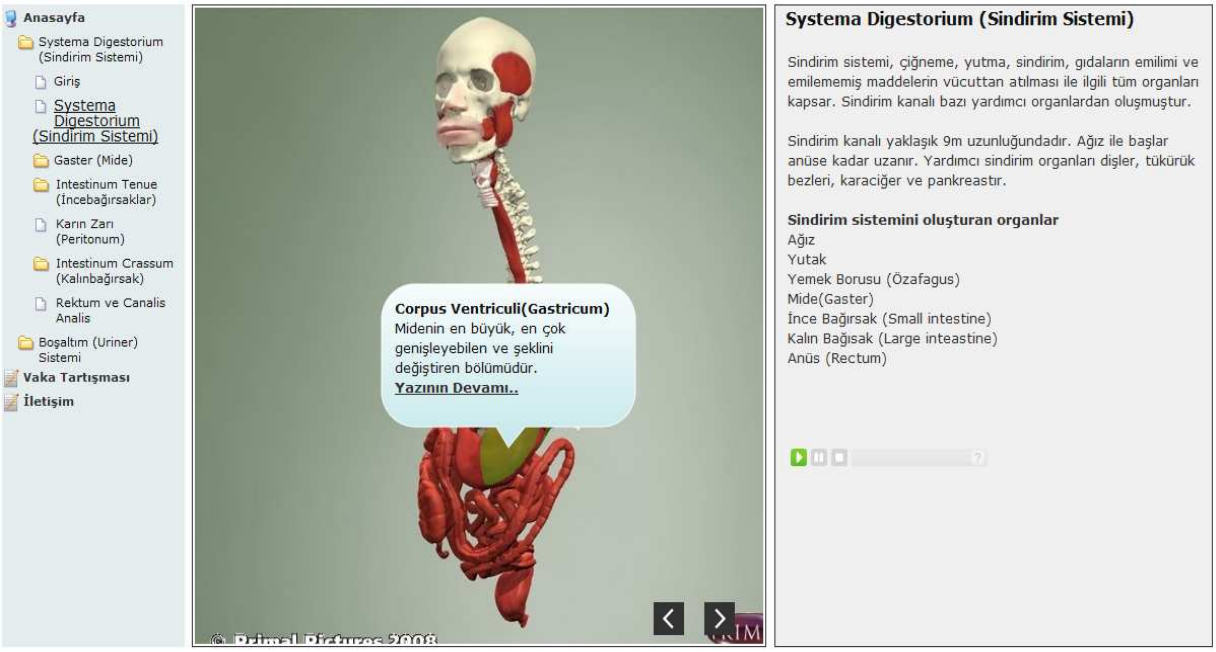

Figure 2: A subject model including a 2D animation on the website

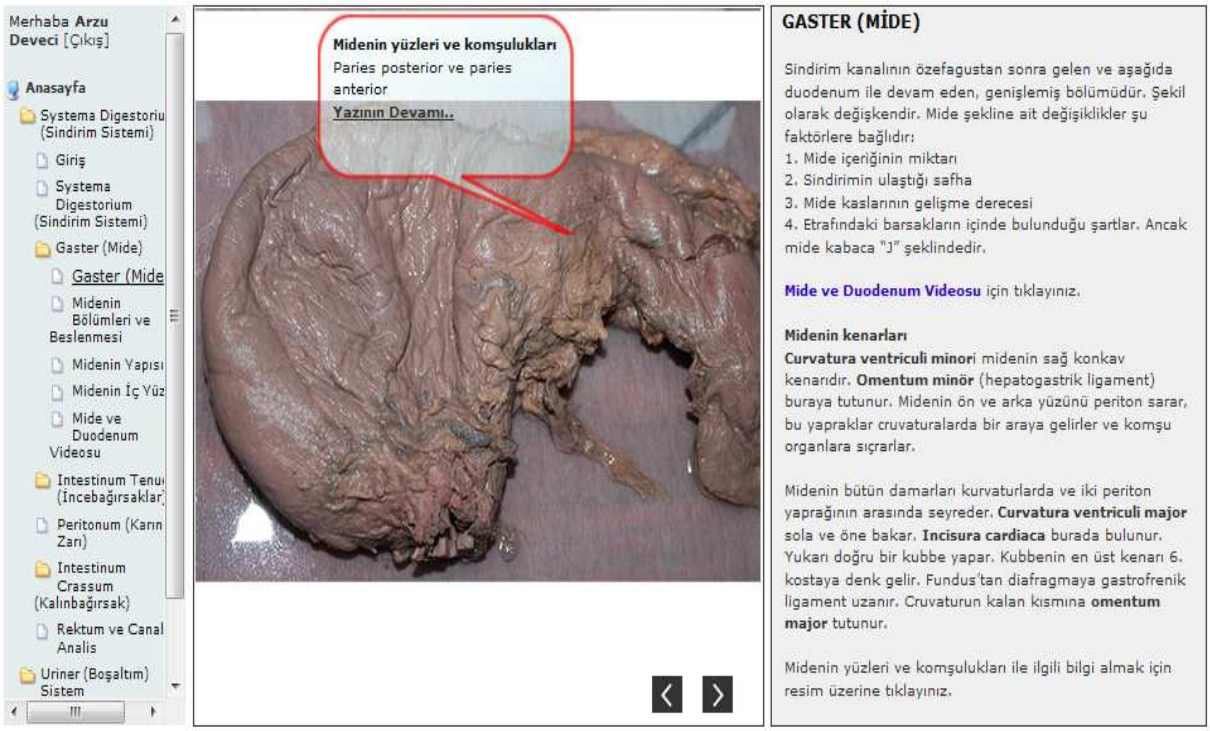

Figure 3. A subject model with images of the real cadaver parts (ps) on the website.

Data collection method

In the present study, a qualitative study was carried out and a quasi-experimental design with pretest, posttest and control groups was used in order to determine the motivation levels of the students. The reason of carrying out a quasi-experimental study was that the independent variables, the effects of which were analyzed, could not be manipulated and other variables could not be brought under control. Therefore, only situational relations have been introduced.

Data collection tools

"Instructional Material Motivational Scale" (IMMS) developed by M. Keller and adapted into Turkish by Jale Balaban was used to determine the motivation levels of the students at the beginning and end of the study. IMMS has a 5 point likert scale as (1) Incorrect, (2) Slightly correct, (3) Moderately correct, (4) Highly correct and (5) Very correct. A reliability study was carried out among 248 students in the faculty of medicine and it was found that Cronbach α=.759.

The Kaiser-Meyer-Olkin (KMO) test was applied in order to determine whether the data collected were appropriate for the factor analysis. The value obtained from the KMO test is regarded as perfect as it closes to 1 and unacceptable if below 0.50 (Tavşancıl, 2002). The KMO value was found to be 0.851 as a result of the analysis in the present study. This value indicates that the sample size is appropriate to perform a factor analysis. The structure validation of the scale was analyzed by the Exploratory Factor Analysis method. At the end of the analysis, having omitted 16 items from the questionnaire, a Turkish form was prepared to include 20 items under a four-factor structure. 13 of the questions have positive arguments, while 7 of them have negative arguments.

Data analysis

SPSS 20 package program was used in analyzing the data. The values of arithmetic average ($\bar{x}$) and standard deviation (ss) received from each test were calculated. According to the analysis results obtained, the students disordering the normal distribution were excluded, so the groups were equalized. The intragroup differences of the pretest and posttest were analyzed at the significance level of 0.05 using dependent t-test, while the differences between pretest and posttest groups were analyzed at the same level using independent t-test.

FINDINGS

The data obtained with IMMS were analyzed based on the sub-dimensions of relevance, satisfaction, attention and confidence in the questionnaire. The matched sample t-test was used to test the intra-group difference, while unrelated sample t-test was used for inter-groups difference. The answers of the students to negative questions during the analysis were recoded and changed into positive answers.

When The Table 1 analyzed, according to the matched group t-test results, the motivation level of the students having been educated in the blended learning environment appeared to increase significantly in general, t(23) =3.04 kg, p< .01. While the average motivation score of the students before blended learning method was $\bar{x}$=61.9, it came up to $\bar{x}$=68.9 after the blended learning practices. This finding shows that the blended learning environment has an important effect on increasing the motivation of students. When the sub-dimensions of the scale examined, a statistically significant increase was found in the attention factor t(23)=2.14, p<.05, confidence factor t(23)=3.9, p<.01 and relevance factor t(23)=2.7, p<.05. While the average attention point of the students before the study was $\bar{x}$=22.4, it increased to 25.8 after the practice, the confidence point increased from $\bar{x}$=7.2, to $\bar{x}$= 9.3 and the relevance point increased from $\bar{x}$=13.3 to 15.8. However, no significant difference was found in the satisfaction factor, t(23) =.23, p.>05. These findings indicate that the average attention and confidence levels of the students increased in the blended learning environment, and the practice is applicable for students.

Table 1:The t-test results of the IMMS pretest and posttest average scores of the students taking a class in the blended learning environment

	$\bar{x}$	N	S.D	T	Df	P
Pretest_attention	22.38	24	7.11	-2.13	23	.04
Posttest_attention	25.79	24	5.44			
Pretest_confidence	7.17	24	3.33	-3.92	23	.00
Posttest_confidence	9.25	24	3.28			
Pretest_relevance	13.92	24	3.75	-2.72	23	.01
Posttest_relevance	15.83	24	3.37			
Pretest_satisfaction	18.21	24	4.30	.22	23	.82
Posttest_satisfaction	18.04	24	3.68			
Pretest_total	61.88	24	12.64	-3.04	23	.00
Posttest_total	68.92	24	8.94			

In Table 2, according to the matched group t-test results, there was not any significant change in the motivation level of the students taking a class in the traditional environment, t(23) =.33, p.>05. While the average pretest score of the students was $\bar{x}$=63.3, the average posttest score was found to be $\bar{x}$=62.8. Given the sub-factors, a statistically significant difference in favor of the pretest was found in the attention dimension, t(23) =2.25, p.<05. While the average score of the attention factor was $\bar{x}$=24.9 in the pretest results, it decreased to $\bar{x}$=21.96 in posttest. This result shows that the materials used in the class are perceived as grabbing less attention in time. No significant difference was found between the average pretest and posttest scores in the confidence (t(23) =1.6, p.>05), relevance (t(23) =1.9, p.>05) and satisfaction (t(23) =.11, p.>05) sub-dimensions.

Table 2: The t-test results of the IMMS pretest and posttest average scores of the students taking a class in the traditional environment

	$\bar{x}$	N	S.D	t	df	P
Pretest_attention	24.88	24	8.06	2.24	23	.03
Posttest_attention	21.96	24	6.14			
Pretest_confidence	7.04	24	3.52	-1.64	23	.11
Posttest_confidence	8.42	24	3.41			
Pretest_relevance	15.67	24	3.07	1.91	23	.06
Posttest_relevance	14.38	24	3.25			
Pretest_satisfaction	18.13	24	4.28	.10	23	.91
Posttest_satisfaction	18.04	24	3.31			
Pretest_total	63.63	24	11.62	.33	23	.74
Posttest_total	62.79	24	10.68			

Given the IMMS results of the students, (Table 3), while no statistically significant difference was found between the motivation levels of the students taking classes in the traditional and blended learning environments at the beginning of the practice, (t(46) =.49, p.>05), there seemed to be a significant difference according to the scale results repeated at the end of the practice (t(46) =2.15, p.<05). While the average score of the students taking classes in the traditional environment was found to be $\bar{x}$=63.6 as per the pretest result, the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=61.9. The average score of the students taking classes in the traditional learning environment was found to be $\bar{x}$=62.8 as per the posttest result, the average score of the students taking classes in the blended learning environment was found to be x=68.9. This result proves that the teaching method applied has a significant effect on the motivation levels of the students in the anatomy class. In one of the studies supporting this finding in the literature, in which the traditional lecturing, video and computer-assisted teachings were compared using the IMMS scale of Keller with participation of a group of people who were just employed at the medical center then, Rodgers and Withrow-Thorton (2005) found a statistically significant result in favor of the computer-assisted teaching. Moreover, Chen and Chen (2012) used the IMMS scale in the interactive video-based education they implemented and found a statistically significant difference in favor of video-based education between two groups.

Table 3: The t-test results of the IMMS pretest and posttest average scores of the students according to the learning environment

	Method	N	$\bar{x}$	S.D	df	t	P
Pretest_total	Traditional	24	63.63	11.62	46	.49	.62
	BLE	24	61.88	12.65			
Posttest_total	Traditional	24	62.79	10.68	46	-2.15	.03
	BLE	24	68.92	8.94			

Given the pretest and posttest results of the attention sub-dimension of IMMS (Table 4), while no statistically significant difference was found between the attention levels of the students taking classes in the traditional and blended learning environments at the beginning of the practice, (t(46) =1.14, p.>05), a significant difference was found between the attention levels of the students in the scale results repeated at the end of the practice (t(46) =2.28, p.<05). While the average score of the students taking classes in the traditional environment was found to be $\bar{x}$=28.9 for the attention sub-dimension, the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=22.4. However as per the posttest result, the average score of the students taking classes in the traditional learning environment was found to be $\bar{x}$=21.96, the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=25.8. This result shows that the materials used in the teaching method applied have a significant effect on attention. In one of the studies supporting that finding, Çolakoğlu and Akdemir (2010) found a significant difference between the experimental and control groups in favor of the experimental group in the blended learning environment they prepared according to the ARCS model and in the attention sub-dimension of the study by Chen and Chen (2012). In another study, Baturay, Daloğlu and Yıldırım (2010) found that the attention levels of the students in the blended learning environment were above average for language teaching they implemented.

Table 4: T-test results of the pretest and posttest average scores for the attention sub-dimension of IMMS

	Method	N	$\bar{x}$	S.D	df	T	P
Pretest_attention	Traditional	24	24.88	8.06	46	1.13	.26
	BLE	24	22.38	7.11			
Posttest_attention	Traditional	24	21.96	6.14	46	-2.28	.02
	BLE	24	25.79	5.44			

Given the pretest and posttest results of the relevance sub-dimension of IMMS (Table 5), no statistically significant difference was found between the relevance levels of the students taking classes in the traditional and blended learning environment both at the beginning (t(46) =1.77, p.>05) and end t(46) =1.53, p.>05) of the practice. While the average score of the students taking classes in the traditional environment was found to be $\bar{x}$=15.7 for the relevance sub-dimension as per the pretest result, that of the students taking classes in the blended learning environment was found to be $\bar{x}$=13.9. However, as per the posttest result, the average score of the students taking classes in the traditional learning environment was found to be $\bar{x}$=14.4, whereas that of the students taking classes in the blended learning environment was found to be $\bar{x}$=15.8. This result shows that applied teaching method has a significant effect on the relevance. On the other hand, Çolakoğlu and Akdemir (2010) found a statistically significant difference between the experimental and control groups in favor of the experimental group in the blended learning environment they prepared according to the ARCS model and in the relevance sub-dimension of the study by Chen and Chen (2012).

Table 5: T-test results of the pretest and posttest average scores for the relevance sub-dimension of IMMS

	Method	N	$\bar{x}$	S.D	df	T	P
Pretest_relevance	Traditional	24	15.67	3.07	46	1.76	.08
	BLE	24	13.92	3.75			
Posttest_ relevance	Traditional	24	14.38	3.25	46	-1.52	.13
	BLE	24	15.83	3.37			

Given the pretest and posttest results of the confidence sub-dimension of IMMS(Table 6), no statistically significant difference was found between the confidence levels of the students taking classes in the traditional and blended learning environment both at the beginning (t(46) =.12, p.>05) and end t(46) =.862, p.>05) of the practice. While the average score of the students taking classes in the traditional environment was found to be $\bar{x}$=7.04 for the confidence sub-dimension as per the pretest result, the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=7.17.However, the average score of the students taking classes in the traditional learning environment was found to be $\bar{x}$=8.42 as per the result of the posttest, the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=9.25. This result shows that the materials used in the teaching method applied do not have a statistically significant effect on confidence. In one of the studies supporting this result and performed as an online learning Huett, Moller, Young, Bray and Huett (2008) found no statistically significant difference between the experimental and control groups in the confidence sub-dimension of the ARCS model. On the other hand, Çolakoğlu and Akdemir (2010) and Chen and Chen (2012) found a significant difference in favor of the experimental group between the experimental and control group in the sub-dimension of confidence.

Table 6: T-test results of the pretest and posttest average scores for the confidence sub-dimension of IMMS

	Method	N	$\bar{x}$	S.S	df	t	P
Pretest_confidence	Traditional	24	7.04	3.52	46	-.12	.90
	BLE	24	7.17	3.33			
Posttest_confidence	Traditional	24	8.42	3.41	46	-.86	.39
	BLE	24	9.25	3.28			

Given the pretest and posttest results of the satisfaction sub-dimension of IMMS (Table 7), no statistically significant difference was found between the satisfaction levels of the students taking classes in the traditional and blended learning environment both at the beginning (t(46) =.06, p.>05) and end t(46) =.0, p.>05) of the practice. While the average score of the students taking classes in the traditional environment was found to be $\bar{x}$=18.1 for the satisfaction sub-dimension as per the pretest result, the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=18.2. The average score of the students taking classes in the traditional learning environment was found to be $\bar{x}$=18 as a result of the posttest, whereas the average score of the students taking classes in the blended learning environment was found to be $\bar{x}$=18. This result shows that the materials used in the teaching method applied do not have a significant effect on satisfaction. On the other hand, while Çolakoğlu and Akdemir and (2010) and Chen and Chen (2012) found a statistically significant difference between the experimental and control group in favor of the experimental group in the sub-dimension of satisfaction, Baturay, Daloğlu and Yıldırım (2010) found that the satisfaction levels of the students in the blended learning environment were above average for language teaching they implemented.

Table 7: T-test results of the pretest and posttest average scores for the satisfaction sub-dimension of IMMS

	Method	N	$\bar{x}$	S.D	Df	T	P
Pretest_satisfaction	Traditional	24	18.13	4.28	46	-.06	.94
	BLE	24	18.21	4.30			
Endtest_satisfaction	Traditional	24	18.04	3.31	46	.00	1.00
	BLE	24	18.04	3.68			

DISCUSSION AND RESULTS

While the pretest results of the "instructional materials motivational scale" for both students in blended learning and traditional anatomy class in the faculty of medicine are the same, there is a statistically significant difference in favor of the blended learning group in the posttest result.

Given the sub-dimensions, while a significant difference was found for "attention" sub-dimension, there was not any difference for the sub-dimensions of "confidence", "satisfaction" and "relevance"; furthermore, the average score of the students in the BLE increased, but the average score of attention, relevance and satisfaction sub-dimensions of the students in the traditional environment decreased.

A statistically significant difference was found between the pretest and posttest results of the motivational scale of the students included in the blended learning environment, while no significant difference was found in the "satisfaction" sub-dimension. A statistically significant difference was found in the "attention", "confidence" and "relevance" sub-dimensions between the pretest and posttest of the motivational scales of the blended learning group.

Based on these results, it is possible to say that the materials in a web environment grabbed the attention of the students and created an appropriate place for their learning. This result is supported by the studies of

Baturay, Daloğlu and Yıldırım (2010), Chen and Chen (2012), Çolakoğlu and Akdemir (2010). The reasons of finding no significant difference in satisfaction may be that the medical students have not used the system before and have not had enough time to understand the system due to short time of practice, the lesson is challenging and the students are tired of the class in time. The increased motivation level in general corresponds with the results obtained from the online anatomy laboratory class created by Guo and et al. (2002) under the kinesiology class concept. Also, Boudinot and Bradley (2001) created an online learning environment in order to facilitate the anatomy teaching and stated that this environment enhanced the motivation of the students.

The designed environment in this study has increased the motivation of the medical students in the anatomy class in general. Motivation increase is an important component of the teaching environments in terms of promoting academic success. According to Woltering et al. (2009), the use of blended learning environments in medical education enhances the motivation, satisfaction and learning attainments of students.

Consequently, the blended learning environment prepared for the anatomy class provided Turkish web material assisstance to students. The chance to access and reuse the materials whenever and wherever the students wanted and to communicate with the tutor out of the class hours and analyze the human body in 3D with the animations used increased the students' motivation levels. Given these results, the reasons why there is no significant change in the satisfaction levels of the students based on the motivation questionnaire can be researched. Similar studies can be carried out, which includes a larger group of students in the basic classes in medical education, different subjects together with qualitative and quantitative data.

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ASPECTS OF TEACHING MATHEMATICS TO GIFTED STUDENTS IN THE CONTEXT OF INCLUSIVE EDUCATION

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ABSTRACT

The purpose of this article is to point out some aspects of working with talented students of primary school age in the teaching of mathematics in the context of Inclusive Education.

Based on the objective we assigned ourselves the task of creating a system of exercises for studying the topic of "*Counting Possibilities*" which will contribute to the development of the students' logical-mathematical thinking, allowing them to practice skills and knowledge of combinatorial nature. The system components, requirements for the content selection and structure, and teaching methods are presented herein. Technological interpretation of the system of exercises in the study of the topic *Problems of Counting Possibilities* offers methodology for solving problems and demonstrating the ability for it to be integrated in the curriculum of mathematics at the primary stage of education.

Key Words: Inclusive Education, logical-mathematical thinking.

INTRODUCTION

Every teacher strives to educate their students by transferring their own experience so that students can have successful realization. In order for this to happen, teachers must consider the individual characteristics of their students: natural gifts, talents, interests, intelligence, etc.

Each one of us has certain aptitudes and specific strengths in different areas, but one must not forget that abilities develop through perseverance, learning and generated experience. And this is where our role as educators comes. We bare responsibilities and we must help students to develop their intelligence so that they are better prepared for life after school.

METHOD

The emphasis in this paper is on the development of logical-mathematical thinking, as the objective that we set is to point out some aspects of working with talented students of primary school age in the teaching of mathematics in the context of Inclusive Education.

Based on this objective, our goal is to create a system of exercises for teaching the topic "*Counting Possibilities*" intended for students. This system of exercises is realized through mathematics education in an inclusive classroom. Essential part of the learning process, beside the math classes, is the elective and compulsory elective training classes in mathematics.

The main goal in studying the topic "*Counting Possibilities*" is for it to contribute to the development of students' logical-mathematical thinking, allowing them to practice skills and knowledge of combinatorial nature.

The system of exercises was elaborated in consistency with: analysis of mathematics curricula of 1st to 4th grade of the mainstream secondary school on the possibilities of developing students' logical-mathematical thinking; the specific characteristics of learners; our teaching practice studies and the author's opinion that if developed

system of exercises is implemented in the mathematics education of students of school age, this will contribute to the formation and development of students' logical-mathematical thinking.

The training content selection and structure requirements for mastering the system of exercises for solving problems of *"Counting Possibilities"* come down to:

- unity of training purpose and content;
- possibility of special teaching by differentiation;
- compliance with the modern science achievements;
- personal experience, interpretation and creativity formation;
- pragmatic orientation and adequate usability;
- determination of students psychological characteristics, and hence in volume and complexity variations;
- openness to current issues;
- reduction in consistent didactic way the modern scientific trends such as dynamism, formalization, mathematization, differentiation, convergence of basic and applied sciences;
- universalization and minimization of the research language and tools.

The system of exercises for solving problems of *"Counting Possibilities"* consists of the following components (Fig. 1):

1. *Practical problems of combinatorial nature*, which can be integrated to the Modeling core on the mathematics syllabus;
2. *Problems of finding numbers and problems of counting numbers with combinatorial nature*, which can be integrated to the Numbers core on the mathematics syllabus;
3. *Geometrical problems of combinatorial nature*, which can be integrated to the Plain Figures core on the mathematics syllabus.

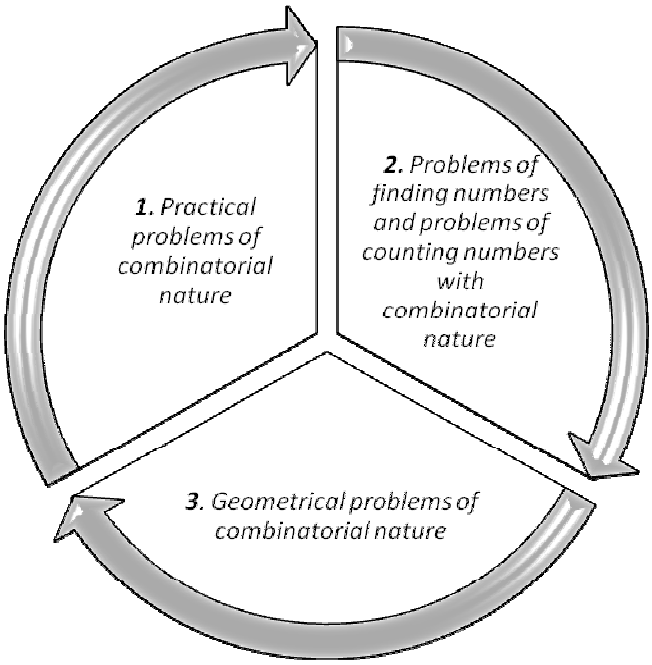


Fig. 1: Components of the system of exercises for solving problems of *"Counting Possibilities"*

Training methods are important part of the education technology. Considering the determinants of training methods, we apply the following groups of methods in our practice (Radev, Legkostup, & Alexandrova, 2013):

- Direct methods: introduction, announcement and final talk (question-based learning); guided reading participation, observation and thinking; text-method (activities with books and other paper information media); instruction; counseling; activities with digital information media;
- Research methods with learning (educational) purpose: monitoring, modeling, demonstration;
- Interactive methods: discussions, interpretations and debates moderated by the teacher; heuristic conversation; brainstorming;
- Imitation methods: drama and case studies;
- Practically applicable methods (methods for creating experiences): project activities and issues, solving educational problems, various types of exercises.

Technological interpretation of the system of exercises in the study of the subject *Problems* of *"Counting Possibilities"*

The focus here is on building thematically selected problems that allow students to learn and practice skills for solving problems of combinatorial nature. For each problem we provide solving methodology or guidelines.

1. *Practical problems of combinatorial nature*, which can be integrated to the Modeling core on the mathematics syllabus

In order to trigger the interest of young students to the problems of this group we need proper formulation. Here is a problem, presented interestingly, which includes a variety of counting cases.

Example 1. Pippi counts possibilities

Villa Villekulla was in the midst of feverish preparations of Pippi's birthday. Annika and Pippi knead patties, buns and muffins, and the preparation of cakes and chocolate éclairs was yet to begin. Tea and milk were the easiest.

"Do you consider serving everything at once?" – Asked Tommy – You can still decide on the one of the following 12 options:

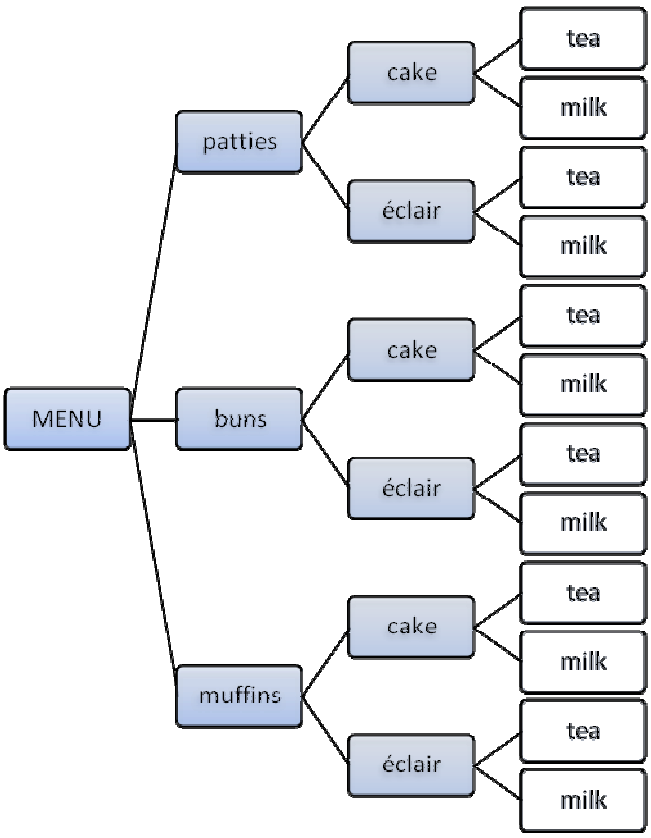


Fig. 2: Graph-tree to determine the possible menus, consisting of snack, dessert and a beverage

In this way, students get the idea of counting by using graph-tree. It is noted that the number of the last branches of the graph-tree identifies the potential cases.

Annika, who preferred to act more rationally, said:
"There is no need to make such a count in order to calculate the possibilities for the birthday menu, where everyone will get a snack, dessert and beverage. We have three choices for a snack. For each of them there are the two options for dessert. For each such option we have two choices of beverage. "

And Annika determined the number of options for preparing the menu 3 . 2 . 2 = 12.

This "multiplication – pluttification" was much to the delight of Pippi.

"Thus I will be able to celebrate my birthday 12 consecutive days with the food that we have prepared instead of serving it at once today."

Using the ideas of counting possibilities, some students move towards their determination by constructing a graph-tree, while others opt to think as Annika.

The time has come for Pippi to put her festive longstocking.

"Anika, as you know, I have 4 different festive longstocking – red, blue, yellow and pink, in how many ways can I combine them?"

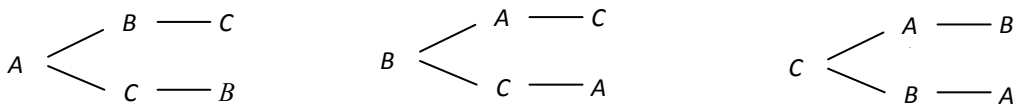
Annika immediately calculated 4 . 3 = 12, noting:
"There are 4 options to choose one longstocking, and then the other three remain. However, any combination of two colors is counted twice. For example, in the twelve combinations is included not only the red-yellow option, but also the yellow-red option. Pairs different only in colors are 12 / 2 = 6."

"This is wonderful! – Said Pippi – Thus I will meet six days of my birthday twelve-days in different color combinations, but in the other six days I will just exchange them on my feet."

I will not tell you how the 12 days of birthday festivities has come to pass, but will give you a hint to some of Pippi's mathematical questions.

- Pippi is curious: *I and my guests are 3 girls and 3 boys. In how many different ways can we line up in two rows for a photo so that the girls at the front and the boys in the back?*

Tommy named the girls with the letters *A*, *B* and *C*. And he made following schemes:



He wrote down all 6 possible different sets of the girls from the first row: *ABC, ACB, BAC, BCA, CAB, CBA*. So are the options for the boys setting. So, in the first row we have 6 options which correspond to 6 options of the second row. Total options are 6 . 6 = 36.

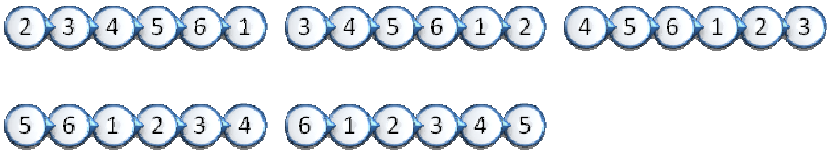
- Pippi asks: *In how many different ways can my five guests sit on the bench in the garden?*

Tommy decided to calculate. And numbered the bench seats with the numbers 1, 2, 3, 4, 5. Seat № 1 can be occupied by any of the five guests, i.e. the seat occupation has five options. If this seat is taken by one of the five, Seat № 2 may be taken by any of the other four guests, i.e. the seat occupation has four options. Thus to occupy the first two seat there are 5 . 4 options. Tommy continues to reason: for the remaining three seats

there will be respectively 3, 2 and 1 options. So for the occupation of all five seats there are 5 . 4 . 3 . 2 . 1 = 120 options.

➢ Pippi is now interested in: *In how many different ways I and my five guests can sit around the round table?* Witty Annika decided to satisfy Pippi's curiosity again. She clarified that you can easily find in how many ways you can line up six children in a row by copying the Tommy's idea. So she calculated: 6 . 5 . 4 . 3 . 2 . 1 = 720 options. Let's designate such row as follows:

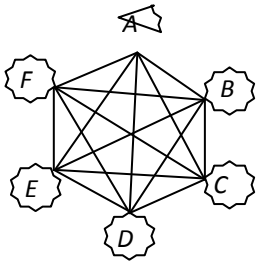
From this row we can obtain another row by moving the first kid to the last position. Continuing in the same way we obtain the following rows:



If children from each of the six rows sit in that order around the roundtable, we will obtain the same setting. Then, the number of all settings arounf the roundtable will be 6 times less than the number of settings in the row, because of the six different settings we obtaine one round. Therefore the number of different ways to arrange the six kids around the roundtable is 720 / 6 = 120. So Annika had quite a hard time determining the number of ways of arrangement of six kids around a roundtable, but still failed.

➢ *Pippi saw that two out of six kids shook hands. And decided to ask if one can determine the number of handshakes.*

Pippi named the children with the letters: *A*, *B*, *C*, *D*, *E*, *F* and used the following scheme:



She explained that the child *A* shake hands 5 times, child *B* – 4 times (because shaking hands with *A* is already counted), child *C* – 3 times (because shaking hands with *A* and *B* are already counted), child *D* – 2 times, *E* – 1 time, and *F* – no uncounted handshakes. The total of all handshake is 5 + 4 + 3 + 2 + 1 = 15.

➢ Pippi turned his gaze to the six flowers, which she has cut from her garden. They had different colors: yellow, red, white, pink, purple and blue. She told her guest that she wants to make a bouquet of 3 different colored flowers. And asked with curiosity: In how many different ways I can make such bouquets?

And started making schemes to determine their number. Guests patiently waited for the outcome – 20.
Pippi tried to reason: the first flower can be selected in 6 ways, the second – in 5 ways and the third – in four ways. And quickly calculated that the number of bouquets is 6 . 5 . 4 = 120. She turned to the other children for help.

"Why do you get different results?"

Annika immediately noted:
"Any combination of the three, different color flowers was counted six times. For example, in the resulting combinations is involved not only the option of yellow-red-white colors, but also the options: yellow-white-red, red-white-yellow, red-yellow-white, white-yellow-red, white-red-yellow. So different in color bouquets are 120 / 6 = 20."

Practical problems are presented entertaining and one can continue to ask them. Thus different variations of combinatorial problems are asked, leading to a variety of ways for solutions.

Example 2. Teams consisting of two, three and four students can participate in a race. How many different teams can be set of 8 students?

Solution:
Let's first define the number of different teams, consisting of two students. The first student can be selected in 8 different ways, second – seven ways. But it is necessary to consider, that the pair of students *AB* is the same pair as *BA*. Then the number of different teams of two students is (8 . 7) / 2 = 28. The number of different teams of three students, after taking into account, that the triples *ABC, ACB, BCA, BAC, CAB* and *CBA* should be counted once, was (8 . 7 . 6) / 6 = 56. Similarly, the number of teams of four is (8 . 7 . 6 . 5) / 24 = 70. Then the number of all the different teams is 28 + 56 + 70 = 154 .

Example 3. Group of 7 boys and 4 girls prepare for competition. Out of those we have to choose a team of six children, of whom at least two are girls. In how many different ways can this be done?

Solution:
It is necessary to consider different cases depending on the number of girls, participating in teams.

First case. The team consists of 2 girls and 4 boys.
The choice of the two girls, after taking into account, that the pair of girls *AB* coincides with the pair of girls *BA,* can be effected in (4 . 3) / 2 = 6 options. The four boys are chosen out of seven. First boy may be chosen in 7 ways, second – in 6 ways, third – in 5 ways, and the fourth – in 4 ways. It have to be considered, that the boys four *MNPQ* must be counted once, and these fours are 4 . 3 . 2 . 1 = 24. Then the number of different options of choosing the boys is (7 . 6 . 5 . 4) / 24 = 35. Every girls option corresponds to 35 options of boys selection. Thus, it can be concluded, that the number of different options of compiling teams in this case is 6 . 35 = 210.

Second case. The team consists of 3 girls and 3 boys.
By repeating the reasoning of the first case we obtain, that the number of different options of compiling teams is 4 . 35 = 140.

Third case. The team consists of 4 girls and 2 boys. The number of different option to compile such teams is 21.
Finally, the total of different options to compile teams is 210 + 140 + 21 = 371 .

2. *Problems of finding numbers and problems of counting numbers with combinatorial nature*, which can be integrated to the Numbers core on the mathematics syllabus

Example 4. Write down all two-digit numbers consisting of numbers 1, 2, 3 and 4. How many are they?

Table 1: Presentation of solution to *Example 4*.

	1	2	3	4
1	11	12	13	14
2	21	22	23	24
3	31	32	33	34
4	41	42	43	44

In addition to using the table, we could think in the following way: for the tens number we have 4 options, and for ones – also 4 options. Thus, the total number is 4 . 4 = 16.

Example 5. How many are the two-digit numbers with different digits, which contain two of the numbers 2, 4, 6 and 9?

Table 2: Presentation of solution to *Example 5*.

	2	4	6	9
2		24	26	29
4	42		46	49
6	62	64		69
9	92	94	96	

In addition to using the table, we can think in the following way:
The tens number may be any of the four digits, i.e. it can be selected in four ways. Having selected the tens number, the ones number can be chosen from the remaining three digits, i.e. in three ways. Thus, the total number is 4 . 3 = 12.

Example 6. How many are the two-digit numbers with different digits, which contain two of 0, 4, 6, and 9?

Solution: Here we must consider that in the formation of two-digit numbers, the tens digit cannot be 0. It can be any one of the 4, 6 and 9, i.e., it may be selected in three different ways. After selecting the tens, we can now use zero. The ones digit can be selected from three digits, i.e. in three ways. Thus, the total number is 3 . 3 = 9.

Example 7. Find the number of all three-digit numbers consisting of 3, 5, 7 and 9.

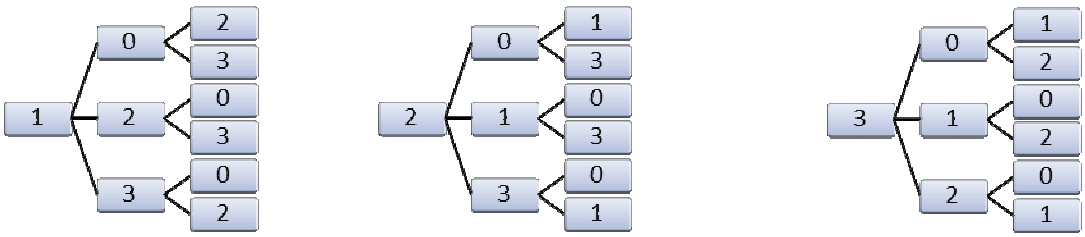
Solution: Each of the hundreds, tens and ones digit, can be any of the four digits, i.e. each digit can be selected in four ways. Thus, the total number is 4 . 4 . 4 = 64.

Example 8. Find the number of all three-digit numbers with different digits, that consist of 5, 6, 7 and 8.

Solution: The hundreds digit can be any of the four digits, i.e. it can be selected in four ways. Having selected the hundreds digit, the tens digit can be selected from the remaining three digits, i.e. in three ways. Then for the ones digit we have two options left. Thus the total number is 4 . 3 . 2 = 24.

Example 9. Compile and count all three-digit numbers consisting of unique 0, 1, 2 and 3 digits.

Solution: it is important to consider the fact that the hundreds number of cannot be zero. We can define the three-digit numbers using a scheme (graph-tree).



It was found, that the numbers starting with 1 as hundreds digit are: 102, 103, 120, 123, 130, 132. If the hundreds digit is 2 we will obtain six numbers: 201, 203, 210, 213, 230, 231, and if it is 3 – six numbers: 301, 302, 310, 312, 320, 321. The total of all numbers is 6 + 6 + 6 = 18.

In addition to using the schemes, we can obtain the number of all three-digit numbers we are looking for, as follows: The hundreds digit cannot be 0. This digit can be any one of the 1, 2 and 3, i.e. it may be selected in three different ways. After selecting the hundreds digit, we can now use zero. The tens digit can be selected out of three digits, i.e. in three ways. Having selected hundreds and tens digits only two options have left for the ones digit. The total number is 3 . 3 . 2 = 18.

Example 10. Find the number of all four-digit numbers, that consist of 5, 6 , 7, 8 and 9.
The solution is similar to that of Example 7. The total number is 5 . 5 . 5 . 5 = 625.

Example 11. Find the number of all four-digit numbers consisting of unique 5, 6, 7, 8 and 9.
The solution is similar to that of Example 8. The total number is 5 . 4 . 3 . 2 = 120.

Example 12. Find the number of all four-digit numbers consisting of unique 0, 6, 7, 8 and 9.
The solution is similar to that of Example 9. The total number is 4 . 4 . 3 . 2 = 96.

Example 13. Find the number of all four-digit numbers with unique digits.
Solution: The number of all digits is 10. It should be considered, that the thousands digit cannot be zero. Therefore, it can be selected in 9 ways. Having selected the thousands digit, now we can use zero. The hundreds digit can be selected out of nine digits, i.e. in nine ways. Having selected thousands and hundreds digits, the tens digit can be selected in 8 ways, then the ones digit – in 7 ways. Thus, the total number is 9 . 9 . 8 . 7 = 4 536.

Example 14. Find the number of all four-digit numbers that are divisible by 5.
Solution: The thousands digit can be selected in 9 ways, the hundreds and tens digit – each in 10 ways, and the ones digit – in 2 ways (0 or 5). Thus, the total number is 9 . 10 . 10 . 2 = 1 800.

Example 15. How many even five-digit numbers can be compiled consisting of 1, 5, 6, 7 and 8?
Solution: For the ones digit we have 2 options (6 or 8). There are 5 options of the digit of any of the remaining five rows. Thus, the total number is 5 . 5 . 5 . 5 . 2 = 1 250.

Example 16. Find the number of all the different five-digit numbers written with unique:
a) odd numbers (Zlatilov, Tonova, Tsvetkova & Pandelieva, 2005);
b) even numbers.

Solution to a): According to the problem, the numbers we seek must consist of 1, 3, 5, 7 and 9. The ten-thousands digit may be any one of these five digits, i.e. it can be selected in five ways. Having selected this digit, the thousands digit can be selected from the remaining four digits, i.e. in four ways. Continue: the hundreds, tens and ones digit can be selected respectively in 3, 2 and 1 ways. Thus the total number is 5 . 4 . 3 . 2 . 1 = 120.

Solution to b): Now the numbers we look for must be consisting of 0, 2, 4, 6 and 8. Since the ten-thousands digit cannot be zero, it can be selected in 4 ways out of the remaining four digits. having selecting the ten-thousands digit, now we can use zero. The thousands digit can be selected in four ways. Having selecting hundreds, tens and ones digit can be selected respectively in 3, 2 and 1 ways. Thus the total number is 4 . 4 . 3 . 2 . 1 = 96.

Example 17. Find the number of all:
a) two-digit odd numbers that are not divisible by 5;
b) three-digit odd numbers that are not divisible by 5;
c) three-digit even numbers that are not divisible by 10.

Solution to a): The tens digit cannot be zero. It may be selected in nine ways. As it required that the two-digit numbers are odd, the ones digit can be 1, 3, 5, 7 and 9. The two-digit numbers must be divisible by 5. Therefore, the ones digit cannot be 5 or 0. The ones digit must be 1, 3, 7, 9, i.e. can be selected in four ways. Thus, the total number is 9 . 4 = 36.

Solution to b): The hundreds digit cannot be zero. It may be selected in nine ways. The tens digit can be selected in ten ways. There are four options for the ones digit (1, 3, 7, 9), according to the condition of the task. Thus, the total number is 9 . 10 . 4 = 360.

Solution to c): The hundreds digit can be selected nine ways. The tens digit can be selected in ten ways. The ones digit, according to the condition of the problem, may be 2, 4, 6 and 8, i.e., can be selected in four ways. Thus, the total number is 9 . 10 . 4 = 360.

The next two examples concern the Palindromic Numbers, i.e. which are read the same way forward and backward. For example, 34543, 8230328, 55555. Those numbers are also met in the literature under the name Symmetric Numbers.

Example 18. How many are the five-digit palindromic numbers? How many of them are odd?
Solutions are as follows:
The symmetrical five-digit numbers are of the $\overline{abcba}$ type.

The digits used to write down the numbers are 10. The ten-thousands digit can be selected in 9 ways (all digits except 0). There are 10 options for the thousands digit, for the hundreds digit – also 10 options. By choosing the ten-thousands digit and thousands digit, we predefine the tens digit and ones digit. Therefore the total number of all five-digit palindromic numbers is 9 . 10 . 10 = 900.

The number of odd single-digits is 5. In this case the selection of the ones digit can be made in 5 ways. For the tens digit there are 10 options, and for the hundreds digit – also 10 options. By choosing the ten-thousands digit and thousands digit, we predefine the tens digit and ones digit. Therefore the total number of all five-digit odd palindromic numbers is 5 . 10 . 10 = 500.

Example 19. How many are the symmetrical numbers consisting of no more than 5 digits? (Zlatilov, Tonova, Tsvetkova & Pandelieva, 2005).

Solution:
There are 10 single-digits. They are symmetrical.

The two-digit symmetrical numbers are 11, 22, 33, ..., 99. Nine in total.

The three-digit symmetrical numbers are of the $\overline{aba}$ type. There are 9 option for the hundreds digit and 10 options for the tens digit. By choosing the hundreds digit we predefine the ones digit. Therefore the total number of all three-digit symmetrical numbers is 9 . 10 = 90.

The four-digit symmetrical numbers are of the $\overline{abba}$ type. In place of *a* we can put 9 digits, and the place of *b* – 10 digits. Therefore, the total number of all four-digit symmetrical numbers is 9 . 10 = 90.

The five-digit symmetrical numbers are of the $\overline{abcba}$ type. Their total number was 900 (defined in *Example 18*). Thus, the number of all symmetrical numbers with no more than 5 digits is 10 + 9 + 90 + 90 + 900 = 1 099.

3. *Geometrical problems of combinatorial nature*, which can be integrated to the Plain Figures core on the mathematics syllabus.

All problems including counting points, lines, triangles and other geometric shapes fall within this category of problems.

Example 20. There are 8 red, 5 blue and 4 yellow dots placed in a circle. How many sections with different color edges can be built?

Solution:
Each of the eight red dots can be connected to the five blue dots. Therefore, the total number of sections with red and blue ends is 8 . 5 = 40.

Each of the eight red dots can be connected to the four yellow dots. Therefore, the total number of sections with red and yellow ends is 8 . 4 = 32.

Each of the five blue dots can be connected to the four yellow dots. Therefore, the total number of sections with blue and yellow ends are 5 . 4 = 20.

Total number of sections with different color edges is 40 + 32 + 20 = 92.

Example 21. There are 8 red, 5 blue and 4 yellow dots placed in a circle. How many sections with same color ends can be built?

Solution:
Each of the eight red dots can be connected with each of the seven remaining red dots (8 . 7 = 56). But this is double the number of "red" sections.

The number of red ends segments is (8 . 7) / 2 = 28.

Similarly, we find the number of blue ends segments (5 . 4) / 2 = 10.

And the number of blue ends sections is (4 . 3) / 2 = 6.

Total number of sections with same color ends is 28 + 10 + 6 = 44.

Example 22. George drew a circle and marked 4 blue, 7 yellow and a few red dots in it. Then he connected each marked dot to each other. If different color ends sections are a total of 94, how many are the same color ends sections?

Solution:
We designate the number of red dots with x.

Then the number of different color ends sections is $4 . 7 + 4 . x + 7 . x$.

Of the equation $4 . 7 + 4 . x + 7 . x = 94$ we derive that $x = 6$, i.e. the number of red dots is 6.

Following the idea of *Example 21* we obtain the number of same color ends sections.

In this case: (4 . 3) / 2 + (7 . 6) / 2 + (6 . 5) / 2 = 6 + 21 + 15 = 42.

Example 23. There are 6 red, 5 blue and 4 yellow dots placed in a circle. How many triangles with different color vertices (red, blue and yellow) can be built?

Solution:

The number of sections with red and blue end is 6. 5. Each such section can be a side of the triangle, according to the problem conditions. The third vertex of the triangle remains to be yellow.

Then the number of triangles with different color vertices is 6 . 5 . 4 = 120.

Example 24. In how many ways one can travel from *A* to *C* (Fig. 3), without passing through the same point twice?

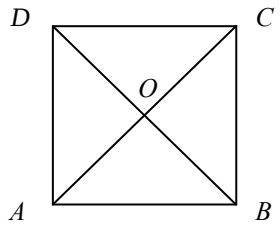
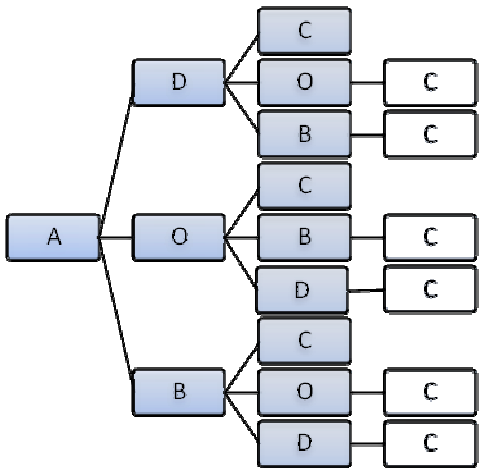


Fig. 3.

Solution:
For the solution to this problem it will be appropriate to build a graph-tree. It is obvious that one can travel from A to C in 9 different ways.



Example 25. There are 4 direct roads from City *A* to City *B*. There are 3 direct roads from City *B* to City *C*, and from City *A* to City *C* – 2 direct roads. Find in how many ways can one get from City *A* to City *C*.

Solution:
One can reach from *A* to *C* via *B* in 4 . 3 = 12 paths.

One can reach from *A* to *C* in 2 direct 2 or 12 indirect paths.

In total: One can reach from *A* to *C* in 2 + 12 = 14 paths.

Example 26. There are 10 direct flights from Airport *A* to Airport *B*, and 4 direct flights from Airport *B* to Airport *C*. One can reach from Airport *A* to Airport *C* in 46 different ways (some direct and some through *B*). Find how has direct flights are there between *A* and *C*. (Paskaleva, Alashka, M. & Alashka, R., 2008).

Solution:
One can reach from *A* to *C* via *B* in 10 . 4 = 40 paths.

Let's designate with *x* the number of direct flights from *A* to *C*.

Then $x + 40 = 46$, $x = 6$.

The total number of direct flights between airports *A* and *C* is 6.

FINDINGS

Based on the implementation of the system of exercises we expect acquiring of knowledge and skills to solve nonstandard mathematical problems in the topic "*Counting Possibilities*" and based on this – formation and development of students' logical thinking.

CONCLUSION

The established system of exercises has an open nature and can be adapted to the constantly changing determinants of primary mathematics teaching in all its forms.

The system of exercises focuses on targeted building of combinatorial competencies in students. It provides an opportunity based on structured learning content and the appropriate set of problems with their methodological developments for build-up and deepening of logical knowledge to students in primary school age. On the one hand, the entertaining elements of the problems aroused the interest and curiosity of students, on the other – practical problems, make it accessible. In this way the traditional teaching process is diversified and students' motivation to learn is increased.

Non-standard problems have great potential, so they need to be integrated in the curriculum of mathematics in the stage of primary school education. The topic presented herein is a proof of this assertion and a way to advance the ideas of logic in the classroom. It is a complete additional resource in the hands of the teacher.

Our common objective in the context of Inclusive Education is to create additional resources such as the above, which enable us to meet the challenges and opportunities for student and teacher development.

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THE PERCEPTIONS OF PRIMARY SCHOOL TEACHERS AND TEACHER CANDIDATES TOWARDS THE USE OF MASS MEDIA IN TEACHING TURKISH LANGUAGE

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ABSTRACT

The aim of the study is to explore the perceptions of primary school teachers and teacher candidates of the use of mass media in teaching Turkish in primary education. The data for this descriptive study is collected via semi-structured interviews –one of the qualitative data analysis methods and the collected data is analyzed by employing descriptive analysis techniques. The participants of the study consist of 20 primary school teachers and 20 teacher candidates. The results of the study reveal that the majority of the primary school teachers and teacher candidates feel incompetent in using mass media. One of the important findings of the study is that teacher candidates find the practices regarding the use of mass media in teacher education insufficient.

Key Words: Mass media, primary school education, primary school teacher education.

INTRODUCTION

Human beings have used various tools to communicate with each others since the beginning or their existence. These tools have developed and increased in variety in parallel to the development of human beings. Mass media and the tools used to ease mass media have gained crucial importance as a consequence of the rapid change and advances in technology and social progress.

Mass media is a collective term for all media technologies such as radio, television, Internet, newspapers, magazines that are used to communicate various types of messages to a large and dispersed audience. The advances in technology result in the variation of mass media tools. In today's world, conventional ways of entertainment, enlightenment and pass time like books, newspapers and magazines have started to be replaced by television, radio, computer, VCD and DVD (Aksaçlıoğlu and Yılmaz, 2007). Mass media has positive or negative impacts on many domains in life and educational institutions are as well one of those highly affected domains by mass media.

Mass media is crucially important and effective in today's world, which has certain functions. One of its important functions is its being educational (Cüceloğlu, 1982, p.324). Being used for different purposes in daily life, mass media is one of the most important tools to satisfy cognitive needs (Birse, 2005). In addition, another important role these tools play in teaching-learning processes is to concretize ideas, phenomena and incidents. Promoting learning, doing research, contributing to permanent learning by enriching the learning process, ensuring the active engagement of learners by providing effective communication and easing the learning process are among the benefits of mass media. Furthermore, benefiting from tools like texts, audios, graphs, motions, videos, video clips makes it possible to have an interactive learning environment, which helps learners learn effectively in a short time (Fer, 2004, p.155). Moreover, mass media also makes it easier for teachers to meet different needs and interests of their students with individual differences. In addition, students improve their reading, writing, speaking and listening skills by means of mass media such as newspapers, magazines, radio, television, movies, books and the Internet (Tafani, 2009).

Signes (2001) states that mass media is beneficial and plays an important role in teaching one's mother tongue and other foreign languages. Likewise, Bahrani and Sim (2011), Berber (1997), Cauldwell (1996) and Orao (200) also emphasize the role of mass media in the development of language skills.

The current Turkish language education curriculum which has been in use since 2005 adopts an activity-based and interactive approach which takes individual differences and learners' lives into consideration. This Turkish language education curriculum places importance on developing some basic skills of learners such as the correct and effective use of Turkish, critical thinking, creative thinking, communication, problem solving, doing research, using information technologies, entrepreneurship, decision making, intertextual reading and giving importance to social and personal values. Moreover, the program also has goals and objectives to equip learners with skills to question the information given by mass media. Therefore, it is of great importance to explore the perceptions of teachers and teacher candidates of teaching Turkish through mass media.

The Significance of the Study

In this era of rapidly advancing technology, mass media and media have become crucial tools for learning. For many school, the Internet and media are a great source to support education (Sunal and Haas, 2002). The educational consequences of advanced technology and the profileration of mass media tools will inevitably affect present teachers, teacher candidates and primary school students. A teacher benefiting from these tools efficiently in the teaching process will have more fruitful and effective classes; help learners learn in a short time and contribute to learners' permanent learning as well. Realizing this is possible by determining the perceptions of teachers and teacher candidates of mass media. However, in Turkey there are only few studies exploring the perceptions of teachers and teacher candidates of the use of mass media in teaching Turkish language. In addition to this, it is also worth exploring the perceptions of teacher candidates of the use of these tools in teacher education. It is believed that by determining the perceptions of teachers and teacher candidates of the use of mass media in teaching Turkish will shed light into the current situation in Turkish course and contribute to the present implementations.

The aim of the study

The aim of the study is to explore the perceptions of primary school teachers and teacher candidates towards teaching Turkish. The study addresses the following questions:

- What are the competency levels of primary school teachers and teacher candidates regarding the use of mass media in teaching Turkish?
- What are the mass media tools that teachers and teacher candidates use/may use in teaching Turkish?
- What are the views of teachers about the benefits and limitations of using mass media in teaching Turkish?
- What are the views of teachers about the practices regarding the use of mass media in teacher education?
- What do the teachers and teacher candidates suggest about the use of mass media in teaching Turkish?

METHODOLOGY

Research Model

In this study aiming to determine the perceptions of primary school teachers and teacher candidates of the use of mass media in teaching Turkish, qualitative research methods and semi-structured interviews are employed.

Participants

The participants of this study consists of 20 primary school teachers working 8 different primary schools in the city center of Adıyaman and 20 teacher candidates studying Primary School Teacher Education (4th grade) at the Education Faculty of Adıyaman University.

In determining the participants, criterion sampling method has been employed. As for the teacher candidates, the participants have been chosen among the senior students who have taken Teaching Turkish Course and are to graduate at the end of the year. As for the teachers, participants who are thought to have a lot of experience in their field and who have volunteered for the study have been chosen. The participants then consist of 20 primary school teachers (11 females and 9 males) and 20 teacher candidates (10 females and 10 males). Table 1 demonstrates the demographic information regarding the participants.

Table 1: Demographic Information about the Participants

Participants	Gender	f	%
Teacher Candidates	Female	10	50
	Male	10	50
Teachers	Female	11	55
	Male	9	45
	Professional Experience	**f**	**%**
	1-5 years	2	10
	6-10 years	5	25
	11-15 years	6	30
	16-20 years	2	10
	21-25 years	3	15
	26-30 years	-	-
	31-35 years	1	5
	36-40 years	1	5

Data Collection

The data of the study was collected in the Fall Term of 2013-2014 Academic Year and the participants were the volunteering primary school teachers and teacher candidates. To collect the data, the researcher prepared two separate interview questionnaires each of which consisted of four open-ended questions.

In order to check the internal validity, the questionnaire was examined by three experts in the field and the questionnaire was edited according to the feedback received. Then, to check the effectiveness of the questions, a pilot study was conducted with four teacher candidates and two primary school teachers. The questions were examined to see whether they were precise and clear and whether the answers given reflected the answers of the questions asked. The pilot study revealed that the open-ended questions were qualified and they were then employed to collect data from the participants in the actual study.

The interviews lasted approximately 20-25 minutes and they were all audio recorded. Before the interviews, the participants were told that the interviews would be audio recorded and whatever the participants said would be kept confidential. The participants were also told that no names but codes would be mentioned in the study. All these were thought to prevent possible situations that might affect the data negatively.

Validity and Reliability

After collecting data through interviews, the answers to the open-ended questions were analyzed by the researcher and an expert separately. Then, considering the main themes and sub-themes emerged from the data, the issues of “agreement” and “disagreement” were discussed. For the reliability computation, the reliability formula suggested by Miles and Huberman (1994) was employed (Reliability= Agreement / (Agreement+Disagreement). The result indicated that the reliability score was 91%. Miles and Huberman (1994) state that reliability scores above 70% indicate reliability for a study. Therefore, as being 91%, the reliability score of this study (90%) was considered reliable.

The primary school teachers and teacher candidates participated in the interviews were given codes and numbers. Teachers were coded in a way like ÖK_5, ÖE_12, ÖK2_17 (ÖK_5 : Female Teacher, 5-year experience; ÖE_12: Male Teacher, 12-year experience; ÖK2_17: Second Female Teacher, 17-year experience). Teacher candidates were coded as ÖA_K1, ÖA_E11 (ÖA_K1: 1. Teacher Candidate_Female; ÖA_E11: 11. Teacher Candidate_Male).

Data Analysis

The data of the study was analyzed by employing descriptive statistical analysis techniques of the qualitative analysis methods. Descriptive analysis is used to transform the raw data in a way that makes it clear and understandable for the readers and ready to use if required. In descriptive analysis, the data collected is summarized and interpreted in accordance with the themes determined before and direct quotations from the data are often shared in the presentation of the data (Altunışık and et al, 2001; Yıldırım and Şimşek, 2005).

FINDINGS

In this study aiming at exploring the perceptions of primary school teachers and teacher candidates of the use of mass media in teaching Turkish, semi-structured interviews were conducted with 20 primary school teachers and 20 teacher candidates. The responses to the questions are presented in the order of the research questions that the study addresses.

Table 2: The Competency of Primary School Teachers and Teacher Candidates Regarding the Use of Mass Media in Teaching Turkish

	Competency Levels		
	Competent	**Partially Competent**	**Incompetent**
Teacher Candidates	ÖA_K1, ÖA_K5, ÖA_K8, ÖA_E11, ÖA_E13, ÖA_E14, ÖA_E16, ÖA_E18, ÖA_E19, ÖA_E20		
		ÖA_K4, ÖA_K7, ÖA_K18	
			ÖA_K2, ÖA_K3, ÖA_E6, ÖA_K9, ÖA_E10, ÖA_K12, ÖA_E15
f **%**	**10** **50**	**3** **15**	**7** **35**
Teachers	ÖK_13, ÖE_12, ÖK_24, ÖE_13, ÖK_15, ÖK_7, ÖK_12, ÖE_8, ÖK2_17		
		ÖK_9, ÖK_25, ÖK_4, ÖK2_12, ÖE_5	
			ÖE_10, ÖE_21, ÖE_39, ÖE_33, ÖK2_9, ÖK_17
f **%**	**9** **45**	**5** **25**	**6** **30**

Table 2 illustrates the competencies of primary school teachers and teacher candidates regarding the use of mass media in teaching Turkish. Half of the teacher candidates (f=10) perceive themselves competent in using mass media in teaching Turkish; on the other hand, 7 of them perceive themselves incompetent and 3 of them perceive themselves partially competent. ÖA_K1 who perceives herself competent states, *"Yes, I feel competent. Tablets and TV sets are present in state schools already. I feel that I have been trained well to use them."* On the other hand, ÖA_K2 who feels incompetent states, *"I consider myself incompetent in using them. I believe that students should be thoroughly trained about how to use such materials in the materials development course."* ÖA_K7 who perceives herself partially competent states, *"I am partially competent because I can use computers effectively. Also, to me, newspapers are important communication tools. I believe that I can be a model to my students by reading newspapers. I can help them adopt this habit."*

As for the teachers, 9 out of 20 perceive themselves competent in using mass media in teaching Turkish and 6 of them perceive themselves incompetent and 5 of them perceive themselves partially competent. ÖE_21 states, *"Ministry of Education has provided in-service training. Also, a computer teacher has given us some training. I have a computer at home, but my students use the Internet better than me."* On the other hand, to

illustrate his incompetency in using mass media, ÖE_33 states, *"We are doing nothing unfortunately. We should definitely do something, but we don't have the necessary background knowledge, so we feel helpless."*

Table 3: The Mass Media Tools that Teachers and Teacher Candidates Use/May Use in Teaching Turkish

The Mass Media Tools	Teachers	f	%	Teacher Candidates	f	%
Projector (!)	ÖE_12, ÖK_7, ÖK2_17, ÖE_13, ÖK2_9, ÖE_10, ÖK_9, ÖK_4, ÖK2_4, ÖK_25, ÖK_17, ÖK_15, ÖK2_12	**13**	35.2	ÖA_K9, ÖA_K4, ÖA_K7, ÖA_K8, ÖA_K9, ÖA_E11, ÖA_E14, ÖA_E15, ÖA_E19, ÖA_E20	**10**	**25**
Computer	ÖK_15, ÖK2_17, ÖE_10, ÖK_4, ÖK_7, ÖK_17, ÖK_12, ÖK2_12, ÖK2_9	**9**	24.3	ÖA_K2, ÖA_K3, ÖA_K5, ÖA_E6, ÖA_K7, ÖA_E14, ÖA_E16	**7**	**17.5**
Internet	ÖK_13, ÖK_24, ÖE_13, ÖE_21, ÖE_39, ÖE_33, ÖK_25, ÖE_8, ÖK_17	**9**	24.3	ÖA_K2	**1**	**2.5**
Newspaper	ÖK_13, ÖE_8, ÖE_5	**3**	8.10	ÖA_K1, ÖA_K2, ÖA_K3, ÖA_K4, ÖA_K5, ÖA_E10, ÖA_K12, ÖA_K17	**8**	**20**
Magazine	ÖK_13, ÖE_5	2	5.4	ÖA_K2, ÖA_K3, ÖA_K4, ÖA_E10, ÖA_K17	**5**	**12.5**
Television	ÖE_39	**1**	2.7	ÖA_K1, ÖA_K2, ÖA_K3, ÖA_K4, ÖA_K7, ÖA_K8	**6**	**15**
Radio	----	----		ÖA_K4, ÖA_K5, ÖA_E10	**3**	**7.5**
Interactive whiteboard	-----	---		ÖA_K1, ÖA_E16, ÖA_E20	**3**	**7.5**

Table 3 demonstrates the findings about the mass media tools that primary school teachers and teacher candidates use or may use in teaching Turkish. As seen in the table, the majority of the teachers and teacher candidates perceive the projector as a mass media tool, which indicates that the participants have misconceptions about mass media. What follows the projector that the primary school teachers and teacher candidates would like to use is the computer. The Internet (f=9) and newspapers (f=3) come after the computer. One teacher states that s/he benefits from television. Of all mass media tools, the rare use of television and no use of radio indicate that teachers may have a tendency to use new technologies (the Internet) in their classes.

Teacher candidates (f=8) state that they would like to use the projector which is followed by newspapers (f=8). As seen in the table, when compared to primary school teachers, teacher candidates think that they can benefit from newspapers more in their classes. This may lead to a conclusion that teacher candidates keep track of technology and thus they have more opportunities to follow current events, therefore, they think that they can benefit from newspapers more.

The following extracts illustrate primary school teachers' views about the use of mass media in teaching Turkish: *"There are magazines we have subscribed to. We make use of these magazines and the Internet and the projector… We have a projector in the classroom. We can surf the net and find the course-related topics and*

make presentations to our students." (ÖK_13), *"Whenever we have the opportunity, we watch the education(al) programs on TV. I have subscription to a newspaper, I follow (things) there, I follow the educational publications there."* (ÖE_21).

ÖA_K1, one of the teacher candidates states that she mostly prefer computers, television and newspapers of all mass media tools and says, *"I prefer computers, television and newspapers most because I can concretize the information by the help of visuals (there). For example, I think that television may be used. We can tell a short story to the students, say, our topic is grammar and adjectives, I can ask students to spot the adjectives in the story. In this way, I can help them improve their listening skills. At the same time, I can ask students to write the adjectives in the story they have listened, which improves their writing skills."* ÖA_K2, another teacher, states, *"As a teacher candidate, I suggest mass media tools like newspapers, magazines and the Internet. If it is used effectively, television is also beneficial to the students."* Another teacher candidate ÖA_E10 states, *"I can use computers and I can make use of newspapers. Students may be helped to prepare a monthly magazine. This may help students improve their writing skills as well as their reading skills. It also helps the students realize their spelling and punctuation mistakes."*

Table 4: The Views of Teachers about the Benefits and Limitations of Using Mass Media in Teaching Turkish

The Benefits of Mass Media	Teachers	f	%
Contributes to permanent learning	ÖK_7, ÖK_12, ÖE_8, ÖK_4, ÖK2_12, ÖE_5	6	10.7
Ensures active participation	ÖK_7, ÖK_12, ÖK_13, ÖE_21	4	7.14
Arouses interest and attention	ÖK_15, ÖK_12, ÖK2_9, ÖE_21	4	7.14
Makes learning enjoyable	ÖK_7, ÖK_12, ÖK2_9	3	5.36
Concretizes learning	ÖE_10, ÖK_24	2	3.57
Provides a constructive learning environment	ÖK_13, ÖK_7	2	3.57
Enriches learning environment	ÖK_25, ÖK_17	2	3.57
Improves research skills	ÖK_13, ÖE_33	2	3.57
Improves imagination	ÖK_15	1	1.78
Improves children audio and visual learning skills	ÖK_17	1	1.78
Increases motivation	ÖE_13	1	1.78
Enriches vocabulary knowledge	ÖE_12	1	1.78
Limitations of mass media			
Time consuming	ÖK_24, ÖE_10	2	20
Addictive	ÖK_13, ÖE_5	2	20
Distractive	ÖE_13, ÖK2_12	2	20
Belated feedback	ÖE_12	1	10
Digressing from the main topic of the class	ÖE_13	1	10
Creating disinformation	ÖE_5	1	10
Causing boredom after long uses	ÖK2_12	1	10

Table 4 illustrates the benefits that primary school teachers state regarding the use of mass media in teaching Turkish. As seen in the table, teachers find the use of mass media beneficial in terms of ensuring permanent learning, active participation, arousing interest and attention and making learning enjoyable. On the other hand, teachers state that the use of mass media has some limitations such its being time consuming, addictive and distractive. In relation to these issues, ÖK_13 says, *"When we give homework that requires the use of mass*

media, students are inclined to do some research. It brings variety to the classroom. In this way, students learn by doing not by memorizing. This makes students more active at the same time. We can use mass media not only in teaching Turkish but also other courses. For example, for the science course, students may record the weekly weather forecast from the TV. I assign different topics to have them do research on the Internet. Of course, it is bad when it is used too much. It may cause addiction."

Table 5: The Views of Teacher Candidates about the Practices Regarding the Use of Mass Media in Teacher Education

Practices	Teacher Candidates	f	%
Almost no practice regarding the use of mass media	ÖA_K3, ÖA_K4, ÖA_K7, ÖA_K8, ÖA_K9, ÖA_K12, ÖA_E13, ÖA_E14, ÖA_E15, ÖA_K17, ÖA_E18, ÖA_E20	12	57.1
Practices regarding the use of the projector	ÖA_K1, ÖA_K2, ÖA_E10, ÖA_E11	4	19.1
Powerpoint presentations	ÖA_K5, ÖA_E6, ÖA_K7, ÖA_E16	4	19.1
Listening to music on radio in the English class	ÖA_E10	1	4.77

Table 5 presents the views of teacher candidates regarding the use of mass media in teacher education. As seen in the table, the majority of teachers find these practices highly insufficient. ÖA_E20 states, *"There are a lot of limitations related to this (the use of mass media) and there is almost no practices (related to this). They behave as if we are not involved in this Fatih project. On the contrary, the classrooms are equipped with (many tools) as a result of these projects, so there should be seminars, trainings and practices related to them."* Similarly, ÖA_E10 also finds the practices in teacher education insufficient and he draws attention to the insufficiency of the mass media tools and related practices in teacher education by stating, *"There are few materials related to the use of mass media. Apart from them, we use projectors and computers. Also, I remember listening to music on radio but this was in the English class."* In addition, ÖA_E6 expresses his opinions by stating, *"Believe me, there is almost no effort (in the use of mass media) in the education faculty. We generally use computers in classes. That's why, I can't tell you whether mass media has an effect on the learning process or not because we do not take classes in a way mass media in used."* Also, ÖA_K3 says, *"In our faculty, there is not much about the use of mass media in teaching. If there were some practices related to it, I wouldn't consider myself incompetent. Most of the students consider themselves incompetent (in using mass media)."*

Table 6: The Suggestions of Teachers and Teacher Candidates about the Use of Mass Media in Teaching Turkish

The Suggestions	Teachers	f	%	Teacher Candidates	f	%
Improving the technological equipment in schools	ÖK_15, ÖE_10, ÖE_39, ÖK_25, ÖK_12, ÖK2_12	6	42.9	ÖA_E6	1	6.25
Providing in-service training	ÖE_12, ÖK_7, ÖE_5	3	21.4	---	---	---
Placing importance to teacher education	ÖE_33, ÖK2_17, ÖE_5	3	21.4	ÖA_K3, ÖA_K7, ÖA_E16	3	18.75
Publishing school newspapers and magazines	ÖK_4	1	7.14	ÖA_K1		
Providing hands-on education via tablets	ÖK2_9	1	7.14	---	---	---
Encouraging teacher candidates to follow	---	---	---	ÖA_K7	1	6.25

scientific publications						
Organizing conferences about press and publishing	---	---	---	ÖA_K7, ÖA_K12, ÖA_E18	3	18.75
Giving importance to hands-on training	---	---	---	ÖA_K7, ÖA_K9, ÖA_E10, ÖA_E13, ÖA_K17, ÖA_E18, ÖA_E19, ÖA_E20	8	50

As seen in Table 6, the suggestions of primary school teachers regarding the use of mass media in teaching Turkish are mostly on the improvement of technological equipment in schools. For instance, ÖK_12 suggests, *"There are no computers and Internet connections in the classrooms. There may be some improvements related to this. There should be limitless Internet access everywhere (at school)"*, which shows the insufficiency of technology. ÖE_12 who considers in-service training essential to ensure the effective use of mass media in the Turkish course says, *"First of all, teachers should be given seminars to teach their students how to use mass media. In relation to this, children (students) should be told what programs they should watch on TV, what websites are useful when using the Internet and also what harm bad websites may give to them. Therefore, teachers should be given training on these matters at first. Ministry of Education should organize courses and seminars to achieve this."* Another teacher ÖE_5 emphasizes the importance of seminars by stating, *"I think teachers and students should be involved in seminars and courses related to mass media. In the Informatics courses, students may be taught not only how to use computers but also how to make use of other tools."*

The suggestions of the teacher candidates about the use of mass media in teaching Turkish are mostly on the importance of hands-on training (they take) before they start their profession. ÖA_K7 states, *"Teacher candidates might be encouraged to use mass media tools like computers, videos, cameras etc, which may help them try other things rather than traditional teaching methods. In order to bring variety to the learning environment, different tools may be benefited. For example, conferences may be organized related to press and publishing."* ÖA_K9 also make suggestions by stating, *"There should be more practices. It is not only making the teacher candidates informed about mass media but also training them individuals who both learn and use them."*

RESULTS, DISCUSSIONS AND SUGGESTIONS

The results of this study aiming at exploring the perceptions of primary school teachers and teacher candidates of the use of mass media in teaching Turkish reveal that half of the participants have low perceptions of their competency in using mass media in teaching Turkish.

The results also reveal that projectors and computers are the ones that teachers and teacher candidates mostly use or may use. Considering projectors as a mass media tool indicates that teachers and teacher candidates have misconceptions about mass media tools. Computers as being the most commonly used tool by teachers are followed by the Internet and newspapers as widely used mass media tools. The least used mass media tools, on the other hand, are magazines and television. This finding contradicts the findings of Fer (2004) –the low use of computers by teacher candidates, and the findings of Güven (2003) –the frequent use of magazines, pictures and the like. Radio, on the other hand, is a tool that is not used at all. This may lead to the conclusion that teachers have a tendency to use new technologies (like the Internet) in their classes.

Among the mass media tools that teacher candidates may use, newspapers come second after computers. This might lead to the conclusion that teacher candidates follow the trends in technology more closely, so they have more opportunities to keep up with the current news. Moreover, the quality of education they have received in education faculty might be one of the primary reasons why teacher candidates want to benefit from newspapers more. Toruk (2007) has also found that the number of students who believe that more importance will be placed on newspapers is high. Furthermore, the same study revealed that students consider newspapers the most reliable mass media tool which is followed by television and the Internet.

The results of the study indicate that teachers consider the use of mass media in teaching Turkish beneficial because it ensures permanent learning, active participation, arouses interest and attention and makes learning enjoyable. Signes (2001) and Tafani (2009) have also found that mass media promotes motivation. In addition to its benefits, teachers also emphasize the limitations that mass media has. Among the limitations are its being time consuming, addictive and distractive.

Another important result of the study is that the majority of teacher candidates think that the practices related to the use of mass media in teaching Turkish is rather insufficient. Teacher candidates think that mass media tools used in teacher educations is rather insufficient and emphasize the fact that such practices are not enough in courses.

As for the suggestion of primary school teachers about the use of mass media in teaching Turkish, the results show that the suggestions are mostly on the improvement of the technological equipment in schools. On the other hand, the suggestions of teacher candidates are mostly on the importance of hands-on training they should receive about the use of mass media before they start their profession.

In the literature review, there are studies revealing the benefits of the use of television as one of the mass media tools in improving students' listening skills (Poon, 1992; Baker, 1996). In addition to this, Bahrani and Sim (2012) emphasize the fact that mass media also improves speaking skills. Furthermore, Mackenzie (1997) states that news on radio and television may be benefited at any language level in teaching English. Therefore, considering the results of this study, it might be suggested to teachers to make use of news on radio and television as well as the Internet in teaching Turkish in primary schools.

In the light of the findings of this study, the following suggestions might be put forward:

- Doing this study with different sample groups might give more insights into the use of mass media.
- The reasons for the limited use of mass media in higher education might be explored.
- The perceptions of instructors of the use of mass media in teacher education might be investigated.
- Teachers should be trained about the use of mass media in teaching Turkish and other courses via in-service training or before they start their profession.

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THE PROCESS OF DOCTORAL DISSERTATION: FROM THE ADVISOR'S PERSPECTIVES

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ABSTRACT

This study is hold with the aim of putting forward the self experiences of faculty members advising doctoral students among graduate students registered The Educational Sciences Institute about writing doctoral dissertation together with their expectations from the doctoral students in the process of writing dissertation, identifying the problems encountered and providing solutions to these problems. This research was organized as a descriptive study based on qualitative method. In the research, criteria sampling method that is one of the purposive sampling methods, is used. In the research, the criteria as giving lectures at Anadolu University, Educational Science Institution, to have been completed at least one Ph.D thesis of his/her students, and being an advisor of doctoral thesis right now are required. 21 faculty members were determined in accordance with being appropriate to these criteria. Semi-structured interviews were made with volunteers from faculty members. The data were analyzed descriptively. As a result of the data analysis most of the advisors stated that they had difficulty in defining the topic and problem during the process of defining research problem and doctoral students had problem in identifying and writing the results. Most of the advisors stated that they worked together with their advisees to solve problems. Advisors answered the question about which academic competences an academic member should have to consult. In these competences, they stated methodological proficiency and field knowledge proficiency as important. Some advisors recommended following the innovations in their field publishing and having a scientific attitude in the academic competences. Advisors answered the question about which academic competences an academic member should have to consult. In these competences, they stated methodological proficiency and field knowledge proficiency as important. Some advisors recommended following the innovations in their field publishing and having a scientific attitude in the academic competences.

Key Words: Doctoral Dissertation Process, Advising Education, Doctoral Advisor.

INTRODUCTION

As well as being the instructional summit of graduate education period, Philosophy of Doctorate is a prominent first step in the course of academic studies; hence, Ph.D. programs are considered to be the most fundamental stage of raising scientists and research crew. Pioneering legal amendments concerning doctorate programs in our country are rooted in the instructional/educational guidelines of Istanbul University developed on the basis of the regulation, a.k.a. 1933 University Reform, approved in 1934. As more and more universities started to offer higher education opportunities, graduate education became more and more common in time. Analysis of the types of graduate studies reveals that it had only a single stage form—PhD—lasting 3 to 4 years until 1970s. Between 1970 and 1982, American model was adopted, and graduate studies modified to be provided in two stages—MA & PhD—and to be completed with a thesis (Bozan, 2012).

Most comprehensive regulations regarding higher education took place in 1981 with the enactment of Law on Higher Education, #2547. This law assigned the authority of commencing, running, and terminating graduate studies to institutions, and this led to the launch of Institute of Science, Social Sciences, Health Sciences, and Educational Sciences within the body of universities, which was the line drawn between graduate education

and units providing undergraduate training (Sağlam, 2007). Tenures of professors working at institutions belong to faculties, and institutions do not have their own tenure for professors.

According to the latest amendments, there have to be at least 3 professors—two of whom have to hold a PhD degree—for MA programs and at least 5 professors—two of whom have to be full professors—for PhD programs at institutions; furthermore, institutions have been granted the right to start joined programs via cooperation with other institutions (BHE, 2010).

Among the aims determined for doctorate programs, universities underlined that individuals with a PhD degree have to be knowledgeable enough at least to conduct a research. The purpose of graduate studies, as outlined by the 18th article of the Regulation on Graduate Education-Training, is to equip individuals with skills necessary to administer research studies independently, to interpret scientific phenomena in all dimensions, and to conclude new synthesis. Similarly, graduate students who complete their courses successfully, who succeed in comprehensive exams, and whose dissertation proposals are accepted and approved are required to fulfill one of the following conditions entailed by the 39th article of the same regulation; bringing innovation to science in general, devising a new method, or adapting an already existing method for a new situation.

Davis and Parker (1997) state that there are 3 basic goals of a dissertation: to conduct research independently, to contribute to science with the research, and to make the research accessible for everybody through related documentation. Based on these three foundational features, it is possible to conclude that a dissertation is "*the documentation of a research study contributing to science.*"

In our country, dissertations are completed under the supervision of an advisor and two members of dissertation jury appointed by the head of the program. Not only do the hard work by and the qualities of the PhD student, but also the role of the mentor plays a significant part in the successful completion of a dissertation, and both the starring character and primary responsibility are acted and taken by the mentor during this process. Bakioğlu and Gürdal (2001) underpinned that the most complicated and difficult task for professors was to advise dissertations and that being an effective researcher was one of the prerequisites to be an efficient advisor, which emphasizes having adequate research skills for professors.

Following are qualities that a competent advisor should bear as defined by Easteby-Smith, Thorpe and Lowe (2002):

1. Being knowledgeable about the field and methods
2. Being an active international researcher, meaning that publishing articles in international periodicals, attending international meetings, and cooperation with other researchers abroad
3. Being able to regularly and realistically organize time
4. Being agile in responding to emergencies, and encouraging PhD students to become independent and self-governing
5. Being able to provide feedback on the works of students within one or two weeks
6. Being accessible

Of all the above qualities, being accessible is considered to be the most definitive criterion during choosing an advisor by Orer, Kocadereli & Demirel (2010), and Wisker (2001). Besides, being friendly, open, supportive, and using criticization positively are also added to the list of necessary qualities by the same researchers.

What matters most, apart from receiving a decent education during PhD, studies is the relation between the advisor and the advisee. As for the findings of research on the relation between advisors and advisees, some state that it should be in the form of an advisor system, the advisor guiding the advisee about a diverse variety of topics (Crookston, 1972; Monsour and Corman, 1991; Paglis, et.al, 2006; Wrench and Punyanunt, 2004) whereas some others think the relation with the advisee should not be that close, should be limited with the main responsibility of the advisor to furnish the advisee with related knowledge and skills to improve academically and professionally (Crookston, 1972; Monsour and Corman, 1991; Paglis, et.al., 2006; Wrench and Punyanunt, 2004).

Guiding and supporting are two most vital features of an advisor as far as the advisees are considered (Cronan-Hillix, et.al, 1986). In addition, being honest, open, emphatic, affectionate, sincere, and sharing (Cronan-Hillix et.al, 1986) are also among the expectations of advisees from their advisors together with contribution to their professional development (Schlosser, Knox, Moskovitz, and Hill, 2003). Such advisor attributes and behaviors are invaluable in terms of easing participation in graduate academic world (Austin, 2002; Myers, 1998; Myers and Martin, 2008), completing the PhD process on time and not quitting the program (Golde, 2005; Hepper and Hepper, 2003; Mauch and Birch, 1993), growing positive perceptions regarding the academic world (Kelly and Schweitzer, 1999), conducting research (publications) (Paglis et.al, 2006), devising a strategy for career planning, and getting to know their colleagues (Dixon-Reeves, 2003). In short, what advisees hope to find in their advisors can be summarized as being accessible, sparing enough time for them, helping how to write and edit a dissertation, and adding onto their academic and professional development (Golde, 2000; Nettles and Millett, 2006; Schlosser et.al. 2003).

Related research indicates that the quality of the relation between the advisee and the advisor directly affects the PhD process. Especially, the period during which dissertations are documented is the most fragile since the interaction between the two parties climax within this period. In this sense, it would be logical to conclude that positive interaction during this phase works for the student (Hartnett, 1976), influences the relation the advisee has with the department affirmatively, helps the participation of the advisee into the academic world (Gerholm, 1990), and facilitates correct timing of the completion of dissertations (Lovitts, 2001). Conversely, a weak and unqualified relation generally causes a majority of PhD students to drop out of the program (Lovitts, 2001; Golde, 2005).

Expectation is the core component of the interaction between the advisor and the advisee. Relevant studies point out that the imbalance between the expectations that an advisor has from the advisee and vice versa often leads to troubles (Ayas and Kala, 2007; Burgaz and Şentürk, 2007). Open and sincere sharing of expectations between the parties is regarded as a significant step in order to overcome related problems. Not only do the expectations of the advisee from the advisor, but also those advisors have from the advisee matter. Knox et.al (2006) believe that personality traits and professional competence of the advisee also has an effective part in the relation between the advisor and the advisee. Accordingly, what the advisors expect from the advisee are being motivated about the dissertation, locked on the target, hard working, career-oriented, clever, responsible, trustable, and having a sense of humor. Some of the negative attributes of the advisee, as stated and noted by the advisors, are being restless, over self-confident, headstrong, lazy, selfish, and insecure, which would make cooperation more difficult than it already is.

Closeness of the relation between the advisee and the advisor should also be balanced. Expectations other than academic ones, such as exercising and playing music together, should never prevail and cloud academic performance. Neither should let the ultimate reason that has brought them together slip out of their minds, which is designing and conducting a scientific research. Especially the advisors helping more than one advisee should keep a record of their meetings (one copy for the advisee) so that decisions made on mutual agreement will not be forgotten, and any serious conflict regarding those decisions will not arise. Some relation models that cause considerable malfunctions on relations are self-exhaustive advisor; overstepping advisee; not following given feedbacks; exploitative advisee; and advisees lacking self motivation skills (Orer, Kocadereli and Demirel, 2010).

In some departments/programs, it is the advisor who determines his/her advisees whereas the advisees get to choose their advisors in some others. Phillips and Pugh (1994) think that choosing the advisor is one of the prominent stages of PhD studies. Zhao, Golde & McCormick (2007) state that the criteria to select advisors mostly define the satisfaction level in advisor-advisee interaction. Regardless of all, a healthy and positive interaction between an advisor and an advisee delivers efficiency over the entire process and freedom from academic strings onto the advisee to become a self-governing researcher while adverse interaction generally winds up with the advisee discontinuing the program. (Lovitts, 2001; Golde, 2005).

According to Kluver's study (1997), graduate students think that meetings with the advisor on a regular basis may be considered as definitive criterion for the completion of dissertations on time. Consulting with either the advisee or the advisor regularly once a week or two weeks eases advisee's progress. These sessions can help the advisor to monitor the advisee without much effort and to respond to emerging problems quickly and effectively. What plays the crucial role in this process is an advisor sticking to his/her appointments (cited in: Spillett and Moisiewicz, 2004).

Ample amount of research indicates that efficient advisering expands the width of academic intellectuality for the advisees (Smallwood, 2004; Lovitts, 2002; Barnes and Austin, 2009, Robinson, 2008). Effective academic advisering is considered to be one of the determiners of completing or discontinuing the program for the advisees during the entire process (Golde, 2000; Lovitts, 2000; Wong, Selke and Thomas, 1995). For this reason, the relation between an advisor and an advisee can be likened to apprenticeship or to the one between a master and a prospect. However, professors are not supported by any kind of training about advisering skills. Perception of advisership within graduate education is as a phenomenon molded with trial and error and reflecting on one's or others' experience. Contrary to this, advisership skills are not innate but they are rather of behaviorist nature, and learned and improved through education and experience (Orer, Kocadereli and Demirel, 2010).

It is best advising for novice advisers, to review successful dissertations, to share their projects with colleagues, even to co-adviser several dissertations in order to improve themselves and their confidence. Confidence is deeply rooted in experience. A good way is to partake in juries as often as possible to accelerate the feeding process (Orer, Kocadereli and Demirel, 2010).

Academic dignity of the adviser is the foundation of trust for the advisees. Blessed is the adviser who referees in journals, partakes in congresses, and publishes books because s/he promises much to share. Training on advisering skills is an indispensable part of academic move-ahead (Orer, Kocadereli and Demirel, 2010).

As aforementioned, successful advisering and cooperation with the relevant institution vitally matters for the attainment of program goals as much as the specifically developed programs do. Literature review has shed light on several studies conducted on responsibilities and roles of advisers and disputes between them and the advisee. Yet, no research has been detected regarding a full description of the process by advisers who have already been there.

This research is significant because it views the dissertation process from the angle of adviser professors who experienced the same process earlier. Though indirectly, the findings are expected to inform other advisers actively involved in dissertation process, PhD students, and program heads of graduate institutes; hence, to help developing strategies aiming to better graduate education.

Gains during thesis stage, considered as the last phase of the process, should be viewed as the climax for the advisee to be released off academic dependency and to become an independent researcher. A comprehensive description of this process will surely be beneficial for not only advisers and advisees, but also for the administrators. There appears to be no written regulations and guidelines on advisers' academic duties. However, relevant research offers findings underlining that definition of academic duties is of major priority for thesis documentation phase (Robinson, 2008). In this regard, it would be reasonable to state that it is important to describe the advisering and advisee experiences of adviser professors. All aspects considered, this research is expected to contribute to graduate education.

Conducting graduate education since 1998-1999 academic year, Anadolu University Institute of Educational Sciences administers graduate programs in educational sciences and other teacher training programs. Primary purpose of the Institute of Educational Sciences is to contribute to the system in order to make it work more effectively and efficiently by helping raise personnel bearing the qualities required by Turkish Education System (http://ebe.anadolu.edu.tr).

This study aims to describe the opinions of advisor professors—presently or formerly conducting dissertations formally at the Institute of Educational Sciences—about their own PhD experience and to picture what their present advisees think about thesis documentation phase. Answers for the following research questions have been sought under the light of discussions:

1. What do the advisors think about their own advisors?
2. What do the advisors think about their own dissertation experience?
3. What do the advisors think about themselves as advisors?
4. What do the advisors think about their advisees' dissertation experience?
5. What do the advisors think about 'advisment training'?

METHODOLOGY

This study was designed descriptively. In this study, semi-structured interviews were conducted with the advisors. What secures the reliability of practice for semi-structured interviews is the exactness of the researcher in terms of manners and behaviors towards each and every participant (Gay, Mills and Airasian, 2006; Yıldırım and Şimşek, 2006).

Participants

In the research, criteria sampling method that is one of the purposive sampling methods, is used to select participants. Participants in the study were selected using a criterion sampling technique. Patton (1990 p. 238) indicates that *"the logic of criterion sampling is to review and study cases that meet some predetermined criterion of importance"*. Participants are required to have advisered at least one dissertation and to be still advising at least one other dissertation. Based on the data obtained from the Institute of Educational Sciences, 23 professors complying with the selection criteria were contacted. Later, those who were voluntary to participate in the study were chosen. Two of the professors stated that they wouldn't be able to take part in the study due to their busy workload; thus, following is the demographic information on 21 participating professors.

Table I: Demographic Characteristics of Participants

Characteristics	Participants	**F**
Gender	*Female*	10
	Male	11
Current number of doctoral advisees	*1*	10
	2	3
	3	1
	4	3
	5	1
	7	1
	10 and plus	2
Discipline	*Primary Education*	2
	Computer Education and Inst. Tec.	4
	Educational Siciens	5
	Foreing Language Education	3
	Special Education	6
	Fine Arts Education	1
Rank	Professor	9
	Associate Professor	8
	Assistant Professor.	4

As can easily be seen in Table 1, of all the participating advisors/ mentors 11 are male, and 10 are female. The number of dissertations that the participants have advised so far ranges from one to 10 or more. As for the

programs, the highest number of participants belongs to Special Education Program. Regarding the academic titles held by the participants, 9 are full professors, 8 are associate professors, and 4 are assistant professors.

Data Collection

In the first phase of the study the interview questions were prepared regarding the aims of the present study. The questions were given to three professionals from the field in order to be checked in terms of context and correctness. Depending upon the opinions of the professionals, some of the interview questions were replaced and the final version of the questions was formed. In order to evaluate the interview questions, one pilot interview was conducted by the researcher. A total of 26 questions were asked under five basic titles to the participants during the interviews. Before the study started advisors had been informed about the purpose and process of the study. During this meeting, all the advisors were also informed about the data collection process. They were told that the data would be collected using a tape recorder. The interviews would be recorded and the data would be transcribed verbatim by the researcher. Besides, the data would only be listened and read by the researcher but nobody else. At the end of this meeting, volunteer advisors were named as the participants of the study and a written consent was signed by the participants and researcher. All interviews were conducted face to face between September and December of 2011. The interviews were conducted on the dates and hours which the participants determined. The interviews lasted between 20 and 100 minutes. Each participant was assigned a code number to protect confidentiality.

Data Analysis

Collected data were analyzed descriptively. During the descriptive analysis, the collected data are presented according to the questions used in the interviews (Yıldırım & Şimşek, 2006). During the present study, as a requirement of descriptive analysis, each interview was transcribed. Transcriptions of the interviews do not include interjections and exclamations such as “huh-huh, oooo, hmm”. After developing the draft interview coding form, two researchers marked the appropriate item for each question of each participant independently. In order to examine the consistency of the researchers about marking the answers on the interview coding forms, markings were compared and some important changes in the categories were done. After these changes, the last version of the interview coding form was constituted. In order to determine the inter-raters reliability, all the interviews were read and appropriate categories were marked for all the questions of all the participants by the researchers independently. The reliability was between 85% and 100% with an average of 92.5%.

RESEARCH FINDINGS

This study aims to describe the opinions of advisor—presently or formerly conducting dissertations formally at the Institute of Educational Sciences—about their own PhD experience and to picture what their present advisees think about thesis documentation phase. The findings of the study are organized and presented guidance of the research questions. Findings can be summarized as follows:

The Advisors’ Opinions About Their Own Ph.D. Thesis Advisors

Upon being asked what they think about their own dissertation advisors in the past, advisering professors (K1, K16, K11, K19, K21, K17) stated that their own advisors were academically competent and experienced. Some of the participants (K1, K5, K20, K11, K15, K8) mentioned several *negative attributes* about their old advisor such as *ambitious, angry, hard to please, not trusting the advisee, asking for what s/he does not possess, not contributing to the dissertation process, indecisive, and inconsistent*.

When the participants were asked to describe the interaction between them and their old advisors, most of them expressed that their interaction was mainly positive. *Accessibility* (K7, K11, K14, K17, K10, K19, K20, K21), was noted as the most prominent feature in terms of interaction, and some others verbalized by the participants are *equal colleague relation* (K5, K14), and *civilized* (K6), and *friendly* (K4) interaction. A considerable amount of participants (K17, K21, K1, K2, K5, K11, K7, K19, K16) stated that they *generally* had *face-to-face interactions* with their advisors in the past. Some of them (K20, K3, K9, K12) noted that they

didn't have the chance to frequently see their advisors due to misfortunes on the advisors such as being out of town, which had a negative influence on the dissertation process.

Both the program and the advisors were emphasized as determining agents when the participants (K1, K3, K4, K5, K6, K10, K11, K12, K15, K16, K21) were asked about choosing their advisors. This was perceived positively and negatively by different participants. However, 6 participants (K7, K9, K14, K17, K18, K20) who stated that *they had chosen their own advisors* in the past underlined that it had had a positive effect on dissertation process.

The Advisors' Opinions About Their Own Dissertation Experience

Another difficulty said by the participants (K1, K3, K5, K6, K7, K15, K16, K17, K18, K19, K20) regarding the formulation process of research questions/theme was *to determine the research subject and to define research problem*. Furthermore, they (K15, K20) expressed that this was the result of *being left alone and having indifferent advisors*. Most of the participants (K1, K2, K3, K5, K6, K11, K16, K17, K19) told that they had overcome such problems through the *guidance from the advisors* whereas some (K5, K8, K10, K11) stated that they had solved this problem by the help of *the studies they had done for seminar course, their individual efforts, on their own, or through help from peers*. Still, there are some other participants (K15, K6, K7), few though, who verbalized that *they had had no difficulty* with respect to identification of the research problem during their *dissertation process*.

Almost half of the participating advisors (K2, K4, K8, K9, K10, K12, K14, K15, K18, K21) stated that they had gone through *difficult times writing the literature review for their dissertations*. *Lack of sources in Turkish* (K1, K5, K10, K18, K13, K21) *and difficulty in reaching foreign sources*(K11, K5, K10, K16, K18, K19) were recorded as the most frequent reasons for this problem. Besides, following were also noted as other reasons leading to such problems; *no accessible internet connection*(K11, K20, K19)*, lack of technological support* (K2, K7)*, late attainment of sources* (K2, K5), *not being able to reach the full texts of studies* (K3, K7)*, lack of a guide* (K20)*, and being unaware of concepts related with research skills* (K20, K7, K19). Alternative solutions that the participants had found for the aforementioned problems were bringing foreign sources with their own means (K5, K6, K10, K15, K16, K7), making use of other universities' databases, visiting libraries (K10, K16, K7), and embassies (K11), and appealing to the thesis center of Board of Higher Education(K6, K1, K16, K20). One of the participants (K1) said that s/he had used the reference list of other studies while another one (K7); had learned a foreign language in order to overcome such problems. A small number of participants (K4, K12, K8, K21) told that they hadn't experienced difficulty about this since they had had a good command of foreign language (K12, K21), the databases of their universities had been rich (K21), and that they had regarded the process as an exciting one (K6).

A majority of the participants (K1, K2, K4, K7, K8, K9, K10, K12, K14, K15, K16, K19) mentioned that *they hadn't undergone any difficult process during determining the research method.* Three of those (K3, K11, K18) who had problems in this process told that statistics had been the biggest trouble for them. Similarly, two participating advisors (K6, K20) verbalized that they had experienced several hardships stemming from inadequate guidance by their advisors about research methods. Apart from these, other problems emphasized by the participants concerning this phase are; advisors' insist on a popular research method (K3), being incompetent to devise a data collection tool (K11), being indecisive about research design (K3, K12), inadequacy of courses on scientific research methods during classroom phase of the process (K13), not learning the entire research process through practice (K21), difficulty to find field experts for reliability and validity analyses (K11), problems during practice (K11, K3), no-return of some questionnaires (K11, K3), being unable to interpret the data (K17), and not making use of technology during data collection process (K15).

Participants talked about different solutions they had employed for the problems they had had during determining the research method for their own dissertations. Among the participants, 4 (K1, K8, K10, K16) stated that academic competence of and guidance by their advisors had been helpful enough to overcome the problems that had occurred during the dissertation process. On the other hand, 4 (K8, K9, K14, K17, K19) other participants (K7, K11, K18) noted that it had been significantly beneficial to have taken different courses on

research methods during completing their courses. Likewise, 3 participating advisors (K1, K15, K13) stated that they had sought help from others with better skills at statistics. Finally, one (K15) said that books had been useful for him/her while another one (K13) told that it was his/her individual research efforts that had been effective tackling such problems.

Almost half of the participants (K3, K4, K5, K7, K8, K9, K14, K16, K19) mentioned that they had gone through difficulties identifying the findings and documenting them during their dissertation process. Following are several examples to such problems: *Difficulty in determining and expressing the findings* (K1, K2, K10), *and receiving no support from the advisor about this* (K12)*; difficulty in finding related examples* (K1), *integrating the findings with those of other studies* (K6)*, in reaching findings* (K8), *making use of computer programs effectively* (K11), *developing a model* (K11), *and long-winded process for identification of findings* (K13). Some of the participating advisors told that they had appealed to their advisors or a member of the dissertation supervision team while 3 of them had been assisted by their peers to overcome difficulties in determining the findings.

Participating advisors stated various reasons for difficulties they had experienced during the reporting process of their dissertations. Some of them are *difficulty in academic writing skills* (K1, K6, K10, K21), *lack of advisor support* (K13, K20), *inability to come up with an example* (K1, K21), and *inefficient use of computers* (K11). Generally, the advisors (K1, K10, K16, K17, K21) said that *suggestions by their advisors* had been influential in order to tackle those problems they had experienced during reporting their research. Alternatively, *reviewing previous theses* (K1, K7, K10, K1)*, studying books on research methods* (K7*), and getting help from peers* (K12) *are among the other solutions stated by the participants.* Still, some others (K1, K2, K3, K5, K8) expressed that they hadn't felt any difficulty *since they had taken courses on research methods earlier, they had been good at computers, and they had been provided with the chance to analyze and study the guidelines for reporting theses published by their institutes.*

The Advisors' Opinions About Themselves As Advisors

Upon being asked what they think about themselves as advisors, participants (K1, K3, K4, K6, K7, K9, K10, K11, K12, K13, K16, K19, K20, K21) generally stated that they held *positive advising qualities*. Of these qualities, the subjects emphasized especially *helping and guiding the advisee*. Most of the participating advisors (K4, K5, K9, K10, K12, K15, K20, K21) were determined to describe the relation they have with their advisees *as open and positive with the advisor being the main determiner of the type of the relation.*

A bigger portion of the subjects (K1, K2, K3, K5, K6, K7, K9, K10, K11, K13, K18, K19) stated that *they preferred to hold face-to-face conversations with their advisees*. Some said (K2, K3, K4, K5, K13, K16) that they had *regular sessions* with their advisees whereas some others (K6, K7, K9, K11, K12, K14, K19) noted that *interactions took place when necessary.* Four of the subjects (K1, K4, K5, K14) mentioned that the advisees living in the same city were allowed to visit them *without any appointment*.

Again a majority of the participants (K3, K4, K12, K13, K15, K17, K18, K21) underlined that *it was the advisee to choose the advisor*. However, a few of them (K2, K7, K11, K14, K6, K21) noted that *it was the head of the program, themselves, random assignment, or mutual agreement that set who would advisor whom*.

Participating professors (K1, K7, K8, K14, K16, K17, K18, K21), expressed that *they had been positively influenced, as an advisor, by the behaviors of their own advisors in the past*. Yet, some (K1, K2, K8, K11, K13, K15) underpinned that *they were able to turn the negative attributes of their own advisors in the past into positive results for their own current advisees*.

What professors stated about *the factors influencing the dissertation process* can be divided into two as *advisor-based and advisee-based*. Accordingly, some professors (K2, K8, K10, K14) mentioned that *advisee's not being a member of the university and their heavy workload were leading reasons* with respect to advisee-based factors: Two participants (K13, K14) emphasized that *the personality and academic characteristics of the advisee* affected the mentoring process. Among the advisor-based factors, *business of academic studies or*

classes/courses and high number of advisees were noted by the participants (K4, K5, K7, K8, K9, K10, K11, K12, K13, K14, K15, K17, K18, K19) as *advisor-based factors negatively impacting the dissertation process*.

The Advisors' Opinions About Their Advisees' Dissertation Experience

Almost all of the participants (K1, K3, K4, K5, K6, K7, K8, K10, K12, K13, K14, K16, K17, K18, K21) said that *problems* with their advisees usually emerged *during determining research subject and defining the research problem.* Some of the subjects (K3, K4, K6, K10) pointed hard-to-achieve targets of the advisees as the main reason of this problem. *Directing the advisees to similar previous studies and other sources in the field and sharing their own resources* are two strategies that participating advisors (K1, K3, K4, K5, K6, K8, K9, K10, K11, K12, K13, K14, K15, K17, K18) use to eliminate such problems.

A majority of the subjects (K1, K5, K7, K11, K12, K15, K19, K20, K21) stated that most of their advisees did not experience any problems during reviewing the literature. *Knowing a foreign language* (K1, K12), *being good at technology use* (K1, K12, K15, K21), *and the richness and variety of the sources and databases in the university libraries* (K5, K12, K15, K21) were given as primary factors eradicating related difficulties. Nevertheless, there are some other subjects who said their advisees had troubles during literature review. Among these *difficulties are searching the articles on the Internet rather than the printed ones* (K6, K21), *neglecting the most recent studies* (K1), *insufficient search skills* (K2, K10), *not knowing how to make use of the key words* (K8, K12, K20), and *translating foreign studies instead of searching the ones completed in Turkey* (K20). Advisors (K7, K8, K10, K12, K20, K2) noted that they *tried to guide their advisees* through comprehensive explanation of the process for them.

The subjects told that their advisees had difficulties about different aspects during determining the research method of their dissertations. *Incompetent knowledge about research methods* was emphasized as the most frequent reason leading to such problems by the participants (K1, K4, K7, K20). Very few mentoring professors (K12, K15, K21) said that *their advisees didn't experience many difficulties during determining the research method of their dissertations*. A possible solution o this one, as expressed by the subjects (K4, K1, K7, K12, K20), might be increasing *the variety of research method courses that the advisees take*.

A vast amount of the participants (K1, K3, K4, K6, K9, K12, K15, K19) recorded that *their advisees had troubles during determining and reporting the findings*. According to the participants (K3, K4, K9, K12, K17, K21), a primary reason of this problem is *low quality command of knowledge about statistics and data interpretation*. *Co-working with the advisees, providing several model theses to be reviewed by the advisees, and seeking help from the other members of the program* are the main strategies employed by almost half of the advisors (K1, K2, K3, K12, K13, K15, K18, K17) to tackle such difficulties. Only 3 mentoring professors (K3, K11, K20) stated that these problems could be overcome by training the advisee *on statistics at the beginning of dissertation process*, and by *describing and writing a well-organized method chapte*r.

Participating advisors (K1, K5, K7, K12, K17, K20, K21) told that *problems stemming from the incomprehensibility of the statements and typographical errors in writing* were generally observed during reporting the dissertation. Other related problems are those originating from the lack of academic writing skills such as *being unable to correlate the findings with the literature and the problem of the research, inadequate use of citations, repeating the findings in conclusion and discussion chapters, and not reflecting a holistic point of view* (K10, K1, K3, K20, K7). Furthermore, 3 of the subjects (K1, K5, K10) mentioned that their advisees suffered from problems *due to not paying close attention to the guidelines on writing theses published by the institution that their program was affiliated with*. Most of the participants (K1, K3, K5, K10, K13, K20, K21) stated that *they co-worked with their advisees and suggested possible solutions* in order to deal with these problems just like they did during determining the findings. Besides, *seeking help from a language expert* (K5), *appealing to the members of the jury for their advice* (K15), *studying several books on research methods* (K10), *and improving computer skills* (K2, K19) are also employed by the participants to come up with a solution for such problems. Only one advisor (K20) suggested *integrating a course on academic writing skills in PhD programs.*

The Advisors' Opinions About 'Advisment Training'

As the advisors were asked their opinions about which academic competences an advisor should have to mentor. *Academic competence* was the most frequent response given by the participating advisors (K1, K2, K3, K5, K7, K8, K10, K11, K12, K13, K16, K19, K20, K21) concerning *the qualities that a professor should have in order to be an advisor*. Moreover, the subjects (K1, K2, K3, K4, K5, K6, K7, K9, K10, K11, K12, K13, K20, K21) also stated that *being competent about research methods, field knowledge, and a foreign language* were significant among the academic qualities. Several advisors (K1, K5, K9, K17, K18, K20) counted *the ability to catch up with the innovations in the field and to publish, and to hold and apply scientific attitudes* within necessary academic qualities.

A majority of the participants (K1, K2, K3, K4, K5, K6, K8, K9, K12, K13, K15, K16, K20, K21) included *being an effective communicator*, along with academic qualities, as an important factor for advising/mentoring. Almost half of the advisors (K1, K6, K10, K13, K15, K17, K20, K21). emphasized being good at time management.

Upon being asked what the content of advisment training should be, a large number of participants (K1, K3, K5, K9, K11, K12, K13, K16, K18, K19, K20, K21). prioritized that *the content should be relevant for professional development* in connection with the first question. Half of the mentoring professors (K4, K5, K6, K7, K9, K10, K11, K16, K18, K20, K1) expressed that there should be a course on *communicative skills* within advisor training. Very few of them drew attention on the necessity of courses such as *technological support services* (K2, K21)*,, ethics* (K1, K21)*, thesis writing rules* (K1, K5), *legal processes* K21, K1), *language skills* (K12), *and adult psychology* (K10) for an advisor-training program. Although the significance of time management has been brought forward, only one participant (K7) suggested that skill courses on *time management* should be included in the content of the program.

Answers given by the participants for the question *'What do you think about advisor training, and how should it be provided'* point that the mentoring professors (K1, K6, K9, K10, K16, K11, K19, K21) want a *face-to-face and an effective online communication.* Several others (K7, K13, K18, K19, K21) mentioned that advisor training should take place *only in face-to-face settings* while one advisor (K3) preferred *online settings over face-to-face interaction.*

For the question "*What stage of academic career do you think is a good time to have advisor training?*" they almost unanimously (K1, K4, K5, K6, K7, K9, K10, K11, K18, K21) expressed that *right after completing PhD was a good time to be trained on mentoring*. 8 of the participating advisors (K1, K2, K6, K11, K12, K13, K19, K21) noted that *there was no need for a specific point in time to take such a training, and that this type of training should be provided through in-service training programs any time the professors need it*.

A majority of the advisors (K1, K3, K5, K7, K9, K10, K11, K12, K16, K18, K19, K21). recorded that it would be dramatically beneficial to offer advisor training for professors. A few subjects (K1, K3, K5, K7, K10, K12, K16) expressed that such training should be taken on a voluntary basis whereas only one subject told that there was no need for such training on mentoring.

DISCUSSION

Ample amount of studies have revealed that advisors bear a really significant role especially during the thesis preparation phase of dissertation period (Austin, 2002; Golde, 2000; Lovitts, 2001). As for the relation between the advisors and the advisees, many advisees think that the core source of effect on their decision to continue or discontinue the PhD program is the interaction they have with their advisors (O'Bara, 1993; Lovitts, 2001). This has been determined based on the findings concerning the advisees. Yet, there is a limited number of studies investigating advisors' standpoint in this issue (Lovitts, 2001). Therefore, this study examined the PhD process from the angle shared by the advisors.

Analysis of advisors' opinions regarding the positive attributes of their own advisors in the past has indicated that the advisor profile described by the subjects as being experienced, understanding, easy to communicate, accessible, knowledgeable, civilized, and friendly actually overlaps with the roles of advisors as outlined by Barnes and Austin (2009).

Participating professors generally complain that it was hard to meet with their advisors due to mentor-based reasons such as the mentor being out of town and that this had a negative impact on their dissertation process. Wisker (2001) especially underlines the significance of reaching the advisor when necessary, and states that being accessible is one of the leading factors over choosing an advisor.

Subjects' experience as an advisor and an advisee shows that it is *the advisor or the program* that has the definitive effect on the selection and the assignment of the advisors. These findings are consistent with those of Akbulut, Şahin, and Çepni (2013). According to the results of their study, more qualified dissertations can only be the outcomes of feeling free to choose your advisor. Several other research studies also point to the fact that the advisees should be allowed to make their own choices about their advisors. Polat, Alabaş, and Kamer, (2009) conclude that the advisee should not be left out during decision-making process about the selection and appointment of the advisors. How professors embrace this situation varies from negative to positive. 6 participating advisors *who were lucky to get to choose their own advisors in the past* believe that it had a positive influence on their dissertation process. Similarly, findings identified by Zhao, Golde, and McCormick (2007) indicate that PhD students who select their own advisors feel more satisfied with the dissertation process as well. Furthermore, Lovitts (2002) discusses that choosing one's advisor on one's own sheds positive influence on both the nature and quality of the interaction between them.

Results have shown that participating advisors *underpin the difficulty in determining the research topic and identifying the research problem* for both their dissertation experience and for the current dissertations they work on. These findings are parallel with those of Akbulut, Şahin, Çepni (2013) in which interviews with participants who were PhD students and who had completed their PhDs were held. Solutions offered by the advisoring professors during the study include advice to the advisees to expand their readings specifically in their own field, which is again consistent with those of Akbulut, Şahin, Çepni (2003), Likewise, Polat, Alabaş, and Kamer (2009) found that problems during the selection of research topic were the most frequent for advisees as well. Ayas and Kala (2007) stated that advisors complained about their disappointments concerning their expectations from the advisee, and this caused many difficulties in choosing the research topic, administering the research, and reporting it were mainly advisee-origin. Moreover, problems regarding the selection of research topic have also been underlined in Kalem and Akman's study (2007).

According to the data of the research by Robinson (2008), advisors mostly thought of themselves as 95% competent in communicating. This finding is consistent with the responses (*mostly positive mentoring qualities*) provided by the participants of the present study to the question "*What do you think about yourself as an advisor?*" However, there seems to be a serious discrepancy in terms of the percentage (90.9%) that Robinson (2008) found concerning the academic competence of the participants. In Robinson's study (2008), rate of academic competence was the second after communication whereas in the present study three participants stated to be competent only about research methods, and one about the field. As for another study of which findings happen to be similar to the present ones, Burgaz and Şentürk (2007) aimed to determine the opinions of both the advisors and the advisees about communication behaviors of each other. As a result, advisors were identified to feel more positive about their own communicative behaviors than the advisees did for them. In Knox, Lewis, Pruitt, and Hill (2006), advisors expressed that negative personal and professional attributes on part of the advisees would damage the communication between them. In this study, mentoring professors also think that it is the behaviors of the advisees that determine how the interaction between them will develop in time.

In this research, advisors accept that some of them meet with their advisees *regularly* and some do it *only when necessary*. Kluver (1997) found that regular meetings had a major impact on the completion of thesis process as far as the graduate students were concerned (cited in: Spillett and Moisiewicz, 2004).

Participants feel that they have been positively influenced by the behaviors of their own advisors in the past. Moreover, some take it one step further and say that they have turned the negative attributes they witnessed in their own advisor's behaviors into positive ones for their advisees. These findings, based on the opinions of mentoring professors, can be taken as a reflection of cognitive apprenticeship model within the literature.

Several subjects admit that some *problems affecting the process negatively stem from some mentor-based factors such as heavy workload, business of academic studies, and high numbers of hours spent in the classroom or with the advisees*. Similar problems have also been reported by some other studies (Çakar, 1997; Sevinç, 2001). Ayas and Kala (2007), and Myers and Dyer (2003) found that the biggest problem for graduate students was the fact that advisors did not spare enough time for each advisee. In Gündoğdu, Küçükoğlu and Kaya (2007), participants noted that they had difficulties "because their advisors were not able to guide them as required due to busy working schedules."

A vast number of subjects think that "their advisees go through hard times during the identification and documentation of findings". One of the primary sources of this problem has been determined as *being incompetent about statistics and data interpretation. This might be considered as a confirmation of* Keskinkılıç and Ertürk's study (2009), in which they found that graduate students did not feel competent but felt the need for further training in statistics,

Almost half of the participants *co-work with their advisees* in order to overcome the problems related with determining and documenting the findings while some others *provide sample research studies and ask their advisees to follow them or seek help from other members of the program*. The ultimate aim of PhD programs is to raise individuals who are capable of designing studies on their interests without help from any other third party and independently. Advisors are expected to help and guide their advisees in order to tackle this difficulty (Wisker, 2001). Findings of this research indicate that working together with the advisees is the most helpful.

Participants generally believe that the core feature of an advisor is the capabilities s/he has regarding his/her own field of study. Moreover, they think that knowledge on research methods, field, and a foreign language matter the most as for being a competent advisor. Yet, several other mentoring professors hold the idea that following field-related innovations, publishing, and exhibiting scientific behaviors should also be considered within academic competence. A majority of the participants also feel that being an effective communicator is also one of the key qualities that an advisor should have along with academic competence. In addition, almost half the participants think that time management skills also do matter for an effective advisoring. All these findings are completely consistent with qualities of efficient advisors determined in the literature so far (Easteby-Smith, Thorpe and Lowe, 2002; Orer, Kocadereli and Demirel 2010).

These suggestions were developed from the results of the research:

- Doctoral students' opinions can be received about evaluating of doctorate programs in addition to academicians' opinions.
- According to the participants; a lot of various problems were faced in dissertation writing process. In order to reduce the faced problems; the lessons for research in doctoral education process can be varied and these lessons can be more practical.
- It is indicated that advisory process is influenced negatively because of academicians' extra lessons and works and administrative tasks. This situation can be considered in advisory assignment.
- The advisors can be given doctoral advisory education which will be organized variously intended for developing academicians' academic advisory skills.

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DEVELOPMENT AND VALIDATION OF MATHETICS STYLE PROGRAMME IN MATHEMATICS FOR GRADE IX STUDENTS

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ABSTRACT

The purpose of this study is to investigate the effects of Mathetics style Programme in Mathematics. This research included 30 students of grade IX of DAV Public School Hamirpur (Himachal Pradesh).For this research students were supplied with the copy of programmed material having instructions in the beginning and the confirmatory responses were printed on the last page of the booklet. Immediately after the programme, a criterion test (CT) was conducted; in order to measure their learning outcomes in terms of scores obtained by them in CT. Descriptive survey method is applied to collect the data. The data collected shows that the Mathetics style Programme in Mathematics is very effective for the attainment of the calculative skills by the learners at their own pace. This method increases the academic achievements of the learners and very helpful in independent learning.

Key Words: Programmed learning, mathetics style programme, self learning, error rate, Mathematics teaching.

INTRODUCTION

A developing country like India is trying her bet to cope with other nations in every field of development. Since education is the most potent instrument for the progress of a nation, the quality of education therefore needs to be improved.The quality of education depends on the quality of instruction imparted in the classroom.There are individual differences among children in terms of level of intelligence, level of understanding, attitudes, achievements etc. Therefore same type of instructional methods in class room may not suit to the class room situations. To cater to the needs of individual differences and the abilities we have to adopt innovative instructional procedure (Elias Jijish 2009)**.** Nowadays, student-centered teaching model, methods and technique are used. The beneficial feature claimed for student-centered methods is that they allow more time to be spent by the teacher tutoring individual or very small groups of students. This has been claimed, in particular, by the advocates of computer-assisted learning (Hinchliffe, 1982).Programmed Instruction is the process of arranging the materials to be learned into a series of sequential steps; usually it moves the student from a familiar background into a complex and new set of concepts, principles, and understandings (Smith and Moore 1968).Programmed Learning or Programmed Instruction is a learning methodology or technique first proposed by the behaviorist B. F. Skinner in 1958 (Becker, Henry Jay 1993).According to B. F. Skinner, The purpose of programmed learning is to "manage human learning under controlled conditions" (Pritchard, Alan 2009). Programmed learning has three elements: (1) it delivers information in small bites, (2) it is self-paced by the learner, and (3) it provides immediate feedback, both positive and negative, to the learner'(Ravenscroft, Andrew 2001). Programmed learning is one of the better-known methods of student- centered learning, and its potential advantages have been fully discussed (Skinner, 1958; Young, 1961; Young 1966; Beard, 1973; Boland, 1977; Hinchliffe, 1982). Programmed learning involves self-administered and self-paced learning, in which the student is presented with information in small steps often referred to as "frames" (Pritchard, Alan 2009). Each frame contains a small segment of the information to be learned, and a question which the student must answer. After each frame the student uncover, or is directed to, additional information based on an incorrect answer, or positive feedback for correct answer. Mathetics style Programme is a style of programmed

learning.This style of programming has been propagated by "Thomas F. Gilbert in 1962".Derivative meaning of Mathetics has been derived from Greek word "mathein", which mean 'to learn'. According to Gilbert, Mathetics is defined as it is the systematic application of reinforcement theory to the analysis and construction of complex behavior repertories which represent the mastery of subject matter(Mangal, S.K. 2002).Major emphasis in Mathetics is on "mastery in subject matter" through Retrogressive or backward chaining. Retrogressive chaining makes it unique among all the programming techniques. The child learns the last step first, then goes to the next one before it and thus to the introductory part. This procedure where the tasks are connected from the last to the first is called as chaining (Elias Jijish 2009).In Retrogressive chaining DPR (demonstrated, prompted, released) approach is used, in this students are first given to demonstrated exercise(in this entire procedure is demonstrated to the student. The programmer supplies the student with all the steps up to the mastery step), then prompted exercise (here the programmer supplies the student with all the steps leading up to mastery step and prompt him to perform the mastery step) and finally released exercise(here the programmer provides all the steps,leading up to the step that immediately precedes the last sub mastery step, prompt this step and release the student to practice the mastery step). The programmer continues in this manner, each time allowing the students to perform an additional step until he/she has worked back of the first time step in the procedure and can perform the entire task (Mangal, S.K.2002). In this programme each frame assumes the reinforcement value of accomplishment. The frames are small and learner is not allowed to move to the next frame unless he responds correctly to the exercise in hand. The completeness of the task provides reinforcement to the learner. 'Once the stimulus and response are associated, the response is likely to occur without the stimulus being present. It holds that responses that produce a satisfying or pleasant state of affairs in a particular situation are more likely to occur again in a similar situation. Conversely, responses that produce a discomforting, annoying or unpleasant effect are less likely to occur again in the situation' ('The law of effect' published by Edward Thorndike in 1905).In programmed learningthe lessons start from the student's initial knowledge and in small steps proceed to a final learning goal. Because of active student participation, small steps, immediate feedback and reinforcement, programmed learning can be very effective. All students work through the same sequence (Anderson and Fretzin, 2004). The Mathetics programming also control the individual variations of the learners. This programming gives equal weightage to learning situation, desirable behavior and mastery of content.Programmed text is superior to other methods and that the high and low income group students following the program text were distinctively superior to those who had traditional teaching with home assignment and grading (Pandey 1980). Seshadri (1980) developed a linear program of 2074 frames for mathematics of class IX. She found that the strategy of having programmed learning Material (PLM) assist major component worked better than the traditional mode of teaching. Chaudhary (1985) prepared programmed learning material in geography for secondary level. He found that after pursuing PLM, students gained significantly as far as knowledge of the subject is concerned. The material was equally effective for both urban and rural students. Desai (1986) developed programmed material on heat in physics for pupils studying in standard XI and found that pupils took active interest in reading and learning through programmed material. (Inamdar, J.A. 1981) found that the programmed learning technique was superior to the conventional technique. Kaur Ramanjeet (2012) developed a programmed material in linear style programming on structure of the cell for IX grade students and found that students are able to acquire the science concepts at a rapid pace while learning it through linear style programming. Programmed learning is being used not only for self instructional purpose but also as mechanism of feedback for improving teaching efficiently. Mathetics style Programme is also best for teaching Mathematics. Thus investigator developed a programme on topic"CONE", which has been taken from Mathematics text book prescribed by N.C.E.R.T(National Council of Educational Research and Training) for grade IX students, in English language. This programme consists of 27 exercises. After the small group tryout a copy of final programmed material in Mathetics style was made.

METHODS

For the present study Descriptive survey method is applied to collect the data. In final field tryout the entire programme consists 30 students (M/F) of age group (+14)belonging to middle or upper middle class socio-economic strata, having diverse cultural background, and rural/urban residential status studying through English medium of DAV Public School Hamirpur (Himachal Pradesh). The printed exercises were presented to

the students in actual classroom situation,the title of the programme was announced and specific written instructions were read out before the students. The confirmatory responses were printed on the last page of the booklet. Students were asked to tally their responses with correct response after writing it.The limit of time ranged from 120 min to 150 min. The students were asked to take their own time while working on the programme. Investigator had given some time to the learners to discuss the difficulties faced by them while going through the programme. Immediately after the programme, a criterion test (CT) was administered, in order to check the competency attained by them.

Research Scope And Sampling

The research has been confined to Mathetics style Programme in Mathematics on topic "CONE" for grade IX students only. The sampling of research, on the other hand, consists of randomly chosen 30 students of grade IX of DAV Public School Hamirpur (H.P.).

Materials

In this research, the investigator developed four Programme in total (as shown in Table 1). Each one of them has 6 to 7 exercises (Table 2). In each exercise there were 5 frames. In demonstrated exercises all the 5 frames were solved Students were asked to go through these exercises and to get his/her basic clear about the topic under study.They saw the procedure of solved problem. Inprompted exercises, 1st exercise has 5th frame blank, 2nd has 5th and 4th and so on. Students go through these frames and completes the frames as they proceeds.Inreleased exercise all the 5 frames were unsolved, and no guidance was provided to the students.

Table 1: Table of Content

Major Concepts	Sub Major Ideas	Macro Ideas	Micro ideas
1.CONE	**1.1.** Area	**1.1.1** Base Area	**1.1.1.1** Calculation by the formula $A = \pi r^2$; $r =$ radius of base
		1.1.2 Lateral or Curved Surface Area	**1.1.2.1** Calculation by the formula $E = \pi r\sqrt{r^2 + h^2}$ or $E = \pi r l$; $r =$ radius, $h =$ height, $l =$ slant height
		1.1.3 Total Surface Area	Calculation by the formula $E = \pi r(l + r)$; $r =$ radius, $h =$ height, $l =$ slant height
	1.2 Volume	**1.2.1** Volume	**1.2.1.1** Calculation by the formula $\frac{1}{3}\pi r^2 h$; r = radius, h =height

Table 2: No. of Exercises

Sr. No.	Unit	Demonstrated	Prompted	Released	Total No. of Exercises
1	Base Area	1	4	2	7
2	Lateral or Curved Surface Area	1	4	2	7
3	Total Surface Area	1	3	2	6
4	Volume	1	4	2	7
	Total	4	15	8	27

In Mathetics Programme learner gets an additional step (frame) each time. In this way the programmed topic becomes easier for him and he solves all such exercises automatically by himself. After completion of programme a CT was conducted,which consists of 8 questions all of them were in released form.

RESULT AND DISCUSSIONS

In order to check the success of Programme researcher evaluated the CT. Then related sequence progression chart for all of four concepts consisting 27 exercises were prepared.The error rate in CT was calculated on the basis of the responses given by the students by (Table 3) using the formula

$$\text{Error Rate}\ (\%) = \frac{\text{Total No. of errors} \times \text{EMBED Equation.3} \times 100}{\text{Total No. of Items} \times \text{EMBED Equation.3} \times \text{No. of students}}$$

Error rate in programme was calculated on the basis of the responses given by the students by (Table 4) using the formula

$$\text{Error Rate}\ (\%) = \frac{\text{Total No. of errors} \times \text{EMBED Equation.3} \times 100}{\text{Total No. of Responses} \times \text{EMBED Equation.3} \times \text{No. of students}}$$

Table 3: Criterion Test Scores

Students identification No.	Marks Obtained	Error
1	40	0
2	35	1
3	25	3
4	35	1
5	40	0
6	40	0
7	30	2
8	35	1
9	40	0
10	40	0
11	40	0
12	30	2
13	30	2
14	30	2
15	30	2
16	30	2
17	25	3
18	40	0
19	35	1
20	30	2
21	30	2
22	40	0

23	30	2
24	40	0
25	35	1
26	25	3
27	35	1
28	30	2
29	30	2
30	40	0
Total Errors		37

Table 4: Concept-Wise Error committed by the students in various exercises

Sr. No.	Unit	Responses Required	Error
1	Base Area	20	8
2	Lateral or Curved Surface Area	20	21
3	Total Surface Area	15	13
4	Volume	20	23
	Total	75	65

Error rate for Table 3 = 15.42%
Error rate Table 4 =2.89%

Table 5: Concept-Wise Error committed by the students in various exercises in percentage

Sr. No.	Unit	Error in (%)	% of Success
1	Base Area	1.3	98.7
2	Lateral or Curved Surface Area	3.5	96.5
3	Total Surface Area	2.89	97.11
4	Volume	3.83	96.17
5	Total	11.22	88.78
6	Mean	2.81	97.19

Result of this study revealed that error rate of all exercises, of all concepts in the whole programme don't exceeds 2.89% implies that learners were able to compute 97.11% of exercises correctly and success obtained by students in CT comes out to be 84.6% implies that students were able to grasp 84.6% of the content in the programme. The maximum error committed by students in individual exercises is 3.83%. The error rate of the program is less than 10%, the criterion suggested by Skinner to check the validity of an effective programme.

CONCULISON

Programmed learning is a method which promotes the optimum development of the potentialities of the individuals.It is very useful for students as well as for teachers. Teachers can also prepare programme on different topic of Mathematics, different subjects and in different languages, so that instruction can be imparted to the students in best way. It is also useful for the students because it helps all type of students to learn at their own pace.This type of programme also useful for correspondence and private students, who don't have direct contact with teachers. Moreover this programme saves time and energy as the students are able to learn through it in short time. This study is very useful in field of teaching Mathematics. Programmed learning as a self instructional technique needs to be tried out in India.

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PREDICTORS OF C# PROGRAMMING LANGUAGE SELF EFFICACY AMONG VOCATIONAL COLLEGE STUDENTS

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ABSTRACT

The purpose of this descriptive-correlational study is to examine the relationship between C# programming self-efficacy and students' age, type of graduated high school, experience of computer usage, frequency of computer use, and programming courses experience. A scale with twenty-eight items assessing C# programming self-efficacy was adapted from Ramalingam and Wiedenbeck's the computer programming self-efficacy scale. The scale was utilized at the end of the Visual Programming (C#) course via learning management system with a questionnaire about demographics and computer experiences. One hundred and sixteen college students from Computer Technologies Department and Electronic Communication Technologies Department participated in the study. Pearson product correlation, regression analysis and t-tests were utilized to analyze the resulting data. Results indicates that C# Programming self-efficacy has no significant relationship with each of the students' age, type of graduated high school, departments and frequency of computer use. It was additionally obtained that the prior programming course experience and computer use experience in years are predictors of C# programming self-efficacy. C# programming self-efficacy of students who has taken computer programming course before is significantly stronger than students who haven't taken any computer programming course previously. Understanding students' self-efficacy beliefs about computers programming is useful to design effective programming courses.

Key Words: Programming course, C# programming language, vocational college, self-efficacy.

INTRODUCTION

Educational researchers accepted that improving students' self-beliefs about their academic capabilities play an important role in improving their academic performance. Researchers have assessed self-beliefs in a more task-specific way, and focusing on self-efficacy was one of the most important of these efforts (Zimmerman, 2000). Self-efficacy is "*people's judgments of their capabilities to organize and execute courses of action required attaining designated types of performance*" (Bandura 1986, p. 391) and individual's self-efficacy is an important factor in performance over a wide range of situations (Bandura 1977, 1986) and it is especially important if the situation relates to education (Askar & Davenport, 2009).

Self-efficacy influences personal selection of strategies, the level of effort shown, the level of persistence in difficulties, and performance outcomes while solving problems (Bandura 1986; Zimmerman 1995). Individuals with higher self-efficacy beliefs perceive themselves as capable of performing certain tasks or activities however individuals with low self-efficacy beliefs perceive themselves as less capable and less likely to attempt

at these certain tasks or activities (Askar & Davenport, 2009; Aşkar & Umay, 2001; Bandura, Adams, & Beyer, 1977; Wiedenbeck, 2005).

According to Bandura (1977, 1986), four sources of information: the individual's experience related to the skill, experiences of observing the performance of others similar to oneself, verbal persuasion, and physiological reactions -fear, stress, also fatigue, aches & pains- that people use partly to judge their capacities, affect individuals' self-efficacy beliefs. Self-efficacy measures focus on respondents' qualifications to achieve given task demands, not their personalities or their feelings about themselves in general (Zimmerman, 2000). This is also applicable to computer programming domain - how students consider themselves to perform while doing computer programming tasks-projects. Researches related to computer self-efficacy has been studied, however fewer researches related to computer programming self-efficacy has been done.

Ramalingam, La Belle, and Wiedenbeck (2004) explored the effects of students' self-efficacy and mental models of programming on learning to program. They found that previous programming experience influence programming self-efficacy. In another study, Askar and Davenport (2009) identified variables that are related to engineering students' Java programming self-efficacy in Turkey, concluding with gender, computer experience, and family usage of computers factors. They found that self-efficacy of students influenced by computer experience and computer skills, and also they found students' gender and family usage of computers didn't affect students' self-efficacy. In a Nigerian University, Jegede (2009) investigated engineering students' Java programming self-efficacy related with students' programming experience. The findings from the study showed that there is significant relationship between students' Java programming self-efficacy and each of the computer use and programming experience factors. Taking programming course and weighed scores of programming courses were found as predictors of Java Programming self-efficacy.

Studies identifying distinct factors affecting programming self-efficacy of vocational college students are absent. In this context, recognizing these factors is important in order to teach students computer programming skills effectively.

This study investigates relationship between C# self-efficacy and each of students' age, type of graduated high school, experience of computer usage in years, frequency of computer use, and programming courses experience. This study will answer the following questions:

1. Is there a significant difference between Computer Technologies students and Electronic Communication Technologies students' C# programming self-efficacy?
2. How do students' age, type of graduated high school, experience of computer usage in years, frequency of computer use, and programming courses experience affect C# programming self-efficacy beliefs?

METHOD

Participants, research instruments, data collection and method of analysis are described in this section.

Participants

Data were collected across a vocational college in Balıkesir, Turkey, in January, 2014. Study participants consisted of 116 students enrolled in "Visual Programming (C#)" course. Twenty-nine students were from Computer Technologies Department and other students were from Electronic-Communication Technologies Department. Visual programming is a must course for all students from two departments. According to the innate nature of school, majority of the students were male, which can be considered as a limitation for the entire study. Participants' demographics data were as in the Table 1.

Table 1: Participants' *Demographics*

		n	Percentages (%)
Gender	Male	114	99.3
	Female	2	0.7
Ages	18	13	11.2
	19	31	26.7
	20	45	38.8
	21	21	18.1
	22	5	4.3
	23	1	.9
Types of Graduated High School	Computer-Electronic	84	72.4
	Other Departments	32	27.6
Departments	Computer	29	25.0
	Electronic	37	75.0
Programming Course Experience	Yes	29	25.0
	No	87	75.0

All subjects were asked to respond to the instrument and their responses were guaranteed confidentiality and they were told that the data gathered would only be used for academic purposes. All of 116 students filled out the questionnaire. Students who are from ECT are sophomores and students who are from CT are freshmen.

Research Instruments

Students completed an online questionnaire with two sections through learning management system at the end of the semester. The first section was related to students' demographic/personal data including age, department, experience of computer usage in years, frequency of computer use and programming course experience.

The second section of the instrument was C# programming self-efficacy scale. It includes 28 items with seven-point Likert scale. Items of C# programming self-efficacy scale were adapted from the computer programming self-efficacy scale of Ramalingam and Wiedenbeck (1998), such as: "I can write syntactically correct C# statements."; "I can write a C# program that computes the average of any given number of values.", "I can develop my own C# applications.", "I could come up with a suitable strategy for a given programming project in a short time." The items are presented positively worded statements and the scale, which was in Turkish, is given in Appendix 1. The items were coded from 7 (absolutely confident) to 1 (mostly not confident). A higher score indicated higher C# programming self-efficacy. Maximum score that can be obtained from the scale was 196 while the minimum was 28. In order to determine the internal reliability of the scale, researchers performed a reliability analysis with the use of Cronbach's alpha after the data collection phase by using SPSS 20.0 computer software. The reliability of the scale was 0.97.

Data analysis procedures

The online questionnaire was utilized at the end of 2013/2014 academic year fall semester. The SPSS statistical package program was used to analyze the data using descriptive statistics, independent samples t-test, Pearson product correlation and regression analysis.

FINDINGS

Descriptive statistics

C# Programming Self-Efficacy items' means and standard deviations are presented in Table 2.

Table 2: Mean and SD of each item in C# Programming Self-Efficacy Scale

	N	Min	Max	Mean	SD
1	116	1	7	5.03	1.520
2	116	1	7	5.37	1.436
3	116	1	7	5.00	1.358
4	116	1	7	5.67	1.394
5	116	1	7	5.63	1.386
6	116	1	7	5.51	1.423
7	116	1	7	5.53	1.405
8	116	1	7	5.25	1.426
9	116	1	7	4.77	1.517
10	116	1	7	4.58	1.481
11	116	1	7	4.21	1.541
12	116	1	7	4.66	1.486
13	116	1	7	4.83	1.476
14	116	1	7	4.65	1.470
15	116	1	7	5.36	1.404
16	116	1	7	4.88	1.510
17	116	2	7	5.81	1.244
18	116	2	7	5.74	1.346
19	116	1	7	5.50	1.460
20	116	1	7	4.95	1.382
21	116	2	7	5.16	1.265
22	116	1	7	4.72	1.336
23	116	1	7	4.76	1.436
24	116	1	7	4.78	1.555
25	116	1	7	4.46	1.546
26	116	1	7	4.38	1.748
27	116	1	7	4.47	1.639
28	116	1	7	4.79	1.639
Total	116	56	196	140.44	30.53

Mean and SD of C# programming self-efficacy scores according to type of graduated high school, department and even taken programming course of the participants are presented in Table 3.

Table 3: Mean and SD of Self-Efficacy Scores according to Type of Graduated High School, Department and even Taken Programming Course of the freshman

	N	Mean	SD
Type of High School Graduated			
Computer – Electronic	84	142.97	27.80
Other Departments	32	133.81	36.40
Department			
Computer Technologies	29	138.96	32.78
Electronic Communication Technologies	87	140.94	29.92
Taken Programming Course			
Yes	29	158.41	24.96
No	87	134.45	29.97

Differences in Students' C# Programming Self Efficacy with respect to Students' Departments, Type of Graduated High School

An independent t-test was performed in order to ascertain whether or not there was a significant difference between students' departments in the degree of C# programming self-efficacy. Results revealed that there wasn't any significant difference in the scores for students from Computer Technologies (CT) Department (M=138.96. SD=32.78) and students from Electronic and Communications Technologies (ECT) Department (M=140.94. SD=29.92) conditions; t(114)=-.301. p=.764. These results suggest that department does not have any effect on C# Self-Efficacy.

In addition to this, there was not a significant difference in the scores for students who graduated from high schools' Computer or Electronic Departments (M=142.97, SD=27.80) and students who from other departments of high schools (M=133.81, SD=36.40), conditions; t(114)=-1.452. p=.149.

Correlation between C# Programming Self-Efficacy and Other Variables

The correlations between C# Programming Self-Efficacy and participants' age, type of graduated high school, computer use experience in years, frequency of computer use, and programming course experience (ever taken programming course) are presented in Table 4.

Table 4: Correlations between C# programming self-efficacy and other study variables

	Age	Computer Use Experience in Years	Frequency of Computer Use	Programming Course Experience
C# Programming Self Efficacy	.021	.342**	-.119	.341**
**. Correlation is significant at the 0.01 level (2-tailed).				

There is a significant positive correlation between students' C# programming self-efficacy, experience of computer usage in years and programming course experience (p<.001). On the other hand, there is no significant correlation between C# programming self-efficacy and the other variables (p>.001). Overall, there are positive correlations between experience of computer usage in years, programming course experience and C# programming self-efficacy. Increases in experience of computer usage in years are correlated with increases in C# programming self-efficacy and taking programming course increases C# programming self-efficacy. It is clearly inferred that age and frequency of computer use don't correlate with C# programming self-efficacy.

Regression Analysis of Relationship between C# Programming Self-Efficacy and Computer Using Background

To verify whether a combination of the experience of computer usage in years and taking programming course will significantly predict C# self-efficacy, data were subjected to regression analysis. The independent variables explained only 22.3 percent of the C# self-efficacy scores (R^2 = .223, F(2. 113) = 16.199, p < .001).

Table 5: The regression results predicting C# self-efficacy from experience of computer usage in years and programming course experience

Variable	B	Standard Error	β	t stat	p value
computing experience	8.487	2.158	.327	3.933	.000
programming course experience	22.881	5.828	.326	3.926	.000

As shown in Table 5, the regression model reveals that experience of computer usage in years and programming course experience are statistically significant contributors of C# self-efficacy. Results show that experience of computer usage in years and programming course experience have almost same impact in the prediction of C# self-efficacy.

DISCUSSION

The aim of this study is to investigate predictors of C# programming language self-efficacy among vocational college students. This study focuses on the relationship between C# programming self-efficacy beliefs and age, type of graduated high school, department, frequency of computer use, experience of computer usage in years and taking programming course.

Consistent with the previous findings, the present study on vocational college domain supports existing literature on taking programming course before significantly predict students' programming self-efficacy (Ramalingan & Weidenback 1998; Weidenback. 2005). We can say that programming course experience is crucial for C# programming self-efficacy. This indicates that programming course experience continues to affect students' self-efficacy till the end of the semester. However, even at the end of the semester writing, reading and understanding C# programs seem to be challenging for the students who have never taken any programming course before.

The results of this study support findings reported in previous research (Askar & Davenport 2009) about experience of computer use in years. Students' experience of computer use in years significantly predicts C# self-efficacy. On the contrary, Jegede (2009) found years of computing experience did not predict Java self-efficacy. In this study, it is found that frequency of computer use doesn't affect programming self-efficacy consisted with Jegede (2009) and contrary to Askar and Davenport (2009).

Opposite to previous research findings (Askar & Davenport. 2009), this study shows that vocational college students' departments do not cause any difference on their C# programming self-efficacy. Also, students' age, and type of graduated high school do not significantly predict C# programming self-efficacy.

It is clearly inferred that students' department, age, type of graduated high school and frequency of computer use are not critical factors to predict students' programming self-efficacy. Most important factors to predict programming self-efficacy are programing course experience and experience of computer use in years. Understanding students' self-efficacy beliefs about computers programming is useful to design effective programming courses.

LIMITATIONS

Some difficulties have been experienced because C# programming was new for most of sophomores. To avoid such difficulties, students should be trained about programming at the first year of the school. This study was completed in a male dominated technical vocational school. Future research can take into account the effect of gender. The study, of college level students, concentrated on the predictors that determine a participant's C# programming self-efficacy beliefs rather than their effects on academic achievement. It would also be interesting to relate C# programming self-efficacy to students' academic achievement.

It is becoming crucial to gain a better understanding of student self-efficacy of C# programming and its relationships in order to improve teaching programming methods because self-efficacy is a critical factor of academic achievement. More importantly, it is essential to continuously investigate the factors such as level of education (undergraduate. postsecondary. secondary etc.), type of education (vocational. technical. engineering etc.), environment of education and family influences predicting self-efficacy.

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Appendix 1: C# Programlama Özyeterlik Ölçeği

Aşağıda yer alan C# işlemlerini yaparken kendinize ne kadar güvendiğinizi belirtiniz. 1 (kendime hiç güvenmem) - 7 (kesinlikle kendime güvenirim).

Kendime hiç güvenmem 1	Kendime neredeyse hiç güvenmem 2	Kendime çok az güvenirim 3	50/50 4	Kendime biraz güvenirim 5	Genellikle kendime güvenirim 6	Kesinlikle kendime güvenirim 7

1. C# kodlarını düzgün bir şekilde yazabilirim.
2. C# programlama dilinin genel yapısını ve özel kelimelerini (if, for, int vb.) anlayabilirim.
3. Mantıksal açıdan düzgün çalışan C# uygulamaları yazabilirim.
4. “Merhaba Dünya” mesajı veren bir C# uygulaması geliştirebilirim.
5. Üç sayının ortalamasını bulan bir C# uygulaması geliştirebilirim.
6. Girilen sayıların ortalamasını bulan bir C# uygulaması geliştirebilirim.
7. C#’ın mevcut metotlarını (Convert.ToDouble(), Listbox.Add() vb.) kullanabilirim.
8. Kendi C# uygulamalarımı geliştirebilirim.
9. Yabancısı olmadığım bir problemi çözebilmek için küçük çaplı bir C# uygulaması geliştirebilirim.
10. Daha önce karşılaşmadığım bir problemi çözebilmek için orta büyüklükte bir C# uygulaması geliştirebilirim.
11. Problemin detaylı bir şekilde tanımlanması durumunda, uzun ve karmaşık bir C# uygulaması geliştirebilirim.
12. C# uygulamasını, problemi parçalara ayırarak oluştururum.
13. Oluşturduğum C# uygulamasının hatalarını giderip çalışır hale getirebilirim.
14. Birkaç dosyadan (formdan) oluşan karmaşık ve uzun bir C# uygulamasının çalışma mantığını anlayabilirim.
15. Problemin çözüm yolunu bir kişi bana gösterdikten sonra bir C# uygulamasını tamamlayabilirim.
16. Kaynak olarak sadece bir C# kitabım olursa bir C# projesini tamamlayabilirim.
17. Takıldığım yerde bana yardım edecek birisi olursa bir C# projesini tamamlayabilirim.
18. Birisi bana projeye başlama konusunda yardımcı olursa bir C# projesini tamamlayabilirim.
19. C# projesini tamamlamak için çok fazla sürem olursa projeyi tamamlayabilirim.
20. Elimde sadece C#’ın kendi yardım kaynağı olması durumunda projeyi tamamlayabilirim.
21. Bir programlama projesinin herhangi bir yerinde takılırsam, bunun üstesinden gelebilmek için yollar bulabilirim.
22. Verilen bir programlama probleminin kısa sürede uygun bir çözüm yolu üretebilirim.
23. Belirli bir bitirilme süresi olan bir C# projesinde zamanımı etkin kullanabilirim.
24. Uzun ve karmaşık bir C# projesinin çalışmasını zihnimde canlandırabilirim.
25. Uzun ve karmaşık C# kodlarını daha anlaşılır bir şekilde tekrar yazabilirim.
26. Etrafımda çalışmamı engelleyen (gürültü vb.) çok fazla şey olsa bile üzerinde çalıştığım C# uygulamasına yoğunlaşabilirim.

27. Programın problem alanı (oyun programlama, internet programcılığı, sistem programcılığı, ağ programcılığı, veritabanı programlama vb.) ilgimi çekmese bile kendimi programlama yapmaya kanalize edebilirim.
28. Bir başkasının daha sonra anlayabileceği ve üzerine eklemeler yapabileceği bir C# uygulaması geliştirebilirim.

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LOW ACHIEVERS AT ELEMENTARY STAGES OF EFL LEARNING: THE PROBLEMS AND POSSIBLE WAY-OUTS

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ABSTRACT

In the domain of second language learning the target language learners are a challenging reality. In every learning situation, the teachers encounter multiple types of learners who, on the basis of their receptivity, creativity, and I.Q. possess capability to assimilate learning experiences at varying degrees. But the most crucial and experimental segment is the low-achievers who face difficulty to gather and master both the receptive and the productive skills in terms of second language acquisition. This low achieving criterion may spring from numerous factors; some of them are internal, and others are extrinsic in nature. The present paper happens to explore the multi-faceted nature of the problems of low-achievement and also tends to prescribe some strategic dimensions to get rid of those problems.

Key Words: Elementary Learners, English as a foreign language (EFL), Low Achievers, Target Language Learning,

INTRODUCTION

Low achievement is a challenging phenomenon in every domain of learning but the scenario happens to be more conspicuous in the context of language learning. Usually we ascribe the term 'low achievers' to a group of learners who fail to exhibit expected capability in attaining specific grades in traditional evaluation mechanism. This, in turn, tends to leave exclusive focus on the role of intelligence in relative achievement of the learners. But examined psychologically, the factors contributing to the low achievement of the learners are multi-dimensional in nature. Whatever might be that, low in educational domain is the possible outcome of the psychological reality of 'individual difference', which postulates that learners enter the learning backdrop with varied genetic constitution. This implies that their distinctive capabilities spring from their unique physical and mental make-up. Naturally the learners gifted with intelligence perform better, whereas, the boys having low intelligence can't expose proficiency to a requisite degree. Again there are mentally retarded children whose population is not more than 5% at primary level, lag significantly behind their peer learners. Children who suffer from malnutrition or anaemia form a section of the low achievers in learning situations. In addition, disease and disorders of the nervous system cast a crucial impact on the learners' cognitive domain resulting in

their incompetence and unsatisfactory performance in the learning situation. A physiological problem originating from hormone malfunctions may give birth to behavioural disorders like depression, sadness, inferiority complex, anxiety, strain, etc. which individually or cumulatively stands in the way of expected performance of the learners. Social reasons like unsettled family disputes, divorce, apathy towards the academic achievement of the child, big family, wretched economic condition, parents' over ambition for the children etc. act in a way other for the dismal academic performance of the learners.

Multiple Reasons of Low Achievements

Let us now move our direction from the areas of inherent causes related to the physiological and psychological anomalies resulting in the learners' poor achievement, to the extrinsic factors and agencies where the learners' language acquisition level cannot gear up due to multi-faceted reasons. Multiple reasons have conducted experimentally to expose the fact that apart from the children's socio-economic circumstances that explain to some extent pupil's individual performance criteria, school as an agency do make a distinctive difference to outcomes. In traditional school set-up, the problem children instead of getting treated experimentally happen to be a matter of concern. Thus they take the problem children out of the immediate classroom situation into socially isolated individualized 'skill drill' lessons to dispel their areas of learning difficulty. But what happens is contrary to expected outcome. Once they get segregated from the charged and simulated classroom situation, both their productive and receptive skills instead of getting consolidated becomes narrowed and incoherent. They feel that they lack the general potentiality and learning capability like their peer learners and a feeling of inferiority complex emotionally stands in the way of language acquisition. Ultimately the problem children get branded as 'low achievers' in the domain of target language teaching due to the teachers' lack of acute experimental strategies.

Problems of Low achievers in English learning

Since English is skill subject, the mastery of it demands consistency and rigorous efforts not only on the part of elemental learners but also on the prospective and practising teachers who has to be inquisitive about the problem areas that thwart the little learners to be motivated to learn and interact. Teachers have to think that sometimes surface language problems may be symptomatic of deep rooted difficulties. The most obvious problem of the low achievers in English at the elemental phases of learners lies in their inability in managing the task of communicating both in terms of speaking and writing. Power of communication is the resultant effect of 'Communicative Competence', a term used by Dell Hymes to underlie the intrinsic potentiality of sentence formation. 'Communicative Competence' is the innate ability to abstract the rules of grammar and syntax that govern the matrix of language. The low-achieving students, in fact, do not feel the communicative pressure that will imbibe them to express themselves at multiple social and contextual fields. Again, dearth of requisite awareness regarding punctuation marks sometimes poses a problem for the low achievers in English. As the low achievers at the elemental level of EFL learning are not provided with extensive exposure of written materials, they habitually fail to apply the signs of punctuation even when they feel the urge to communicate through written or oral form. Thus the orderly thought development is not made transparent in the dense presentation of information. Since development of receptive skills is not nurtured to a requisite degree, they do not develop the intuitive sense of organisational structures that build up the matrix of writing. More to say, the productive skills in the form of writing is not duly generated among the learners since they are not given the chance to write or rewrite for the day to day world. Naturally they cannot construct connections between ideas and punctuations. Here again isolated punctuation drills may not be a remedy. Rather they are to be provided interesting study materials so that they can linger over books by themselves, get acquainted with specific rules and patterns of punctuation by individual efforts. They are to be encouraged to write something in their own way so that they can apply those abstract symbols in a conscious manner in relation to the logical sequence of thought process.

Lack of sufficient exposure of the target language in the EFL classroom situations results in a way or other in creating apathy of the target language learners towards English learning. Initially they enter the backdrop of learning with the repulsive strain that generates in their minds due to their ingrained fear about English language itself. Sometimes in the rural backdrop the learners in the overcrowded are not exposed with requisite scope to converse with or express themselves among their peer learners even in the medium of

mother tongue. Naturally, finding themselves in stimulated EFL learning situations where they will be called up to communicate is a distant and far-fetched dream. Thus they happen to be earmarked as the low-achievers in as far as their productive skills (speaking and writing) develop below the level of expectancy.

One further problem of the low-achievers in the domain of second language learning is the marked difficulty experienced by them to pronounce an English word accurately. Sometimes they make isolate individual efforts to pronounce and spell out a word in line with the pronunciation pattern governing their mother tongue words. Consequently in most of the cases they are drawn to a misleading direction. This happens as because most of the teachers teaching target language at elementary level are not properly trained with the English phonetics. Naturally they get almost ignorant of the idiosyncratic phonetic symbols of English. The pupils are thus the worst suffers and fail to achieve the desired degree receptive skill in the mode of reading English consistently.

Two critical concepts that are oftentimes talked about with regard to language acquisition and language learning are the concepts of 'mistakes' and 'error'. But the problems arise when the teachers due to their prejudiced notions on these concepts oftentimes treats the language deviant behaviour in the identical manner. Judged from the perspectives of ELT, whereas, 'mistakes' occur due to lack of attention or consciousness regarding a regarding a typical structural pattern, 'error' occurs due to dearth of knowledge in a particular language domain. Thus mistakes occur infrequently and unsystematically but error occurs systematically and consistently. Mistakes oftentimes do not necessarily project the learners' gradual acquisition of language but errors categorically underlie the strategies that the learners gradually adopt to tackle and master the language. Thus the elementary second language learners mostly and naturally commit these sorts of language deviant behaviour. Problem of the learners happen to be a problem with the EFL teachers who either get emaciated through the unscientific and strenuous process of unending correction or repeatedly snub the little learners without having the necessary degree of patience to treat those errors experimentally to have an insight into the unconscious process of language learning. The resulted effect is that the learners urge of self expression in the mode of speaking or writing cannot develop in an uninterrupted and spontaneous manner. Furthermore if the learners' errors are over criticized, they suffer continually from inferiority complex with the effect that the mentally withdraw from the whole instructional process. Sometimes it happens that both the reading portion and the exercise domain incorporate such learning materials that hardly smack of real phenomena. This detachment from the real scenario of the educative process is in a way or other fails to motivate the target language learners to get associated with learning process.

Now let us probe into some social factors that oftentimes get instrumental in creating setback in the second language acquisition process among the so-called low achievers in English. Children from minority communities often struggle with a typical sort of broad underlying language problem. They may not possess any specialized kind of communication on which literary instruction is based. Consequently the whole instructional system may appear to be confusing to them with the effect that they constantly react or withdraw from the standardized process of target language teaching. It may also happen that they are ignorant of the basic assumptions regarding the nature of the fundamental nature of the language skills, namely, listening, speaking, reading and writing and thus they cannot share the learning experience equally to that degree which majority of children share. Again this should not be taken for granted that low achievers in English hardly exist in the so-called higher societal backdrop. The children from the well-to-do families have the ample scope to afford the learning materials in the sophisticated and state-of-the-art institutions. But sometimes their productive skills cannot develop to that expected level simply because their language skills development takes place in the artificial and stimulated classroom situations. They do not afford to have the requisite degree of exposure of the target language at home. More to say, in some communities, children are not exposed to converse with adults. They are at free to converse with their peers but they have to face severe restrictions with regard to any enquiry from the adults. They passively listen to adult talk, but they have little experience in managing a conversation with adults. This avoidance on the part of the adults to nurture the communicative skills is done in an unconscious manner. This lack of freedom to express themselves in household situations acts as a stumbling block to the proper growth of communicative competence.

The Way Outs

Thus viewed from multiple perspectives the problem of the low- achievers in the target language situation is multi-dimensional in form. To search for remedy or possible way-outs is a tremendous concern for those associated in the instructional process of target language acquisition. To dispel the disappointing scenario of low achieving learners calls for the formulation of feasible strategies by the ELT experts experimenting in the instructional process at the elementary and upper primary level.

Motivation as a Driving Force

Motivation is one of the most vital determents of educative process. According to, Frieze (1981), people's belief about the causes of their success and failure influence their motivation for learning. In this regard we can also take into account Maslow's theory of hierarchy of needs. It prescribes the teachers how to motivate a learner to get associated in the environment. Since most of the low achievers are victim to a sense of inferiority and to some extent insecurity due to their inability to be active participants in the learning process. Their prime need is love and a sense of proximity. Teachers teaching the target language must feel that the repulsive strain of learning a second language can be dispelled from the low achievers' mind only if their self esteem need is satisfied prior to satisfying their intellectual and linguistic needs. The institution has to strive to cast an air of social acceptability that ensures that pupils' needs are valued. Instead of underestimating the low achievers the teachers have to modify their behaviour pattern so that it guarantees deeper level of interaction with the with the problem children in the domain of language acquisition. Graham (1991) experimentally proved that the low achievers attribute their failure to their lack of ability when teachers express pity or hollowed praise. In addition, this sense of inability may also spring in the low achievers when teachers proceed to help them even when they don't ask for any.

Integrative Motivation is thus the stimulating factor to uplift the low achievers in the level of skill development of target language. Falk (1978) thinks that the students who are most successful when learning a target language are those who like the people that speak the language, admire the culture and have a desire to become familiar with or even integrate into the society in which the language is used. This type of motivation is known as Integrative Motivation. Similar view is supported by Crookes and Schmidt (1991) who opined that motivation itself can be identified as the learners' orientation with regard to their goal of learning a language.

Encouraging Participation in Group Interaction

The teacher should follow the basic assumption that being a part of the action is basic to learning appropriate behaviour. Thus he should tolerate the deviant behaviour of the low achievers and allow them to exercise their acumen to learn to participate confidently. The teacher should keep in mind that a certain degree of deviant behaviour is essentially the experimental strategy that the learners adopt to learn. The should freedom to construct their hypotheses and to communicate their idiosyncratic conception based on those ideas. He should not exercise the dictum of criticism and correction of the pupils' errant behaviour since his attitude will be basically teacher-centric then. Cazen (1979) prescribes a strategy to provide supportive help to children who cannot participate in classroom activities. She suggests that the teachers in this regard should try to engage withdrawn children by constantly speaking as if the children knew how to behave and respond. If the teachers did not get an expected response, the should interpret a look, a gesture as if it were at least an attempted response and answer it as such. In such a manner the low achievers are actually receiving practice in appropriate instructional interactions. They are not treated in isolation nor are they placed in a remedial group which in a way create a sense of humiliation among them. What the teachers strive to achieve is a sort of behavioural modification technique called shaping to gradually and consistently move the problem children in the direction of competence.

Gillam Mcnamee (1979) provides an idea of the kind of stimulation that teachers can provide for children who are obstructed at immature level of language learning. She thinks that 'retelling' can be used to help children learn to follow, anticipate and create story structure. Though a story becomes familiar a child hesitates to

narrate it before an adult. The difficulty they feel is in sustaining any extended connected discourse. It is observed that the children have the tendency to name the objects, person or events rather than weaving connection among those events or objects. Thus, what the teacher needs in the situation, is to provide supportive framework so that they can utilise their cognitive ability to coherently describe those events in a sequential manner. This will not only stimulate their creative faculty but also nurture their proficiency to communicative competence.

The pupils who fall behind in reading skill can be provided with compelling reading experiences and this is termed as "assisted reading". This can be done in three strategic ways.

1. **An adult reader reading with the child** – Sometimes it is seen that some low achievers due to their slow pace of reading fails to gain the impact of the story. In this case the 'assisted reading' where an adult or a peer reads with the child acts as a therapy. Here the text is to be split up with conversational or manageable part. This technique is helpful for material which is slightly above the learners' instructional reading level.
2. Providing **freedom to the learners to select items already familiar** -This goes with the psychological principle of learning English from familiarity to unfamiliarity. This helps the learners anticipate the special vocabulary and specific structures.
3. **Use of audio materials to consolidate their reading practice** –The proper utilisation of audio aid stimulates the slow readers to grasp the expected rate of reading. This can be done by drill and practice of selected reading materials.

Selection and gradation of vocabulary and structure

Proper selection and gradation of structures is a pedagogical principle to facilitate the process of the low achievers. The following principles are to be followed to enable them to grasp the learning experiences.

1. **Simplicity**: The vocabulary is structures which are simple are to be selected first to enable the learners to master. For example, in Indian context 'fire' is to be taught first, then 'ice'.
2. **Teachability** : This structures which are easy from the standpoint of teaching are to be given priority. For example, present continuous structures denoting concrete actions are easy to teach than present indefinite structures.
3. **Productivity** : The structures which can produce large number of sentences are to be selected. For example, 'Ram gave the book to me' (subj+verb+direct obj+prep+indirect obj) can produce larger number of sentences than 'Ram gave me the book' (subj+verb+indirect obj+direct obj).

CONCLUSION

So, taken a comprehensive viewpoint, the possible way outs of the low achievers in English are essentially strategic in nature. The fundamental assumption is that the low achieving pupils are to be reminded of their inherent potentialities to change and grow. The problem children learn the same way that more proficient learners do- that is, they learn new language ability when they are in situation that require it. But they encounter numerous problems in learning situations due to their inherent lack of proficiency and acquired ability. Naturally they suffer from strain and anxiety which again stand in the way of their subsequent learning progress. So to get over this trauma they need supportive help from their teachers, peers and adults which will boost their tenacity to get associated in the learning situations. The spurt should originate also in the target language teachers who have to be technically strategic, experimentally rigorous and psychologically tolerant so as to render utmost effort to dispel this stigma of low achievement from the learning domain.

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EARLY STRATEGIC GUIDANCE FOR HIGHER VOCATIONAL SCHOOL STUDENTS USING SUPPORT VECTOR MACHINES

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ABSTRACT

Academic guidance and orientation is important for vocational schools. In this study, data set of vocational school students are obtained from student affairs central database. The data is filtered and gender, age, geographical region student came from, high-school type, a special high school score of vocational high school student that is used for entering vocational school without exam, and school registration type are taken as six inputs. Academic success and graduation length are the two outputs that are aimed to be predicted. Based on these chosen input and output information, a model is aimed to be developed in order to help advisors in improving academic success and shortening graduation length of their students. Support vector machines based artificial intelligence technique is used. Input sensitivity analyses are also conducted. It is seen from the analyses that academic success and graduation length are both highly affected by gender. Also, academic background has also effect on two outputs in different manners. From the analyses, it can be concluded that the advisors can orient or guide students based on the SVM outputs.

Key Words: Vocational schools, academic guidance, academic success, graduation length, support vector machines, input sensitivity.

INTRODUCTION

Extracting potentially valuable information from databases is an important issue for different areas ranging from industry to medicine to education (Witten, Frank, & Hall, 2011). With the improvement in the storage and power of computer technologies, data mining terminology gain importance. Data mining can be used for different tasks as classification, estimation, segmentation or description (Luan, 2002). For schools, huge amount of data are being created and stored every hour when a school is in session. Therefore, data mining is also used for different levels of schools (Zalik, 2005). Then, a dynamic modeling approach is also used to predict performance of high school students (Camacho, Cortés, Micle, & Sánchez-Sánchez, 2013). In addition, Kardan et. al. (Kardan, Sadeghi, Ghidary, & Sani, 2013) considered the e-learning environment and provided an artificial neural network based method for improving the student satisfaction on online course selection.

The interactions between the school and student can happen in a variety of different meanings and efforts, and academic advising is a very important tool for encouraging the student for educational, career and life goals

(Young-Jones, Burt, Dixon, & Hawthorne, 2013). Vocational schools, on the other hand, have significant differences from engineering or other faculty students from different perspectives as student profile, education goals and course contents. Therefore, studies on vocational studies dissociate from other higher education areas. Vocational schools must consider the labor needs of the community they are living in, challenge to respond market demands and prepare students for vocational roles. In the rapidly developing information age, changing job profiles and need for multi-skilled personnel are increasing the importance of the quality of the education for vocational school students.

According to a commentary on assessment of vocational competence in higher education, we had some ways to determine these competences which concludes multiple interpretations. Firstly, as a broad way, it includes knowledge, attitudes, skills, social and motivational aspects and work-related contents. Secondly, as a small way, it can be seen in a cognitive way to refer to result of an individual learning (Gijbels, 2011). About comparing the students' perceived and actual competence in higher vocational education, a questionnaire based research was realized over 169 students (Baartman & Ruijs, 2011). Then a study which provided in a higher vocational education, the critical factors are influenced to examine the quality of assessment for purpose, comparability and fairness as strong points. Addition to this, the weak points are presented as reproducibility of decisions and development of self-regulated learning. At finally, the critical factors are represented the translation of competences into these daily lessons and the involvement of the work field (Baartman, Gulikers, & Dijkstra, 2013). A meta-analysis for determining specific strategies on self-regulated learning factors in increasing academic performance which are variables of cognitive, meta-cognitive and managerial strategies, motivational aspects, knowledge, characteristics, instrumental measures and subjects (Donker, Boer, Kostons, Ewijk, & Werf, 2014).

In most universities, students choose their courses and other activities with the help of an advisor. The advisors must guide to the students in a right way. For vocational student, the need and importance of advisor system is much more important. The class and racial differences, family problems, lower income, less motivation make it also difficult. Thus, early prediction of academic performance of students is important for advisors.

Vocational schools bring together school and workplace learning, which is an effective method for preparing young people for jobs and smoothing initial transitions into the labor market (OECD, 2011). In a vocational school the advisor must have a pedagogical skill and specific competence to help a student. However, in under-developed countries and some developing countries having a large young population, the amount of students in a school is too much to deeply analyze all the students. Therefore, it is straightforward method to use data mining and artificial intelligence techniques to first separate risky and non-risk students and give much more time to risky ones.

Admission to vocational schools has some differences in all countries. For instance, in Turkey, students who graduate from technical and vocational high schools may choose to enroll in an associate degree program as a continuation of the program they had completed, or a similar one, found in their own Professional and Technical Education District (PTED) without entering the central exam using their PTED score. This is known as the open admission and the student may enroll in a vocational school associate programs out of their region. Open admission placements are made by the Turkish Student Selection and Placement Center (SSPC) automation system. Also, students who graduate from other high schools can enter vocational high schools with SSPC central exam.

In this study, academic success and graduation length of newly coming vocational school students are predicted using artificial intelligence techniques. Support vector machines (SVM) are used and the advisors can orient or guide students based on the SVM outputs.

MODEL

Neural networks work best when the nature of the data is nonlinear. Running neural networks may take a very long time due to back-propagation. Most neural networks rely on the process for the hidden layer to perform

the summation and constantly adjust the weights until it reaches an optimal threshold, which then produces the outcome for a record (Garson, 2008). Main solution method of this study is Support Vector Machines (SVMs) which are first proposed by the idea of mapping the non-linear input vectors to a higher dimensional feature space that is designed as a linear decision surface (Cortes & Vapnik, 1995). The special characteristics of the decision surface create a high level of machine learning ability, and ability to use high dimensional data (Ben-Hur & Weston, 2010). SVMs have effective usage in both classification and regression problems.

In this study, there are two output variables to be predicted which are the grade point average (GPA) (in terms of four-point system) and graduation length (in terms of day). They are predicted separately by using two different multi-input single-output SVM structures. For these, the same six input variables are used that are gender (M/F), age (days), geographical region, high-school type, PTED score, and school registration type. The values and definitions of these inputs and outputs are given in Table 1.

The data set is composed of 1138 students' information taken from Student Affairs Database of a large-scale vocational school with population of about 3500 students, 32 full-time and 21 part-time lecturers. In this study, students graduated between years 2002-2006 are considered.

METHOD

Firstly, considering a set of training data $\{(\mathbf{t}_1, y_1),\ldots,(\mathbf{t}_{Ntr}, y_{Ntr})\}$, where each $\mathbf{t}_i \subset \Re^n$ denotes the input space of the sample and has a corresponding target value $y_i \subset \Re$ for i=1,…, N_{tr} where N_{tr} corresponds to the size of the training data for in solution approach that is support vector regression (Campbell & Ying, 2011).

Table 1: Model Parameters

Input Code	Variable Name	Type	Definition
inp1	Gender	1,2	Male, Female
inp2	Age	Days	
inp3	Geographical region	1, 2, 3, 4, 5, 6, 7, 8, 9	Mediterranean, East Anatolia, Agean, Southeast Anatolia, Central Anatolia, Black Sea, Marmara, Cyprus, Others
inp4	High-school type	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	General, Open, Multi-program, Teacher training, Religious vocational, Trade vocational, Industrial vocational, Girls' vocational, Hotel management and Tourism vocational, Others
inp5	PTED score	Real valued	
inp6	School registration type	-1, +1	Open admission, placement by examination
Output	**Variable Name**	**Type**	**Definition**
SVM-I output	GPA	Four-point system	[0,4]
SVM-II output	Graduation length	Days	

EPSILON-SVR ALGORITHM

The idea of regression problem is to determine a function that can approximate future values accurately. The generic SVR estimating function takes the form:

$$\hat{y}(\mathbf{t}_i) = \mathbf{w}^T \Phi(\mathbf{t}_i) + b \tag{1}$$

where $\mathbf{w}^T = [w_1 \quad \cdots \quad w_m] \in \Re^m$ and $b \in \Re$ are the coefficients of the regression curve and Φ is a non-linear transformation function from *n*-dimensional input space $\Re^n$ to an *m*-dimensional feature space *F* where $n < m$. The epsilon-SVR algorithm finds the values of $\mathbf{w}$ and b by minimizing the optimization problem given as

$$\begin{aligned} &\min_{\mathbf{w},b,\xi,\xi^*} \frac{1}{2}\mathbf{w}^T\mathbf{w} + C\sum_{i=1}^{N_{tr}}\left(\xi_i + \xi_i^*\right) \\ &\quad s.t. \quad y(\mathbf{t}_i) - \hat{y}(\mathbf{t}_i) \le \varepsilon + \xi_i, \qquad i = 1,2,\ldots,N_{tr} \\ &\qquad\quad \hat{y}(\mathbf{t}_i) - y(\mathbf{t}_i) \le \varepsilon + \xi_i^*, \qquad i = 1,2,\ldots,N_{tr} \\ &\qquad\quad \xi, \xi_i^* \ge 0 \qquad\qquad\qquad i = 1,2,\ldots,N_{tr} \end{aligned} \tag{2}$$

where $\mathbf{w}^T\mathbf{w}$ is the structural risk and represents the model complexity, ξ_i and ξ_i^* are slack variables used to measure errors outside the ε-tube (Campbell & Ying, 2011). Thus, the primary formulation is translated to a dual one which is a quadratic programming problem. From the solution of this QP problem, by using the Kernel trick, the regression model as

$$\hat{y}(t) = \sum_{i=1}^{N_{tr}} \alpha_i K(\mathbf{t}_i, \mathbf{t}) + b \tag{3}$$

Where α_i are regression parameters obtained from the solution of the QP problem (Campbell & Ying, 2011) (Schölkopf & Smola, 2002).

INPUT SENSITIVITY ANALYSIS

The SVM model using input sensitivity analysis can be both configured as a more effective model and purified from input data set that has low or no effect on classification or regression performance. Also, for newly developed models, reduced computational burden, less data in the input data set and ease of update is obtained. Input sensitivity analysis gives us the importance of each input on the output. Thus, In order to achieve this, the partial derivative of output with respect to each input is needed. Let us remember that the input-output relationship of the SVR model is

$$\hat{y}(\mathbf{x}) = \sum_{j=1}^{N_{SV}} \alpha_j K(\mathbf{t}, \mathbf{t}_j) \tag{4}$$

where $\mathbf{t}_j$'s are the support vectors, $\mathbf{t} \in \Re^n$ is *n*-dimensional input vector and $K(\mathbf{t}, \mathbf{t}_j)$ is a Gaussian kernel function given by

$$K(\mathbf{t}, \mathbf{t}_j) = e^{-\frac{\|\mathbf{t}-\mathbf{t}_j\|}{2\sigma^2}} = e^{-\frac{(t_1-t_{j1})^2+(t_2-t_{j2})^2+\ldots+(t_n-t_{jn})^2}{2\sigma^2}} \tag{5}$$

Then, the input-output relationship becomes

$$\hat{y}(\mathbf{t}) = \sum_{j=1}^{N_{SV}} \alpha_j K(t, t_j) = \sum_{j=1}^{N_{SV}} \alpha_j e^{-\frac{(t_1-t_{j1})^2+(t_2-t_{j2})^2+\ldots+(t_n-t_{jn})^2}{2\sigma^2}} \tag{6}$$

Now, the partial derivatives can be written as

$$\frac{\partial \hat{y}(\mathbf{t})}{\partial \mathbf{t}_k} = \frac{\partial \sum_{j=1}^{N_{SV}} \alpha_j e^{-\frac{(t_1-t_{j1})^2+(t_2-t_{j2})^2+\ldots+(t_n-t_{jn})^2}{2\sigma^2}}}{\partial \mathbf{t}_k} \tag{7}$$

The derivative in Equation (7) can be calculated as

$$\frac{\partial \hat{y}(\mathbf{t})}{\partial \mathbf{t}_k} = \frac{\sum_{j=1}^{N_{SV}} \alpha_j \partial e^{-\frac{(t_1-t_{j1})^2+(t_2-t_{j2})^2+\ldots+(t_n-t_{jn})^2}{2\sigma^2}}}{\partial \mathbf{t}_k} = \sum_{j=1}^{N_{SV}} \alpha_j \frac{\partial e^{-\frac{(t_1-t_{j1})^2+(t_2-t_{j2})^2+\ldots+(t_n-t_{jn})^2}{2\sigma^2}}}{\partial \mathbf{t}_k} \tag{8}$$

$$= \sum_{j=1}^{N_{SV}} \alpha_j \frac{(t_{jk}-t_k)}{\sigma^2} e^{-\frac{(t_1-t_{j1})^2+(t_2-t_{j2})^2+\ldots+(t_n-t_{jn})^2}{2\sigma^2}} = \sum_{j=1}^{N_{SV}} \alpha_j \frac{(t_{jk}-t_k)}{\sigma^2} K(\mathbf{t},\mathbf{t}_j)$$

For a SVR model obtained by the data set $\{\mathbf{t}_i; y_i\}_{i=1}^{i=N_{tr}}$, it is possible to build a sensitivity vector for the kth input as

$$\mathbf{s}_k = \left[\frac{\partial \hat{y}(\mathbf{t}_1)}{\partial \mathbf{t}_k} \quad \frac{\partial \hat{y}(\mathbf{t}_2)}{\partial \mathbf{t}_k} \quad \ldots \quad \frac{\partial \hat{y}(\mathbf{t}_N)}{\partial \mathbf{t}_k} \right] \tag{9}$$

Thus, the norm $\|\mathbf{s}_k\|$ of the sensitivity vector can be regarded as a numerical measure that indicates the sensitivity of the output to the kth input for the SVR model obtained by the data set $\{\mathbf{t}_i; y_i\}_{i=1}^{i=N}$. For large sensitivity of the output to the kth input, we obtain relatively large $\|\mathbf{s}_k\|$ values and vice versa. For (9), $\|\mathbf{s}_k\| = 0$ means no sensitivity to the kth input. Thus, no matter how much the kth input is changed the output is not affected. It is possible to determine the relative sensitivities of the inputs by comparing the sensitivity vectors regarding to all inputs. Moreover, some inputs having very small sensitivities can be discarded from the data set and then the SVR model can be re-obtained with the new data set.

RESULTS

In order to determine the SVM model parameters, the data set is randomly divided into two parts as training and test set both of which have 569 elements. All input and output data are normalized between [-1;+1] by using the normalization method as follows:

$$x_N = \frac{2(x - x_{min})}{(x_{max} - x_{min})} - 1 \tag{10}$$

where x is the variable to be normalized, x_{min}, x_{max} are the minimum and maximum values of x in the data set, respectively, x_N is the normalized output. The error parameters used in the analysis of models are given in Table 2 where N is the number of observations, R_i is the real data and F_i is the forecasting data.

Table 2: Metrics used for the error analyses

Symbol	Calculation	Definition
MAE	$\frac{1}{N}\left[\sum_{i=1}^{N}(\lvert R_i - F_i \rvert)\right]$	Mean Absolute Error
RMSE	$\sqrt{\frac{1}{N}\left[\sum_{i=1}^{N}(R_i - F_i)^2\right]}$	Root Mean Square Error

Case -1: Academic Success with GPA

The first analyses are performed on predicting academic success with GPA. The regularization (penalty) parameter (C) is selected as a large constant 10.000. The kernel function is Gaussian, kernel parameter σ is 1.60 and e-tube parameter ε is 0.55 are obtained by grid search in order to minimize the RMSE of the training data. Then RMSE for test data is also calculated as given in Table 3 and the results are given as Figure 1 for the given parameters number of SVs are determined as 73.

Table 3: Results of Determining of the Kernel Parameters for Case 1

Training		Test		
MAE	**RMSE**	**MAE**	**RMSE**	**# of SVs**
0.2274	0.2676	0.2341	0.2929	**73**

After SVM model is obtained for data prediction, input sensitivity analyses are made. The Pareto analyses of inputs are given in Figure 1(a). As can be seen, the inputs from more sensitive to less are ordered as gender (inp1), PTED score (inp5), high school type (inp4), school registration type (inp6), geographical region (inp3), and age (inp2). Normalized error and support vectors are given in Figure 1(b). Real and predicted data with SVs are given in Figure 1(c).

In order to see the effect of each input on the academic success, the inputs are removed one by one starting from the less sensitive. To avoid the effect of training and test data selection on the analyses, Leave-One-Out Cross-validation is applied. The results are given in Table 4. As can be seen, best training and test performances with less number of support vectors are obtained by using Model #2 in which inp3 and inp2 are removed. When Model #2 is investigated, it is seen that gender, PTED score, high school type and school registration type are taken as input. According to the statistical analysis, it was also concluded that geographical region has no effect on academic success (Basturk et al, 2012). On the other hand gender, high school type, school registration type and PTED score have effect on it. Therefore, it can be concluded that the input sensitivity analysis in Table 4 coincide well with the statistical analysis.

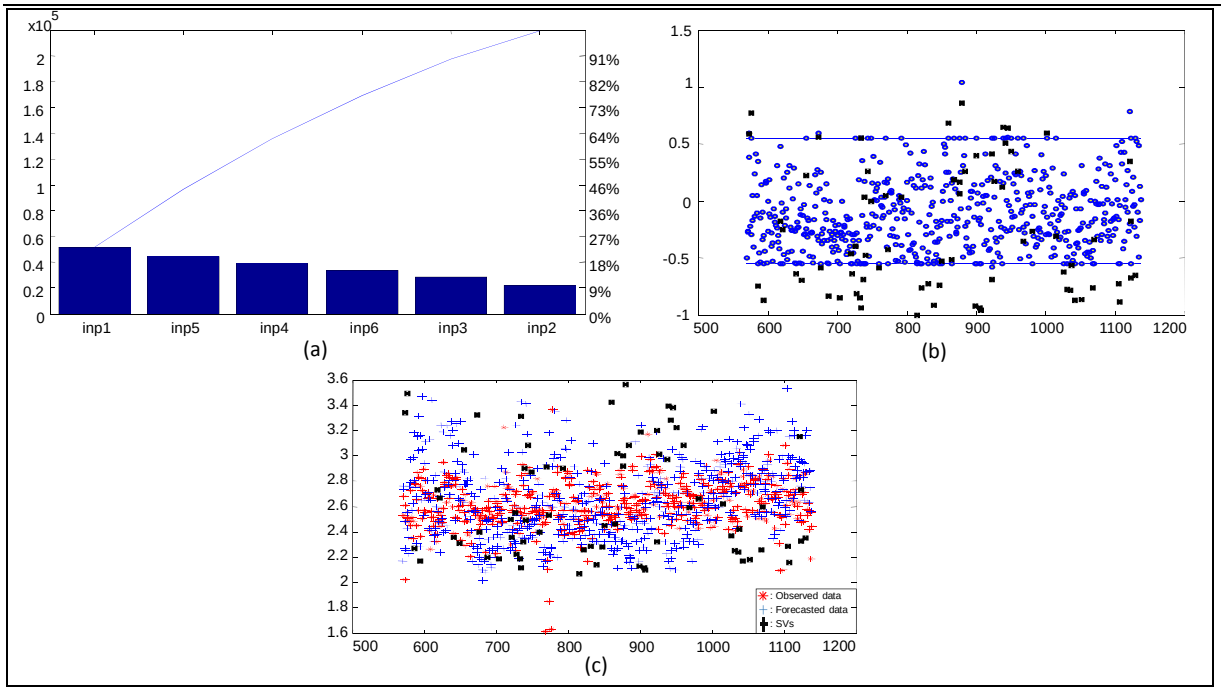

Figure 1: (a) sensitivity analysis Pareto graph, (b) normalized error and support vectors, (c) real and predicted data with SVs for Case 1

Table 4: LOO Cross-Validation Analyses for Case 1

Model No	Inputs	Training MAE	Training RMSE	Test MAE	Test RMSE	# of SVs
0	inp1 inp5, inp4, inp6, inp3, inp2	0.2314	0.2698	0.2433	0.2982	110
1	inp1 inp5, inp4, inp6, inp3	0.2237	0.2646	0.2304	0.2797	90
2	**inp1,inp5, inp4, inp6**	**0.2178**	**0.2595**	**0.2202**	**0.2653**	**74**
3	**inp1, inp5, inp4**	**0.2211**	**0.2639**	**0.2237**	**0.2702**	**76**
4	inp1, inp5	0.2243	0.2687	0.2253	0.2706	81
5	inp1	0.2481	0.2964	0.2486	0.2974	124

Case -2: Graduation Length

The second analyses are performed on predicting with Graduation Length. The regularization (penalty) parameter (C) is also selected as a large constant 10.000. The kernel function is Gaussian, kernel parameter σ is 9.5411 and e-tube parameter ε is 0.1005 are obtained by using *Big Bang-Big Crunch optimization method* in order to minimize the RMSE of the training data. Then RMSE for test data is also calculated as given in Table 5 and the results are given as Figure 2 for the given parameters number of SVs are determined as 357.

Table 5: Results of Determining the Kernel Parameters for Case 2

Training MAE	Training RMSE	Test MAE	Test RMSE	# of SVs
149.35	208.99	124.78	201.58	**357**

The same input sensitivity analysis conducted in Figure 1 and Table 4 for academic success is also obtained for graduation length in Figure 2 and Table 5. Unlike academic success analysis, the inputs from more sensitive to less are ordered as school registration type (inp6), gender (inp1), high-school type (inp4), geographical region (inp3), PTED score (inp5) and age (inp2). And Model 0 is chosen in which all inputs are used. Distinct from Case 1, number of support vectors is very near the number of training samples which means that the SVM model has higher level of complexity and higher over-fitting to the training data.

Table 6: LOO Cross-Validation Analyses for Case 2

Model No	Inputs	Training MAE	Training RMSE	Test MAE	Test RMSE	# of SVs
0	**inp6, inp1, inp4, inp3, inp5, inp2**	**137.88**	**200.88**	**142.94**	**207.99**	**650**
1	**inp6, inp1, inp4, inp3, inp5**	145.54	212.78	148.49	216.07	656
2	**inp6, inp1, inp4, inp3**	162.28	236.24	165.03	239.11	754
3	**inp6, inp1, inp4**	162.19	237.01	163.63	238.44	768
4	**inp6, inp1**	162.34	237.32	162.94	237.95	767
5	**inp6**	170.21	253.83	172.55	255.44	764

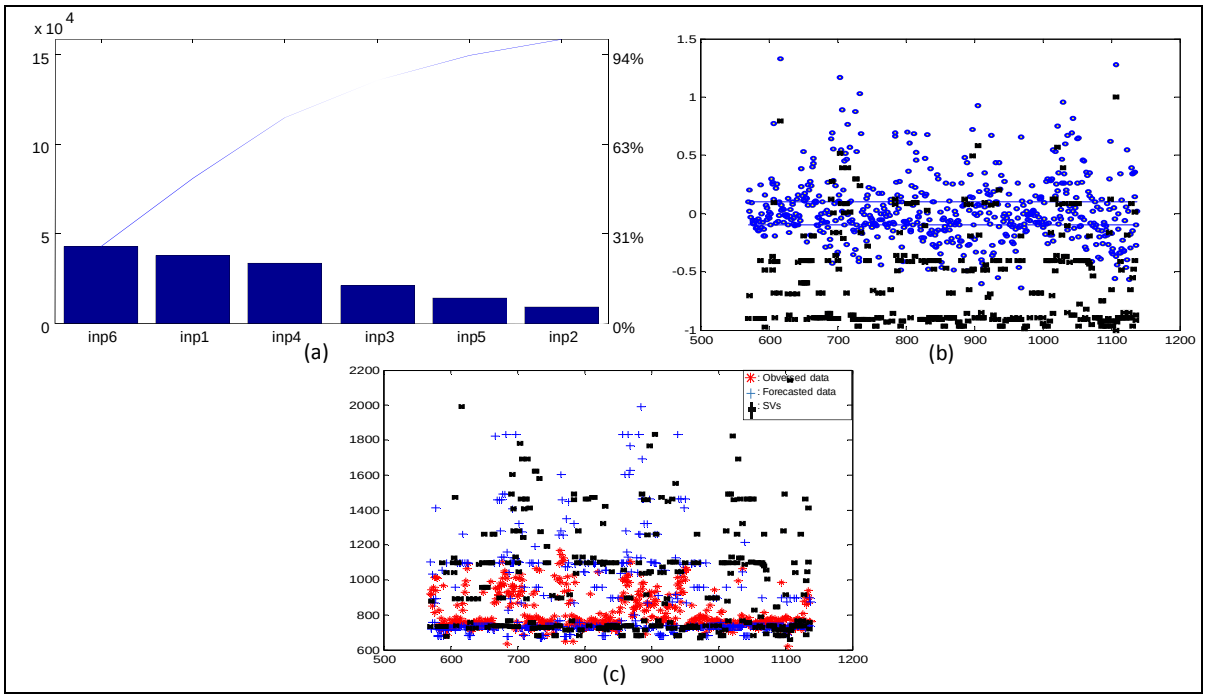

Figure 2: (a) sensitivity analysis Pareto graph, (b) normalized error and support vectors, (c) real and predicted data with SVs for Case 2.

DISCUSSION AND CONCLUSIONS

In this study, two cases important in terms of education are analyzed. Case 1 is the analyses of academic success and Case 2 is the analyses of the graduation length which also has an economic aspect. By using input sensitivity analyses for the two cases, SVM models having best performance are chosen. Thus, predictions about academic success and graduation length can be made based on newly coming student information using the obtained SVM models. And, the advisors can orient or guide students based on the SVM outputs. It will reduce the workload of the advisor, and help the advisor to make more accurate decisions. At the same time, the obtained SVM model and related outputs can be used to feedback to the infrastructure of the vocational school education system for the provision of some positive developments.

For academic success, gender (inp1), PTED score (inp5), high-school type (inp4) and registration type (inp6) are main factors. Except for gender all other factors are related with academic background of student. It is seen the academic background which is the education taken prior to enrollment to a vocational school has an effect on vocational school success. In the literature it is concluded from the statistical analysis that girls have higher success rates than boys (Basturk et al, 2012). This study has also confirmed the literature. The reason for this phenomenon is the earlier sexual development of girls and thus having more social responsibilities than boys.

In fact, graduation length is another criterion of the academic success. The shorter the student's graduation time, the efficiency of the resources in terms of education and the rate of economic participation will increase. In this respect, it is determined that all the variables registration type (inp6), gender (inp1), high-school type (inp4), geographic region (inp3), PTED score (inp5), age (inp2) in the order given have relative importance on graduation length. As gender, registration type is also one of the essential elements that determine a person's academic background. PTED score and high-school type are important elements of academic history and have an important place in determining the graduation length. In this study, geographic region concept is an interesting determinant and it can be said that culture of region of residence has effect on academic habits and that there are some differences between regions. When it comes to the age factor, it can be said that all students are in the vicinity of average age group. Therefore, age has less effect and sexual development and thus gender has more importance on graduation length. Also, it can be said that students that enroll without

examination have negative effect on the motivation of other students, graduation length and academic success.

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BILINGUAL IMMIGRANT CHILDREN AND LITERACY DEVELOPMENT: INCLUSIVE LEARNING ISSUES AND CHALLENGES

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GREECE

ABSTRACT

The present study was concerned with eliciting information about the difficulties bilingual immigrant students of 5th and 6th primary school classrooms encounter and the strategies they employ while writing in a second language (Greek as L2). The reason for conducting the study stemmed from the growing number of bilingual students in Greek mainstream classes, since Greece has been an immigrant receiving country for the last two decades. A number of variables are associated with bilingual students' literacy attainment, such as their personal characteristics, socio-economic factors, as well as parental interest and involvement in school activities. For this purpose, an attempt was also made to record immigrant parents' views on their children's literacy development and their attitudes to involvement in their children's education. Both qualitative and quantitative methods of data collection and analysis were employed: a) students' *think-aloud reports* and *retrospective interviews* b) parents' semistructured interviews were used as the basic instruments for collecting data. Although this study may be limited in scope, it is hoped that it will make a contribution to the promotion of inclusive practices for immigrant children as the findings provide signposts for practices to develop children's literacy skills and strengthen full inclusion into school life.

Key Words: Literacy development, writing strategies, bilingual children, immigrant parents, inclusive learning.

INTRODUCTION

Diversity of student population is becoming reality within the educational context of most societies. Recognition and acceptance of differences and similarities as well as whole-school approaches to learning are employed in an inclusive setting where teaching emphasises the connection between social, cultural and linguistic aspects of students' experiences and understanding. It is widely accepted that in such a context teachers should assume the responsibility to stimulate a classroom environment where students develop language and cognitive skills along with their cooperative skills and recognition of perspectives other than their own (see Griva, et al., 2011).

Throughout school, equality of access to learning should be promoted, irrespective of students' cultural, linguist background and abilities. For this purpose, inclusive practices are adopted aiming at enhancing learning of less competent students and providing the same opportunities for holistic learning and participation in all aspects of school life. There is also some evidence to suggest that through the adoption of appropriate approaches to learning, responsible behavior in the classroom and adequate development of language skills, the following outcomes can be potentially achieved: improvement of interpersonal and intercultural

relationships, understanding of individual differences, bias and stereotypes (Santora, 2006) which contribute to the immigrant students' inclusion in the school.

A number of issues are associated with bilingual students' language development and educational attainment, such as students' personal characteristics, ethnic and linguistic origin, socio-economic factors, parents' education and basic skills, and parental involvement (Lindholm-Leary, 2001). However, despite the fact that school plays a vital role in literacy development, other influences that are likely to affect children's everyday life in and out of school cannot be underestimated. It should be noted that since effective education responds to the learning needs of individual children and the needs of their families, collaboration between school and family is essential to achieving education for all.

Parental involvement also plays a central role in children's successful literacy attainment (Marsh, 2006). It has been indicated that the children whose parents are actively involved in their development are more likely to succeed in school (Desforges & Abouchaar, 2003). In addition, the attitudes of immigrant parents towards the majority language tend to affect the speed and quality of children's second language (L2) acquisition (Li, 1999). It is believed that immigrant parents' supportive attitudes towards both languages and their active involvement in their children's linguistic progress can result in children's acquisition of language skills.

Issues and strategies in writing skills

While writing is regarded as an important part of literacy development, it is regarded as a complicated process which imposes some constraints on bilingual/ immigrant students. Children who do not learn to read and write and communicate effectively in primary school are more likely to leave school early, be unemployed or find themselves in low-skilled jobs, and are most likely to end up in poverty (Barnados, 2009). Students who encounter literacy difficulties are more likely to experience educational failure, and therefore they leave school without qualifications (Eivers, et al., 2004). Not having the skills and qualifications to participate in today's knowledge-based society, the individual faces a low level quality of life (Kennedy, 2009). Those individuals do not enjoy certain outcomes that determine human well-being, such as psychological, economic, physical and social well-being (Maxwell & Teplova, 2007).

Given the fact that first language (L1) writing process depends on mastering a number of processes and sub-skills, such as generating and drafting ideas, producing content, revising and editing text (Griva et al, 2009; Reid, 1992), L2 writing involves all of these processes mixed up with L1 competence issues, which overwhelm the writing process, especially in the case of poor writers (Bereiter & Scardamalia, 1987).
Some recent research suggests that bilingual students' L2 literacy depends on the literacy developed in L1 (Cummins, 2001; Baker, 2002). These students develop metalinguistic awareness and use a wider range of language learning strategies compared to monolingual ones (Cenoz & Valencia, 1994; Griva, Chostelidou, & Tsakididou, 2011).

Furthermore, studies have also shown that skilled writers tend to view planning and composing as a continual process which includes developing an initial set of goals or plans to guide the writing process (Goddard & Sendi, 2008). In contrast, poor writers seldom set writing goals, monitor their final product as regards the writing goal, and rarely revise a text (ibid 2008). Also, poor writers are believed to have weaknesses in the following areas of language (Victori, 1995): a) size of vocabulary; b) correctness of language; c) unconscious processing of language; d) language creation; e) mastery of the functions of language.

Having briefly examined the literature and given the findings of the studies outlined above, the present study was aimed at:

- mapping the range of cognitive/ metacognitive writing strategies employed when immigrant bilingual students write a task in Greek (L2);
- identifying the possible differences between more and less competent bilingual students in their use of cognitive and metacognitive strategies;
- identifing the potential difficulties encountered by students while composing a text in L2;
- recording immigrant parents' views on their children's literacy development;

- recording immigrant parents' attitudes in relation to their involvement in their children's education.

The reason for conducting the study stemmed from the growing number of second-language students in Greek primary schools, justified by the fact that Greece has been receiving immigrants for the last several decades. It should be noted that immigrant students, especially those who enter the Greek educational system at a later age, face unequal opportunities in their studies, as their educational and cultural capital and mother tongue (L1) tend to be ignored by the Greek system of education (Paleologou & Evangelou, 2003).

Given the fact that the Greek primary education system tends to adopt the process of assimilation, immigrant children are expected to learn the Greek language once they enter school, while they receive no instruction in their home language. They are expected to acquire a functional command of the Greek language achieving the level of first language-users.

METHOD

Sample

The sample, chosen for this research, consisted of a total of thirty-two bilingual students, aged between 10 and 12 (M=11.4 years-old, SD=0.45), from Albanian, Russian, Armenian, and Georgian families who have moved to Greece as immigrants. Sixteen students were born in Greece or had moved to Greece before the age of 5 and sixteen students had entered the Greek school at a later age. All of them fall under the category of early bilingualism.

The participants were selected from thirteen classrooms in seven Greek primary schools from a total of 58 bilingual students according: a) either to their higher (standard score: 13 or above) or lower writing ability (standard score: 7 or less) based on the scores of a group administered screening writing test, and b) their language competence based on the classroom teachers' judgments. Both 'good' and 'poor' writers can read and write in L1. Also, all of them (100%) declared that they almost always speak their L1 at home and 65.6% of the participants stated that they also speak Greek at home in some cases.

In addition, 32 immigrant parents of the children who participated in the study (27 women and 5 men) aged from 32-45 years were interviewed. They were of four different ethnic and linguistic origins (Albania, Armenia, Georgia, and Russia) and their permanence in Greece ranged from 2-15 years.

The Instruments and procedure

The following instruments were used for data collection:

a. A standardized writing test (Porpodas, Diakogiorgi, Dimakou & Karantzi, 2004) was used to identify the writing strengths and weaknesses of the students.
b. Verbal report data were collected from students through think-aloud sessions. During each data-collection session, the researcher worked with each student on a one to one basis. Every student was requested to produce a piece of writing in Greek, between 200-250 words. While writing the text, the students were asked to think aloud all the techniques and procedures they used, as well as the difficulties they encountered.
c. After the think-aloud sessions, retrospective interviews were conducted with each student in order to gain further insight into their usual approach to writing and the strategies they employed.
d. Semi-structured interviews were conducted with children's parents. The interviews comprised 23 open-ended questions, which were grouped under the following basic sections: a) parents' views on children's development and use of L2, b) parents' views on children's development and use of L1, c) parents' perspectives on children's school attainment, d) parental cooperation with school (directors, teaching staff) and involvement in children's education.

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RESULTS

Students' writing difficulties and strategies

Qualitative analysis of the verbal data (Miles & Huberman, 1994) from the writing task in Greek, resulted in a number of categories and subcategories, which were grouped into five basic thematic strands: a) pre-writing processes and strategies b) while-writing processes and strategies c) metacogitive strategies, d) social skills e) writing difficulties .

The majority of the good writers reported that they relied on external resources for generating content and they thought about organising the content of the task in Greek (L2). They showed a preference for drawing on prior knowledge to make sense of the topic they were writing about and to generate ideas. Moreover, they suggested that they generated new ideas as their composing process went on. Some participants stated that they generated alternative ideas at paragraph/sentence boundaries, which were constantly evaluated, checked against the context, and often re-structured. In contrast, the poor writers did not devise an initial plan when writing as they preferred to "write sentence by sentence". Their writing process was sometimes accompanied by comments such as "I don't know what else to write", or "let's see if something else comes up".

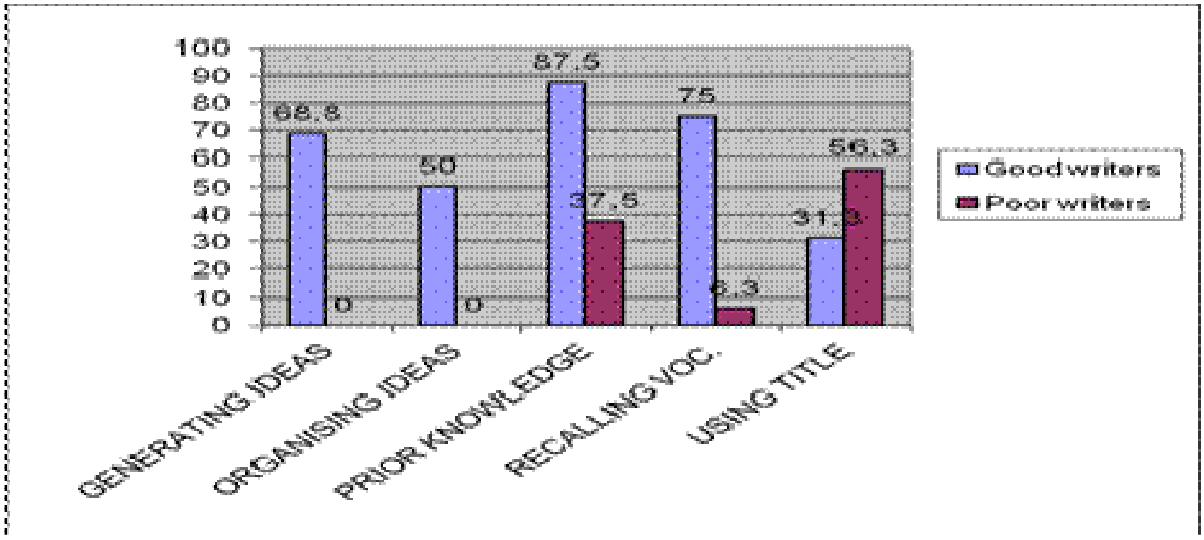

Figure 1: Pre-writing processes

The cross-tabulation indicated statistically significant differences between the two sub-groups in the following processes and strategies:

a. Generating ideas (X^2=18.462, df=2, p=0.000), since 68.8% of the good writers used this strategy efficiently, on the other hand none of the poor writers was found to use it in an effective way.
b. Organising ideas (X^2=27.246, df=2, p=0.000); 100% of the poor writers used it inefficiently, but only 6.3% of the good writers underused it and 50% of them employed it in an efficient manner.
c. Activating background knowledge (X^2=8.533, df=2, p<0.005). 87.5% of the good writers followed it but 37.5% of the poor ones showed a preference for this strategy.
d. Recalling vocabulary (X^2=15.676, df=2, p<0.001). This strategy was used more by poor writers (75%) compared to more competent writers (6.3%).

While-writing processes and strategies

While composing the text, most of the students followed certain sub-processes and employed a number of cognitive strategies, such as drafting, redrafting, composing without drafting / redrafting, rereading what they have written, writing sentence by sentence, translating, using resources (see figure 2).

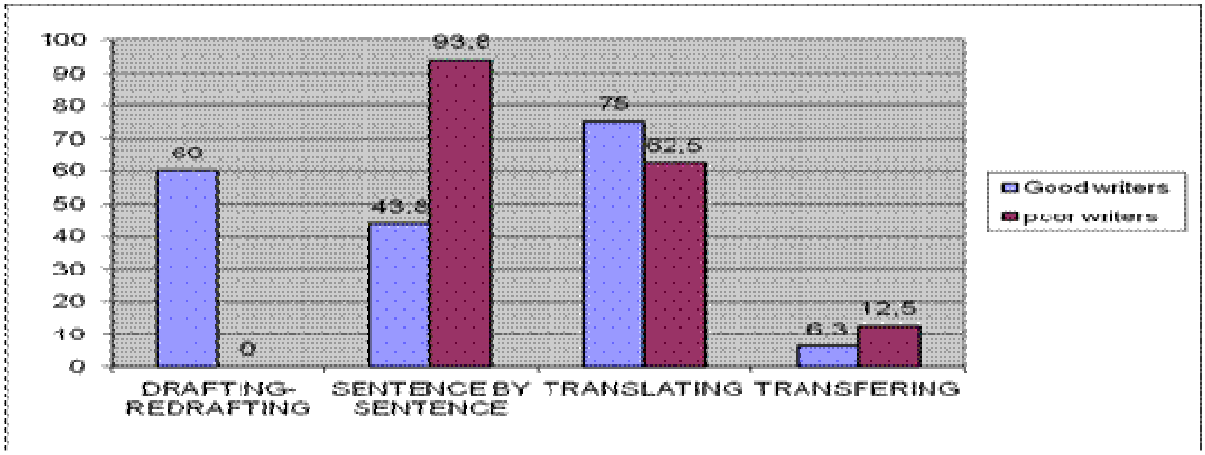

Figure 2:While-writing cognitive strategies

The comparison between the two groups indicated statistically significant differences between poor and good writers in relation to two sub-processes while composing a piece of writing:

a. Drafting and redrafting (X^2=12.857, df=2, p<0.005) was employed mostly by good writers either efficiently (26.7%) or partially (33.3%). However, 100% of the poor writers were not engaged in drafting and redrafting during text construction.
b. Composing sentence by sentence (X^2=9.309, df=2, p<0.005) was followed by the great majority of the less competent writers (93.8%) in contrast to more competent writers (43.8%).

It is interesting to note that while the students were composing the text, they employed some *compensation strategies* in order to overcome their limitations in writing, such as adjusting the message, switching to L1, using a synonym/circumlocution, getting help, and avoiding communication partially. In some cases, poor writers avoided using some expressions or they abandoned writing midway, because they were not able to use a wide range of vocabulary and grammatical items. On the other hand, when the good writers could not come up with the right or desirable expression, they were able to adjust the message by making the ideas simpler or less precise and by using a synonym.

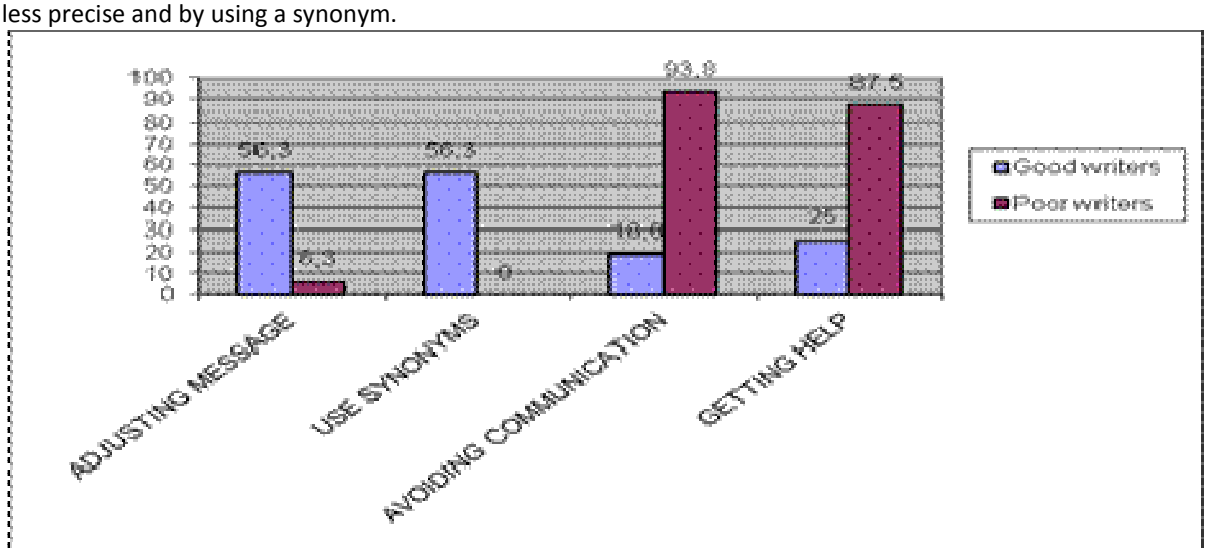

Figure 3: While-writing compensation strategies

The cross-tabulation indicated statistically significant differences between the two sub-groups in the following compensation strategies. The good writers were more willing to be engaged in 'adjusting the message' (X^2=9.890, df=2, p<0.05) and to 'use a synonym' (X^2=11.768, df=2, p<0.005) (56.3% and 56.3% respectively) in order to overcome some knowledge limitations. However, only 6.3% of the poor writers used 'adjusting the

message' and 0% could use a synonym or a circumlocution effectively. On the other hand, the latter showed greater preference 93.8%) for 'avoiding communication' (X^2=18.286, df=2, p=0.000) and for 'getting help' (X^2=12.698, df=2, p=0.000) compared to more competent writers (18.8% and 25% respectively).

Metacognitive strategies

It is worth mentioning that the majority of the participants showed a positive attitude towards evaluating their own writing and got involved in the processes of identifying difficulties and problems, and self-correcting. They reviewed and commented on their drafts, focusing on the style, content, spelling, and punctuation (Figure 4).

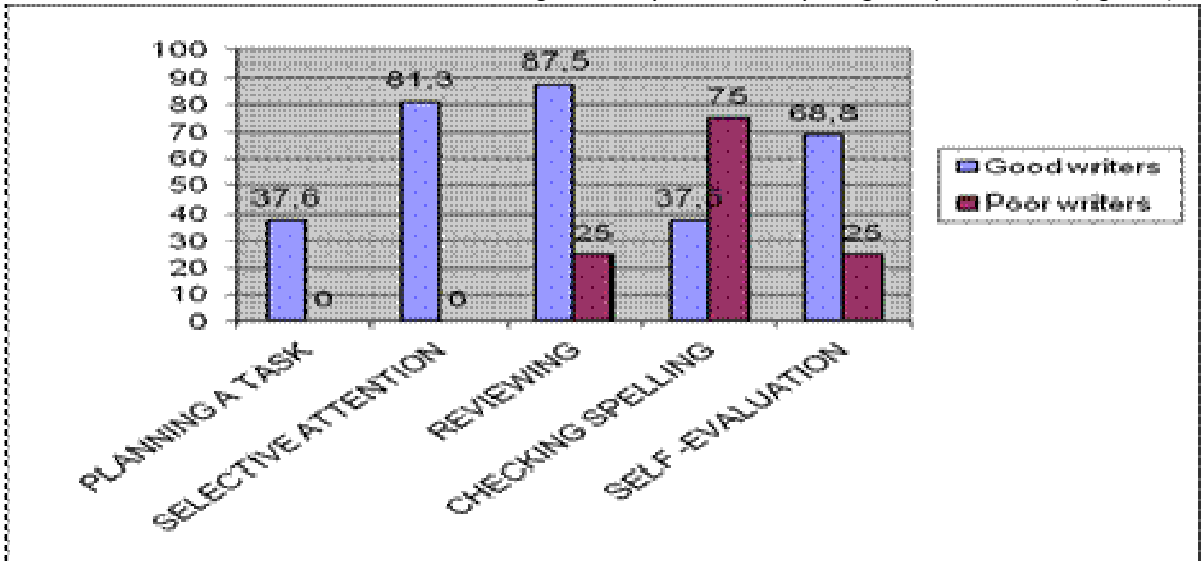

Figure 4: While-writing cognitive strategies

Crosstabulation revealed statistically significant differences between poor and good writers in the range of metacognitive strategies. In relation to 'planning for the writing task' (X^2=7.385, df=2, p<0.05), although 37.6% of the good writers indicated that they plan for their writing before starting to compose , none of poor writers was found to do so. Similarly, the poor writers showed no 'selective attention' (X^2=21.895, df=2, p=0.000), while a great part of the good writers (81.3%) paid attention to certain language elements while composing. In addition 'reviewing' (X^2=13.714, df=2, p<0.005) was a more favourite strategy for good writers (87.5%) than poor ones (25%).

Regarding 'self evaluation', the more competent learners evaluated themselves more highly than the less competent ones (X^2=19.444, df=2, p=0.000). More precisely, 68.8% of the good writers ranked themselves as 'very good' and 25% as 'good enough'. In contrast, 68.8% of the poor writers ranked themselves as 'weak' and 31.3% as 'good'. In addition, in the retrospective interviews, they declared that they had to improve some aspects of their writing. Concerning 'organising ideas' (X^2 =0.821, df=2, p>0.05), 25% of the good writers expressed their desire to improve this skill; however, only 12.5% of the poor writers focused on developing this process.

On the other hand, poor writers referred to more local processes dealing with: a) 'spelling words' (X^2=8.127, df=2, p<0.005), since a great part of them (81.3%) would like to be better at spelling compared to good writers (31.3%) and b) 'accuracy' (X^2=5.236, df=2, p<0.05), with half of the poor writers (50%) expressing their desire to be better at 'accuracy'; and only 12.5% of the more competent students focused on this skill.

The one-way ANOVA test indicated that there were statistically significant differences between the two subgroups in using both cognitive (F (30)=4.821, p<0.05) and metacognitive strategies (F (30)= 7.846, p<0.001) when performing the task in Greek (L2) (see table 1).

Table 1: Differences between poor and good writers in cognitive, compensation and metacognitive strategies in Greek

Strategies	*Greek (L2)*	*Greek (L2)*
	Poor writers	*Good writers*
Cognitive strategies	.2766 (Std .1838)	.4766 (Std .037)
Compensation strategies	.6500 (Std .1243)	.5000 (Std .1633)
Metacognitive strategies	.1125 (Std .1628)	.6250 (Std .2049)

Writing difficulties

Most students, irrespective of their language level, declared that they encountered certain difficulties while writing the task. However, the less skilled writers had problems with gaining control of the 'basics' of writing (spelling, vocabulary, and grammar) and organising the content of the text, while the poor writers' major concern was to recall and use the appropriate vocabulary the correct spelling (see figure 5).

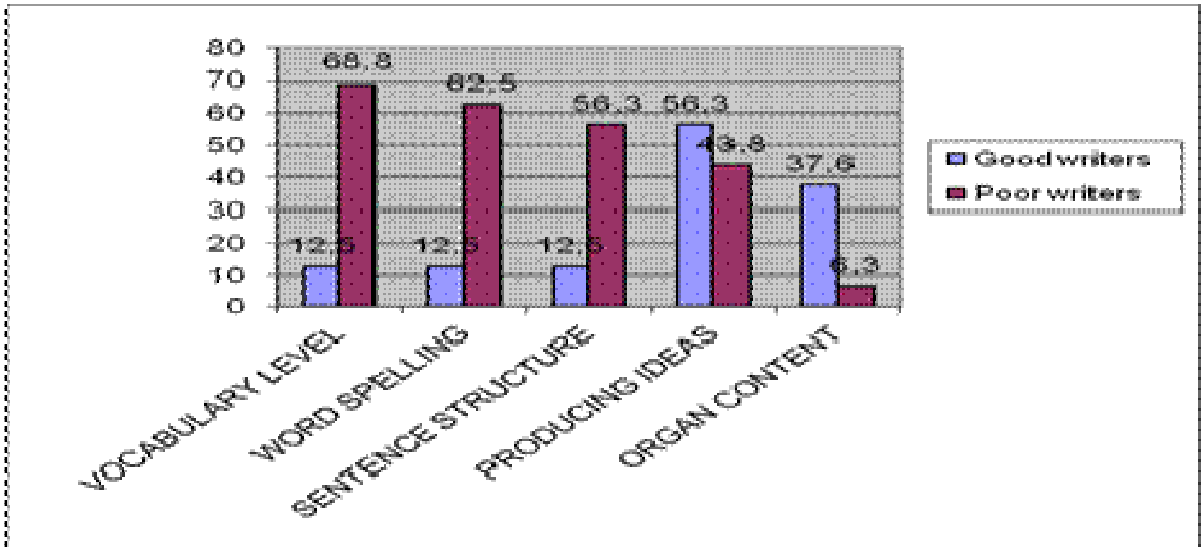

Figure 5. Writing difficuties

Specifically, a statistically significant difference was identified in relation to encountering difficulties at the vocabulary level (X^2=12.374, df=2, p<0.005); the less competent learners encountered greater difficulties in recalling and using the appropriate words (68.8%) than the more effective learners (12.5%). In addition, statistical differences were indicated (X^2=8.583, df=2, p<0.05) between poor writers, who had greater problems with 'word spelling' (62.5%) than the more competent ones (12.5%). Moreover, for struggling writers, writing correct and effective sentences was a significant problem (X^2=7.770, df=2, p<0.05). More precisely, they encountered difficulties in structuring a sentence to a greater degree (56.3%) than the good ones (12.5%) did.

The immigrant parents' views and opinions

Rich insights into the parents' viewpoints were obtained through the interviews with parents whose comments and suggestions complemented the data provided by the students. The verbal data, after being coded qualitatively using the techniques by Miles and Huberman (1994), resulted in 35 codes, which were grouped into seven categories classified into two basic themes:

a. *Parents' views on children's language development*, including the following categories: development and use of L2, development and use of L1, reasons for hindering L1 development, suggestions for enhancing L1 development.
b. *Parents' perspectives on children's school attainment*, including the following categories: academic performance (attainment) of bilingual children, parental involvement in children's education, difficulties in parental/school cooperation.

Parents' views on children's language development

During the first part of the interview it was attempted to identify the parents' views as to their children's development and use of L2 which seemed to be of major concern to them all. They reported that their children can best develop the Greek language "through formal tuition" and acknowledged the need to "shift to L2 given its status as the dominant native language". Immigrants who had been living in Greece for a limited period of time, 2-4 years, heavily prioritized the development of L2 and also supported its "usage within the family environment" at the expense of L1, along with "out of school reading in Greek" to promote its mastery probably as a means of integration in the host country of their settlement. This was not the case however, with parents who had immigrated to the host country a longer time ago and tended to value the development of both L1 and L2.

It should be pointed out that despite the fact that the need for proper development of L2 was strongly supported by most parents so as to ensure that it could be used comprehensively by their children, their "wish of maintaining L1" was equally an issue of major significance. To them L1 mastery was mainly "a tool for maintaining the students' cultural capital. As to the development of L1 they seemed to favour L1 acquisition to take place "within the family environment" by encouraging "out of school reading in L1" while they highlighted the fact that their children do have "poorly developed or even undeveloped writing skills in L1".

In an attempt to find the reasons for such a scenario, which most likely is responsible for hindering L1 development, they put forward the argument that the development of L1 either functions as "an obstacle to school attainment (achievement)" or "as an obstacle to L2 acquisition" while they underlined the fact that L1 development is perceived as "an obstacle to school and social inclusion".

It ought to be noted that a limited number of the interviewees (six parents) supported the view that their children should be given every chance to develop reading and writing skills only in L2 and not in L1 most possibly influenced by the need to assimilate in Greek society.

When asked to make suggestions for enhancing L1 development, the interviewees provided useful insights. First of all, a significant percentage of the parents opted for "mastery of L1 through formal schooling" while "private institutions run by the country of origin" was also considered. They also called for promoting students' familiarity with their mother tongue and culture "through intercultural activities which take place within the school environment" and is aimed at the "activation of the non-native students' cultural capital". Moreover, many of them seemed to be in agreement as to the significance of "the development of both the productive and the receptive skills not only in L1 but also in L2" In effect, training in relation to reading, writing, speaking and listening skills in Greek and the students' mother tongue were highly valued by a considerable percentage of the parents.

Table 1: Codes and categories of the thematic strand '*Parents' views on children's language development*'

A. Views on children dual language development	
1. Development and use of L2	L2FORTE=L2 acquisition through formal teaching L2FAMEN=L2 usage in family environment (between sisters and brothers) SHL2DOLA=Shifting of Greek as L2 to a 'dominant' first language OUTREL2=Out of school reading in Greek (L2)
2. Development and use of L1	WISMAIL1=Wish of maintaining L1 L1FAMEN=L1 acquisition within family environment L1CULCAP=L1 as a tool for maintaining cultural capital OUTREL1= Out of school reading in L1 POWRSKL1=Poorly developed (non-developed) writing skills in L1

3. Reasons for hindering L1 development	L1DOSCAT=L1 development as an obstacle to school attainment (achievement) L1DOACL2=L1 development as an obstacle to L2 acquisition L1DOSCINC=L1 development as an obstacle to school and social inclusion
4. Suggestions for enhancing L1 development	MAL1SCH=Mastery of L1 through formal schooling MAL1PRIN=Mastery of L1 in private institutions run by the country of origin L1CULTAC=Students' familiarity with mother tongue and culture through intercultural activities in school ACTCULCA=Activation of cultural capital REWRL1L2=Development of reading and writing skills both in L1 and L2 LISPL1L2=Development of listening and speaking skills both in L1 and L2

Parents' views on children's school attainment

Academic performance of bilingual children: The academic performance of their children was a major issue for most of the parents, as "the students' competence in L2 was viewed in relation to school achievement"; it was believed that the higher the L2 competence of the students the better the achievement in school subjects attained would be. On the same line, "underachievement in L2" was related to poor academic performance, namely lower achievement in most of the school subjects. However, it was emphasized that "bilingual students' attainment in sciences" is considerably high irrespective of their level of L2 competence. It is also striking that for a vast majority of the parents their role is influential concerning their children's progress as "school attainment is related to parental involvement".

Parental involvement in children's education: Concerning parental involvement in children's education most of the interviewees stated their "willingness to engage in school activities" and stressed the "significance of their own L2 development for providing assistance to their children" in line with their wish to get involved in their children's "reading and writing activities in L1 and L2". Nevertheless, they admitted that their involvement tended to be limited. Similarly, "parental counseling for school subjects" and "counseling for dealing with out of school activities" were highly regarded. Some of them also considered themselves unable to assume an active role in terms of their "involvement in out of school activities" due to practical constraints such as the language barrier, lack of familiarity with the Greek school system, differences in cultural capital and level of education.

Difficulties in parental/school cooperation: As all of the parents were immigrants to Greece they inevitably had to face a number of difficulties in fulfilling their parental role in relation to their children's school responsibilities. They confessed that their major problems came about as the result of their "difficulties in involvement due to language barriers" and their "insecurity in relation to their level in L2" especially for those with a limited period of stay in Greece. "Lack of education" was also indicated as a major factor which made it difficult for them to get involved in their children's everyday school tasks and "cope with their children's needs" especially "in upper grade activities". Moreover, other factors related to the life of immigrants such as "practical constraints", "heavy work schedule" and "difficulties in cooperation with schools due to lack of understanding of school operations" were also put forward.

Table 2: Codes and categories of the thematic strand '*Parents' views on children's school attainment*'

B. Aspects on school attainment	
6. Academic performance (attainment) of bilingual children	COL2SCAC=Competence in L2 is related to school achievement UNDACL2=Underachievement in L2 BILATSCI=Bilingual students' attainment in sciences SCATPARI=School attainment is related to parents' involvement
7. Parental involvement in children's education	WENSCACT=Willingness to engage in school activities INOUTACT=Involvement in out of school activities INREWRL1L2=Involvement in reading and writing activities in L1 and L2 PACOUNSC=Parental counseling for school subjects PACOUTSC=Parental counseling for dealing with out of school activities L2DEVASS=Significance of L2 development for providing assistance to children
8. Difficulties in parental/school cooperation	DIFUPGRA=Difficulties in involvement with upper grade activities DIFLAED=Difficulties in involvement because of lack of education DIFPRCON=Difficulties in involvement due to practical constraints/heavy work schedule DIFLABAR=Difficulties in involvement due to language barriers DIFCONEE=Difficulties in coping with children's needs INSLEL2=Insecurity in relation to their level in L2 DIFSCOPE=Difficulties in cooperation with schools due to lack of understanding school operations

DISCUSSION AND CONCLUDING REMARKS

The present research revealed some useful insights in relation to writing skills of bilingual immigrant students included in mainstream classes. More precisely, the poor writers' results showed that they had a limited knowledge of the writing task and they adopted lower-level processes and strategies (see Goddard & Sendi, 2008; Zimmerman & Risemberg, 1997). They did not display a wide range of organizational strategies and they did not revise or rethink ideas, however, they had adequate awareness of their own writing problems at the word level and they used certain compensation strategies to overcome these problems. In contrast, the good bilingual writers held a much broader and complex view of their own writing process and showed more strategic knowledge, since they were more flexible in using both cognitive and metacognitive strategies and employed a wider range of more 'elaborated' strategies (see Stein, 2000).

Parents' opinions indicated that although most of the parents cared about their children's education, they demonstrated low levels of involvement in it. An explanation of this paradox may be the barriers encountered by immigrant parents. This is particularly the case of parents who have been living in Greece for less than five years, who have to face issues such as the language barrier (inability to understand Greek), unfamiliarity with the school system, and differences in cultural capital and lack of education. It was also noted that the low level of support and encouragement provided by the school and the difficulties in communicating effectively in Greek make them feel uncomfortable when visiting their children's schools and this discouraged them from getting actively involved. Fewer of the immigrant parents valued both their home and school involvement. For this purpose, they try to offer their children help with tasks at home and they believed that they should get more involved in a range of reading and writing activities with their children both in L1 and L2.

Although this study may be limited in scope, it is hoped that it will make a contribution to the promotion of inclusive practices for immigrant children as the findings provide signposts for practices to develop children's

literacy skills and strengthen full inclusion into school life. Furthermore, although the study was done in one country, Greece, the data echo the school situation of immigrants in many countries.

It is widely accepted that children with limited proficiency in the language of schooling are certain to experience increased difficulty in coping both academically and socially. For this purpose, it is important to identify these difficulties in order to understand what intervention, support and remedial approaches are needed (Bialystok, 2008). It is suggested that inclusive practices should be implemented, which support immigrant children's literacy development, and their adjustment to a new school and social reality (Suarez-Orozco & Suarez-Orozco, 2001). School should a) expand opportunities for students to become strategic readers and writers; b) educate children with limited proficiency along with other peers by providing them with the opportunity to receive language support in the classroom; c) adopt practices that exploit students' potential rather than their difficulties; d) provide parents with opportunities to participate more actively in school activities and to get involved more actively in their children's language development. In this way, school can constitute a place, where 'citizenship education' should be encouraged and home-school communication and collaboration should be attempted in order for a supportive home learning environment to be established.

Inclusive education should be considered as a multidimensional and complex context with basic purpose to promote the bilingual students' linguistic and cognitive development, encourage their growth of metacognitive and social skills, develop interpersonal and intercultural relationships and abolish biases and stereotypes, so as to create citizens of literary and inclusive societies and educate students for 'global citizenship' (Tanner, 2007).

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EVALUATION OF SELF-MANAGEMENT SKILLS SETTING AN AIM SUB-AREA IN PRIMARY LIFE SCIENCE PROGRAM

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ABSTRACT

One of the most crucial aims of educational institutions is to raise generations who have developed life skills and are aware of themselves. These individuals who acquire new life skills and become more aware of themselves with the help of learning experiences feel ready to cope with the problems of the real world. Primary Life Science Program was designed to prepare the individuals for the life from the beginning of their educational lives. In the revised Life Science Program in 2004-2005 academic year, a wide coverage was shared to the skills children were expected to have. In addition to such skills as critical thinking, creative thinking, inquiry, communication, problem solving, self-management skills, which affect the attainment of those skills considerably, were also included in this program. In this research, it was aimed to evaluate the program which was designed to attain the self management skills, setting an aim sub-area skills according to the views of teachers and program development specialists. This qualitative study explored the positive and negative attitudes and views with regard to the program and presented suggestions to contribute to the development of the program.

Key Words: Life Science, Self Management, Setting an Aim Skill.

INTRODUCTION

One of the most crucial aims of educational institutions is to raise generations who have developed life skills being aware of themselves and what they really want and responsible to their own societies. Therefore, individuals are provided with opportunities to learn the real life by being engaged with new experiences in their schools. These individuals who acquire new life skills and get more aware of themselves with the help of classroom learning experiences feel ready to cope with the problems of the real world. As stated by Sönmez

(2010), one of the leading aims of education is to raise the individual who has developed his personality and abilities and can use them in the real world.

The period when the children develop rapidly in terms of cognitive, social, emotional and personal dimensions and begin to raise their awareness of the probable conditions they may encounter in their lives is primary education (Narin, 2007). This makes classroom learning experiences in that period really important for primary school students to acquire the skills they will require in their own battles of life.

The course of Life Science indicates a planned process to prepare individuals to real life in their years of primary school. Thanks to this lesson, children develop attitudes and values towards not only themselves but also the people around them and the world itself. These attitudes and values play a significant role in their future lives. In this respect, this lesson has an important part in increasing the quality of the individuals' lives, donate them with new skills and developing their skills (Yıldırım, 2006). As indicated by Özdemir (1998), Life Science Program primarily aims to help students acquire necessary knowledge, attitudes, skills and habits to investigate their own communities and adapt to them.

Since the shift from traditional views to contemporary educational views in education in 2004, it has become prominent that children need to have not only academic success but also social, personal and emotional skills. Hence, in the revised course of Life Science Curriculum in 2004-2005 academic year, a wide coverage was shared to the skills children were expected to have. Another basic distinction between this revised program and the formers was that the skills students were aimed to have at the end of the teaching process were defined and classified clearly (Kabapınar, 2009).

In the Primary Education Life Science Program, these skills were presented in sub-skills categories in detail. Some of these skills were specified as behaviors. Under three themes and using tables, the aimed skills were matched with acquisitions special to different grades. Some of those skills required to be developed for each of the grades and themes were stated as behaviors while some others were expressed in general cognitive, affective or psycho-motor terms (Ergüder and et al., 2005). These skills in Life Science Program were listed as; critical thinking, creative thinking, inquiry, communication, problem solving, using knowledge and technology sources effectively, social entrepreneurship, Using Turkish in a correct, effective and fluent way, decision making, using sources effectively, succeeding security and protection, self-management, recognizing basic principles of science, recognizing basic concepts with regard to themes (Ministry of National Education, 2005).

In 2005 Life Science Program the followings were stated with regard to the skills the students were aimed to possess: “In primary education, one of the basic responsibilities of Life Science Program is to help students acquire and develop skills. If it is known how to realize it in advance, it can be possible to help students obtain these skills. Skills acquisition is sometimes an automatic process which occurs by itself. However, it sometimes takes place as a result of an active process as well. While acquiring these skills, it is difficult to understand completely how the changes in students were formed. However, the results of studies indicate that these are formed together with being more matured and experienced. Moreover, there some proofs that show skills will develop much more rapidly if students are provided with proper learning conditions. In this respect, teachers' duty is to set the necessary conditions for their students acquire these skills and motivate them to develop these skills." (MNE, 2009, p.17).

As specified in the program itself, there is not a known certain way to help students acquire these skills. When the long term effects of them in students' own personal lives are taken into consideration, these skills are seen as important as and even sometimes more important than academic skills. These crucial skills were planned to be transferred to students by being related to acquisitions covered in a three year period. However, when the objective related to those skills and the acquisitions related to them are checked, it is understood that acquisitions do not overlap with objectives in some points and acquisitions are sometimes insufficient for the given objectives. When the program is checked, on the other hand, there seem to be such sub-areas of skills supported by those specified skills as self-management skills, setting an aim.

Self-management skill adopts the role of helping the individuals managing and supervising themselves in their journeys of personal development and lifelong learning (Goleman, 2011). Boyatzis and Sala (2002) define self-management as one of the most important sub-areas of emotional intelligence. They put it as; "The fact that one succeeds to understand one's own feelings result from motivation s/he needs to attain objectives. Self-management is to be aware of what you feel and manage these feelings. One who can manage the self can control positive feelings such as overcoming difficulties and passion. Also, such an individual can cope with such negative feelings as frustration and anger". In other words, self-management is a skill that helps an individual handle the internal controls of the selves and manage themselves according to objectives affectively. Another important characteristic of the individuals who have high level of self-management skills is to organize and manage themselves physically and psychologically in order to reach their objectives. According to Maslow, after fulfilling essential requirements, an individual wants to realize the self and be psychologically satisfied. Self-realization is, on the other hand, defined as the effort and desire the individuals possess to use the maximum of their abilities to attain their objectives. (Cloninger, 1993; Erden & Akman 1995 cited from Demirel, 2012). To attain objectives has a lot to do with the skills the students acquired during the process of trying to realize those objectives. Therefore, it is highly significant for the primary school students to adopt the skill to set an objective at such an early stage of their lives. In this way, they will also meet their need to achieve their aims, which is also one of their essential psychological needs. In Life Science Program, some objectives of setting an aim included as a sub-area in self-management skills are listed as follows: to recognize what to do and not to do; to choose objectives in harmony with their lives; to plan how to achieve each of the aims; to specify the challenges they may encounter while trying to achieve the aims; to know people to be consulted to achieve the set aims; to specify the required time to achieve the aims.

When compared to the significance attached to improving individuals' affective and social skills in developed countries (Schilling, 1996; Salovey, Mayer, 1990; Cohen, 1999; Mayer, Cobb, 2000; Mayer, Salovey, Caruso, 2002), it seems more clear how problematic the issue of developing students' self-management skills and setting an aim skills as its sub-area in Turkey is. In this perspective, the current study has sought to evaluate the self-management skills and setting an aim sub-area program by which a relation with course objectives of MNE Primary Life Science Program were aimed to build; the efficiency and qualification of the program in these sub-areas by collecting data from program development specialists and class teachers and as a result put relevant suggestions.

METHOD

This study was conducted to evaluate self management skills and the program designed to help students attain the skills specified in setting an aim sub-area included in Primary life Science Program revised in 2004-2005 academic year according to the views of teachers and program development specialists. This study adopted qualitative research methods. Qualitative study can be defined as a kind of research in which data collection methods such as observation, interview and document analysis are employed to explore the perceptions and cases in their natural environment in a realistic and holistic way (Yıldırım, Şimşek, 2011).

As the research design, case study, one of qualitative research designs, was adopted. Case study is a kind qualitative study which is used to collect detailed data about specific real life condition or conditions through multiple sources of data and to depict a case or reveal case themes (Creswell, 2013). Employing the case study method, the data was collected from two different groups to evaluate the aforementioned program. These two groups were formed of program development specialists and the teachers who are the implementers of the program. using multiple ways of data collection was thought to increase the reliability of the results of the study.

Participants

Purposive sampling method was used in order to specify two groups to participate in the study. This kind of sampling is used to determine the sampling which possess some specific characteristics set according to some standards. (Büyüköztürk and et. al., 2012). In this respect, two volunteer program development specialists teaching at two universities in 2012-2013 academic year were included in the study. The other group of the

participants consisted of nine female and one male volunteer teachers who had taught 3rd graders at least once and worked as class teachers in different districts of Istanbul in 2012-2013 academic year. The reason behind specifying the fact that participant class teachers had taught 3rd graders at least once as the standard was to benefit from their experiences and observations about whether students attained the objectives related to self management and setting an aim sub-areas at the end of Life Science Teaching Program or not. In order to provide reliability of the study, multiple sources of data was used. Data triangulation, which is used to provide the reliability in qualitative research studies, is applied by collecting data from different sources with different techniques in accordance with the problem of the study and correlate them with each other (Glesne, 2012).

Data Collection

A *semi-structured interview* form was prepared together with participant specialists to evaluate the program which was developed to help students attain the objectives in the sub-areas of *self management* and *setting an aim*. Predetermined questions were asked to teachers and their responses were recorded to analyze. On the other hand, program development specialists were asked to evaluate the program according to predetermined themes. Since the quality of the cases or events are regarded as more important rather than their quantities in qualitative studies, the reliability and validity of the results of studies are critically important (Punch, 2005). Therefore, the respondent validation used in order to ensure the validity of the study, which is a method generally applied to provide the reliability and validity of the data in qualitative studies. In this respect, the data gathered through interviews and forms was relayed to the participants for verification.

Data Analysis

Descriptive content analysis method was used to analyze the collected data. In descriptive content analysis this method, before collecting data, the themes of the study are specified and the data is interpreted according to these themes. Moreover, the other themes emerged apart from those are also presented in findings. In this data analysis method, participants' answers to research questions and observations are presented exactly the same as they are (Şimşek & Yıldırım, 2011). Within the perspective of descriptive content analysis, the data was analyzed with regard to three open-ended questions formed to take teachers' opinions and code keys were formed by classifying their responses under related questions. Different themes emerged were also presented in tables. On the hand, first the themes of the study were specified in order to analyze the data collected as a result of the interviews held with program development specialists. In addition to those emerged later during the study, themes were predetermined as follows: self management skills, program evaluation and skills development in students. In accordance with these themes, the data was processed and interview records were obtained and a coding key was formed. In data analysis, the findings were described and quotations from teachers' and program development specialists' views were used. Finally, the findings were interpreted with respect to the purpose of the study and the themes.

RESULTS

In accordance with data triangulation, the findings of the study were presented in two folds as teachers' opinions and program development specialists' opinions. The data was also classified according to three predetermined themes.

Class Teachers' Views

To collect teachers' views, their answers to open-ended questions were listed and analyzed according to sub-themes developed out of these responses. The list was formed as the 1st question, 2nd question and 3rd question.

1. The Analysis of Class Teachers' Answers to the question of "In your opinion, how does the acquisition of life skills such as self-management affect primary school student's future life?

Table 1: Class Teachers' Views About The Impact of The Acquisition of Self-Management Skills

Class Teachers' Views About The Impact of The Acquisition of Self-Management Skills	F
1. They contribute to the personal development considerably.	9
2. They reflect on behaviors positively.	8
3. They develop the ability to make a decision.	7
4. They improve the quality of life.	5
5. They help students be more organized and responsible.	4
6. They improve students' self*confidence.	4
7. They exert positive impact on their academic success.	3
8. They improve students' social lives.	3

As indicated in the table, according to class teachers, the acquisition of self-management skills at primary schools exert positive impact on the listed dimensions of students' future lives. Ten teachers evaluated the importance of the self-management skills and some sub-themes indicating this importance were developed. Most of the teachers emphasized the positive impacts of these skills through expressions such as *contribution to students' personal development*, *reflections on behaviors positively* and *developing decision-making skills*. *T-1* of the interviewed teachers reported as follows:

"Self-management skills include development in areas such as time management, quality of life, determining behaviors, meeting their own needs, adaptation to their environment (…) Therefore, I believe that the younger the development in these dimensions, the better the development in self-confidence, social and communication skills and as a result academic lives will be in the future. (…)"

As seen in T-1's expression, the teacher stated that self-management will affect students' personal lives, the quality of their lives, their behaviors, self-confidence, their social and academic development positively. *T-2* of the teachers expressed his ideas about the issue as follows;
"*Self-management skills include students' being able to manage time, be organized, plan and control self responsibilities. These are significant acquisitions the students must attain at primary schools. Because the sense of responsibility and being organized is internalized and exhibited as a behavior in time. And being organized adds significant values to one's life positively at any age level."*

When *T-2*'s views stated above were analyzed, the theme of *"the significance of self-management skills in terms of understanding responsibilities"* was developed. Moreover, in two teachers stressed that it was important to acquire these skills at an early period such as primary education. *T-3* of the teachers responded to the question as follows:;

"They have positive effects. To acquire these skills during primary education affects not only students' behaviors but also their academic success."

In this answer, the significance of self-management skills in terms of both behaviors and academic success was pointed out. On the other hand, *T-4*, who found the acquisition of these skills important for ensuring the integrity of knowledge, skill and talent, reported as;

"They affect them in a positive way. In parallel with knowledge, skill and talent, they also contribute to development of skills into talents."

In addition to them, teachers who found self-management skills significant for helping students make their decisions themselves in a healthy way, stated the followings;

"Students who have these skills take all negative and positive things into account while making a decision and they do not wait for the approvals of others." (T-5)

"(…) It is important for students to have life skills such as self-management. I think this is significant for students to make personal decisions, implement them and lead their lives by accepting their responsibilities." (T-6)

"The child who has acquired self-management skills at primary schools are self-confident. They are aware of themselves and what they can do appropriate to their age levels.(…) Their decision making skills develop."(T-7)
Teachers stated their views about how significant decision making skill, which stands for the most important component of setting an aim, was. Additionally, all of the teachers were explored to find that it was important for the students to attain self-management skills at such an early period of their lives as primary education. In this respect, *T-1's following response* indicated this point precisely:

"(…) The acquisitions that will contribute to meet basic needs especially during the period of primary education will reflect on students' behaviors positively. Therefore, it will help them experience the feeling of "I can do it" and as a result, such a sound basis will definitely lead the children to be conscious adults."

2. The Analysis of Class Teachers' Answers to the question of "Do you think that the acquisitions of classroom teaching serve for the objectives of *setting an aim* sub-area in three-year Life Science Program?

Table 2: Class Teachers' Views About The Relation Between The Objectives of *Setting An Aim Sub-Area* and The Given Acquisitions

Class Teachers' Views About The Relation Between The Objectives of *Setting An Aim Sub-Area* and The Given Acquisitions	F
a. Those who think objectives are related to the acquisitions	3
a.1.Objectives match up with the acquisitions	3
a.2.They match up with each other but not efficient	1
b. Those who think objectives are not related with the acquisitions	7
b.1. The acquisitions do not serve the objectives and the acquisitions are not efficient	4
b.2. The objectives of the program are related to the acquisitions in a wrong way.	3
b.3. The acquisitions are not suitable to the students' age levels.	1

As seen in table 2, out of teachers' evaluation of the acquisitions developed to help students acquire setting an aim skills specified in life science program, the results stated above were explored. When these results were analyzed, 3 teachers were explored to think that the acquisitions did not serve for the objectives while 1 of them was seen to think that they matched up with each other although they were not efficient. However, in general, the results indicated that the teachers stated that the acquisitions of setting an aim and the objectives of the program. 7 teachers reported that the acquisitions of classroom teaching did not serve for the objectives students were required to achieve to acquire setting an aim skills. On the other hand, 4 of these teachers found the acquisitions inefficient. Furthermore, 1 of the teachers stated that the acquisitions were not appropriate to the students' ages while 3 teachers reported that the acquisitions were matched up with the objectives inappropriately. Interviewed teachers stated their views about the issue as follows;

"*The objectives specified for setting an aim sub-area are clear, definite and more focused on the behavior and product. However, the acquisitions are not inefficient and do not serve for the objectives."(t-2)*

"Specified acquisitions are inefficient for setting an objective sub-area. (…)" (t-5)

T-2 thought that the given acquisitions were not efficient for and appropriate to the objectives adding that they were not qualified enough to result in a behavior performed by the students. In addition, some of the participant teachers reported that the acquisitions were matched up with the objectives inappropriately.

"I do not think that they overlap with each other precisely. Some of the acquisitions can be said to be related to different objectives. (t-3)

"In Life Science Program, there are efforts for improving organization and planning skills while there are no efforts to help students acquire setting an aim skills." (t-7)

"It cannot be said that they fully match up with each other. As a result of these acquisitions, it does not seem possible for the students to achieve the objectives. Sub-objectives should also be supported with different acquisitions of life science."(t-4)

In addition, as a result of teachers' answers, the theme that *the given acquisitions and objectives were not appropriate to the students' ages* was developed. On this issue, *t-10 said the following*;

"At this age group, the ultimate aims cannot be achieved with these given acquisitions and objectives.(…)"

As a result of all these responses, the inefficiency of the program attracts the attention. However, some of the teachers still supported the harmony between the acquisitions and the objectives specified in the program:

"I think the given acquisitions overlap with the objectives. They include the objectives."(t-6) "The objectives of setting an aim skills match up with the given acquisitions. (…)" (t-9)

The interviewed teachers, whose responses were stated above, were generally in the idea that the acquisitions served for achieving the objectives. On the contrary to this, as indicated in table 2, the participant teachers, in general, stated that the acquisitions and the objectives did not overlap with each other.

3. The Analysis of Class Teachers' Answers to the question of "How do you evaluate the students in terms of attaining setting an aim skills at the end of three year-life science lesson?"

Table 3: Teachers' Views About Whether Students acquire Setting An Aim Skill At The End of 3 Year Life Science Program Or Not

Teachers' Views About Whether Students acquire Setting An Aim Skill At The End of 3 Year Life Science Program Or Not	f
a. Majority of the students cannot acquire setting an aim skill.	7
a.1. Due to teaching program and the quality of education.	6
a.2. Due to parents	4
a.3.Due to teachers	3
b. Some of the students acquire setting an aim skill.	2
c. Majority of the students acquire setting an aim skill.	1

A seen in table 3, majority of the participant teachers (7) stated that the most of the teachers did not acquire setting an aim skill. More than half of these teachers expressed that the students did not acquire this skill due to the education program and the quality of the teaching. On the other hand, 4 teachers stated the reason of the students inability to acquire this skill with the family factor while 3 teachers attached it to the teachers inability. In addition to them, 1 teacher reported that majority of the students acquired the setting an aim skill. while 2 teachers indicated some of the students acquired them. Some of views stated by the teachers about this issue are as follows:

"First of all, this three-year period decreases to two years since there is no acquisition with regard to setting an aim sub-area in the program for the first graders. In my opinion, all the acquisitions related to different subject areas in the program and the reflection of them into teaching are open to debate. (…) If the teachers try to cover these acquisitions in the classroom teaching in remaining two years, these acquisitions, which are 4 in total, do not serve for the realization of the objectives... "(t-1).

In addition to this, teachers who thought the students could not acquire the aimed skill due to the quality and process of teaching reported as follows:

"I think they are inefficient to help students achieve the objectives. I believe that students should be engaged in more activity-based learning where they can do and experience themselves. There are problems in teaching. Therefore, the school and environment should be taken into account.." (t-6).

"I did not see that the students achieved these objectives after the implementation of the given acquisitions." (k-9)

"(…) Theory-based activities are too abstract for primary school students. Therefore, for these students to turn the given acquisition or objective into a behavior, they should be expressed in more concrete and activity-based terms." (t-2)

When the responses stated above were analyzed, it was seen that the students were indicated not to acquire setting an aim skill. In addition, one of the teachers attracted the attention to a deficiency in the program stressing the necessity of theoretical structures should be presented to the students at primary schools in more concrete ways. Another reason of students' inability to attain the aimed skill was specified as the parents factor. Teachers stated their views about it as follows;

"Teachers helped the students more than necessary do their performance tasks. This prevents them from developing their skills to do something on their own, take responsibilities and as a result, setting an aim."(t-7)

T-7 stated that the parents helped their children a lot while they deal with their performance tasks assigned within a course. Therefore, students' sense of responsibility does not develop and this affects their skills to set an aim. On this issue, some of the teachers reported the followings:

"Students cannot set an aim. Since teachers set an aim at schools and parents at homes instead of the students, this skill does not normally develop."(t-6)

"Excessively supporting parent roles of Turkish family structures exerts negative impacts on students' skills they acquired at schools."(t-9)

As seen in table 3, some teachers stressed that this skill changed from student to student;

"To evaluate setting an aim skill, it is a must to see the student as a whole. For some students, the expression of setting an aim is too abstract. When classroom activities are supported parent participation, we can easily see its impact on the students. Therefore, While some students can acquire this skill some others cannot." (t-4)

"It depends on the students' capacity. Very hardworking, responsible, searching students can fully acquire this skill. However, it should be understood that the children of wealthy parents have difficulty setting an aim and achieving it."(t-10)

Furthermore, the teachers who thought that the students acquired this skill stated their views without giving any reason as follows;

"Students acquire setting an aim skill satisfactorily at the end of three-year life science program."(t-8).

Program Development Specialists' Views

The interviewed program development specialists' views about the program for the setting an aim sub-area of self-management skills were analyzed in 3 themes. These themes were specified as self-management skills, evaluation of the program and skills development in students.

1. Self-Management Skills

The significance of Self-Management Skills: To help students acquire self-management skills at such early ages as the primary education was evaluated by both of the program development specialists in a positive way. They stressed that these skills would affect their future lives positively.

"(…) *Of course, these skills are important. Because students' being able to know themselves, make decisions appropriate to their lives and as a result organize and plan their futures depend on the development of these skills in them.(…)" (S-1)*

When the his views stated above were analyzed, the 1st specialist was explored to stress the significance of self-management skills in terms of students' being able to know themselves individually and make their decisions accordingly. In addition, the 2nd specialist reported his views as follows;

"(…)Self management skills are important in terms of helping students develop a self-control mechanism and cope with the problems they may encounter in their lives.. (…)"(S- 2)

2nd Specialist was explored to stress the significance of self-management skills to make students be able to control themselves.

Setting an aim skill: When self-management skills were evaluated from the point of setting an aim skill, program development specialists were found to interpret setting an aim skill as setting learning aims, making decisions about one's future or setting aims depending one's own interests and abilities.

"(…)Setting an aim skill helps students set their own learning aims and organize their own behaviors accordingly." (S-1)

"(…)Students determine what they will deal with at future according to their setting an aim skill in parallel with their interests and abilities. (…)"(S-2).

Acquisition of skills with education: Participant program development specialists were found to have positive attitudes towards the presentation of these skills to be acquired by the students at primary schools. However, one of the specialists reported that it would be too abstract for those students at these ages. On the contrary to him, the other specialist stated that it was important to present these to students and make them aware of these skills as early as possible.

"(…)I find it useful. This skill is also presented in a more detailed way to students even at kinder-garden. This is presentation of the skill is performed in a way appropriate to the students' ages. However, in higher grades, these skills in education programs decline in importance. (…)"(S-1)

"(…)I think that these skills will be too abstract at the period of primary education when the feelings are not that dominant.(…) Yet, these will be useful and positive when the objectives are attempted to be realized through different and appropriate teaching-learning experiences."(S-2)

When these views were analyzed, it was seen that 1st specialist expressed that these skills are presented to the students to be acquired starting from the kinder-garden while supporting the importance of teaching these skills at primary schools. On the other hand, 2nd specialist held a different view and supported the presentation of these skills at early ages as long as age-appropriate teaching-learning experiences are provided.

2. Evaluation of the Program

Theoretically: Both of the participant program development specialists reported to find the program stylistically irrelevant when they evaluated the presentation of the objectives and acquisitions of setting an aim sub-area in primary education program theoretically. They most criticized the inefficiency of the given acquisitions in serving for achieving the given objectives.

"Although the objectives of the program are given assertively, the acquisitions are inefficient."(S- 2)

"At first sight, the acquisitions and objectives are not efficient and adequate." (S- 1)

In addition, one of the specialists complained about that the shared class hours were not enough to achieve the acquisitions.

"These skills are aimed to be match up with appropriate acquisitions. However, it seems too difficult to achieve the objectives of setting an aim in 2 or 4 class hours."(S- 1)

On the other hand, the 2nd specialist stated;
"Acquisitions fall behind achieving objectives*(…) The objectives are too abstract to support the students' cognitive and affective development appropriate to their ages."*

Program development specialists found the presentation of setting an aim skill in the program theoretically inefficient and inadequate in some respects. These respects were stated above.

Contextually and Operationally: The participant specialists emphasized the necessity of relating the skills to the more concrete subjects or themes appropriate to the students' ages. Stating that the children were tended to learn observing others, they also put forward that the content of the program should share more space to the lives of successful people. Moreover, the specialist indicated that presenting not only good samples but also negative and bad ones to the students would make learning easier for the them.

"While creating the content of the program, science should be brought to the forefront and students should be provided with subjective samples of lives.(…) The content can include life stories of different people. This makes it easier for the students to acquire the skill by observing..(…)"(S-2)

In terms of the impact of teaching-learning processes on the acquisition of these skills, the participant specialists reported the followings;

"These skills can be presented in an interdisciplinary way by relating them to various projects or tasks. In this program, the teachers are not clearly directed about what and how to do the things they should. Therefore, for me, it is not that possible for the teacher to organize learning experiences for the students to acquire these skills instead of dealing with the workload of other lessons."(S- 1)

"The learning experiences the content points should be well planned. To make learning experiences more meaningful and concrete for the children, teaching methods appealing to the students' ages must be adopted. For example, games should be frequently used..(…)" (S-2)

As a result, these stated above views indicate that the content and teaching-learning process should be organized effectively in order to help students acquire critical life skills such as setting an aim.

3. Skill Development In Students

Interviewed program development specialists emphasized the impact of many factors on teaching the skills specified in the program to the students.

"In my opinion, this development changes from student to student. For example, some students can be better in acquiring a skill thanks to their social and affective capacities." (S- 2)

"These skills can develop in some students in varying degrees. However, some certain students can have them in required degrees.(…)" (S- 1)

These views stress the significance of student factor in terms of the development of this skill. Participant specialists state that students' social, emotional intelligences and individual differences play an important role in the acquisition of this skill.

"Parents play a crucial role in the development of this skill in their children. If home and schools do not work in harmony with each other, it becomes more difficult for the students to these important life skills. (…") (S- 2)

As it is understood from these statements, parents factor is determinant in students' acquisition of this skill. Moreover, cooperation between schools and parents is stated as one of the factors exerting impact on the acquisition of this skill.

"(…) To help students acquire these skills precisely, no systematic approach is presented to the teachers by the program. So, I do not think that the students can acquire setting an aim skills as long as teachers do not focus on them.(…) Teachers should be provided with alternative activities to help students acquire these skills. Moreover, they should also be supported by guidance services on this issue .(…)" (S- 2)

2nd specialist attracted the attention to the importance of teachers in the acquisition of this skill stressing the necessity of cooperation between them and other support units.

CONCLUSION AND DISCUSSION

As a result of the analysis of participant teachers' and program development specialists' views about self-management skills and setting an aim sub-area in the Primary Life Science Program, it was explored that both of the groups held the idea that the acquisition of these skills by the children at primary schools would be crucially important for their future lives. These results also indicated a positive attitude towards the inclusion of such life skills as self-management skills and the efforts to help students acquire these skills in Primary Life Science Program. However, as determined by the participant specialists, to specify these skills as learning outcomes or objectives in the program as only a document does not mean that students will acquire them. In the implementation phase, it is thought that there are some problems. Some other studies produced results supporting these views. Gözütok, Akgün and Karacaoğlu (2005) asked the participants to evaluate the implementation phase, which means actual teaching, through an observation checklist. As a result, they found out that the implementation was not efficient and adequate. Similarly, Sönmez (2012) stated that the program cannot be functional as long as it is not implemented effectively however well it is designed formally and theoretically. In this respect, in order to see how many of these skills were acquired by the students, teachers were asked to comment. As a result, it was shown that the students did not acquire these skills at the end of 3-year life science class. Due to the reasons behind their inability to acquire these skills were listed as the implemented teaching program, teachers and parents. Supporting this view, many studies stressed that parents and school cooperation played an important role in the acquisition of different skills and behaviors (Diaz, 1989; Eastman, 1988; Satır, 1996; Çelenk, 2003b). In addition, the participant program development specialists evaluated the program comprehensively. They listed the determiners in the acquisition of these skills by the students as *teacher competences, teachers' focus on these skills in teaching-learning process, the efficiency of the content of the program, cooperation between school-community*. Moreover, both class teachers and the program development specialists remarked that learning outcomes and acquisitions of classroom teaching within 3-year life science did not serve for the acquisition of expected skills and the production of the expected outcomes. Education Reform Initiative conducted a research to evaluate new education curricula. As a result of the study of the skills specified in Life Science Program, ERI (2004) explored that the program was not sufficient in relating them to other skills. Moreover, it claimed that some of the skills

occupied most of the interest due to a lack of a holistic approach. (ERI, 2004). In addition, Report On The New Curricula put forward various problems in this program (Erdürger and et. al., 2005). While relating skills and acquisitions with one another in 1st, 2nd and 3rd grade life science classes, it was not understood clearly which principles and standards were used. Moreover, it was observed that some certain skills were not emphasized in some certain themes, acquisitions and grades. In addition to it, self-management and setting an aim skills, which were the sub-area of the former, were not presented in the program in a way appropriate and sufficient to the age levels of the students (Erdürger and at. al, 2005). These problems identified with regard to the skills specified in Primary Life Science Program were explored to be consistent with those of the current research.

As a result of the analysis of data collected within the study and review of the related literature, it was seen that self management skills included in the Life Science Program since 2006 were of vital importance for the students to lead a qualified life in the long run. Emerged especially with the emotional intelligence, these skills are explored to be accentuated in educationally developed countries (Schilling, 1996; O'Neil, 1996; Salovey, Mayer, 1990; Cohen, 1999; Mayer, Cobb, 2000; Mayer, Salovey, Caruso, 2002). In other words, self-management is one's taking the control of the self and improve in emotional dimension in parallel with his or her own objectives or aims. The definition of self-management also includes possessing necessary amount of self control, self confidence and flexibility to face with the probable problems. In this respect, an important study conducted at Standford University proves how crucial these self-management skills and competences were in people's lives. Within the research, four-year-old children were served a dessert like Turkish delight. They were told to eat it right away if they wanted. However, they were also told that if they had waited for a while, the upcoming leader would had given two of these delights. When the children who had eaten the delight right away and those who had chosen to wait were monitored 14 years later again, important differences were revealed. The teenagers who had chosen to wait for the leader were explored to be much more emotionally balanced and consistent at the level of university entrance exam, able to deal with stressful situations, be more popular among his or her friends, have higher internal motivation and perform more goal oriented behaviors. On the other hand, the most surprising result of the study was that the highest score was 1600 and when compared to those who had eaten the delight without waiting for the leader, these teenagers had approximately 210 more (Goleman, 2011).

In this study, the individuals set having the second delight as the aim and controlled their emotions and as a result performed behaviors in accordance with their aims. Therefore, in parallel with their aims, this skill always took them one step further. In addition, in especially the theory of goal orientation to success, which analyzes the impact of setting learning aims on the success, " goal orientation to success" is defined as the individuals' attitudes towards revealing the aims they set to organize their skills and to be successful (Ames, 1992); their perceptions of why they want to learn and their focus on their aims to continue to be successful (Kaplan and Maher 2007, p.142; Pintrich, 2000) (Cited from Demir, 2011). The studies conducted on this issue produced results that students' success increased when they set the aims to learn and organize themselves according to these aims (Meece & Holt, 1993). Mattern (2005), as an example, found a significant correlation between undergraduate students' goal orientation and their levels of success. on the other hand, Archer (1994) investigated the relations among success and job satisfaction, choosing hard tasks, load of success or failure, perception of task, use of metacognitive strategies and perceived competences. Archer concluded that aim of success theory was an adequate method to categorize students' motivation. Meece and Holt (1993) reported that out of students taking 5th and 6th grade science classes, those who adopted a learning aim dealt with more complex cognitive tasks and made more efforts when compared to other students. In this respect, with regard to teaching self-management and setting an aim skills at primary schools, the results of these studies can be claimed to support the results of the current study.

The place of Turkey and the quality of Turkish scientists and academicians are below the average. One of the pioneering reasons of this harsh truth is that at home parents and at schools teachers decide instead of students and set their aims and draw a map they will follow during their lives. In other words, they prepare the children to the life using a prompter (Dökmen, 2012). For the students to be individualized, it is crucial both personally and socially that they know themselves, their aims and set their aims themselves and realize them. These help them improve not only themselves but also the society they share their lives with. In this respect, in

order to help students acquire such important life skills as self-management and setting an aim with education, first of all, it is a must to accentuate education programs, which is the keystone of education standing for the system of planned learning experiences presented to students. Furthermore, some objectives specified formally and theoretically in the program must always be questioned, evaluated and modified to be implemented effectively. Embracing all the stated points above, taking the results of the current, in a way, program evaluation study into account, followings are recommended to help students acquire self-management and setting an aim skills more effectively.

- The acquisitions and learning outcomes related to the objectives of setting an aim specified in Primary Life Science Teaching Program should be reviewed qualitatively and quantitatively.
- The content of the program and learning-teaching process should be developed so as to help students acquire life skills such as setting an aim.
- In developing the objectives, acquisitions, content and the process, the developmental stages of students should be analyzed much more carefully.
- The period of implementation should be increased.
- For the acquisition of these skills by the students, teachers' competences should be developed and teachers, parents, guidance service counselors and pedagogs should cooperate with each other.

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ART IMPACT ON LEARNING: IMPULSION OF ART

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ABSTRACT

Human always need an impulsion factor to do something in his life. He sometimes uses his feelings and sometimes uses some believes and sometimes uses some objects and sometimes uses artistic approaches and artistic impacts. Art is a powerful impulsion to move and to do many business. Art is an indispensable component of human life for his spirit like breath for his body and it is a civilisation criterion for social life like economical improvements or like political dynamics. Art education has a special situation in offical education policies even in preschool process and involves special instruments to provide growing of a child. Artistic impacts can warn people on numerous matters and can inspire people many opinions and invite people to think different and to change life. Learning gets easy with art and developes via art because of impulsion of art.

Key Words: Art, learning, impulsion, artistic approach.

INTRODUCTION

Impulsion is a requirement for human activities and people look for impulsion in many different ambiences to attempt an activation. Art is mostly used to tell some opinions or some approaches and to convey messages to people among people. Art is more than ornamental but it is a power to attempt for business or for occupations or for activations. The problem is misperception of art, and art is a great impulsion for many human actions. Art contains a spiritual power and uses many effects to convey its power (Smith, 2010). Art must be understood as an impulsion in high rhythm life of 21.st century.

Learning involves different components and many different factors guide learning in human life. In development countries, learning is arranged with modern components of global conjuncture and universal factors are used to generate available learning ambiences and organizations. The earth moves and lives on the earth changes and philosophies and approachs reshape lives of people. Because of technological improvement, many new informations are generated and many contemporary approachs conduct social life. Comminication technologies transfer a great number of messages from west to east, from north to south in the world and people excuss all these and wonder others. This moving life involves more knowledges and more messages to live in this world and people absolutely need much knowledge to accord contemporary conditions. They need to learn new knowledges and they need to understand new approaches to conceive their lives. Move has continuity in universe and people always need to learn more and learning involves new impulsions in modern world.

Man, who is a main compenent of life and world must be equipped with knowledges which he need about the world and life and has to have an affirmative philosophy to live in confidence. Art provides people to watch life liveable because of its aesthetich approach and provides inspire people creative opinions for their lives and provides people impulsion to learn (Thornton and Gordon, 1921, 24). Beside providing a positive view, art also enables people to live in sophisticated conditions in life and helps man in his problemeatic world. In a way, art is a kind of conjuration which take people to a spiritual world and makes a therapy there and debugs all his troubles of man. This curative effect constitutes a close relation between man and art and art changes into a powerful impulsion to do what he wants.

"According to archeological datas, art was a natural compenent of man's life because of its humane function since the first man and people constituted their original life style by using art" (Bain, 1945: 340). Art is the unique most effective instrument that was explored by human to tell everthing in the world. Art became an instrument of social life after man constituted a civilized life and used art to define himself and to communicate with the others and to reveal accumulation of man (Connell, 1940: 190). Man worked for art to reveal his energy and also to tell his expressions to others. Because of this, he always need to learn artistic approaches and artistic works during his life. Man aware of that, artistic approach feed his spirit and makes him powerful to do everything.

Art is not only aesthetics production but it is a kind of language to convey opinions of someone to onother one. Its approach is concerned with existence of man and tells people many realities which can not be watched easily about universe. Artist is a discoverer who investigates world and life and discover hidden realities and converts them catching opinions and uses in his work. Art works are expressions of realities of universe via vision of artist and people learn them via approach of artsist (Epure, 2006). Approach of artsist inspires people numerous opinion, deelings and impulsion.

The earth where is the unique place for man to live on never subsisted without art because of its ineluctable sense and people never live without art on the earth because of its imperative necessity since the first man (Locius, 1995). There are not much remains about first people of the world but the oldest remains reveal that first people thought art as much as they thought their need. Art is a way to connote expressions and power of man's intellect. Different eras moot different art approaches and people conveyed accumulation of their era to future by art (Cereci, 2008). Every era has its own art approaches and people in any period tried to reach knowledges about contemporary atristic approaches and art works to discern continuity of life.

Art is concerned with history, and with etnography, and with nature, and with psychology of man and also with all entities in universe (Pagani, 2001). In a way, art contains the universe and universe contains art. Every compenent of the world can be used as a material for art works and artistic approaches. Everything inspires man some opinions or some expressions and man tries to steps one more to arrive at a far target and art is the most available way to step (Hanrahan, 2000). Human need art to live healthy and to live healthy with art involves learning art and artistic approachs continuously.

Nutriments are base of life and art is a great nutriment for human spirit and man need artistic approaches to live in spiritual health. Art help man with its asthetics and provides man many inspirations to get into therapy. It is a way to travel to a recreative world and provides man to leave his problemeatic world. "*After man realised that art is the most available instrument to tell his expressions, he began to built his house in an artistic form and furnished his house with expressive things and bedecked his life with art works*" (Winton, 2004: 392). Man used art to tell his expressions, and to convey his accumulation to next generation and also to watch attractive face of life. Life involves a great deal of knowledges to do necessities of life and learning never finishes.

Artistic approach is sometimes base of city planning like Antoni Gaudi's Barcelona and people who were born or who live in that city thrive in arttistic approaches and have healthy spiritual assets. Art also has a social function which arouses social movements. Activists know that art is important for their movements, yet social movement scholars have paid little attention to this topic. Many movements use art, and movement art comes in many forms (Adams, 2002 54). Function of art serve to aggregate people around collective opinions and expressions and to enable being society.

The world has changed profoundly in the past 50 years, but approaches to educating artists have not. Traditional principles of art did not mostly changed and many artists still work in traditional approaches (Grady, 2006). But art instruments changed and technology presented many new instruments for artists. Technology eased to display art works but also to make art in some disciplines. Meaning of art works naturally changed in tecgnological development as art forms changed (Sayre and Wetterlund, 2008). Viewpoint of artsits were also naturally reformed and adapted. Contemporary people naturally need to learn all these new developments and methods to aware of life.

RELATION BETWEEN ART AND IMPULSION

Any action involves a beginning power and an impulsion. Impulsion is sometimes an idea or sometimes is a movement or sometimes is an inspiration. Art collects numerous inspirations of the world and convey people and guides people to new opinions and new movements and new productions. One of main functions of art is move people to right ways or a peaceful life (Anastas vd., 2006). Spiritual responsibility of art is moving spirit and thinking of man.

Nature of man based on production and man becomes happy when he produces. To think and changing thihking to production is a great action form an. Many people need some impulsion factors to change ideas to movement and to production. Every movement need an impulsion to reach the end and people try to find impulsion in their near ambience and sometimes in their own world (Skerpan-Wheeler, 2013). One of the most powerful impulsion for man is his own self power.

Learning is a spiritual behavior and involves powerful spiritual effects to place datas in memory. Man tries different methods to have a powerful spirit and always tries to feel himself good. Spiritual effects like a positive conversation or a success on business or like a negotiation in family make man happy and to be happy eases learning (Moll, 2011). Learning is directly concerned with mood of man.

Art makes people happy and provides people feeling good. To be happy and to feel good is completely an impulsion to begin a work or to solve a problem or to attempt an occupation. Learning also involves that spiritual impulsion as a spiritual occupation (Mundy, 2006). Art is source of spiritual occupation because of its spiritual impacts.

There was art in the earliest period of man in the world on walls of caves or on stones and people used art as a language to convey their impressions about life or used art to prove their expressions about life. Man used anxiety and search and beauty in his own world to tell himself and art arised at the end of the process. After a few time, art became a compenent of man's life and life and art accreted on point of expression (Winton, 2004, 391). In the beginning, man learnt to form natural materials in his genuine character and artistic approach emerged in the beginning in natural life of man. Then man learnt that art has a power and art is an impulsion for many activation.

As nutrition is need of human body, art is certainly need of spirit of human to be in health and art is a facilitator compenent of life. Function of art involves to learn artistic approach to suit contemporary conditions (Teichmann vd., 2006, 151). People who can understand existence and who can explore mean of life perceive that learning art is requirement of life and art is a requirement to learn as an impulsion.

People always look for some methods to ease life and to move away problems of life. In a way, life is a complex process and human was created to analyse life and to understand it. Man tries to understand life in different ways and reveals his analyses in different ways too, like art. It is not a unique way to tell life and human but it is the most attractive and consuming way to inspire people many messages.

Art is a message that covers all lives and all universe with its approaches and with its drawings. Whatever exists in life is material of art like math and like physics and etc. and artistic approaches naturally conducts life. Life is a kind of art anyway because of its complex roads (Kowalchuk ve Stone, 2000). In a way, someone can understand life and mysteries of life by watching an art work and someone can understand art works by observing details of life. There is a vital relation between art and life. In a different viewpoint, art is a summary of life that includes all mysteries of life. Life is not a monotonous process and someone can encounters many events that he can not expect in life. There are a great number of circumstantial mysteries in life and someone who can learn much of these lives by feeling himself in confidence. Complexity and enigma of life scare human but man feels himself in confidence how much he knows. Learning mysterious of life makes people happy and someone who always learns contemporary knowledges about world feel himself more self-confident. Concern

of learning carries people to new ways of universe even to queer matters and art provides sufficient impulsion to learn realities of the universe (Freedman, 2007). Numerous intelligent people use impulsion power art in the world.

Russian author and poet Leo Tolstoy decided to learn Hebrew language and Judaism though he was old and he insisted on his decision and lastly he became pneumonia. His unique aim was to understand his universe and to evaluate details of life in many dimensions (Ortaylı, 2011). He revealed that knowledge was always a deprivation of human and he had to follow it until he reached it. As all artists, he always learnt and evaluated his knowledges and than produced his art works.

Learning has been base of life since the first man and everything was constituted on learning, even love. Man can understand what he learnt and he knows and he can touch what he knows and he can use what he knows and etc. Learning begins in uterus and lasts in familial environment with parents and than developes in offical education and than matures in conditions of life with many factors but it never eases. Lernaing is a process that administers usually arrange it and place some impulsion factors in arrangement (Jongbloed, 2002, 429). One of them is art.

Man mostly do not observe that he lives in art or with art and he naturally learns art's mean to live and to understand life. "*Art blooms with social developments in parallel. Social dynamics and social hopes shape art and conduct artistic approaches*" (Steinhof, 1937: 17). Art and society are always in an interaction and someone in society can never abstain of affects of art. Believes and consuetudes particularly form art. In an organised society, everybody tries to follow affects of art and orientation of art to live in comfort in society.

In a society, eveybody is influenced from the others and also affects the others. Someone can be an impulsion for other one. Someone who has extraordinary opinions and approaches uses art to tell himself and to affect the others and art sometimes turn into a social message instrument. Every man has an individual character and every character uses a different language to tell himself. Characters are affected by artistic approaches because of their original expression (Cuenca, 2012). And almost all characters are effected by artistic impulsion.

Artistic approaches and art works are naturally concerned with officical policies and every government has an art policy. Governments can confirm different dynamics to provide development or to have a say and stand to have an international showcase. Art is an available alternative to get this aim and national arts are sometimes known as identity of a government in international area (Buren, 1929). A conscious citizen contributes art works of his country and at least he knows what his government's art policy is.

Art is not a compenent which is independent from actuel life but reverse it is directly in life and it is nourished by life. In a civilised society, it is impossible to abstain art for someone and nobody can ignore art because of his spiritual need. In artistic circle, human cultivates art and art cultivates human as a mutual relation. Art need not humanistic knowledges much but human actually need artistic approaches and has to learn deatils of approaches because of adhering to life. Humanistic dimension of art directly causes an impulsion for people to learn. Because learning is a humanistic action.

Eveything is related to another in universe and a healthy man is interested in everything in universe even horror. Art is the most charming compenent on the earth and art is the most effective language to tell everything (McKenna, 2006). This is the first reason to be interested in art and to follow artistic approachs. Artistic approaches causes anxiety about realities of life and teach people to understand realities. Beside this, artistic approaches teach people democratic though in its individual character and any effect of artistic approach provide people impulsion.

Realities of life can be perceived differently, some can perceive rain as a complication and some can perceive as fun. Perception can change according to character of man but character can be teached and conducted. Knowledge is not to value to do something for someone but it is source of a absract energy. Character of man emerges with his need and environmental culture forms character. Man always need to have fun and art is an

available relaxing entertainment which shows th effect of relaxing by only watching or listening. “In this sense art is a vital compenent of life and a indispensable part of daily life” (Mignonneau ve Sommerer, 2001). When people perceive art as their daily need, they always need to know artistic approaches too and they enrich their lives with art.

A child is edified by his parents after he was born and his family naturally teach child many traditional or modern artistic approaches in growth of child. When child grows up he naturally need artistic approches that were taught by his parents and he constitutes a natural life on his knowledges. Art is a sociological concept that covers many social relations and affects and provide a society how they organize and how they grasp civilisation (Goldfarb, 2005, 289). This approach naturally involves art education and to learn artistic approaches. Social life developes via artistic approaches and social activities feed artistic works and artistic approaches causes impulsions. Artistic impulsions feed learning and easies learning and learning developes faster via artistic impulsions.

CONCLUSION

Learning begins in uterus and lasts during life and man need to learn as much as he need learning. Man has to learn every knowkedge what he need in his life and he has to learn not only knowledges but also opinions and approaches and man need impulsion to learn. Learning mysterious of life makes people happy and learning contemporary knowledges about world makes people to feel himself more self-confident. Man need art to live because of its spiritual affect and cultural energy and for impulsion.

Art is a compenent of life and it changes period by period and artists embrace genuine approach to accord contemporary conditions. People who live by trying to understand life follow artistic improvements and approaches and try to learn new evolutions about art. Art facilitates life and shows some ways to solve problems and provides people impulsions. In a way, people have to learn artistic knowledges not to leave sense of life, because art arises in sense of life. Peopl actually need artistic approaches and has to learn deatils of approaches because of adhering to life and man has to learn artistic approaches during his life to have artistic impulsions to learn much things.

Art has always been in man's life and in social life since the beginning and will never dissapear. Art has enriched lives of people and people have learnt artistic approaches to revive their lives and to learn again. Artistic approach is a powerful dynamic in man’s life and in social life and eveyone tries to follow artistic imrovements because of participation in society and learning.

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