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Full Length Research Paper

Physical education teacher's attitudes towards philosophy of education and technology

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The current study was carried out to find out the attitudes of physical education teachers towards educational philosophy and technology, and to determine the relationship between the philosophy of education that they adopt and their attitudes toward technology. With this aim, the study was conducted on 22 female and 69 male physical education teachers. As a research method, scanning method was employed. In order to collect data, demographic information form, philosophical preference assessment scale, and attitudes towards technology scale were used. To ascertain the independent variables (gender, age, marital status, and years of service) effect, Mann Whitney U, Kruskal Wallis H test, and statistical package for social sciences (SPSS) 15 were employed. In addition, to specify the level of relationship between educational philosophy and attitudes to technology of physical education teachers, Pearson Correlation Analysis was carried out. The significance level was regard as $p < 0.05$ in the study. When the attitudes of physical education teachers who participated in the study were analysed, the results of the study showed that they are close to "experimental philosophy". Nonetheless, no statistically significant difference between physical education teacher's philosophy of education and attitudes towards technology was found.

Key words: Physical education, education, philosophy, philosophy of education, technology, attitude.

INTRODUCTION

Human beings and the object of education, make up the subject of philosophy; they are regarded as the base of philosophy and education system is arranged based on them (Sönmez, 2005).

Education philosophy is directly associated with philosophy's itself (Büyükdüvenci, 2001). Philosophy is a worldview and an aspect of life. It is an effort to capture the universe entirely. It emphasizes that every human has goals, attitudes and beliefs in their lives, and they create value, understand the life and interpret it as well

as add new value to their life. On the other hand, the philosophy on education is named as educational philosophy and it emerges as different perspectives, active in educational structures (Büyükdüvenci, 2001).

Educational philosophy, in terms of taking part in activities, thinking and being a point of view in educational facilities, is by itself a line of sight. Therefore, bearing in mind that each teacher as an individual are different from each other, it may be said that there can also be differences among their philosophy of education.

If we briefly mention the most significant elements in education and training, learners, teachers and educational institutions, in other words schools, may come to mind. Knowing the educational approaches of teachers, who constitute one of the most important elements of education and training, learning how they perceive education as well as understanding why and how they teach is one of the most crucial studies that can be done (Gutek, 2001).

Physical education teachers may plan, implicate, monitor and evaluate the training process according to the philosophy of education they ground on. Bringing solutions to the problems that might arise in the training process, making wise decisions and doing appropriate acts make it necessary to know all the values and meanings in the background of them. In this sense, there is a philosophy of education that every teacher should have. This education philosophy determines what is important in the training process. The extents to which philosophy is used as base; the aims, behaviours, content as well as educational and testing status have to comply with the criteria put forward by that philosophy (Sönmez, 2005).

Advances in technology facilitate teaching and learning processes in all areas. Nowadays, it is important to grow people who can reach, arrange, and assess the knowledge and who have communication skills. Thus, teachers must be consciousness of the need to use technology in modern sense of education besides adopting different training philosophy views (Akkoyunlu, 1995).

On the other hand, today, technology is developing rapidly. Perpetual change is both the reason and result of this incredibly fast growing technology. This situation forces teachers to communicate and interact with their surroundings more. The tools and equipments provided by technological change have an important place in achieving the goals of teachers. In this circumstance, teachers are required to keep up with the new technologies and developments, and accommodate themselves around this change.

In literature, although there are many sources of data about teachers' philosophy of education and their attitudes towards technology, it is noteworthy that researches on the relationship between philosophy and attitude are quite few. The study was conducted in order to examine the physical education teachers' educational philosophies and attitudes towards technology. Moreover, it is important in terms of examining the relationship between educational philosophy adopted by teachers and their attitudes towards technology.

METHODOLOGY

In this descriptive research, descriptive survey model was employed and with the help of Likert-type questionnaires prepared in line with this purpose, the views of the participants were tried to be determined. The scope of the study is composed of physical education teachers working in the territory of Turkey. As for sample, the study consists of 22 female and 69 male physical education teachers officiating in elementary and secondary schools in the city centrum and districts of Erzincan. In accordance with the permit from Provincial Directorate of National Education, scale form was sent to all the teachers and those 91 physical education teachers who agreed to participate in the study voluntarily and filled in the scale form accurately and completely formed the sample of the study. In the calculation and evaluation of the obtained data, Statistical package for social sciences (SPSS) 15 statistical software was used.

Data collection

Demographic information form

In this form, questions related to gender, age, marital status and year of service were included. In order to collect data about independent variables, demographic information form, developed by the researcher was used.

Philosophical preference assessment scale

It is a five-point Likert-type (1-strongly agree, 5-strongly disagree) scale with 40 items developed by Wiles and Bondi (1993). The scale consists of 40 items, based on perennialism, idealism, realism, experimentalism and existentialism.

The validity and reliability studies were done by Doğanay and Sarı (2003) and its Cronbach Alpha reliability coefficient was calculated as 81.

Attitude towards technology scale

Attitude towards technology scale is a five-point Likert-type instrument with 37 items, designed by Akbaba (2002). In the reliability study conducted by Akbaba (2002), Cronbach Alfa reliability coefficient was found as 91(Kısa, 2006).

Data analysis

In the study, in order to specify whether there was a difference considering the independent variable, Mann Whitney U Test and Kruskal Wallis H Test were performed. In addition, to state level of relationship between philosophy of education and attitudes to technology of physical education teachers, Pearson Correlation Analysis was carried out. The significance level was regard as $p < 0.05$ in the study.

FINDINGS

Normality analysis

In order to test the homogeneity of the data, Kolmogorov-Smirnov test's results having been less than 0.05, which is taken into account in cases when n number is over 30, non-parametric test applications were conductedtest applications were conducted (Table 1). 25% of samples participated in the study aged 21 to 30, 64% were in the age range of 31 to 40 and 11% were over the age of 41. Considering the years of service, 28.6% of participants were between 0 to 5 years, 33% were 6 to 10 years, 26.4 were between 11 to 15 years and 12% were

Table 1. Homogeneity test Analyses.

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	statistic	df	Sig.
Philosophy of education	0.112	91	0.007	0.930	91	0.000
Attitudes towards technology	0.135	91	0.000	0.902	91	0.000

$p<0.05^*$.

Table 2. Physical education teacher's philosophy of education according to gender variable.

Philosophy of education	Gender	N	$\overline{X}$	Sd	Z	Mann Whitney U	p
Perennial philosophy	Female	22	25.81	3.06	-2.395	501.50	0.017*
	Male	69	28.07	4.01	-	-	
Idealist philosophy	Female	22	25.63	2.62	-.229	734.50	0.819
	Male	69	25.65	3.80	-	-	-
Realist philosophy	Female	22	30.50	3.63	-.033	755.50	0.974
	Male	69	29.69	4.50			
Experimental philosophy	Female	22	30.59	4.30	-1.058	645.50	0.290
	Male	69	31.81	4.80	-	-	-
Existential philosophy	Female	22	27.09	4.16	-.950	657.00	0.342
	Male	69	26.31	3.16	-	-	-
Philosophy of education total	Female	22	139.63	12.30	-.905	661.50	0.366
	Male	69	141.55	14.92	-	-	-

found 16 years and above.

According to Table 2, it was found that both female ($\overline{X}$=30.59) and male ($\overline{X}$=31.81) physical education teachers have "Experimental Philosophy" sub-dimension average score at most. When the results of Philosophical Preference Assessment Scale and Attitude towards Technology Scale were analysed in terms of variables as gender, age, and years of service, statistically no significant difference both in total and in all sub-dimensions was identified.

According to Table 3, statistically no correlation was detected between the scores of philosophy of education and the scores of attitudes towards technology. In other words, no relationship between the educational philosophy of physical education teachers and their attitudes toward technology was established.

DISCUSSION

According to the research results, it was indicated that among the philosophies of education of both female and male physical education teachers only in "Perennial Philosophy" the results showed differences ($p=0.017<0.005$), yet no difference was determined in other philosophies. Still, when the total scores were taken into account (Kadın $\overline{X}$=30.59, Erkek $\overline{x}$=31.81), the physical education teachers may be said to adopt Experimentalist Educational Philosophy at most. In the researches done on preservice teachers in different disciplines by Tekin and Üstün (2008) and Duman and Ulubey (2008) it was found that the preservice teachers adopt the Experimentalists Philosophy which is of similar nature with the result of the current study.

In the study, it was identified that both female ($\overline{x}$=27.59) and male ($\overline{x}$=27.59) physical education teachers have the highest scores in the sub-dimension of adaptation of technology. To put it differently, the physical education teachers' attitudes towards technology can be said to be positive. Although in the researches done on academic staff by Kısa and Kaya (2006) and Yılmaz (2008) adverse findings were determined, in the present study the age variable did not demonstrate any differences on the philosophy of education and attitudes towards technology. This may be explained with the

Table 3. The relationship between physical education teachers' philosophy of education and attitudes towards technology.

Variable	Philosophy of education	Attitudes towards technology
Philosophy of education	1	-
Attitudes towards technology	0.082	1

difficulty of changing the habits that the teachers have formed throughout their professional life.

Moreover, it was seen that the marital status of physical education teachers did not present a difference on their philosophy of education and attitudes towards technology. The result of the study was also supported by Kısa and Kaya's (2006) research on the academic staff.

The physical education teachers' years of service did not present a difference on their philosophy of education and attitudes towards technology which is in line with the results of the studies conducted by Doğanay and Sarı (2003), Çoban (2002) and Kısa and Kaya (2006). This may be caused by the physical education teachers' insisting on their past experience and habits.

Conclusion

In the current research, when mean scores were analysed, no statistical correlation was detected between the physical education teacher's philosophy of education and their attitudes towards technology. Nonetheless, in the literature, the researches done on teachers in different field of studies, opposite results have been obtained.

There are also researches in the literature on school administrators and inspectors except teachers. In those studies, though similar results were found about the relationship between the philosophy of education and age, opposite results were found on the sub-dimensions as adaptation of technology, gender and attitudes towards technology. In the light of these findings, it may be said that the positions of individuals can be effective on their philosophy of education and attitudes towards technology as well as it may be inferred that this issue should be investigated.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

A semiotic analysis on the utilization of historical thinking skills in pre-school period

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This study was performed to determine how pre-school children fictionalize the past by using their imagination skills in the process of historical thinking. The participants were 14 children who attended pre-school. The data for the study were collected through the pictures drawn by the children and through the interviews made with them about these pictures. The obtained data were resolved in compliance with the semiotic analysis technique within the frame of qualitative research method. According to the results of the study, it can be said that historical imagination skills in pre-school children develop independent of age. The undeveloped motor skills of children and their effort to change the concept seen in their drawings to form the past on the perception of today (anachronogical thinking) can be said to be what makes it hard to compose a successful imagination. Nevertheless, the short interaction span of children with historical objects and figures; their insufficient interests and perceptions and the gender factor can be suggested to cause difference in how children fictionalize historical imagination.

Key words: Pre-school history education, historical skills, historical imagination, drawing.

INTRODUCTION

Many theoreticians of education and development have put it forward that the education of history cannot be given to children at early ages and have supported this argument with their studies (Egan, 1982). Depending on their experiences, the educationalists who defended Piaget towards the middle of the century advocated that children cannot achieve some basic concepts of historical understanding until adulthood period and thus to teach history to children at early ages is a useless situation to be abandoned (Dilek, 2007). However, the results of later studies find it extremely doubtful to implement Piaget's

theory to history. Children's understanding of factual history is seen to be a very slow process. It is deduced that historical understanding is not something to come up suddenly or to be completed rapidly, but something to be developed (Egan, 1982). In a thought parallel to this, Egan names historical understanding as a "hierarchical complementary" process to be developed (Dickson et al., 1984). But, this is not a process of one towards the other. Rather, it is an integrated stage going from a lower stage to the next. At this stage, he mentions that early historical learning has a prerequisite value and at the same time

builds a structure (Egan, 1982).

According to Egan (1982), the first stage of a history education to be given to children at early ages should be composed of real events, heroes, places and times. It is observed in the studies, that when the events and figures of the past were given in accordance with age, the children could understand abstract topics and themes although they could not evaluate and list them (Alleman and Brophy, 2003).

Fines (2002) bases a successful historical fiction on imagination[1] in historical thinking (Dilek and Yapıcı, 2005). Collingwood (1996) and Graff (1999) regard historical context with a successful imagination as important qualities to make direct contribution to historical understanding and thinking. Büyüktuncay (2014) argues that historical imagination provides a continuation between the thoughts in the past and in the present, and between historical situations and present situations by functioning as a revitalization of the thoughts of the people who lived in the past. Similarly, Lee suggests that empathy and imagination with understanding affect the development of historical thinking skill (Dilek, 2009: 635).

According to Piaget's classification, "usage of images" in the process of cognitive development starts at pre-process period (ages 2 to 7). At this period, the child starts to distinguish the determiners (objective state, words and images replacing objects) from meanings (not perceived states–events implied by these words and images) (Öçalan, 2006). Ranke, on the other hand, relates the source of a successful imagination with the empathy in the narrations rather than age factor and bases it on a detailed study over historical sources (Wolnerr, 2008). Dilek (2009: 635) revealed that "being disciplined of imagination through the use of visual and/or written primary and secondary sources and evidence plays a part in students' skills of historical thinking and understanding". Dilek and Soğucaklı-Yapıcı (2005) care about evidence-based imagination in respect that it creates products that can be accepted by the discipline of history. Fines (2002) puts imagination among effective techniques of learning and advises teachers to encourage students to use primary sources as knowledge source in forming fictional products (Yapıcı, 2006). Educational theoreticians have transformed the understanding of "knowing an object means acting on it" through English educational programs, depending on the findings of psychiatrists like Piaget. "From now on, [without] hiding the objects in show cases in English

museums, reproductions of objects are presented to the children". Museums were converted into "touchable museums" (Ata, 1999: 39). Studying objects through museum trips will activate the iconic learning stage in children (Dilek, 2009). Our study bases the development of historical thinking skill on "an imagination to enforce a successful historical fiction" in children, so that history education can be given at early ages (Dilek and Soğucaklı-Yapıcı, 2005). Supporting this view, Collingwood (1996) and Graff (1999) regard historical context with a successful imagination as important features to make direct contributions to historical understanding and thinking. The museums containing historical sources on first hand can be regarded as important centres to the development of historical thinking and imagination skills in children at this age. Museum is a place which subjects children to a broad cultural heritage (Howard, 2013). According to the performed studies, children's visit to the museum at early ages positively affects their cognitive, social, and emotional development parallel to their brain development and offers them a broad learning environment (Munley, 2012). It is believed that a museum trip to be carried out in the context of this research will have a functional role in revealing how people lived at different times and in different places. The aim of this study is to reveal how pre-school children fictionalize the past by using their imagination skills in the historical thinking process with a museum tour.

Sub-purposes of the study are determined as:

(1) Revealing children's skills of fictionalizing the past in compliance with historical imagination and historical context through pictures drawn by them;
(2) Determining the factors that affect children's historical imagination skills.

METHODOLOGY

Study design

In this study, case study, which is one of the qualitative research methods, is used. Case study is about studying an event, an institution, or an individual intensively, deeply and in details (Glesne, 2013). In the study, one inter woven case pattern is used which is one of the case study patterns. One case in the pattern may be generally composed of many layers or units (Yıldırım and Şimşek, 2008). In the study performed, the discussed case is the determination of historical imagination skills of children in the pictures they drew at preschool period. The sub-analysis units included in this case study are fourteen preschool children between the ages of 48 and 72 month. A critical analysis of units is believed to reveal the case study in a detailed way. Based on the data obtained separately for this purpose, efforts were made to obtain the best results for the study.

Participants

This research was performed with 14 students between ages 4.5 and 6 years in a pre-school class. Of the pictures drawn by these

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[1]Visual image is formed of our eyesight. Object is seen; the outer lines, mass, colour of the object is recorded in the brain as an "image" by passing through eye lenses. In this process, it is only the outlook of the object that the brain records. But, we know or later learn depending on our experiences and lives that the object has some features that are not seen by the eye. This is the content of that object and is related to perception. We can envisage the images recorded in the brain when needed. What we try to envisage is the memory image and is less definite than visual image (Büyükbacak, 2008).

Table 1. Study group and its features.

Gender	Month	Gender	Month
K1	57	E1	62
K2	58	E2	52
K3	74	E3	67

The girls are the research took place as K1, K2… and the boys took place as E1, E2.

Table 2. Data collecting tools.

Museum trip

The ethnography museum (Kavakizade Mansion) which was to be visited was earlier introduced to the students. This was done in order to prepare and develop their historical thinking skills before the actual trip. At the first stage of introduction, the story of Paşa Dede, who was the owner of Kavakizade Mansion and who lived and died here, was told. In the story, he was heroized as a soldier with his weapons and equipage. The furniture and dioramas (Diorama is 3D presenting the appearance of bigger scenes, moments and events by using objects and models in a small compact area (Assa and Wolf, 2007)). believed to have belonged to him and his family were shown with photographs. Every detail in the museum collections, which shows the difference of the life in the mansion from today's life (house furniture, in door arrangement) was told in relation to the concepts of past time, change and continuity with an analogical approach. Furthermore, the children were given information before the tour about the rules to be obeyed in the museum, and they were given the information that may raise questions and possible replies that they would get to such questions. Information was given to children about objects, furniture and dioramas which they saw during the museum tour. Small informal dramas were performed to make them think about what the objects they had seen were; and how they could work (about the life in the mansion) and discovery questions were asked. Their questions were answered and their efforts to learn were supported.

Children's pictures

After the tour, the children were asked to draw the pictures of what they had seen and especially what had affected them in the museum. The drawings of children at this age group were evaluated as an effective scaling means that can be used to assess the effect of what they see (Piscitelli, Weier, Everet and The QUT Museums Collaborative, 2003).

Interview records

Considering the fact that children's pictures though generally represent something, may also consist of sketches and shapes without representing any properties. In view of this, face to face interviews were conducted with the children themselves about their drawings. Interview enabled the children to explain their images and thoughts in details (Yavuzer, 2009). The reports of the interviews were recorded in writing.

14 students, six pictures (Table 1) were chosen as a typical state exemplification from the purposed exemplification methods. The objective is to make a universal generalization by choosing the most typical pictures (Yıldırım and Şimşek, 2008).

Data collecting tools

The data collecting tools of the research consist of the pictures the children drew and the interview records with children about these pictures. Attempt was made to increase the internal validity of the comments through the findings obtained from two different data collecting tools (Table 2) (Yıldırım and Şimşek, 2008).

Analysis of data

The pictures drawn by children were analysed semiologically. In semiological analysis, how the drawn figures are formed, or form a meaning is regarded. In this process, attempt was made to reveal the dynamics included beyond the meanings seen in the picture or meanings underlying the shallow definitions (Glesne, 2013). Within this frame, the pictures drawn by children were primarily examined by the researcher and two branch experts (history teacher and visual arts expert) in the analysis of data. In this examination, an effort was made to reveal how the components of each picture will be analysed and a technique was developed. The utilized technique was formulated in three stages as descriptive meaning, personal meaning, and inner meaning through the use of Panofsky's "iconographic definition" (natural meaning), "conventional and internal meaning classification" (Boztaş and Düz, 2014: 321) and through the use of Pierce's trilogy as "iconic sign, indication and symbol" (Türkcan, 2013: 586).

The stages of analysis are as follows:

(1) Definitional meaning analysis: The stage of "definitional meaning" in the analysis of the images included in the children's pictures is called "pre-iconographic analysis" according to Panofsky and "visual indicator" according to Pierce. It is a stage in which visual indicators in the picture are likened to definite objects and

named by the researcher (Türkcan, 2013).

(2) Personal meaning analysis: The second stage of analysis "Personal Meaning" is called "iconographic definition" according to Panofsky. In this stage, images formed by the children are analysed by the interviewers with children. This stage includes the analysis data of interviews with children, because in order to have good understanding of what the children's pictures express, one has to listen to the children talk about their pictures. According to Laquet (1927), the most important reason for this is that children have the tendency to draw "what they know" rather than "what they see" in their pictures (Batı, 2012). Thus, it is important for them to explain their pictures in order to understand what they are trying to express. This is an attempt to reduce the error and bias margin in the data analysis and to increase the reliability of the research work (Yıldırım and Şimşek, 2008).

For example, in the picture of E3 (67 month old) themed Paşa Dede and My Heart (Picture 3), it was very difficult to explain what the drawn objects and figures were exactly. Whereas in the interview with him, E3 explained the contents of his picture as: "Paşa Dede' smoking, his gun, exploding bomb, bleu car, flying plane, fish, cloud, light, I and Duru (two stickmen), my heart, plane, rabbit, exploded fish and flying fish.

(3) Contextual meaning analysis: The third examination is the "contextual analysis" stage. While visual product is being analysed at the stage of "contextual meaning", it is assessed based on the Lowenfeld artistic development stages: (Doodling, Ages 2 to 4; Before scheme, Ages 4 to 7; Schematic, Ages 7 to 9; and Birth stage of reality, ages 9 to 11); and Fines' imagination periods and historical thinking skills (time, change and continuity) (Batı, 2012). Fines divides children's "imagination periods" in historical meaning into two stages: "stable" and "continual" imagination. He defines the first stage, stable imagination as a stage where even though not the whole, some parts of the past are seen and drawn exactly the same way. He classifies the second stage continual imagination as a more comprehensive stage at which the student explains what he/she has drawn by depending on the sources while explaining (Dilek, 2009). For example, in an analysis carried out at this stage, E3's drawing of a fez on the head of Paşa Dede shows that he made a stable imagination about the past by taking advantage of the fez on Paşa Dede which he saw in the museum (Source 1 and Picture 3). Correct definitions of images were used for an accurate iconographic resolution at the stage of contextual meaning. In accordance with all stages of analysis, the children's pictures were discussed and analyzed depending on specialist's branch (history education and visual arts) and researcher's opinions; and efforts were made to increase the researcher's opinion and internal validity of deductions. Meanwhile, efforts were made to increase the external reliability of this research by writing the findings of the study clearly and by showing the pictures drawn by the children (Yıldırım and Şimşek, 2008).

RESULTS

Results of E1's picture about its definitional, personal and internal meaning

Definitional meaning analysis

E1 tried to draw details about Paşa Dede and the weapons he saw and remembered from the exhibition in and arrow are displayed in a different part while rifles are

Source 1. Paşa Dede and weapons.

displayed in another part (Source 1). E1 tried to classify the weapons (sword, rifle, and bullet) according to what he saw in the museum. The details about the weapons (Picture 1) in his drawings can be related to social gender factor.

Personal meaning analysis

E1 stated that he drew Paşa Dede, his knives, rifles, swords, and guns in his picture.

Internal meaning analysis

Definite distinguishing features were prominent in E1's drawing. This is expected to be so at the before scheme stage (ages 4 to 7) of artistic development based on his age. In E1's drawings, details like black clothes, red fez, and black beards were observed (Picture 1). Corresponding colours were used in order to reflect real objects and persons. Considering the figure of Paşa Dede which was drawn in conformity with the human anatomy. Real figures and objects were tired to be reflected by using real colors. When these details are considered, E1's drawings comply with the artistic features of Birth Stage of realism (ages 9 to 12). The outstading feature of this stage is the wish of children to draw the objects in the nature in conformity with origin (Yavuzer, 2009). In general, E1 displays definite drawing features of the two aforementioned artistic development stages (before scheme stage ages 4 to 7 and schematic stage ages 7 to 9) in his pictures.

Considering the content of E1's drawings, it was observed that he drew all the weapons which were on the

Picture 1. Paşa Dede and his weapons (62 months).

Picture 2. Mansion and Paşa Dede (52 months).

display stand, but also included bullets which were not part of the display. It can thus be suggested that E1 drew the bullets based on his pre-knowledge of the correlation between guns and bullets and thus drew the bullets according to reality. If it is to be considered that weapon and bullet are exhibited in other parts of the museum, E1's inclusion of bullets in his drawing can be supported by the idea that he might have used his pre-knowledge (Source 1). This means that he could not differentiate between the weapons he saw before and those he saw later, and thus mixed them all up (Cengiz, 2001). This case can also be explained as "concept change" according to Yanbeyi (1994) or a case of lack of ability. The important point is the fact that fez and some other objects were drawn and coloured in conformity with the original.

E1's study points out the presence of a continual imagination in respect that it tends to benefit from different sources (museum observation, photograph, etc). When the drawing of Paşa Dede in the illustration was examined carefully, it was observed that E1 made an effort for his drawing to resemble Paşa Dede in the diorama by adding hat and moustache to his drawing of Paşa Dede. Paşa Dede's picture was bigger than other objects. This feature in E1's drawing is described as "height hierarchy" and is widely observed in this age group (Yanbeyi, 1994). In E1's picture, Paşa Dede is seen in work wear. This shows that he viewed the historical context from today's perception. While his changing of Paşa Dede's pantalets for jupe (illustrated as work wear) may be caused by his inability to distinguish among objects.

E1 generally drew his illustration in conformity with the historical context and it tended to benefit from historical

sources. This indicates the presence of imagination. On the other hand, the lack of historical objects (jupe, pantalets, belt, etc.) and lack of completion in the imagination process and in some respects getting away from historical fact indicate that some problems were encountered in putting this imagination into work.

Results of E2's picture about its definitional, personal and internal meaning

Definitional meaning analysis

E2 wanted to trace around what he saw as a whole from an aerial point of view. This is due to the 'narrative feature' of a child within this age group, "[….] and as a result of his anxiety to define his knowledge on the topic unfailingly, and to fit them into the surface he already established" (Cengiz, 2001: 12). Thus, there are so many details in the picture drawn by E2. Nevertheless, the cloud, the sun, and dog are the objects outside the museum (Picture 2).

Personal meaning analysis

In the interview with him, he explained that the things that he drew were "Paşa Dede sitting on a couch while the dog and the wolf are fighting". The other items in his drawing include: "Paşa Dede's chain watch, cupboard, sofas, cloud, sun and for the house, museum, window, and stairs. In E2's picture (Picture 2), the objects were drawn separately. This according to Freeman is caused by the fact that children lack the drawing and coordination ability until age 7 (Yavuzer, 2009). His explanation about the cupboard he drew outside the house was "I saw this

Source 2. Ethnography museum.

cupboard ….in the house", and this makes us think that he remembers more easily when he relates an object with something in reality which he is familiar with. This approach is referred to as analogical[2] approach. Concerning the dog in the picture of E2, which he explained as "wolf fighting dog", it can be said that he got this from the fiction (The theme of fight is one of the themes in the fiction) which was initially presented to the children about life in the mansion.

Internal meaning analysis

E2, who displays features of 'Before Scheme Period' (ages 4 to 7) drew many objects which are in the museum outside the mansion in his picture (Picture 2). For instance, he drew the inner stair case of the museum as if it were outside.

In this way, E2 wanted to reflect all he knew about the place, even those which are impossible to see in his picture. In the Before Scheme period, transparent pictures known as "transparent or roentgen" drawing flourish with such pictures drawn by pictures (Yavuzer, 2009, p.46). This case "is related to the fact that the child could not reach visual realism. The child has not reached the opinion that objects can be seen differently under different conditions….for [T] his reason, about a house the child shows all together the outer appearance of the house, its inside, rooms, objects and people" (Batı, 2012, p.59). The chain watch being on the air in E2's picture reveals the feature of height hierarchy observed at this age group.

E2 placed the objects on a floor. The floor line was meaningfully drawn in detail. Paşa Dede was drawn as a stickman sitting on the couch with a fez on his head (Source 1). This drawing is in compliance with what is on display in the museum and with historical context. Although E2 is 52 month old, he formulated an important order in spatial relations in his pictures which are similar to that of children of ages 7 to 9 in Schematic Stage. The child sees that all beings and objects in space are related to one another. This case is a level that develops when the child interacts with the society and when he realizes that he is a part of that environment (Yavuzer, 2009: 45).

It was observed in E3' picture, (considering Sources 1 and 2), that he both benefitted from historical sources and entered into a fictionalizing process interwoven with historical reality and daily life in an analogical approach based on his world of imagination.

Results of E3's picture about its definitional, personal and internal meaning

Definitional meaning analysis

It is quite hard to understand what the drawn figures and objects exactly are without explanations from E3. Considering the illustration, it is observed that the size of the objects do not correlate to the size of the place in the picture. The objects were placed on the page without the concepts of place and size. The only figure that can be easily understood is a stickman with a fez on his head (Picture 3).

Personal meaning analysis

In our interview with E3, the contents of the drawing were: Paşa Dede, smoking, his gun, bomb, exploding bomb, blue car (objects in the sky); sea, gun, me (E3) and Duru (two stickmen), my heart, plane, and rabbit (objects below the sky); and exploded fish, flying fish (objects on the ground).

Internal meaning analysis

The picture is an example of imaginary drawing in which there is no spatial concept, objects and figures are flying everywhere, different colours are used, and emotions are dominant. Some details, which are important to him, were drawn bigger and a hierarchical structure was formed (Picture 3). For instance, in "Paşa Dede", "my heart", E3 tries to express his fondness of (K3) the opposite sex by drawing a heart above them, he uses allegory[3] to tell his abstract feelings in a concrete way. Heart symbolizes the

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[2]Analogies are useful cognitive structures carried out by likening the unknown to the more known of two unidentical concepts which are not known well or used to ease the understanding of abstract concepts (Durmuş, 2013).

[3] Allegory is a name given to a part or work in which an issue or thought are envisaged and told through several metaphors (Kotan and Kaya, 2010).

Picture 3. Paşa Dede and my heart (67 months).

concept of "love and happiness". Symbolic expressions are associated with metaphoric expressions and are mostly evaluated as the indicator of abstract thinking (Türkcan, 2013). E3, a 67 month old, displays the drawing features of a child age five which belongs to the Before Schematic Stage (ages 4 to 7). "Most of the 5 years old children drew a head on a body. On the head, there are eyes, a nose and a mouth. Arms and legs are also extended from the body. Generally, the faces are drawn with their frontal appearance and have no expression" (Yavuzer, 2009: 42). In spite of these, Lowenfeld found this kind of drawing as the drawing of a four-year old, who is just passing from Doodling Period to Before Schematic Stage in his researches. The doodles made by E3 can be likened to some objects by the researchers. Yet, there is no consistency in these drawings and doodles. In many drawings that can be classified to belong to the Doodling Period (ages 2 to 4), an object drawn as a house previously may later be defined as a car (Batı, 2012: 30).

However, E3's drawing of a fez on Paşa Dede's head shows that he had a stable imagination of the past by taking advantage of the fez of Paşa Dede he saw in the museum. This indicates that E3 was able to perceive that Paşa Dede's mode of dressing then is different from how people dress today. The fact that E3 drew Paşa Dede smoking in his picture, and that he drew the hooka he saw in the museum as a cigarette show a limited imagination experience about the past (Source 1).

E3's explanation and effort at making sense of what he drew (of each object in the picture) shows that they are the reflection of his experiences. In this case, it can be suggested that the pictures of E3 are anachronic[4]; partly historical and partly about his experiences of today.

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[4]The term anachronism is defined as "*delusion on the date or era of an event, or mingling dates and eras*". This case generally appears in a way of thinking or reflecting as if there was a historical phenomenon in a period when there is none (Öztürk, 2011).

Results of K1's picture about its definitional, personal and internal meaning

Definitional meaning analysis

In K1's picture, the women who are partly similar to palace girls had their heads covered but wore contemporary clothings (Picture 4).

Personal meaning analysis

In the interview with her, K1 explained that she drew a mother with a baby in her arms and drew the cradle of the baby she also drew another mother who was plaiting her daughter's hair. Considering her statements "mother plaiting her daughter's hair" and "mother cradling her baby" (Picture 4). K1 is said to have drawn her picture with inspiration from the diaroam she saw in the museum (Source 3). She was asked a question why she drew the star on the clothes of the second woman in the middle, she replied "just because it will be beautiful. I would have drawn something else but I forgot". When she was asked why she drew the shoes of women with heels, she explained thus: "I saw it in a documentary. Her high-heel shoe stumbled on a stone. Then plaster was applied and she never wore high heel shoes again". When the previous experiences of the researcher with K1were considered, these experiences show that TV programs (cartoons and programs for children) influence K1's cognitive development, even though partly, and that they played an important role in her perception and shaping of gender awareness.

Internal meaning analysis

K1's use of red colour in her drawings is a characteristic of the Before Scheme Period (ages 4 to 7). The schemes and figures of the women in the picture are repetitive and

Picture 4. Mothers and their children (57 month).

Source 3. Mothers and their children.

this reflects the distinctive feature of Schematic Stage (ages 7 to 9). The female figures K1 drew and the details of their clothes indicate that she clearly realizes the distinction of "gender".

The transparency feature seen in the pictures of children in Before Scheme period (4 to 7ages) was indicated by a "Comb" in K1's picture (Picture 4). Thus, the objects and figures in K1's picture contain characteristics of two periods. Another detail in K1's drawing is an arrow she drew on the cradle. When asked about it, her reason for drawing the arrows was that "the cradle is swaying". K1 tried to show the real movement of the object by drawing arrows indicating both sides in her picture. The arrows K1 drew are the important indicators of symbolic period. According to Bruner, In this period, which he described as the top level of cognitive development, he posits that the child can explain objects and cases which she/he can't explain with actions and images by using the symbols of the fields such as language, logic, mathematics, music, etc. (Senemoğlu, 2002).

Considering the details of the picture (Picture 4), many details of the character clothing's are sourced from what K1 perceives around her contemporary environment, and not from the historical context; except for the tasselled head cover, swinging cradle, and the boxwood (comb) on the woman's hand. However, children carry the historical knowledge they gained from TV programs, documentaries, family etc. to the learning environment (Dilek, 2009).

Results of K2's picture about its definitional, personal and internal meaning

Definitional meaning analysis

From the picture (Picture 5), it is observed that K2 drew a man with long arms. The child seems to have drawn bigger and at the most visible part of the drawing the person she saw in the museum and she found important.

It is quite hard to say what the other drawn objects in
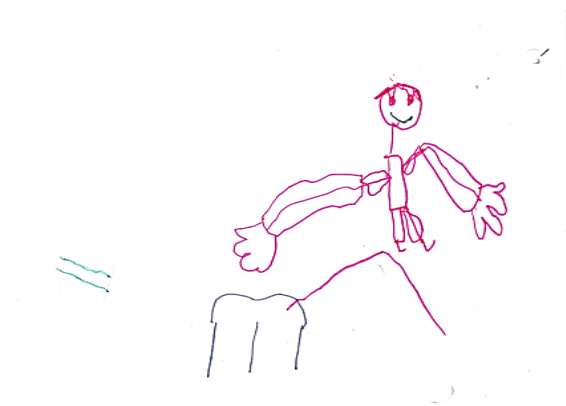
Picture 5. Son of Paşa Dede (57 month).

Source 4. Sons of Paşa Dede.

the picture are.

Personal meaning analysis

K2 stated that she drew the son of Paşa Dede, a table and a chair.

Internal meaning analysis

The figures and objects in K2's drawing exhibit characteristics of Before Scheme Period (ages 4 to 7) were formed by using two different colours without placing on spatial location. Body ratios are unrealistic (Picture 5). At this stage, children use in their drawings the colors they like. In their drawings the body proportions are without ratio in terms of shape and size (Yavuzer, 2009).

When the figures and objects K2 drew are examined in terms of historical context, it is observed that she drew

long arms wearing shirt, short legs wearing pants, hair on the head, and the objects of table and chair based on what she saw in the museum (Source 4). K2 tried to draw Paşa Dede's son with the figure she drew standing; she drew the floor, with the table on it, and drew the sofa with the chair. K2 constructed the past on her perception of today. K2's drawings make us think, through analogical deduction, that she employed an approach of combining the knowledge of her own living conditions and those of the people in the past (Dilek, 2009). It was observed that K2 created an imagination which included the daily empathy concept which Lee, Dickinson and Ashby proposed as the result of their research. In other words, K2 regarded the past with today's values and viewpoints through "Stone Age Syndrome" (Karabağ, 2014).

Results of K3's picture about its definitional, personal and internal meaning

Definitional meaning analysis

It is observed in K3's picture that she drew Paşa Dede parallel to the museum trip (Source 1, Source 3). A mother with her baby in her arms, an object similar to walking stick and two objects which are difficult to identify, are other details that can be seen in the Picture 6.

Personal meaning analysis

K3 stated during the interview that she drew fake hair, bed, cigarette, a mother with her baby in her arms, and Paşa Dede from left to right.

Internal meaning analysis

It was observed that the figures and objects K3 drew are in conformity with their originals points (Picture 6), and the Schematic Stage (ages 7 to 9). In this period, "the colours of objects are not original and are generally used randomly or according to the preference of the individual" (Batı, 2012). The red tan colour which K3 used to paint the woman figure, her head scarf and shoes, and red doodling have these characteristics. In terms of colour preference, as is seen from the Paşa Dede illustration, the jupe, the panthlets and the hookah were coloured dark (brown) similar to original (black) but the fez was coloured as original colour. This colour preference chosen is appropriate for the original included the features of The Birth of Reality Stage (ages 9 to 11).

K3 defined one of the objects she drew as fake hair. The explanation of fake hair suggests the possibility that she had never seen such kind of a head scarf before, or she could not understand what the head scarf was. K3 stated that another object she drew was a cigarette. She

Picture 6. Paşa Dede, mother and baby (74 month).

tried to relate the hookah she saw in the museum with cigarette and to give it a meaning. Here, it can be said that K3 made an analogy. This case indicates that the hookah in the museum was perceived by the child (Source 1). In the work of K3, each basic detail is included among historical objects and dioramas displayed in the museum. But, these materials were drawn in an order separate from one another. Each figure and object was coloured. "The experts having studied on colour concluded that girls give more importance to colour choice than boys" (Yavuzer, 2009, p.58). It can be said that the mother's head scarf and the details in her clothing do not correlate with historical context. Yet, it can be explained that K3 has more experience about what the contemporary women wear. Despite this, all details about Paşa Dede (Source 1) such as his fez, shirt, beard, and moustache, in short, his outer appearance, show that a stable imagination was put to work in order to appropriately display and fictionalize historical reality.

DISCUSSION

The aim of this study was to reveal how pre-school children fictionalize the past by using their imagination skills in the historical thinking process with a museum tour. This study aims to reveal the abilities of pre-school children to fictionalize the past in accordance with historical imagination and context with the pictures they drew through medium of a museum trip. In this context, attempts have been made to determine the factors affecting the children's ability of historical.

The historical imagination and talents of children whose drawing samples were examined showed traces of top artistic development stages independent of age, and differ from one another. According to the results of the study, the historical imagination skills varied in children in whose drawing samples encountered traces of top artistic development stages independent of age.

The children who were able to see better how the people lived and dressed at different times and in different places with a successful empathy were able to use the height hierarchy feature in their drawings of historical figure by making some of the objects bigger and more detailed than other objects. The children who used this characteristic were observed to be more successful in utilizing stable imagination. They were able to include details in compliance with historical context. On the other hand, the fact that in their drawings, historical objects were drawn with changes in the concept without a completion in the imagination process showed that they got far away from the historical reality that they encountered some problems in utilizing their imagination. For instance, because they have a contemporary impression of what women daily, this prior knowledge interfered with their imagination and reflected in the historical interpretation of their drawings. It was observed that the knowledge that women wore different clothes in the past was not recognised. However, while drawing the historical battle instruments and objects, they saw in the museum, boys were observed to have drawn many elements anachronically depending on what they see today without partly completing stable imagination process. This case overlaps Luguet's idea that "children draw not what they see but what they know" (Dilek and Yapıcı, 2005, p.18). On the other hand, one of the girls was observed to have fictionalized all details of Pasa Dede, of whom she had less experience, his complete outer appearance (fez, shirt, jupe, beard, and moustache), with a successful historical empathy in conformity with reality.

In the research, in the event that the child is behind the artistic development stage he/she ought to be, such child was observed to have difficulty in using his/her motor skills and in reflecting what he/she perceived. It was concluded that the child's effort to draw the whole image he/she saw with a developed perception to suit the historical context, while he/she did not include the details because of his/her skill deficit in drawing prevents his/her historical imagination talent from emerging adequately. It

is understood that such pictures have anachronic characteristics which complies partly with historical context which when compared to the child's experiences of today tend to move away from historical context in their imagination. On the contrary, the child's explanation of what he/she has drawn indicates that the picture is a reflection of experiences. However, Batı (2012) came to the conclusion in his research that the differences in the drawings show the perceptional development of the children.

When the pictures of pre-school children were examined based on the results of the research, their historical imagination skills were observed to develop in compliance with individual and general artistic development stage which Lowenfeld determined. It was observed that detailed imagination in children develops with age as the children evolve from undetailed drawing of figures and objects to detailed drawing, and from arbitrary colouring to colouring in conformity with the original. However, Yavuzer (2009: 11) emphasizes that "children's pictures are an indicator of mental development", while Duman (2006) concluded in his work that mental development reflects on the child's artistic development (Türkcan, 2013). The drawings of the children at this age group are suitable for historical context. Children's advanced artistic development stages; their open interests and perceptions; their ability to think analogically; partly the factor of gender; their hierarchical thinking; immediate environments, family, friends, relatives, and trips to surroundings and museums can be said to contribute to the fact that stable imagination is set to work in the drawings of the children at this age. Vygotsky's opinion that the environmental factors and socialization process are important in the development of language, concept, and thinking in children (Senemoğlu, 2002).

The children's low artistic development stages, the changing of concepts and anachronological thinking may be suggested to be the reasons that make children fail to fictionalize a historical imagination. As a result, showing the historical object without being completed in the imagination process, means a derail from historical reality in some respects." (Dilek, 2009: 658). Most of the children's first learning of history happens in environments such as: school, with family, and through trips to museums/ historical places, discussions with peers and media as opposed to the intervals in imagination process of children and in breaking off from historical context (Barton, 2004; Aktın and Dilek, 2014). In this case, it can be suggested that visual communication means and produces a positive effect in inducing the imagination. This is because; a successful historical imagination is important to the presentation of an object and/or a figure. Graff (1999) as well, suggested that there can be better historical understanding if historical imagination is encouraged; and he stated that "visual materials such as

picture, photograph, documentaries, and historical films play an important role in feeding historical imagination" (Yapıcı, 2006: 45). Cengiz (2001) supporting the opinions of Graff, found out that the children who drew by looking at ready materials are more successful in perspective and proportion than those who drew spontaneously. According to Egan (1982), it is necessary to take advantage of daily life experiences in developing children's historical understanding at pre-school period. In the meanwhile, he proposes presenting the basic concepts they know with new contexts to children for them to develop strong meanings and imaginations. However, the objects which are the primary sources in history give us strong and concrete evidence in reaching the people in the past. According to Fines and Nichol (1997), they give us an idea about the environment that the ones who made and used them lived, their socio-cultural conditions, their purposes of usage and thoughts (Dilek, 2009: 658). Hayek, in his/her study named "Priority of the Abstract", claims that the people who don't have enough concrete experiences to relate abstract cases with their daily lives can make the abstract relations more easily (Dilek and Soğucaklı-Yapıcı, 2005: 18).

Depending on the results of the research, the parents and preschool teachers should take little children to museums and historical places more often at this period to develop their historical understanding. While introducing historical objects and figures to children, they should present them by making analogical connections with the objects and figures they know. At this step they should enable the children to touch historical objects and figures so that they can correctly know and perceive historical objects. They should organize activities in the ateliers where they can see and draw historical objects, make clay works and paint them. The infrastructure studies should absolutely be carried out in museums. In the activity, children should be helped to draw bigger certain historical figures and objects in more detail. In this way, it can be possible to enable children to complete the imagination process of a historical object. It shouldn't be forgotten that historical understanding of little children can be improved by encouraging their historical imagination.

Conflict of Interests

The author has not declared any conflicts of interests.

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Educational Research and Reviews

Full Length Research Paper

Using narrative to investigate language skills of children who are deaf and with hard of hearing

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The study group consisted of 30 children with cochlear implants (CI) and 30 children with normal hearing (NH), whose ages were 4 years and 7 years 11 months. Turkish Test of Early Language Development (TEDIL) was used to assess the language skills of the children. Language samples were gathered by using Edmonton Narrative Norms Instrument (ENNI). The study results indicated that the sum of receptive, expressive and verbal language scores of the children with CI was lower than the children with NH and the difference was statistically significant according to TEDIL. It was found that mean length of utterance (MLU) and number of different words (NDW) averages among MLU, NDW and total number of words (TNW) average scores showed statistically significant differences in all of the three stories in favour of the children with NH. However, there was no statistically significant difference between two groups except for the A1 story in TNW. It was found that children with CI used case suffixes, pronouns, conjunctions among part of speech and verbals which were necessary for creating complex sentences less often than the children with NH and the difference between them was statistically significant with regard to the occurrence frequency of case suffixes, pronouns, A1 and A3 stories, A1 story conjunction. Besides, it was observed that the children with CI made more statistically significant word omission, morpheme omission and substitution errors than the children with NH. It was found that the children who were implanted before the age of 2 scored higher. As a result of language sample evaluations, it was stated that TNW scores predicted the ones with CI and MLU and NDW scores predicted the children with NH.

Key word: Deaf and hard of hearing, cochlear implant, narrative, language assessment.

INTRODUCTION

Hearing loss, arising congenitally or in the pre-language period, affect child's language development, and lead to delays of his/her social, cognitive and emotional development fields when compared to his/her peers. As

the degree of hearing loss increases, children's speech production and vocabulary decrease, and their reading and writing skills decline (Davis et al., 1986; Diefendorf, 1996; Easterbrooks, 2010; Marschark et al., 2007).

Easterbrooks (2010) and the specific linguistic considerations for deaf children learning a visual language like ASL. By connecting a hearing model of vocabulary instruction to the previous knowledge of the language learning of deaf children and the adult strategies used to promote that learning, the truly unique pedagogy used to promote learning for this population may be uncovered.

Cochlear implants (CI) have been widely applied to children who have severe to profound hearing loss in recent years. CI eliminates damaged or missing hair cells and directly stimulates the auditory nerve. Thus, the children who have severe and profound hearing loss benefit from CI and are able to improve their hearing, listening and speaking skills. It is observed todays that early implantation is successful in children's acquiring spoken language, who have severe and profound hearing loss (Ertmer et al., 2003; Roeser and Bauer, 2004; Sennaroğlu, 2003; Spencer and Marschark, 2003; Yoshinaga-Itano et al., 2010; Wie et al., 2007). Even though the children who underwent early implantation exhibit a rapid and generally appropriate improvement in compliance with their ages than the children who underwent later implantation, most of them have difficulty in the domains such as syntax, semantics, and pragmatics (Nicastri et al., 2014; Han et al., 2015). The best results following the CI implantation are obtained from the children whose cognitive development are normal and to whom early was performed, and from the children who are intensely subjected to the language and who are supported by their parents and by their caregivers (Geers, 2003; Kirk et al., 2002; Nicholas and Geers, 2007; Sharma et al., 2004; Sharma and Campbell, 2011; Tobey, Geers et al., 2003)

Language development can be described by separable domains, such as vocabulary, morphology, syntax and pragmatics (Topbaş, 2007). Generally, studies on language outcomes of children with CIs, language development are evaluated by means of vocabulary tests. However, vocabulary tests may not tell the whole language development (Mancini et al., 2015). Different components of the language come together in a story. Interaction of hearing and language at the quality of verbal stories which are an expression of opinion has an important role. The processes of a child's understanding the story cover cognitive and high-level language skills. These skills include the ability to sort events, to create coherent texts by means of distinct linguistic signs, to use whole words, to convey the opinions without having non-linguistic support, and to comprehend cause-effect relationship. The hearing-impaired children who have severe and so severe hearing loss that the issue is more that children with hearing loss experience language delays due more to not having access to a full language and are thus, unable to produce a story.

In the assessment of language development of children; a narrative which assesses different components of the language in details has been started to be used in both clinical assessment and intervention programs. The analysis of the information gathered from the stories provides detailed information on how the children combine information about language rules (Soares et al., 2010). Narratives have been found to predict academic achievement of children at risk for language impairments (Fazio et al., 1996); for children with early language impairments, preschool narrative performance appears to predict later language development (Bishop and Edmondson, 1987) and reading comprehension (Bishop and Adams, 1990). Thus, narrative skills appear to discriminate between children with impairments making them valuable tools for assessment and intervention.

However, research rarely focuses on morphology, syntax, narrative skills, while these skills are important to structure speech and language and contribute to the effectiveness of children's language (Da Silva, Comerlatto-Junior et al., 2011). Few studies evaluated several language domains. Young and Killen (2002), Spencer (2004) and Duchesne et al. (2009) measured vocabulary, syntactic and morphological skills. Young and Killen (2002), and Spencer (2004) observed strong vocabulary skills and a good understanding of word order in sentences, but problems with syntactic and morphological skills, such as pronouns, possessive markers, and verb tense. Goberis et al. (2012) state that children who are deaf or with hard of hearing are significantly older than their normal hearing peers even at the age of 7 years, there are several forms that are not mastered by 75% of the deaf children or the children with hard of hearing. Yoshinaga-Itano et al. (2010) states that the objective of this investigation was to describe the language growth of children with cochlear implants and those children with the same degree of hearing loss using hearing aids. There were 87 children with a severe-to-profound hearing loss from 48 to 87 months of age. Average language estimates at 84 months of age were nearly identical to the normative sample for receptive language and 7 months delayed for expressive vocabulary. Children demonstrated a mean rate of growth that was equivalent to their normal-hearing peers from 4 years through 7 years on these 2 assessments. Examination of individual patterns by Duchesne et al. (2009) revealed four different language profiles. One profile consisted of language components within normal limits. The second profile demonstrated a general language delay on all tasks. The third profile showed normal lexical abilities with receptive grammar delay and the fourth one consisted of discrepancies across language domains. However, these studies were based on a relatively small sample size (n < 30) which hinders generalization of the findings to larger populations. A comprehensive study (n = 153) conducted by Geers et al. (2009) reported that fewer children with CIs achieved age-appropriate scores on measures of verbal intelligence,

language, and syntactic knowledge when compared to performance on vocabulary measures. Moreover, none of these studies included complex linguistic tasks involving pragmatic abilities such as narrative skills. However, analysis of different language development domains enables efficient rehabilitation (Geers et al., 2009).

In the literature, there have been some studies in which the language skills of the children with severe loss of hearing by using narrative. Crosson and Geers (2001) found out that there is a statistically significant relation between narrative skills scores and speech perception, syntax and reading test scores of the children with CI; and usage of the words that connect sentences is not as improved as their normally hearing peers. In a study in which the language and narrative skills of the children implanted at early ages examined together, it was shown that more than the half of the children who received the implant before the age of 5 showed similar performances with the normal hearing children in narrative skills, length of utterance and vocabulary evaluations (Geers et al., 2003). Boons et al. (2013) who compared the language and narrative skills of the children with CI and their normally hearing peers (using the retell method) found that nearly the half of the children with CI has a language level appropriate for their age while the other half has a language performance lower than their peers. In this study, it was stated that the children with CI had difficulty in the syntax as the result of error analysis and that their narrative skills were insufficient (Boons et al., 2013). The results of the research support that there is a relation between hearing, language and narrative skills in children with CI.

The purpose of this study was to investigate language and narrative skills of children with cochlear implants and to compare their outcomes with normally hearing peers. This study seeks answers for these sub-questions regarding the purpose:

1. Is there a statistically significant difference between the receptive language, expressive language and verbal language scores of children with CI and children with NH?
2. According to Mean Length of Utterance (MLU), Number of Different Words (NDW) and Total Number of Words (TNW) scores obtained from language samples, is there a statistically significant difference between the groups?
3. Is there a statistically significant difference between two groups relating conjunction and pronouns, suffixes and verbals?
4. Is there any statistically significant difference between the children with CI and NH group for the frequency of skipped words, morpheme omission substitution errors and utterance error.
5. Do the receptive language, expressive language and expressive language sum of scores obtained from the

language test differ in accordance with the age of implantation?
6. Do the MLU, NDW and TNW results obtained from A1, A2 and A3 stories differ in accordance with the age of implantation?
7. Which of the Mean Length of Utterance (MLU), Number of Different Words (NDW) and Total Number of Words (TNW) scores does predict the group with CI in A1, A2 and A3 stories?

METHODS

Study groups

The research group consisted of 60 children (monolingual, whose native language is Turkish), 30 with CI and 30 with NH, between the ages of 4 years and 7 years 11 months, who continued inclusive education in special education and rehabilitation centers and preschool and primary education institutions in Izmir. The gender and chronological age were matched considering (±3 months) (Boons et al., 2013; Le Normand et al., 2003; Schorr et al., 2008). The distribution of the children according to the age and gender of the study group was shown in Table 1.

In the study group, 28 of the children were male and 32 of them were female. The average age of the children with CI was 4.05 for the age of 4, 5.06 for the age of 5, 6.06 for the age of 6 and 7.08 for the age of 7. The average age of the children with NH was 4.05 for the age of 4, 5.06 for the age of 5, and 7.08 for the age of 7.

This study included the children with congenital bilateral severe or very severe sensorineural hearing loss, who had been using CI for at least one year, who used auditory-verbal communication method at home, school and special education and rehabilitation centers, who did not have any other disability except for the hearing loss (information was collected from the student files and their families) and whose language developments were the age norms.

Among the normally hearing children, the study included the ones who showed normal development (there was no problem with their development according to the teacher), whose hearing was below 20 dB HL at frequencies between 500 and 4000 Hz (the hearing test was done in a silent room at the children's school by the researcher using audiometer), who did not have any language disorders.

All children who were included in the study group were the children who had CI operation based on the severe sensorineural hearing loss diagnosis. The children had used hearing aids for 2 months to 3 years (Mean=1.21) before the operation. The age of the operation differed from 1 year of age to 5 years (Mean 2.13). The special education centers in which all the children who were included in the research are the centers which give auditory verbal therapy, educate families for auditory-verbal education and support the families to give auditory-verbal education to their children at home. It was found that the difference between the educational levels of the mother of the children with CI and the children with NH ($X^2(2)=5.96$, p=.051) and their fathers' educational level ($X^2(2)=4.589$, p=.101), which is an important element of the child's language development was not statistically significant.

Data collection

The school principals and teachers of the deaf were contacted by determining the special education centers (focused on family

Table 1. The distribution of chronological age and gender of the study group.

Age (Years)	Sex	CI (n:30)				NH (n:30)			
		n	Mean	SD	Min-Max	n	Mean	SD	Min-Max
4	Males	3	4.05	0.05	4.00-4.10	3	4.05	0.05	4.00-4.10
	Females	3	4.05	0.04	4.02-4.10	3	4.05	0.04	4.02-4.10
	Totals	6	4.05	0.04	4.00-4.10	6	4.05	0.04	4.00-4.10
5	Males	3	5.05	0.05	5.00-5.10	3	5.05	0.05	5.00-5.10
	Females	4	5.06	0.04	5.03-5.11	4	5.06	0.03	5.03-5.10
	Totals	7	5.06	0.04	5.00-5.11	7	5.06	0.04	5.00-5.10
6	Males	4	6.06	0.04	6.00-6.10	4	6.06	0.05	6.00-6.11
	Females	3	6.07	0.03	6.04-6.09	3	6.07	0.03	6.04-6.09
	Totals	7	6.06	0.03	6.00-6.10	7	6.07	0.04	6.00-6.11
7	Males	4	7.10	0.02	7.07-7.11	4	7.09	0.02	7.07-7.11
	Females	6	7.07	0.04	7.00-7.11	6	7.07	0.04	7.01-7.11
	Totals	10	7.08	0.04	7.00-7.11	10	7.08	0.03	7.01-7.11

supporting auditory-verbal language) of the children. General information related to the child and the family was gathered from the families who volunteer to participate in the study after the children who took TEDIL in the first session and the language samples were taken in the second session. After the normally hearing children who matched the children with CI were determined from the classroom lists of their schools and they were tested with hearing test audiometer (amplaid 171 S Type 3 IEC 645) and earphones (amplaid) for the frequencies of 500-1000-2000-4000 Hz in a silent room, the children whose hearing thresholds were lower than 20 dB HL were included in the study. Besides, the language test was applied in this session. Then, the language sample was taken in the second session.

Test materials

Turkish test of early language development (TEDIL)

Test of Early Language Development (TELD-3) test which was developed by Hresko et al. (1999) is a test that was adapted to Turkish as Turkish Test of Early Development by Topbaş and Güven (2011). The test is conducted on an individual basis; it is norm referenced and it aims at measuring receptive and expressive verbal language skills of the children between 2 years 0 months and 7 years 11 months of age. The test can be used for the purposes such as early diagnosis of children with language disorders, to show strong and weak aspects of language development, to provide information regarding development process and to research. The Cronbach alpha values of the test are identified as between 86 and 98 in different age groups for TEDIL receptive language test, between 87 and 98 for expressive language subtest. The reliability among the potential users of the test is stated as 99 (Topbaş and Güven, 2013). In this study, TEDIL was used to determine if the language development of the children with normal hearing was appropriate for their age in the selection of the study group, to determine the language development levels of the children with CI and to include the children whose language development is age norms with the children with NH into the research. As the result of the application of the test, out of 36 children with CI, 6 children whose TEDIL expressive and verbal language sum of scores were 2 SS below the average were

removed from the study.

In this study, another purpose of using TEDIL was to determine general language skills of the children. Sum of receptive language, expressive language, verbal language standard scores of the children and the standard deviations are given in Table 2.

It is seen in Table 2 that the children with CI had lower scores in all of the three TEDIL subtests than the children with NH. For the children with CI; 11 (36.7%) in receptive language test, 15 (50%) in expressive language test, 14 (46.7%) in verbal language test sum of performances scored below 1 and 1.5 SD.

The Edmonton narrative norms instrument (ENNI)

In this study, "The Edmonton narrative norms instrument (ENNI)" which was developed by Schneider et al. (2005) was used to evaluate the language skills by means of narrative. Before the application, the necessary permission and information regarding application process were received from Alberta University, Dr. Phyllis Schneider. ENNI contains storyboards without writing; 1 educational story and 3 test story. Three picture sets with animal characters were used to elicit stories, in three levels of complexity. These picture stories were provided a range of narrative complexity. Table 3 provides a summary of the characteristics of the story sets.

The pictures for each story were placed in page protectors in a binder. Each story was in its own binder. The narrative is submitted to the child by pictures and the child is asked to tell a story by looking at the pictures.

It is seen in Table 3 that picture sets proceed from a basic story with two characters to a complex story with four characters. The stories are the ones that were arranged systematically in accordance with length, amount of the story information, the number of the characters and gender. Before the test stories were applied, the educational story was applied to the children to phase them in the stories. The child was first given a training story, which was similar to the simple stories in the A1 story in terms of length (5 pictures, 1 episode) and the number of characters (2). The purpose of the training story was to familiarize the child with the procedure and to allow the examiner to give more explicit prompts if the child was having difficulty with the task, such as providing the story beginning (e.g., "Once upon a time … there was a …"). For the A

Table 2. TEDIL test scores of the children included in the study group.

Study group		CI (n:30)			NH (n:30)		
		Mean	SD	Min-Max	Mean	SD	Min-Max
TEDIL	Receptive language scores	91.63	6.35	81.00-106.00	105.67	7.08	94.00-116.00
	Expressive Language Scores	90.90	8.83	77.00-112.00	105.43	8.11	90.00-120.00
	Verbal Language Scores	90.13	8.43	75.00-111.00	106.87	8.05	93.00-120.00

Table 3. Characteristics of the story sets.

Story	Number of episodes	Setting	Number of characters	Character description	Number of pages
A1	1	Swimming pool	2	Young female elephant young male giraffe	5
A2	2	Swimming pool	3	Same As A1 adult female lifeguard	8
A3	3	Swimming pool	4	Same as A2 adult female elephant	13

story sets, the examiner was restricted to less explicit assistance such as general encouragement, repetition of the child's previous utterance, or if the child did not say anything, a request to tell what was happening in the story. In the study, the pictures are shown to the child one by one and the child is asked to tell a story by looking at the pictures.

After the training story, the child viewed the pictures for each story in turn and was asked to tell the story to the examiner. When presenting the stories, the examiner held the binder in such a way that she could not see the pictures as the child told the story, which meant that the child needed to use language rather than pointing or gesturing if the examiner was to understand the story. The instructions emphasized that the examiner would not be able to see the pictures, so the child would have to tell a really good story so the examiner could understand it.

The examiner first went through all the pages so that the child could preview the story, after that the examiner turned the pages again so that the child told the story. The examiner turned the page when the child appeared to be finished with telling the story for a particular picture. Stories were audio recorded using Olympus VN 8600 PC recorders.

In this study, out of 32 normally hearing children, 2 children who told two short stories in ENNI Narrative Instrument (who said only the action in every page) were excluded from the study group. Two children with normal hearing were not included into the research because they behaved timid, used only one word for the pictures and did not form a story when they were asked to narrate the pictures and they only looked at the A1 story of the ENNI and did not want to see the others.

After stories were collected into the recorder, Turkish SALT (Systematic Analysis of Language Transcripts) computer program (Acarlar et al., 2006) was used for the transcription of the language sample and calculation of the measurements of language samples. Three developmental measurements which increase with age are found in the children who show normal development, which is calculated from the language samples. Mean Length of Utterance (MLU), Number of Different Words (NDW) and Total Number of Words (TNW) inform about the different components of the language.

MLU is calculated by dividing the number of all the morphemes in language samples to the total number of utterance. MLU is a measurement that is used to assess the morpheme and syntax

development. NDW and TNW are used as vocabulary diversity index among quantitative measurements that can be taken from the language sample regarding the semantics. NDW which is related to age is determined by calculating different word stems of language samples with a certain length. As the number of the utterance increases, the number of different words in the language sample increases correspondingly. NDW, which is considered to show the extent of vocabulary, informs about the problems to come up with words and vocabulary. Another age-related measurement, TNW is obtained by calculating the total numbers of the words in a language sample taken within the context of conversation or narrative. In this study, MLU, NDW, and TNW which are among the developmental measurements were calculated for every one of the three stories. Besides developmental measurements, some measurements were obtained regarding skipped words, the omission of morpheme and substitution word omission and error usage frequencies from disordered performance measurements. The errors arose at the level of word or sentence refers to morphology and syntax difficulties as well as the difficulties regarding finding the appropriate word and the insufficient vocabulary. Besides, developmental measurements were obtained regarding usage frequencies of conjunction, pronoun, suffixes and verbals.

For the 30% of the language samples, interjudge reliability was calculated. Interjudge reliability was calculated by agreement / (agreement+disagreement) x 100 formula (Kırcaali-Iftar and Tekin, 1997). As the result of the interjudge reliability calculations, division into utterances reliability was 98% (93 to 100%); division into morphemes reliability was 98% (between 94 and 100%) and coding reliability was 92% (between 87 and 100%).

Data analysis

The data collected from language sample was transformed into transcription first and then it was analyzed by using SALT language sample analysis program. Then, statistical analyses were performed using the SPSS software.

If the children with CI differed from normally hearing children with regards to the quantitative measurements obtained from language development test TEDIL and language sample by using independent sample test and Mann-Whitney U test was

Table 4. Independent samples t test results regarding the receptive language, expressive language and verbal language scores in the study group.

	Groups		n	Mean	SD	df	t	p
TEDIL	Receptive Language	CI	30	91.63	6.35	58	-8.07	0.000***
		NH	30	105.66	7.10			
	Expressive Language	CI	30	90.90	8.83	58	-6.64	0.000***
		NH	30	105.43	8.11			
	Verbal Language Scores	CI	30	90.13	8.43	58	-7.86	0.000***
		NH	30	106.87	8.05			

*, $p<0.05$; **, $p<0.01$; ***, $p<0.001$.

investigated.

The children were grouped according to the age that they were implanted and it was investigated if there were any differences between these groups regarding the qualitative measurements obtained from language development test and language sample with Mann-Whitney U test. To determine which MLU, NDW and TNW scores of language sample measurements predict the group with CI, logistic regression analysis was utilized.

Hosmer-Lemne show goodness of fit statistics was used to assess model fit. A 5% type-I error level was used to infer statistical significance.

RESULTS

Dependent variables of the study are the sum of the receptive language, expressive language and verbal language scores obtained from TEDIL test and MLU, NDW and TNW obtained from language sample. The CI and NH groups including children are the independent variables.

Is there a statistically significant difference between the receptive language, expressive language and verbal language scores of children with CI and children with NH?

Independent sample t test was applied to determine if there is a difference between the groups with regard to the sum of the receptive language, expressive language and verbal language scores obtained from TEDIL language test.

It is seen that the sum of receptive language, expressive language, and verbal language scores average of the children in the CI group on Table 4 is lower than the averages of the normally hearing children. According to the results of independent sample t test, there are statistically significant differences in TEDIL receptive language [t(58)=-8.07, p=0.000], expressive language [t(58)=-6.64, p=0.000] and verbal language [t(58)=-7.86, p=0.000] sum of scores in favour of the children with NH.

According to MLU, NDW and TNW scores obtained from language samples, is there a statistically significant difference between the groups?

Mann-Whitney U test was applied to determine if there is a difference between the groups regarding MLU, NDW and TNW measurements calculated for A1, A2 and A3 stories in the language samples of the children who were in the study group.

It is stated in Table 5 that MLU and NDW scores taken from the three stories show statistical significance in favor of the children with NH. While TNW scores differ statistically significant in A1 story, it is seen that there is not a statistically significant difference between the groups in A2 and A3 stories.

Is there a statistically significant difference between two groups relating conjunction and pronouns, case suffixes and verbals?

If there is a difference between the usage frequencies of conjunction, pronoun, suffixes, verbals calculated from the language samples of the children in the study group according to independent sample t test was investigated and the results are shown in Table 5.

In accordance with the Mann-Whitney U test results that was conducted to determine the conjunction usage frequency in Table 6 regarding the conjunction usage frequency; while there is a statistically significant difference in A1 story (U=-.06, p=.010) between the groups, it was found that there is not any statistically significant difference for A2 story (U=-0.83, p=.408) and A3 story (U=-1.35, p=.177).

It was found that there is a statistically significant difference for all of the three stories (A1 story (U=-3.76, p=.000), A2 story (U=-4.17, p=.000), A3 story (U=-3.67, p=.000)) in terms of the usage frequency of the pronouns in favor of the normal children.

It is seen that there is a statistically significant difference between two groups for all of the three stories (A1 story (U=-2.55, p=0.003), A2 story (U=-2.30, p=.006)

Table 5. Mann-Whitney U tests results regarding MLU, NDW, and TNW calculated in the language samples of the children who were in the study group.

Variable		Groups	n	Mean rank	Sum of rank	U	p
MLU	A1 Story	CI	30	20.47	614.00	-4.45	0.000***
		NH	30	40.53	1216.00		
	A2 Story	CI	30	22.47	674.00	-3.56	0.000***
		NH	30	38.53	1156.00		
	A3 Story	CI	30	21.45	643.50	-4.01	0.000***
		NH	30	39.55	1186.50		
NDW	A1 Story	CI	30	23.55	706.50	-3.09	0.000***
		NH	30	37.45	1123.50		
	A2 Story	CI	30	22.47	674.00	-3.57	0.000***
		NH	30	38.53	1156.00		
	A3 Story	CI	30	23.43	703.00	-3.14	0.001**
		NH	30	37.57	1127.00		
TNW	A1 Story	CI	30	25.92	777.50	-2.04	0.014*
		NH	30	35.08	1052.50		
	A2 Story	CI	30	28.35	850.50	-0.95	0.340
		NH	30	32.65	979.50		
	A3 Story	CI	30	27.47	824.00	-1.35	0.178
		NH	30	33.53	1006.00		

*p<0.05; **p<0.01; ***p<0.001.

Table 6. Mann-Whitney U test results regarding conjunction, pronoun, suffixes and verbal from language sample measurements of the children in the study group.

Variable		Groups	n	Mean rank	Sum of rank	U	p
Conjunction	A1 Story	CI	30	25.97	799.00	-2.06	0.010*
		NH	30	35.03	1051.00		
	A2 Story	CI	30	28.65	859.50	-0.83	0.408
		NH	30	32.35	970.50		
	A3 Story	CI	30	27.47	824.00	-1.35	0.177
		NH	30	33.53	1006.00		
Pronoun	A1 Story	CI	30	22.23	667.00	-3.76	0.000***
		NH	30	38.77	1163.00		
	A2 Story	CI	30	21.28	638.50	-4.17	0.000***
		NH	30	39.72	1191.50		
	A3 Story	CI	30	22.28	668.50	-3.67	0.000***
		NH	30	38.72	1161.50		
Suffixes	A1 Story	CI	30	24.77	743.00	-2.55	0.003**
		NH	30	36.23	1087.00		
	A2 Story	CI	30	25.35	760.50	-2.30	0.006**
		NH	30	35.65	1069.50		
	A3 Story	CI	30	23.28	698.50	-3.21	0.000***
		NH	30	37.72	1131.50		
Verbal	A1 Story	CI	30	24.63	739.00	-2.72	0.002**
		NH	30	36.37	1091.00		
	A2 Story	CI	30	28.42	852.50	-0.94	0.346
		NH	30	32.58	977.50		
	A3 Story	CI NH	30	21.07	632.00	-4.24	0.000***
			30	39.93	1198.00		

and A3 story (U=-3.21, p=.000) in terms of the usage frequency of suffixes which are obtained in early periods in Turkish in favour of the normal children.

For the usage frequency of verbals, it shows statistically significant difference between the groups for A1 story (U=-2.72, p=.002) and A3 story (U=-4.24, p=.000), while there is no statistically significant difference for A2 story (U=-0.94, p=.346).

Is there any statistically significant difference between the children with CI and NH group for the frequency of morpheme omission and substitution and utterance error?

Mann-Whitney U test was applied to determine if there is a difference between the groups regarding the score averages for the morpheme omission and substitution errors frequency and error frequency at the level of utterance obtained from the error analysis results in language samples.

When Table 7 is examined, for the A1, A2, and A3 stories, it is seen that there is a statistically significant difference between the groups in A1 story (U=-2.28, p=.004) and A3 story (U=-2.05, p=.007) in terms of the word omission. Morpheme omission frequency shows statistically significant difference for each story [A1 story (U=-3.17, p=0.000), A2 story (U=-2.64, p=0.001) and A3 story (U=-3.86, p=0.000)], morpheme substitution error frequency shows statistically significant difference between the groups for A1 story (U=-2.16, p=0.005) and A3 story (U=-2.73, p=0.001), utterance error frequency for the children with CI shows statistically significant difference for A2 story (U=-2.29, p=0.004) and A3 story (U=-2.27, p=0.006).

Do the receptive language, expressive language and verbal language sum of scores obtained from the language test differ in accordance with the age of implantation?

Mann-Whitney U test was applied to determine if there is a difference between the groups regarding the receptive language, expressive language and verbal language sum of scores according to the age of implantation in the CI group. The results were given in Table 8.

When Table 8 is examined, it has been seen that the children who had the operation before the age of 2 got higher scores in expressive language skills than the children who had the operation after the age of 2. It is seen that there is a difference only in the expressive language skills (U=45.00, p=.005) among the TEDIL test measurements of the children who were implanted before the age of 2.

However, according to the chronologic age when they

were younger at 4 years compared to 7 years old. It is seen that there is a not difference receptive language skills (U=11.00, p=0.310) and expressive (U=9.00, p=0.180) among the TEDIL test measurements of the children who the age of 4. It is seen that there is a difference in receptive language skills (U=0.50, p=0.001) but no difference in expressive language skills (U=15.00, p=0.259) of the children at the age of 5. It is seen that there is a difference both receptive language skills (U=0.00, p=0.001) and expressive language skills (U=2.00, p=0.002) the age of 6. It is seen that there is a difference both receptive language skills (U=1.00, p=0.000) and expressive language skills (U=0.00, p=0.000) the age of 7.

Do the MLU, NDW and TNW results obtained from A1, A2 and A3 stories differ in accordance with the age of implantation?

Mann-Whitney U test was applied to determine if there was a difference between the groups regarding the MLU, NDW and TNW results for A1, A2 and A3 stories according to the age of implantation in the CI group. The results were given in Table 9. The table shows that MLU, NDW and TNW averages of the children who had the CI operation before the age of 2 and after the age of 2 for A1, A2 and A3 stories differed between the groups only in the A3 story and for the TNW (U=62.00, p<0.05). It has been found that there has not been statistically significant differences between the groups in terms of other variables.

Which of the MLU, NDW, and TNW scores does predict the group with CI in A1, A2 and A3 stories?

Table 10 shows results of the logistic regression analysis that is conducted regarding the predictor variables' (MLU, NDW, TNW scores) predicting the group with CI. Logistics regression was conducted to assess whether three predictor variables, MLU, NDW, and TNW, significantly predicted the children CI groups or not. [The assumptions of observation as being independent and independent variables being linearly related to the logic were checked and met]. When all three predictor variables are considered together, they significantly predict whether or not a children CI groups, A1 story: χ^2 =29.65, df=3, n=60, p<.000, A2 story: χ^2 =23.09, df=3, n=60, p <.000, A3 story χ^2 =21.34, df=3, n=60, p <.000. Table 7 presents TNW in CI recipient children and MLU and NDW in NH group were found to be predictors to group the children. For the correct classification ratio of the groups which include the children with CI by the MLU, NDW, and TNW averages; while correct classification ratio for the NH group was 80% for A1 story, its correct classification

Table 7. Mann-Whitney U test results regarding the usage frequencies of word omission, morpheme omission, morpheme substitution and utterance error obtained from the error analyses in the language samples.

Variable		Groups	n	Mean rank	Sum of rank	U	p
word omission	A1 Story	CI	30	33.53	1006.00	-2.28	0.004**
		NH	30	27.47	824.00		
	A2 Story	CI	30	33.75	1012.50	-1.86	0.063
		NH	30	27.25	817.50		
	A3 Story	CI	30	34.15	1024.50	-2.05	0.007**
		NH	30	26.85	805.50		
Omission of morphemes	A1 Story	CI	30	36.15	1084.50	-3.17	0.000***
		NH	30	24.85	745.50		
	A2 Story	CI	30	34.90	1047.00	-2.64	0.001***
		NH	30	26.10	783.00		
	A3 Story	CI	30	38.33	1150.00	-3.86	0.000***
		NH	30	22.67	680.00		
Substitution of morphemes	A1 Story	CI	30	34.35	1030.50	-2.16	0.005**
		NH	30	26.65	799.50		
	A2 Story	CI	30	32.20	966.00	-0.86	0.390
		NH	30	28.80	864.00		
	A3 Story	CI	30	36.20	1086.00	-2.73	0.001**
		NH	30	24.80	744.00		
Utterance error	A1 Story	CI	30	30.50	915.00	0.00	1.00
		NH	30	30.50	915.00		
	A2 Story	CI	30	33.55	1006.00	-2.29	0.004**
		NH	30	27.45	823.50		
	A3 Story	CI	30	33.95	1018.50	-2.27	0.006**
		NH	30	27.05	811.50		

*p<0.05 **p<0.01 ***p<0.001.

Table 8. Mann-Whitney U test results regarding the language test scores of the children with ci who are implanted before the age of 2 and after the age of 2.

	Variable	Groups	n	Mean rank	Sum of rank	U	p
TEDIL	Receptive language	Below age of 2	16	16.31	261.00	99.00	0.588
		Above age of 2	14	14.57	204.00		
	Expressive language	Below age of 2	16	19.69	315.00	45.00	0.005**
		Above age of 2	14	10.71	150.00		
	Verbal language	Below age of 2	16	18.34	293.00	66.50	0.058
		Above age of 2	14	12.25	171.50		

*p<.05 **p<.01 ***p<.001.

ratio for predicting the group with CI is 86.7% according to the analysis results. The correct classification ratio of the both groups by these scores is 83.3%. Correct classification ratio in NH group for A2 story is 80%, correct classification ratio of the group including children with CI is 76.7%. The correct classification ratio of the language sample measures for both of the groups is 78.3%. For the A3 story, correct classification ratio in NH group is 70% and correct classification ratio for CI Group is 76.7%. The correct classification ratio by the language sample measurements for both of the groups is 73.3. It is seen that TNW scores predict the group with CI and NDW scores predict the group with NH among the language sample measurements in each of the three

Table 9. Mann-Whitney U test results regarding the MLU, NDW and TNW results for A1, A2 and A3 stories of the children with CI implanted before the age of 2 and after the age of 2.

Variable		Groups	n	Mean rank	Sum of rank	U	p
MLU	A1 Story	Below age of 2	16	13.78	220.50	84.50	0.253
		Above age of 2	14	17.46	244.50		
	A2 Story	Below age of 2	16	15.50	248.00	112.00	1.000
		Above age of 2	14	15.50	217.00		
	A3 Story	Below age of 2	16	15.25	244.00	108.00	0.868
		Above age of 2	14	15.79	221.00		
NDW	A1 Story	Below age of 2	16	15.47	247.50	111.50	0.983
		Above age of 2	14	15.54	217.50		
	A2 Story	Below age of 2	16	15.72	251.50	108.50	0.884
		Above age of 2	14	15.25	213.50		
	A3 Story	Below age of 2	16	14.38	230.00	94.00	0.453
		Above age of 2	14	16.79	235.00		
TNW	A1 Story	Below age of 2	16	14.66	234.50	98.50	0.574
		Above age of 2	14	16.46	230.50		
	A2 Story	Below age of 2	16	15.03	240.50	104.50	0.755
		Above age of 2	14	16.04	224.50		
	A3 Story	Below age of 2	16	12.38	198.00	62.00	0.013*
		Above age of 2	14	19.07	267.00		

Table 10. The Distribution of the MLU, NDW and TNW results for A1, A2 and A3 stories according to the logistic regression analysis.

Variable		B	SE	Odds ratio	p	95.0 % C.I. for EXP(B)	
						Lower	Upper
A1 Story	MLU	- 0.888	0.260	0.412	0.001	247	0.685
	NDW	- 0.348	0.152	0. 706	0.022	0.524	951
	TNW	0.174	0.076	1.19	0.022	1.026	1.38
	Constant	6.536	1.731	689.503	0.000		
A2 Story	MLU	-0.538	0.301	0.584	0.074	.324	1.054
	NDW	-0.447	0.127	0.639	0.000	.499	0.819
	TNW	0.189	0.060	1.208	0.002	1.073	1.359
	Constant	6.423	2.010	615.771	0.001		
A3 Story	MLU	-0.756	0.294	0.469	0.010	0.264	0.835
	NDW	-0.154	.068	0.857	0.022	0.751	0.978
	TNW	0.058	.025	1.060	0.022	1.008	1.114
	Constant	5.786	1.813	325.642	0.001		

*, $p<0.05$; **, $p<0.01$; ***, $p<0.001$.

stories.

DISCUSSION

The first step in this study was to compare the children with CI to the NH children according to sum of receptive language, expressive language, and verbal language scores and it was found that the average of sum of the receptive language, expressive language and verbal language scores of the children with CI was lower than the NH children and there was a statistically significant difference between the groups. As the result of TEDIL language test; 63% of the children with CI showed performances appropriate for their age in receptive language, 50% of them in expressive language and 53%

in verbal language scores; all children with NH showed performances appropriate for their ages in all fields. These results show that nearly the half of the general language skills of the children with CI is below their age.

There are different results regarding language skills of the children with CI when they are compared to the NH children in the literature. In their study that supports that study, Schorr et al. (2008) found that the 36% of the CI group and 92% of the NH group showed age-appropriate performances appropriate in all tests. In another study, Geers et al. (2009) stated that 50% of the children with CI in receptive language vocabulary, 58% in expressive vocabulary, 47% in receptive language scores and 39% in expressive language scores got scores that were appropriate for their ages. Yoshinaga-Itano et al. (2010)'s investigation was to describe the language growth of children with severe or profound hearing loss with cochlear. Average language estimates at 84 months of age were nearly identical to the normative sample for receptive language and 7 months delayed for expressive vocabulary. Children demonstrated a mean rate of growth from 4 years through 7 years on these 2 assessments that were equivalent to their normal-hearing peers. The results of these studies and the previous studies showed that while nearly the half of the children with CI shows language characteristics appropriate for their age, the other half's language skills are below their ages. In another study that shows that there are different language profiles in the children with CI, Duchesne et al. (2009) compared the vocabulary, morpheme and usage of the syntactic structure of 27 French speaking children. As a result of the study, four different language profile was determined: The profile that shows normal language development, the one with language delay in every area, the one with appropriate word/meaning information for the age but with a delay in receptive grammar and the one with inconsistency between language components. In their study, they found out that children with CIs may be able to use spoken language structure in a manner similar to their normally hearing counterparts, despite the differences in the quality of the input. The differences in the effects of phonotactic probability and word length imply a difficulty in initiating word learning and limit the working memory ability in children with CIs (Han et al., 2015). In their study that they observed 17 children with CI, Le Normand et al. (2003) stated that some children achieved normal or near normal language level 2 or 3 years after the implantation, some children has difficulty in learning new words and a group of children could not create any words and showed serious delay. As a result, it was found that the general language skills were examined in these studies, nearly half of the children with CI scored similarly with their NH peers, but the other half of the children did not show language skills appropriate to their ages. This finding shows that the results of the CI operations differ from person to person and the factors

such as the age of the operation, auditory-verbal education received by the children and inclusive education affects the language skills of the children. Moreover, vocabulary tests and general language tests do not provide comprehensive information about the fields of the language in which the children who have difficulty in language development. So, it is important to make detailed evaluations regarding the components of the language such as vocabulary, morpheme, and syntax.

In this study, it has been found that MLU, NDW and TNW averages among the developmental measurements which were obtained from the language sample of the children with CI and NH by means of narrative were lower in the CI group than in the NH group for each of the three stories, that the highest MLU, NDW, and TNW averages are in A3 story, which is longer in terms of the number of the characters and events. When these two groups are compared, while MLU and NDW scores obtained from the three story and TNW scores of A1 story show statistically significant difference, there is not any statistically significant difference between the group for TNW scores in A2 and A3 story. Children with NH showing better performances than the children with CI in each of the three stories provide information on the difficulties in different parts of the language. The differences in MLU show that children with CI have difficulty in suffixes and sentences, in other words, in morpheme knowledge and syntax components. The difficulties that the children with CI have in NDW refers to the insufficient vocabulary such as deficiency in finding words and vocabulary. It is thought that the reason why there is a difference between two groups in only the basic story A1 and not in A2 and A3 story is that the children with CI mainly tell the stories by means of naming. As the stories get more complex, the children with CI the stories with less NDW and more MLU, and with respect to TNW, they told similar stories with NH children.

There have been some studies regarding the investigation of the component of the language in the children with CI in the literature. Geers et al. (2003) stated that more than half of the 181 children whose ages were between 8 and 9 and who were implanted below the age of 5 showed similar results with the normally hearing children in the measurements of verbal receptive deduction, narrative skill, the length of utterance and vocabulary. Similarly, in one of the studies that investigate the language skills through narrative, Paul and Smith (1993) stated that the children with hearing impairment were weak in narrative skills and syntax; Boons et al. (2013) stated that their narrative skills are insufficient. It was shown in the studies that compared the children withCI to their NH peers that there was a statistically significant difference between two groups (Crossan and Geers, 2001; Pae et al., 2009).

In the studies in which the language skills of the

children with CI were investigated by using the test, it was shown that the children with CI had difficulty in vocabulary, syntax and morpheme skills (Geers et al., 2009) and they have difficulty in semantics (Le Normand et al., 2003). Schorr et al., (2008) showed that the children with CI scored appropriately to their chronological ages in receptive vocabulary and phonetic memory, but their general performances were significantly below their NH peers. Nott et al. (2009) stated that there is not any statistically significant between CI group and NH group in terms of single words, but they differ statistically significantly in combining words.

When the usage frequency of case suffixes, conjunctions, it was found that children with CI used case suffixes, pronoun, conjunction calculated from the language samples among part of speech and verbals which are necessary for creating complex sentences less often than the children with NH and the difference between them was significant with regard to the occurrence frequency of case suffixes, pronoun, A1 and A3 stories verbals. A1 story conjunction. Similarly, Boons et al. (2013) found that most of the children with CI used the conjunctions correctly and the difference between them and their pair was not statistically significant. Young and Killen (2002) and Spencer (2004) stated that the children with CI used the possessive suffixes and tense suffixes insufficiently in syntax and pronoun use. In another study, Le Normand et al. (2003) stated that the children with CI showed statistically significant difference in noun and verb words, bound morpheme 2 years after the CI operation, in pronouns, infinitives, possessive suffixes, prepositions, verbs of communication, adverbs and negative adverbs after 3 years compared to normally hearing children.

In this study, it was found that the difference between the two group was statistically significant for the skipped word frequency in A1 and A3 story, for morpheme omission frequency in each of the stories, for morpheme substitution in A1 and A3 stories, for utterance errors in A2 and A3 stories from the measurements that provided information about the structure of the language disorder in the language samples of the children with CI and NH. These errors are accepted as the indicators of morpheme and syntax difficulties (Acarlar and Johnston, 2006; Pae et al., 2009; Boons et al., 2013). There have been some studies that provide information on that CI children's MLU, which is a measurement that provides information about syntax and morpheme development similar to this study, is lower than the children with normal hearing (Boons et al., 2009; Geers et al., 2003, 2009; Pae et al.,, 2009). MLU being below the normal level, skipped morphemes, use of different morpheme instead of the necessary one and utterance errors being above the normal hearing children show that the children with CI have difficulty in syntax and morpheme.

As the NDW averages of the children with CI show,

they use a different word when they do not know the appropriate word because their vocabulary is insufficient. For example:

C And then, (from the giraffe) the elephant drove his plane from the giraffe [took] (7; 6 years old)
C Cümlelerin türkçe çevirilerini parantez içinde almalı, başka Bir cümle örneği gibi oluyor, ayrıca tekrar yaşı da yazmak gerekmiyor.
C Then the elephant fell his ball from the sea [took] (7; 0 years old)
C Sonra fil topunu denizden düştü[aldı].

In this study, it was also seen that the children with CI used the morphemes that are added to actions and nouns less than the children with normal hearing and it was found that the number of the word omission and morphemes in each of the three stories showed statistically significant difference between the groups. The children with CI make morpheme errors in the forms of putting another suffix or omitting the suffix. For example:

C The plane sea/acc(*dat)   fall/past. *=omission (6;0 years old)
C Uçak deniz/i düş/müş.
C Elephant ball sea/*dat throw/past. (6;4 years old)
C Fil top deniz/*e at/mış.

In this study, while the utterance error averages of the children with CI and NH children were the same in A1 short story which consists of 2 characters, the children with CI made more utterance errors than the children with NH as the number of the characters in the story increased and there was a statistically significant difference between the two group for A2 and A3 stories. The examples of the utterance errors and word finding difficulties of the children with CI are listed below:

C (Cow)Elephant water tennis throw/past. (7;7 years old)
C (İnek)Fil su tenis at/tı.
C Uçak düştüğünü söylemiş.
C (It Ummm what was the name of this huh) One thing/prep. plane/acc. take/past. (7;11 years old)
C (O da hhıı neydi bunun adı)Bir tane şey/le uçağ/ı al/mış.

It is seen that standard language tests were used in most of the studies in the literature and error analyses are not included. Although the comparison studies conducted with one norm group are beneficial, they do not provide information about sub-skills and errors. Morpheme and syntax error analyses provide important information for determining the purposes of intervention programs (Da Silva et al., 2011). Similar to this study, Boons et al. (2013) stated that the children with CI had difficulty in the

use of the suffixes and they made more errors in organizing the syntactic structures than the normally hearing children and their narrative skills were insufficient. They stated that the answers of the children with CI for the questions they were asked were limited to single words and this situation could possibly result from lack of information.

The TNW average of the children who were implanted under the age of 2 for the A3 story whose character and event number was more complex were higher than the children who were implanted after the age of 2. Being implanted in early ages is only one of the factors that affect the CI success. Several factors such as the education of the children, family characteristics, and inclusive education affect the success of the implantation. So, it is thought that the indifference in MLU, NDW for each of the three stories and in TNW for A1 and A2 stories can be resulted from the variables except for the age that the children were implanted and it is needed to conduct a study to investigate the other factors that affect the success of the implantation. Similarly, it is emphasized in the literature that the age of implantation is an important factor that affects the post-operation success and as the age of the children decreases, the development after the operation increases, the children who are implanted before the age of 2 reach an age appropriate language level (Hayes et al., 2009; Kirk, et al., 2002; Nicholas and Geers, 2007).

This study had sought an answer to the question if the language test results in language samples and MLU, NDW and TNW averages differ or not. It has been found that there is a statistically significant difference between the two groups in the expressive language scores of the children who were implanted before the age of 2 and there is no statistical significant difference in the receptive language and verbal language composite scores. Besides, in terms of the age of the operation, a statistically significant difference for TNW average in A3 story was found. The TNW average used in the complex story with more characters and events by the children who were implanted before the age of 2 is higher than the children who had the operation after the age of 2. Having the operation at early ages is only one of the factors that affect the success of CI. Several factors such as the education of the child, family characteristics, and inclusive education affect the success of the implant. So, it has been thought that the differences in all the stories for MLU, NDW and TNW and in A1, A2 stories for TNW can be the result of the factors other than the age of the implantation. Accordingly, it has been emphasized in the literature that the age of the operation of the child is a significant factor that affects the post-operation success, the earlier the operation of the child, the faster the post-operation development observed, and the children who were implanted with CI before the age of 2 reach the language level appropriate for their ages (Hammes et al.,

2002; Hayes et al., 2009; Kirk et al., 2002; Miyamoto et al., 2003; Nicholas and Geers, 2007). Yoshinaga-Itano et al., 1998), emphasized that receiving the auditory information early or late and the duration of implant use affect the benefits of the implant for the children. Niparko et al. (2010) stated that the children who had CI operation showed a significant development in expressive language and understanding the language, and the best predictor of the post-operation language scores is the pre-operation language skills. According to the findings of Svirsky et al. (2004), as the age of the CI implantation, the expressive language scores decrease. Akın et al. (2009) stated that the factors such as the aid use before the operation, pre-operation language skills and regular education affect the success of the children with CI.

In this study, which of the MLU, NDW and TNW averages calculated from A1, A2, and A3 stories predicted the CI group was also investigated that. It is founded that TNW predicted the CI group and MLU and NDW predicted the NH group for all of the three stories. It is thought that TNW which is a measurement that provides information about the different aspects of the language such as the speed of the speech, utterance length, motor maturation, utterance formation skill and word formation efficiency predicts CI group; it shows a global language difficulty that affects all of the sub-traits of the language.

At the present time, as a result of the different approaches and the improvement of the technology, the number of the children who are implanted at early ages, verbal intervention and inclusive education increase and accordingly, the results expected from the hearing impaired children and the intervention needs of these children change. This situation shows that it is of great importance that the language and academic skills of the children with CI, which is a distinctive group, shall be investigated consistently and in detail and these language skills shall be supported in education and shall be observed. Despite the range of conceptual frameworks employed to understand what constitutes effective instruction for deaf children, the number of available studies is relatively few (Easterbrooks, 2010; Easterbrooks and Stephenson, 2006; Easterbrooks et al., 2006; Marshark and Spencer, 2010). Geers et al., (2008) stated that the early intervention is important for syntax, morpheme and narrative development, the intervention programs should be created according to the fields that the children are strong and weak. Besides, Easterbrooks (2010) points out that this aspect of instruction has been acknowledged for general education, special education, and deaf education alike. It is thought that the findings of this study will significantly contribute to the determination of the purposes regarding the language skills in early intervention programs, using the narrative in intervention programs more often and use of the narrative as a means of evaluation in evaluation studies. Because it is important that deaf children have strong language role

models in their classrooms (Easterbrooks, 2010).

The suggestions which were developed regarding the further researches and practices in accordance with the findings of the research are listed as follows:

1. By determining the auditory perception, speech perception of the children with cochlear implant besides language tests, narrative tool, and the relations between them can be examined.
2. More children with CI and other control groups (with language disorders, with mental incompetence) can be compared.
3. By planning the same research in longitudinal design, the assessments can be made at regular intervals. Thus, the language development of the children can be observed and the effects of the factors regarding the language development can be revealed. The longitudinal studies are significant in term of determining the effect of the applied intervention and determining the areas in which the children have difficulty and supporting these areas.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

The relationship among creative (Mis) fit, college culture, creative and academic self-efficacy

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Although person-environment fit (PEF) has been extensively studied in organizational psychology and business literature, its application to educational context has been limited. The current study used PEF framework in terms of creativity within the context of higher education. The nature of relationship between person-environment fit, college culture, creative and academic self-efficacy has been investigated. Analyses based on two different formulations of PEF indicated that college culture, creative and academic self-efficacy are the highest when both person and environment components are high. Specific analyses with misfit scores indicated that college culture generates a pro-environment discrepancy. Creative self-efficacy is more related to person component whereas college culture and academic self-efficacy were related to environment component. Results are discussed in relation to the literature and theories of creativity.

Key words: Person-environment fit, creativity, college culture, creative self-efficacy, academic self-efficacy.

INTRODUCTION

Creativity has been indicated as the highest form of thinking (Anderson et al., 2001; Krathwohl, 2002) and, therefore, is one of the most crucial skills needed in the workforce (IBM, 2010). Unfortunately, educators are slow in reacting to this phenomenon, and creativity is not a priority in most of the current educational models (Bronson and Merryman, 2010). In spite of that discouraging climate, it is crucial to offer solutions and models that are applicable in practice.

Broadly speaking, there seems to be two major approaches to supporting creativity in educational settings. The first approach is about the instructional and curriculum related solutions that explore various ways of immersing creativity and creative thinking in the curriculum (Cropley, 2001; Fairweather and Cramond, 2010). This is a crucial area of investigation because raising the students with the traditional models of learning and teaching imply an education that is limited to facts and knowledge, which stifles creativity (Best, 1991). The second approach is more climate-based that facilitates creativity through providing positive environmental conditions and support systems so that creative potential finds different ways to flourish (Crafts, 2005; de Souza-Fleith, 2000; Fasko, 2001; Peterson, 2001; Péter-Szarka, 2012).

The current study focuses on the second (climate -based) approach within the context of higher education

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from the perspective of person-environment fit (PEF). PEF is a framework rooted in the earlier works of psychology (for example, Lewin, 1936; Murray, 1938) and has been developed and widely studied in the organizational psychology and business (Chatman, 1989; Edwards, 2008; French et al., 1974). Person-environment fit is founded on the idea that the correspondence or congruence between the person and environment leads to greater outcome (French et al., 1974; Tinsley, 2000). Although it has been studied in the field of creativity (Choi, 2004; Choi and Price, 2005; Livingstone et al., 1997; Puccio et al., 2000; Sen et al., 2014), it was largely related to the organizational aspect of creativity rather than educational aspect.

The current study adopts PEF model to educational context, more specifically, creativity in higher education. This perspective is useful for at least two reasons. First, the distinction between creative potential and creative achievement (Runco, 2003, 2004) can be viewed from the perspective of environmental conditions and available opportunities for creativity. Transformation of creative potential to creative achievement could be impeded by environmental conditions and support. PEF provides a useful framework for understanding this gap between personal and environmental qualities for creativity. Research underlining the importance of experiences for creativity (Runco and Acar, 2010; Koestner et al., 1999; Leung et al., 2008) indicates that environmental conditions that offer rich and diverse opportunities can enhance creativity. Second, person and environment are two of the major four aspects of the creativity research as classified by Rhodes (1961). Rhodes' perspective also points to the interconnectedness of these four aspects of creativity (person, press or environment, process, and product). As creativity is complex, its assessment should also be multifaceted and various aspects of it should be considered. Hence, an ecological perspective should be adopted, that would require going beyond focusing on one aspect of creativity, and employing a more comprehensive and integrative approach to creativity assessment (Isaksen et al., 1993).

Sen et al. (2014) developed a measure of creativity (Person-Environment Fit Scale for Creativity (PEFSC)) based on this study framework. They designed two scales: Person and environment scales, which are commensurate or complementary to each other. In other words, each item in the person scale had a corresponding item that speaks to the environment. Commensurate measures have been indicated as crucial component of PEF based assessment (Edwards et al., 1998). A useful function of PEFSC is that it reveals the discrepancy between person and environment scores, leading to "misfit." This is particularly important for the development of creativity in educational context because understanding the environment related gaps would enable possible intervention strategies. The second function of PEFSC is that it yields quadrants based on high and low levels on

two dimensions-person and environment. As indicated in Table 1, the first quadrant reflects those with strong representation of creative person characteristics, and rich and supportive environmental conditions. This will be simply stated as high person-high environment (hP-hE) group. The second quadrant represents those with low personal creativity traits and high environmental conditions (lP-hE). The third quadrant is the opposite of the second quadrant to reflect those with high personal creative traits and low environmental conditions (hP-lE). The final quadrant refers to low levels on both person and environmental conditions (lP-lE).

Person-environment fit: Antecedents and consequences

The fit between the person and environment tends to disappear when one of the two components (that is, person or environment) is higher than the other. The person is harder to change as creativity in an individual is related to psychological traits and personality whereas environment can be improved through changing the psychological climate and even organizational culture. When this framework is put into educational context and more specifically to college environment, college culture emerges as an important factor for a creative climate. From educational perspective, an environment can be enriched and improved with more resources and support units.

College culture

An established, rich, and supportive college culture also implies a positive climate for creativity. More specifically, faculty (Lamport, 1993; Komarraju et al., 2010; Newman and Newman, 1978; Pascarella, 1980; Thistlewaite, 1960; Terenzini and Pascarella, 1980; Pascarella et al., 1978) administrators such as counselors and dean of students (Newman and Newman, 1978), college structure (Chickering, 1969) and peers (Bean, 1985; Denzin, 1966; Feldman and Newcomb, 1969; Wallace, 1966) have been indicated as the key factors affecting the college culture. Chambers (1973) found that interaction with the faculty outside the classroom (for example, laboratory, home, office) plays a significant role in students' creative development. Behaviors that supported creativity included treating students as individuals and offering encouragement, encouraging them to be independent, serving as role models, spending considerable time with students outside the classroom, and encouraging one-on-one outside class interaction despite their performance in class. College culture may enhance the climate for creativity and may create a pro-environment misfit that is the discrepancy emerging as a result of higher environment scores than person scores. Therefore,

Table 1. Four quadrants of person-environment fit.

Environment	High person	Low person
High environment	High person and high environment	Low person and high environment
Low environment	High person and low environment	Low person and low environment

pro-environment misfit may be positively related to college culture.

Self-efficacy

Person-environment fit may also impact self-efficacy (Bandura, 1977). Self-efficacy is defined as perceived capabilities within a certain domain (Bandura, 1986). Two different forms of self-efficacy will be considered in this study: Creative self-efficacy and academic self-efficacy. The term "creative self-efficacy" has been coined by Tierney and Farmer (2002) who defined it as belief in the ability to be creative in the work. Because creative self-efficacy is related to the beliefs about skills and abilities, it is more closely tied to the person aspect of creativity rather than environment. Therefore, creative misfit is more likely to be negatively related to pro-environment misfit (therefore, positively related with pro-person misfit). Those with higher person scores than environment scores are more likely to have higher scores of creative self-efficacy.

Another form of self-efficacy, academic self-efficacy, is related to academic tasks. Schunk (1991) defined it as individuals' expectations if they can accomplish academic tasks at the expected level. In academic settings, academic self-efficacy is more critical than generalized self-efficacy (Zajacova et al., 2005; Zimmerman, 2000). Students' beliefs about mastering an academic activity determine their motivation and achievement (Bandura, 1993). Academic self-efficacy may be influenced by both person and environment components equally. Therefore, misfit would have no correlation to academic self-efficacy. The following hypotheses will be tested in this study. When PEF quadrants are compared:

1. There will be no significant difference between hP-hE and IP_IE in all three criteria (creative self-efficacy, academic self-efficacy, school culture).
2. There will be no significant correlation between pro-environment misfit and college culture.
3. There will be no significant relationship between pro-environment misfit and creative self-efficacy.

METHODOLOGY

Participants

The population of the study was college students in Istanbul, Turkey. The sample comprised of 320 college students (252 females and 68 males) who attended different universities in Istanbul in Fall 2015

term. 64 students were from private universities and 256 were from state universities. Among the participants, 95 (29.7%) were freshmen, 67 (20.9%) were sophomores, 89 (27.8%) were juniors and 69 (21.6%) were seniors. The sample consisted of 50 (15.6) students from the college of arts and sciences, 38 (11.9%) from the college of business and economics, 147 (45.9%) from the college of education, 18 (5.6%) from the school of law, 17 (5.3%) from the medical school, and 50 (15.6%) from the college of engineering.

Instruments

The participants completed the person-environment fit scale for creativity (PEFSC), school culture scale (SCS), creative self-efficacy scale (CSES) and academic self-efficacy scale (ASES).

Person-environment fit scale for creativity (PEFSC)

The PEFSC is a 14-item self-report scale designed to measure the person and environment related aspects of creativity and their fit together. The scale has two factors, creative person and creative environment. The two-factor model explained 61.8% of the total variance. Each factor consists of seven items. A sample item for creative person factor is "I have a strong desire to attain my goals" and a sample item for creative environment is "My original ideas are rewarded by others." The high correlation between PEFSC and the Runco Ideational Behavioral Scale-Short Form ($r = .88$) indicated the strong evidence of the criterion validity of the PEFSC. Alpha coefficients of the factors were 0.87 for the creative person and 0.90 for the creative environment as reported by Sen et al. (2014). The reliability coefficients for this study were 0.83 for creative environment factor and 0.84 for creative person factor.

School culture scale (SCS)

The SCS was developed specifically for the college students to measure their perceptions about the school culture of their universities by Kantek et al. (2010). The scale consist of 50 items and 8 subscales (that is, relations with college administration (7 items), connection to the college (7 items), instructor-students relations (8 items), reward and openness to change (5 items), structure and functions (10 items), relations among instructors (5 items), relations among students (4 items), and support (4 items)). The eight-factor model explained the 54.24% of the total variance. The Cronbach alpha coefficient of the whole scale was 0.93, and it ranged for the subscales from 0.70 to 0.89. The test-retest reliability of the scale was 0.61 (Kantek et al., 2010). The reliability coefficients of the scale for this study was 0.90 for relations with college administration, 0.91 for connection to the college, 0.93 for instructor-students relations, 0.79 for reward and openness to change, 0.83 for structure and functions, 0.80 for relations among instructors, 0.73 for relations among students, 0.81 for support and 0.96 for the total scale.

Creative self-efficacy scale (CSES)

The CSES is a three-item scale originally developed by Tierney and

Table 2. Correlations among PE fit Scores (E^2-P^2), school culture scales, creative self-efficacy, and academic self-efficacy (N = 320).

E^2-P^2	1	2	3	4	5	6	7	8	9	10	11
College culture	0.1										
Admin relations	0.13*	0.82**									
Connection	0.04	0.80**	.58**								
Instructor-student relations	-0.01	0.77**	.58**	0.51**							
Reward and openness to change	0.16**	0.83**	0.66**	0.65**	0.50**						
Structure	0.05	0.85**	0.59**	0.62**	0.56**	0.76**					
Relations among Instructors	0.01	0.70**	0.52**	0.45**	0.57**	0.46**	0.54**				
Relations among students	0.14*	0.59**	0.44**	0.35**	0.33**	0.45**	0.46**	0.43**			
Support	0.17**	0.83**	0.70**	0.58**	0.54**	0.74**	0.67**	0.47**	0.58**		
Academic self-efficacy	-0.06	0.26**	0.15**	0.14*	0.25**	0.18**	0.31**	0.19**	0.22**	0.15**	
Creative self-efficacy	-0.12*	0.14*	0.04	0.01	0.15**	0.15**	0.19**	0.19**	0.09	0.08	0.51**

E = Environment score P = Person score. **, $p > 0.01$ (two-tailed); *, $p > 0.05$ (two-tailed).

Farmer (2002) and adapted to Turkish population by Cayirdag (under review). The Turkish version of the scale has the same 3 items (for instance, "I have confidence in my ability to solve problems creatively") and the one-factor structure with the original scale. The one-factor model explained the 83.90% of the total variance. Cronbach alpha coefficient for the original scale was 0.83, and it is 0.94 for the Turkish version. The reliability coefficient of the scale for this study was 0.84.

Academic self-efficacy scale (ASES)

The original scale was developed by Jerusalem and Schwarzer (1981), and adapted to Turkish population by Yilmaz et al. (2007). Both the original version and the Turkish adaptation of the scale were consisted of 7 items (for instance, "I feel confident to be successful even if the exams are difficult") and one factor. The Cronbach alpha was 0.87 for the original scale and 0.79 for the Turkish version. The one-factor solution explained the 45% of the total variance. The correlation coefficient between the Self-Esteem Scale and the ASES was 0.75. The reliability coefficient of the scale for this study was 0.76.

Procedure

Questionnaires were administered to the participants one-on-one by the researcher. The researcher explained the goal of the study and procedures to the participants. Only volunteer students filled out the questionnaires and participated in the study. The surveys required 35 min in total to complete.

Upon collection of the data, fit scores were calculated. Different options were available in the literature (Edwards and Cooper, 2013) such as simple discrepancy scores that is, E-P or P-E (French et al., 1982; McGrath, 1976; Pervin, 1967; Tannenbaum and Kuleck, 1978), interactive scores, that is, P*E (Cherrington and England, 1980; Lyons, 1971; O'Brien and Dowling, 1980), and proportion scores, that is E/P or P/E (French et al., 1982; Stokols, 1979). Because of the specific hypotheses of the study (pro-environment discrepancy), a special form of discrepancy scores as suggested by Kahana et al. (1980) who calculated the difference of squared scores (E^2-P^2) was used. This preference was made because simple discrepancy (E-P) was criticized (O'Brien and Dowling, 1980).

RESULTS

The first set of analyses investigated the correlations between the misfit scores and school culture total and sub-scales. The misfit scores were defined as the difference between squared P and E scores (E^2-P^2). To test the first two hypotheses (Hypothesis 1: "There will be a significantly positive correlation between pro-environment misfit and school culture"; Hypothesis 2: "There will be a significant relationship between pro-person misfit and creative self-efficacy"), bivariate correlations were calculated between misfit scores (that is, E^2-P^2), college culture total and sub-scales, creative self-efficacy, and academic self-efficacy. Bivariate correlation values were provided in Table 2.

The correlation values indicated that the relationship between pro-environment difference scores (E^2-P^2) and school culture was not significant ($r = 0.10$, $p = 0.08$). It was significantly related to creative self-efficacy ($r = -0.12$, $p = 0.03$) but not related to academic self-efficacy ($r = -0.06$, $p = 0.27$). Correlations with the individual school culture subscales revealed more specific information about the specific aspects of school culture. Misfit scores were significantly and negatively related with college administrators ($r = .13$, $p = .02$), reward and openness to change ($r = .16$, $p = .01$), relations among students ($r = 0.14$, $p = .02$) and support ($r = 0.17$, $p = 0.003$). The same values were obtained with the pro-person misfit scores with the exception that all correlation values had the opposite value. Correlations were not significant with other college culture subscales. The values were not presented for the sake of parsimony on the table. The significant relationships reported above are considered small according to Cohen (1992).

Next set of analyses were built upon the four types of individuals based on the four quadrants that emerged as a function of high and low values of standardized P and E
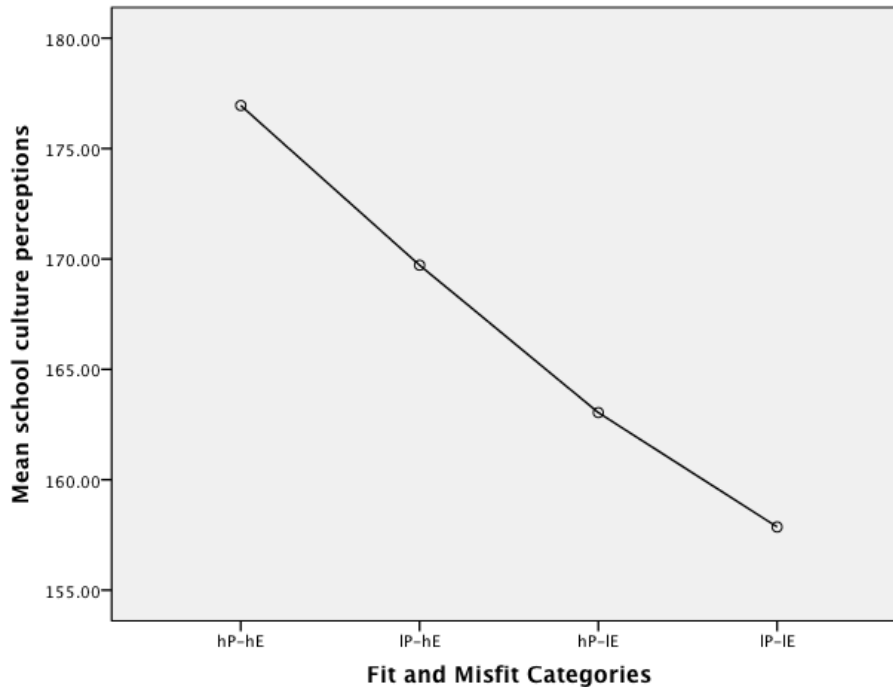
Figure 1. School culture perceptions across person-environment fit and misfit categories (four quadrants).

scores (Table 2). Individuals were assigned to one of these four quadrants based on the standardized z-scores of the P and E scales. As z-scores have a mean of 0 (with a standard deviation of 1), high scores were defined as all values above the average (that is, 0) and all low scores were defined as those below zero for both P and E scores. Based on this categorization, high person and high environment (hP-hE) group consisted of 139 participants (43%), low person and high environment (IP-hE) group consisted of 32 participants (10%), high person and low environment (hP-IE) group consisted of 48 participants (15%), and low person and low environment group consisted of 101 (32%) participants.

School culture, creative self-efficacy and academic self-efficacy were compared among these four types of individuals. ANOVA results indicated that school culture perceptions were significantly higher among the participants from these four quadrants ($F(3, 316) = 7.46$, $p < .001$, $\eta^2 = 0.066$). The hP-hE group had the highest scores ($M = 176.95$, $SD = 36.27$) followed by hE-IP group ($M = 169.72$, $SD = 29.87$), hP-IE group ($M = 163.04$, $SD = 29.45$), and IP-IE group ($M = 157.86$, $SD = 26.83$) respectively. Post-hoc analyses indicated that hP-hE was significantly higher than the IP-IE group only whereas IP-IE was significantly lower than all other three groups. The difference between hE-IP and IE-hP was not significant. As shown on Figure 1 and supported by the post-hoc analyses, school culture scale is higher among hP-hE and IP-hE groups. In other words, superior E scores are slightly more important for college culture than

P scores.

Second ANOVA results using creative self-efficacy as the dependent variable indicated that creative self-efficacy were significantly higher among the participants from these four quadrants ($F(3, 316) = 38.56$, $p < .001$, $\eta^2 = 0.27$) with hP-hE group having significantly higher scores ($M = 12.34$, $SD = 2.02$) followed by hP-IE group ($M = 11.96$, $SD = 2.21$), hE-IP group ($M = 11.50$, $SD = 2.02$), and IP-IE group ($M = 9.49$, $SD = 2.15$). Post-hoc analyses showed that hP-hE was significantly higher than both hP-IE and IP-IE groups whereas other pairwise comparisons were not significant. As shown in Figure 2 and supported by the post-hoc analyses, creative self-efficacy is higher among hP-hE and hP-IE groups. Therefore, superior P scores are slightly more important for creative self-efficacy than E scores.

The final ANOVA compared the four groups of participants on academic self-efficacy ($F(3, 316) = 25.11$, $p < .001$, $\eta^2 = .19$). The order was exactly the same as the school culture perceptions with hP-hE group having the highest scores ($M = 26.60$, $SD = 3.93$) followed by hP-IE group ($M = 26.10$, $SD = 3.93$), hE-IP group ($M = 25.66$, $SD = 3.61$), and IP-IE group ($M = 22.23$, $SD = 4.22$). Post-hoc analyses revealed a similar pattern to those from college culture with significant differences observed between IP-IE and other three groups, but not among these three groups. Similar to school culture perceptions, academic self-efficacy was higher among hP-hE and IP-hE groups. Again, superior E scores are slightly more important for creative self-efficacy than E scores (Figure 3).
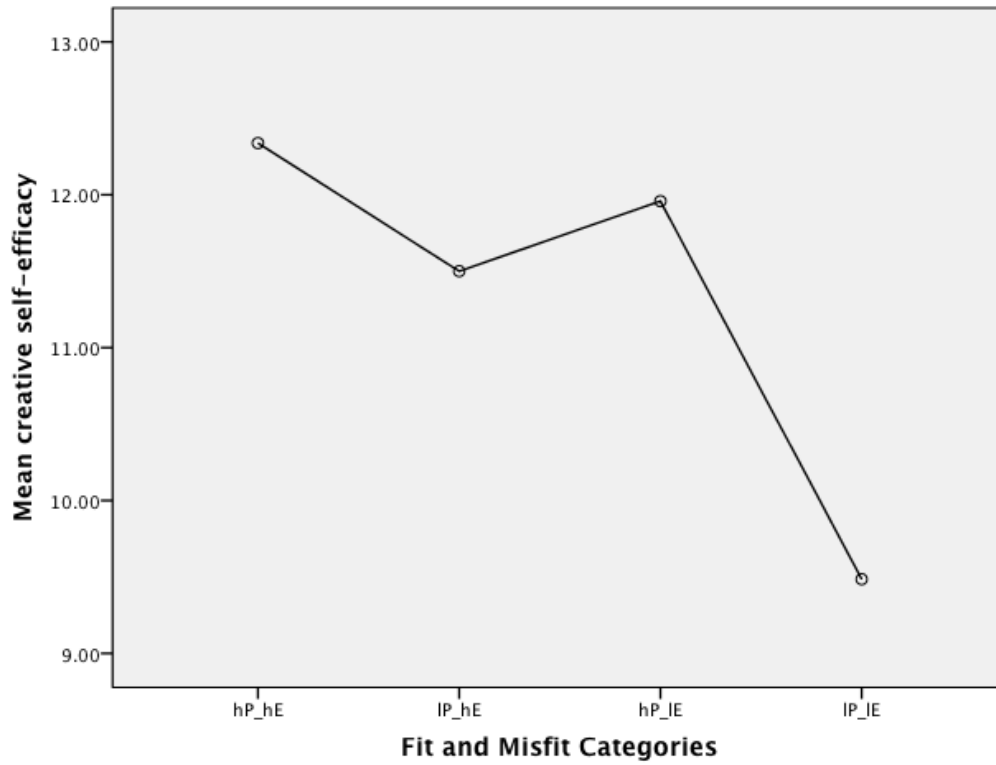
Figure 2. Creative self-efficacy across person-environment fit and misfit categories (four quadrants).
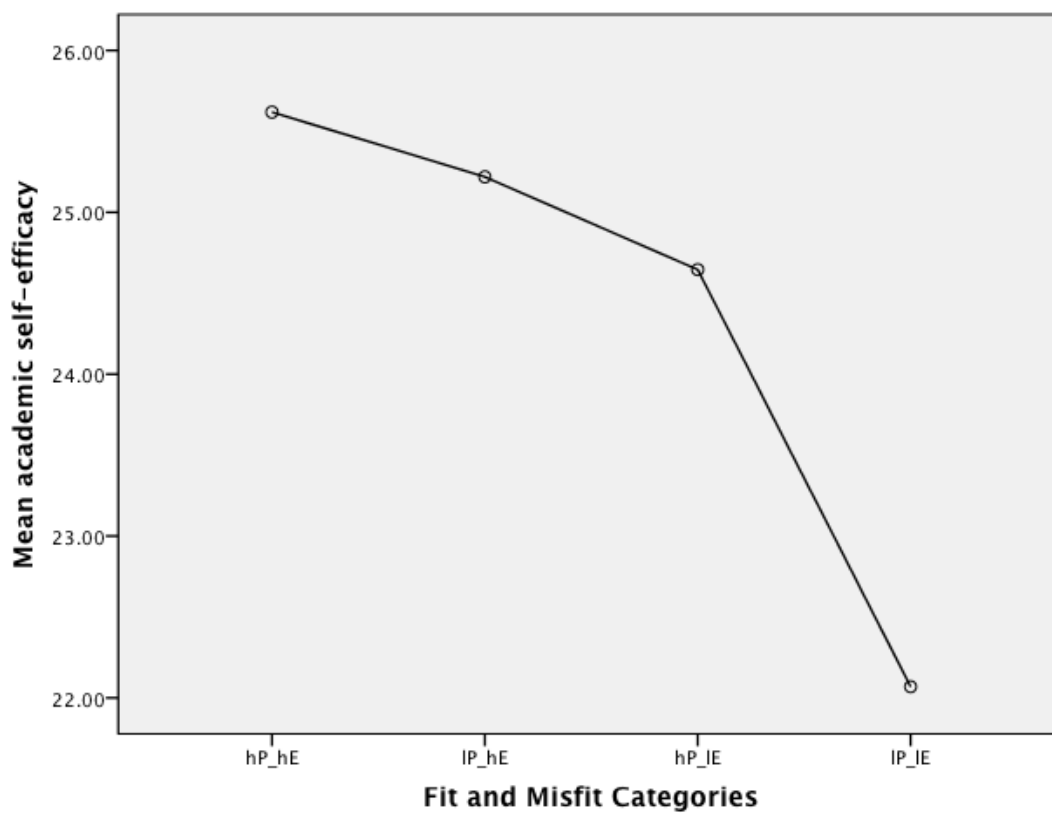

Figure 3. Academic self-efficacy across person-environment fit and misfit categories (four quadrants).

DISCUSSION

Person-environment fit is a useful theory to apply to the creativity research and the context of higher education. In that particular study, researcher used this framework to investigate "student-college fit" and how college culture impacts it. Also, two possible consequences of person-environment fit, namely creative and academic self-efficacy, were examined. The study findings indicated that certain aspects of college culture such as rewards and openness to change, peer relations, and support were positively related to pro-environment misfit. Pro-environment misfit was also negatively related to creative self-efficacy. Comparison of participants from four quadrants indicated significant differences between the groups in all three dependent variables. In all three analyses, high person-high environment (hP-hE) group was the highest and low person-low environment group (lP-lE) was the lowest. High person-low environment (hP-lE) was slightly higher on creative-self-efficacy whereas low person-high-environment (lP-hE) was slightly higher on college culture and academic self-efficacy.

Both correlational and comparative (ANOVAs) analyses converged on the fact that creative self-efficacy was more related to the person aspect of creativity, and college culture was related to the environment aspect. Academic self-efficacy seems relatively more independent of misfit, but, as the final ANOVA indicated (Figure 3), it was more related to the environment aspect. It is also important to note that post-hoc analyses showed no significant differences between the two discrepancy groups (for example, hP-lE and lP-hE) whereas the ideal condition (hP-hE) was always significantly higher than the least ideal condition (lP-lE). These findings point to the fact that person and environment components were highly intertwined and related and combination of the two make the largest difference rather than the presence of one only.

Colleges consist of students with a large variety of student types and creating a positive climate is a critical step toward supporting their creativity. As the earlier analyses indicated, both personal and environmental conditions are needed for superior outcomes. As Csikszentmihalyi (1996) stated "creativity does not happen inside people's heads, but in the interaction between a person's thoughts and a sociocultural context. It is a systematic rather than an individual phenomenon." The hallmark of systems model (Csikszentmihalyi, 1999) lies in the interaction between the person, domain and field. Likewise, Amabile (1993) included both personal and environment factors in the componential theory of creativity. Runco (2007) explicitly used the term "person-by-environment interactions" as a predictor of creative achievement.

The study results indicate that rewards and openness to change, support, and other students (peers) make the most contribution to climate for creativity leading to a discrepancy (misfit) through relatively higher scores of environment whereas structure, relations with and within the instructors, relations with college administrators, and connection were not related. It is interesting to see that peers seem to be more important that the instructors and administrators. Because peers are the most important point of reference (Perkins, 1997) and become a major source of support (Paul and Kelleher, 1995), peer relations become the key variable for students' perceptions of college culture. Therefore, colleges that provide various means of socialization contribute to the college culture and climate by allowing strong ties among students and peers.

Relations with the college administrators were also positively related with misfit. Students are more likely to associate with those in the formal administrative positions as the agents of change; responsiveness to students' needs increase in their perceptions of positive climate. As Schein (1985) argued, leadership and culture are highly related: "The only thing of real importance that leaders do is to create and manage culture (p. 2)." McClafferty et al. (2002) listed commitment of school leadership to build a college culture as the first principle.

Rewards and openness to change was also related to pro-environment misfit. Openness to change was particularly important because Harzing and Hofstede (1996) suggested change is difficult in collectivist cultures such as Turkey and openness to change reflects the flexibility and freedom provided by the college.

Contrary to expectations (Anaya and Cole, 2001; Cokley, 2000; Lamport, 1993; Newman and Newman, 1978; Pascarella, 1980), faculty structure was not related with college culture. The informal and close interaction is key to effective relations with the faculty (Chambers, 1973; Komarraju et al., 2010). It is possible that the perceived hierarchy between students and college faculty may impede close and informal interaction especially in the colleges with higher student per professor ratio. Likewise, college structure and functions were not significantly related to misfit scores, which is inconsistent with the expectations (Chickering, 1969).

This study has several merits. First, there are very few empirical studies in the creativity literature that examine P-E fit. And those studies mostly focused on organizational or workplace settings. This study is one of the unique ones to apply P-E fit theory in education. The 2016 Future of Jobs Report of World Economic Forum indicated that creativity will be one of the top three skills in 2020. Thus, it is critical to support students' creativity in college. The present study discussed which environmental variables contribute to creativity in college. Although mostly personal aspect of creativity was examined in the literature, the findings of the present study show the contribution of environmental factors to develop students' creativity. Second, participants of this study were not from the United States or Western Europe. Therefore, this study provides valuable information to interpret P-E fit

from a different cultural perspective. Further research with other populations would be very informative to understand the creative environment at the college settings. As another suggestion to the future research, all instruments in the present study were self-report measures which may cause problems for common-method variance and social desirability. Therefore, further research may use performance measures to examine the actual values of person and environment aspects of creativity

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

Effects of Sound painting applications on performance

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Today, some of the important dilemmas of music education are that performers are too dependent on the notes in a written musical score and they are not being so able to improvise. Stage phobia, lack of motivation and problematic of perception regarding today's modern music are additional problems facing musicians. This research aims at revealing the effects of performer's works of Soundpainting, which is a universal, multi-disciplinary live composing sign language. In order to realize this aim, 16 h of workshop is conducted with Walter Thompson, the creator of Soundpainting language, and following that, a questionnaire is conducted with 21 participators. As a result, it is concluded that performers are inclined to perform via Soundpainting, their awareness towards their instruments/bodies/voices increased, within the group and as a Soundpainter, the performance increased their motivation. They are not disturbed by the music which came out as a result of the Soundpainting composition. Their awareness towards aleatoric music increased. Soundpainting performance helped them direct their attention and Soundpainting performance positively affected performer's psychomotor behaviors and improvisation skills.

Key words: Music education, Soundpainting, performance.

INTRODUCTION

The problems currently encountered in music education are the problems preventing the education itself and making music. This situation is problematic both for the educators and students. The source of these problems is the teacher-centered education system which does not include creativity and in which students are not active enough. As a result of this system, motivation of students decreases.

The fact that performers and students are dependent on notes, which are already coded and turned into commodity, makes it hard for them to express themselves as an individual musician. A musician, whose notes are taken away, either plays the piece as far as he

remembers or plays the melody on his mind. Adorno explains this situation as; "when the composition of the music reify, making a remark on the performance of music has become an unwanted thing for the rationally designed music pieces, as of this new period. Thereby, space of freedom in recreation narrowed and only two options are left for performers: (a) Paraphrasing what is coded; (b) As a Market, trying to adapt to expectations and demands of the society, which is in the position of producer" (Oskay, 1982).

Improvisation skill of a musician, interested in classical music, is less developed compared to a performer, performing traditional music based on improvisation. This

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problem causes a musician or student not to be able to reveal their musical creativity, become an ordinary musician and briefly, to be a machine. However; it is known that many musicians, who have decided to choose music as a profession, makes more creative and unique music before they receive music education or when they are children. We mostly encounter the statements of supporting this idea, especially in the literature of classical music. The question of "why classical musicians cannot improvise?" in the book "Improvisation Games for Classical Musicians" by Jeffry Agrell and the answers of that question is a good example for that. Agrell (2008) summarizes the answer of the question as such:

"We just do not have time to learn how: With 400 years of repertoire to learn, even the time to eat and sleep can seem an irritating distraction."

"Performance standards are so impossibly high, at least in part because of the expectations created by studio recordings, that classical performers spend a huge amount of time and energy practicing technique and repeating passages to make them reliable."

"The concept of intellectual property/ ownership of musical works is now highly developed, and so it feels like a moral crime to even consider the spontaneous alteration of even some aspects of a composed piece. And most improvised music is a spontaneous variation on, or elaboration of, already existing music" (Agrell, 2008).

Dede (2013) talks about the importance of improvisation in his critical work on the education provided by one of the main conservatories in Turkey; "It is not possible to give art education, a living value, without being aware of the new productions. Besides following the trends, it might also help to get involved in the production part and give place to composition and improvisation in the education (Dede, 2013).

Another problem encountered in music education is lack of motivation and stage phobia. What is meant here is the musicians' lack of motivation for studying and going on the stage. Stage phobia is faced by most of the students. One of the main reasons for this is that the work to be performed is not ready, lack of memorization and anxiety for making a mistake. This situation causes the student not to be able to concentrate and lose his work discipline.

Besides these, another problem that should be handled is the student's lack of interest in aleatoric music. Aleatoric music, as in much modern music, is based on a specific philosophic basis. This type of music, which might lead to misinterpretation when considered as voice only and silences, requires adequate information regarding reproduction and reception. Perception and performance of aleatoric music will enable the point, where classical music stands, to be better comprehended in musical and philosophic sense. In addition to this, newly acquired tones will mean new ideas and colors

for composition students.

Soundpainting is a study that can be conducted as a solution to the problems mentioned above. These studies, where musical performance is in the foreground as an essential element of Soundpainting, are of great importance so as to help students and performers free themselves from notes and improvise, overcome their fear of stage, gain them self-confidence and also help them to be interested in today's music.

Soundpainting

"Soundpainting is a universal, live composing sign language for stage and visual arts. Soundpainting is created by Walter Thompson, a composer from New York, and it is aimed at musicians, dancers, actors, poets and visual artists working in the environment of improvisation" (Thompson, 2006). Today, the language of Soundpainting includes more than 1500 signs displaying the way of the desired movement. According to Thompson; "Soundpainting is a sign language. You give sign to the community and they respond in sound. You determine the next instruction based on the response. Soundpainting is a dialogue between you and the community" (Coşkuner, 2013).

Soundpainting syntax is divided into 6 categories; these are identifiers, content, modifiers, go gestures, modes and palettes. These are the movements showing who will do what and when. Besides these, there are certain movements and previously prepared palettes.

Language of Soundpainting is one of the rare environments and education systems where the performers, who would like to Soundpaint, are free in their fields and can improvise. Performer's level of information and skill does not matter in this case and the performer gets the chance to improve his ability of improvising.

Language of Soundpainting is an important field of creation not only for performers but also for the Soundpainter. Both auditory and visual materials, which would come out as a result of the movements signed by the Soundpainter to the community, are the pieces composed at that moment. Soundpainting composition is developed and shaped depending on the level of knowledge and creativity of the Soundpainter.

When considered from the perspective of both Soundpainter and the performers, Soundpainting is quite a field of creativity and helps the individual to develop himself in this field.

Creativity

Creativity, which can be considered as a way of thinking, is explained by Özden (2014) as such; "creativity is a

competence, existent in every level and showing up at every stage of human's lives; it reaches from daily life to scientific studies, it is the whole process leading to new works and it is also an attitude and way of behaving" (Özden, 2014). Creativity is needed for solving the problems that individuals encounter in their daily lives, for reaching a result in the education process and for making their lives and relationships more positive and productive in their social lives. The importance of creativity cannot be ignored in elements directly affecting success such as individual's quick thinking, comprehension, analyzing and inference, building a relation and finding ways for solution. Güler highlighted that people with the creativity feature are able to overcome their problems and use different perspectives while dealing with the problems and that they are productive, fulfilled, happy and successful (Güler, 2008).

Considering that creativity is only important in social life would be a mistake. Individuals need creativity also in their business lives. Especially when it comes to art, creativity is a part of it. Thereby, it can be said that artists are quite creative people.

Besides in performance, creativity is used in our daily music education. Music approaches used in children's music education such as Orff, Kodaly are based on improvisation and creativity. It is aimed that children freely reflect their own characters in music and make music without being dependent on any patterns. However, in older ages, individuals who receive music education become distant from the creativity due to this program and turn into musicians who only focus on the assigned homework. As Agrell mentioned above, trying to play the most important pieces in 400 years old literature with an instrument would take a lot of time and does not leave any time for creative activities. Dede emphasized that interpreting patterns of other people negatively affect creativity and courage (Dede, 2013).

There are 41 movements in the first level of Soundpainting sign language and there are 342 combinations in these movements. This means, with more than 1500 movements, many combinations can be created. Language of Soundpainting is a great creation field for the Soundpainter and an eternal sea where they can make countless of compositions.

While the environment of creativity is as such for a Soundpainter, the situation is also quite effective for performers. In Soundpainting language, there are signs showing that performers can improvise in various levels. For example, there are signs showing that there is short-time or limited improvisation, signs enabling development and allowing free improvisation. This situation helps the performers to develop their improvisation skills.

Improvisation

Derek Bailey talks about improvisation as such;

"improvisation continuously changes and readapted; it is never stable, cannot be analyzed and put in an exact definition; it is not corporate by nature. Furthermore, any attempt to define improvisation is doomed to be misleading (Bailey, 2011). Despite this explanation, if we define improvisation we can say that improvisation in the art of music is the talent of the musician to compose with sound or instrument or silence.

While this talent can be natural, it can also be provided and developed with education. "One of the indicators of mastery and technical skill with an instrument is the ability to improvise. Realizing the first audited musical ideas and expressing it with an instrument is a high level process and requires the mixture of knowledge and skill. In many cultures, first music-making activity is improvising with rhythms and melodies. In West Europe music tradition, baroque period, improvisation was considered quite a valuable skill (1600-1750). However, since that day, classical music regained its value compared to the skill of improvisation and many famous musicians such as Mozart and Beethoven were considered as high improvisers. Today in these countries, improvisation skills are expected as a touch in music types such as folk, country, rock and jazz" (Schleuter, 1997).

In music types such as Jazz, Indian and Turkish music, performers are expected to improvise as a part of the creativity and a good improvisation reveals the musical quality of the musician.

As stated previously, Soundpainting creates a wide improvising field both for the Soundpainter and the performers. Soundpainting sign language starts with a single sound and with the shown signs, it can turn into many music types. Soundpainter and the performers can direct the music in any way they desire and it can force a Soundpainting performer into improvising. Thereby, a performer can improve himself by improvising.

Aleatoric music

Aleatoric music consists of a modern, experimental approach using uncertainty or coincidence. In Latin; alea means rolling dice. In aleatoric music, "uncertainty" feature of rhythmic values and fret choices restrain the composer. Vocalization of the piece includes the singer's decision on the piece: for example; number or sequence of the chapter, duration of frets and notes are left to the decision of the singer (Say, 2009).

Kütahyalı (1981) explains aleatoric music and its features as such; in modern music, one of the most interesting developments seen after 1945 is that the term aleatory has been put in the art of music in various rates and thereby, a movement called "Aleatoric Music" came out. (Fr. Musique Aleatoire: In Latin; Alea: from the word "Luck"). Actually, this term was not new. Renaissance composers left the choice of instruments to the singers

and singers enriched the piece with a few notes. In Baroque period, the bass was provided with Organ or Cempalo and tone and ways of playing were left to the singer; thereby to the aleatory.

Aleatory was used in 20th century with the same point of view; it was not a new music technique or language. Its rate of usage was sometimes extreme however, it was not quite dominant on a piece, and it was not wanted. Ernst Krenek talks about this subject: "Aleatory and inspiration are related. Both cannot be audited and predicted".

Prominent representative of the movement, American composer John Cage says; "There is no such an unreasonable thought as wanting something to be same all the time" and tried to gain certainty on his view (Kütahyalı, 1981).

One of the most important features of aleatoric music is that the piece is unpredictable. Sounds, determined by coincidence, process and interpretation of the silences are left to performers. "How performers use their freedom and watching and listening to the results are added to the listening of the composition determined by aleatory. This situation also applies to the composer besides the audience; because he also cannot know how the creation will result (Fırıncıoğlu, 2011).

The principle of indetermination, one of the distinct features of aleatoric music, is seen in the works of Cage, one of the leading composers of the movement, in the period of 1951 and 1952. According to Fırıncıoğlu (2011), the purpose here is to save the performer from the dominance of the note and help the aleatory not to be limited with preparation process and carry it to the moment of performance (Fırıncıoğlu, 2011).

At this point, Soundpainting is a performance where the principle of indetermination is put into practice during the performance. Soundpainter mostly cannot predict the response he will get from the performer after he shows the signs. If he likes the response, sound or action after the sign or if it makes a good material for the composition, he may use it. Or he might terminate the idea and seek for something new and realize the material he finds. Chance Family Movements, with which Soundpainter cannot predict the response, is the best indicator of Aleatory in Soundpainting.

Problem of the research

What are the effects of Soundpainting applications on the performance?

Sub-problems of the research

1. Are the performers inclined to perform using Soundpainting sign language?

2. What is the performers' level of awareness towards their instruments/bodies/voices?
3. How does the motivation of the performers affected when they perform in group for Soundpainting?
4. In what way is the motivation of the performers affected when they perform as the Soundpainter?
5. In what way is the motivation of the performers affected when they manage the group during Soundpainting practice?
6. To what are the extents performers are disturbed by the sounds during Soundpainting?
7. What is performers' level of awareness towards aleatoric music?
8. To what extents are the performers successful in staying focused during Soundpainting practice?
9. How does Soundpainting affect the performers' psychomotor behaviors?
10. How does Soundpainting affect the improvisation skills of the performers?
11. Are the performers excited to perform Soundpainting?
12. Do the performers feel comfortable while solo-improvising during Soundpainting practice?
13. To what extent are the performers affected due to the fact that there is no concept as mistake in Soundpainting sign language?
14. Are the performers happy while practicing Soundpainting?

METHOD

In this chapter, met research methods, data gathering tools, the development of these tools, the gathering of these data, the statistical methods and techniques for analyzing the gathered data and the methods to interpret the gathered data from these methods and techniques are explained.

Model of the research

This research is conducted with the aim to determine the effects of Soundpainting applications on the performance. This is a descriptive study and gathered data are acquired via literature review and questionnaire. "Descriptive researches aim at explaining the interaction between situations, considering the relations between current incidents and previous incidents and conditions" (Kaptan, 1989).

Data collection

Related sources are determined via literature review in order to ground the research and clarify the topics and as a result of the examination of these sources, a cognitive frame is formed. To 21 performers, participating in the workshop, a likert type questionnaire with 14 questions is applied. It paid attention to equally distribute the 14 questions as positive and negative. Responses to the questions are graded as "Any", "Slightly", "Partially", "Considerably" and "Completely". Questions include the behaviors aimed at the performance, directly related to the movements used during the

Table 1. Gender distribution of the performers participating in the Soundpainting workshop.

Gender	f	%
Male	10	47.62
Female	11	52.38
Total	21	100.0

Table 2. Profession distribution of the performers participating in the Soundpainting workshop.

Profession	f	%
Academician	6	28.57
Music student	5	23.80
Music teacher	4	19.04
Private sector	1	4.76
Musician	1	4.76
Military employee	1	4.76
Radiology technician	1	4.76
Mathematics teacher	1	4.76
Student	1	4.76
Total	21	100.0

Table 3. Age distribution of the performers participating in the Soundpainting workshop.

Age	f	%
10-20	2	9.52
21-30	12	57.14
31-40	6	28.57
41-50	1	4.76
Total	21	100.0

Soundpainting workshop.

Improving data collection tool

When preparing the survey questions, the literature has been reviewed, and an expert has been consulted to determine whether the articles in the survey were adequate to include and collect required factual and judgmental data. A two-choice QA form containing "applicable/valid and applicable/invalid" options has been used to determine experts' opinions regarding the validity the questions. Agreement level of the experts in all questions has been determined as &92. ın this sense, it may be concluded that the survey is valid.

Analysis of data

Data, which are gathered from the responses of performers related to their performance, are assessed via frequency (f) and percentage (%) SPSS package program, the results are organized and interpreted via tables.

Study group

Study group of the research is consisted of 21 people including educators and students from Ondokuz Mayıs University Faculty of Education Fine Arts Music Education Branch, academicians who voluntarily participated in the workshop, students, and music teachers interested in Soundpainting and art lovers from various professions.

Table 1 indicates that there are 21 people including 10 male and 11 female attendees in this study group.

In table 2 indicates that there are total 6 academician, 5 music student, 4 music teacher, 1 private sector, 1 musician, 1 military employee, 1 radiology technician, 1 mathematics teacher and 1 student in this group.

Table 3 indicates that there are 2 people age range between 10-20, 12 people age range between 21-30, 6 people age range

Table 4. Inclination distribution of performers using the Soundpainting sign language.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	4	19.04
Considerably	10	47.61
Completely	7	33.5
Total	21	100.0

Table 5. Distribution of performers' increasing their awareness towards their instruments/bodies/voices while Soundpainting.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	0	0
Considerably	3	14.29
Completely	18	85.71
Total	21	100.0

Table 6. Distribution of performers' increasing motivation towards performing within the group during Soundpainting practices.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	0	0
Considerably	1	4.76
Completely	20	95.23
Total	21	100.0

between 31-40, 1 people age range between 41-50.

RESULTS

Here, findings reached at the end of the research and tables related to their interpretation are given here.

In Table 4, the status of performers, who participated in Soundpainting workshop, is displayed according to their inclination to perform using Soundpainting sign language. Based on the results, it can be said that performers are inclined to perform via Soundpainting. In Table 5, increase-decrease status of performers, who participated in Soundpainting workshop, for their awareness towards their instruments/bodies/voices while Soundpainting, is given. Based on the gathered data, it can be said that performers' awareness towards their instruments/bodies/

voices while Soundpainting is increased.

Increase-decrease status of the performers, who participated in Soundpainting workshop, for their motivation within the group while Soundpainting is given in Table 6. According to the table, almost all performers selected "Completely" with the rate of 95.23%. According to these results, it can be said that the motivation of performers increase completely when they perform within the group during Soundpainting practices.

In Table 7, increase-decrease status of performers when they are performed as a Soundpainter during Soundpainting workshops is given. According to the gathered data, it can be said that it increases performers' motivation when they are performed as the Soundpainter during Soundpainting workshops.

In Table 8, increase-decrease status of performers when they manage the group during Soundpainting

Table 7. Distribution of performers' motivation increase when they perform as the Soundpainter during Soundpainting workshops.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	1	4.76
Considerably	2	9.52
Completely	18	85.71
Total	21	100.0

Table 8. Distribution of performers' motivational increase in group management.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	2	9.52
Considerably	4	19.04
Completely	15	71.42
Total	21	100.0

Table 9. Status of performers' disturbance by the sounds during Soundpainting practice.

Performance	f	%
Any	16	76.20
Slightly	5	23.80
Partially	0	0
Considerably	0	0
Completely	0	0
Total	21	100.0

workshops is given. According to the gathered data, it can be said that it increases performers' motivation when they manage the group during Soundpainting workshops.

In Table 9, the status of performers' disturbance by the sounds during Soundpainting practice is given. According to the gathered data, it can be said that performers are not disturbed by the sound during Soundpainting practice.

In Table 10, increase-decrease status of performers' awareness towards Aleatoric music, is given. According to the gathered data, it can be said that performers' awareness towards Aleatoric music increased.

In Table 11, the status of performers, whether they can stay focused for a long period of time during Soundpainting practice, is given. According to the gathered data, it can be said that performers are able to stay focused for a long period of time during

Soundpainting practice.

In Table 12, the status of change on performers' psycho-motor behaviors during Soundpainting practice is given. According to the gathered data, it can be said Soundpainting affects psycho-motor behaviors of the performers.

In Table 13, the status of change on performers' improvisation skills during Soundpainting practice, is given. According to the gathered data, it can be said Soundpainting positively affects improvisation skills of the performers.

In Table 14, the status of performers' feeling excited during Soundpainting, is given. According to the gathered data, it can be said performers feel excited while Soundpainting.

In Table 15, the status of performers' feeling comfortable while solo improvising in Soundpainting

Table 10. Distribution of performers' awareness status towards Aleatoric music.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	0	0
Considerably	6	28.58
Completely	15	71.42
Total	21	100.0

Table 11. Distribution of performers' status for being able to stay focus for a long period of time.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	2	9.52
Considerably	6	28.58
Completely	13	61.90
Total	21	100.0

Table 12. Distribution of performers' psycho-motor behaviors affected by Soundpainting.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	1	4.76
Considerably	10	47.62
Completely	10	47.62
Total	21	100.0

Table 13. Distribution of to what extent performers' improvisation skills are affected by Soundpainting.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	0	0
Considerably	2	9.53
Completely	19	90.47
Total	21	100.0

practices is given. According to the gathered data, it can be said that performers does not feel disturbed while solo improvising in Soundpainting practices.

In Table 16, the status of performers', to what extent they felt comfortable by the fact that there is no such a term as mistake in Soundpainting sign language, is given.

Table 14. Distribution of performers' feeling excited while Soundpainting.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	0	0
Considerably	5	23.80
Completely	16	76.20
Total	21	100.0

Table 15. Distribution of performers' feeling comfortable on solo improvising in Soundpainting practices.

Performance	f	%
Any	10	47.62
Slightly	9	42.85
Partially	0	0
Considerably	2	9.53
Completely	0	0
Total	21	100.0

Table 16. Distribution of performers' feeling comfortable based on the fact that there is no such a term as mistake in Soundpainting sign language.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	1	4.76
Considerably	2	9.53
Completely	18	85.71
Total	21	100.0

Table 17. Distribution of performers' feeling happy during Soundpainting.

Performance	f	%
Any	0	0
Slightly	0	0
Partially	0	0
Considerably	1	4.76
Completely	20	95.24
Total	21	100.0

According to the gathered data, it can be said that the fact of not having the chance to make a mistake, positively affects performers' status of comfort.

In Table 17, the status of performers' is happy while Soundpainting is given. According to the gathered data, it can be said performers feel happy while Soundpainting.

Conclusion

These findings are gathered at the end of the research. According to the findings, it is concluded that performers are well-diposed towards performing via Soundpainting. Soundpainting sign language has a structure that can be comprehended by everyone and no pre-condition is required in order to perform it. Thereby, it has been observed that participators could easily Soundpaint. It is concluded that awareness of performers increased towards their instruments/bodies/voices during Soundpainting workshops. Improvisation based movements in the sign language of Soundpainting gives performers the chance to step outside the usual rules and allow them flexibility with their instruments. This situation allows them to get to know their instruments better and explore their limits. It completely increases the motivation of performers to perform within a group during the Soundpainting workshops. Soundpainting workshop can be performed with a few instruments. United performers can perform without the anxiety of making mistake thanks to the instructions of the Soundpainter. This situation allows performers to be more comfortable, as some of them might have the problem of being excited or scared on the stage. Comforted performers are more successful during their performances.

It increases the motivation of performers when they perform as the Soundpainter during Soundpainting practices. Being a Soundpainter at a Soundpainting performance is not like making a group of people play as they would with a regular conductor. Here, the Soundpainter shows his own movements to the performers and makes his own composition. Thereby, every Soundpainter is a composer and this situation is enough for everyone to have an increased motivation.

It also increases the motivation of performers when they lead the Soundpainting group. The variety of different disciplines, united in the Soundpainting practices, creates both visual and auditory richness. This variety reveals performers' own colors and characters. In this case, we can say that the motivation of performers increase when they lead the Soundpainting group.

It is concluded that performers are not disturbed by the sounds heard during Soundpainting performance. Soundpainting is the Aleatoric music by its nature. It is assigned by both the Soundpainter and the performers when and how to make sound and they are the ones who decide the duration of sounds and silences. There can be harmonious and inharmonious sounds at the same time. The material to be formed is always different and most important of all; it is a surprise. These uncertainties require performers to be on guard and ready for surprises. The situation to be ready for such surprises removes the factor that sounds can be disturbing. This is one of the most interesting features of Soundpainting.

Soundpainting practices increase the awareness of performers towards Aleatoric music. As mentioned above, Soundpainting is Aleatoric music by nature. Performers decide how to do the movements after the Soundpainter shows it and they can also decide on their duration depending on Soundpainter's initiative. This process of Soundpainting also raises awareness for Aleatoric music, which is not easy to listen. In his study Coşkuner states that "it is observed that listening Aleatoric music is quite challenging; however, thanks to Soundpainting lessons, it has become easier to listen and more comprehensible" Coşkuner (2016: 15).

Another conclusion is that many performers can stay focused during Soundpainting practice. Normally, the focusing period of a person is between 20 and 25 min and after that, distractions begin to appear. However, Soundpainting has a structure, in which the next step is vague and which is open to surprises. For that reason, the performer should always be ready and on guard as he might instantly be involved in a performance by the Soundpainter. He should not miss a movement assigned to the group and should apply it. This situation allows the performer to be more focused. Soundpainting practice positively affects psycho-motor behaviors of the performers.

Soundpainter may ask a performer to develop, increase or expand the duration of a behavior. This situation allows the performer to repeat a motor behavior or make him do it for a longer period.

According to the findings, it is also concluded that Soundpainting positively affects the improvisation skills of performers. Improvisation practice is a lecture that should be taught systematically especially to the musicians who are involved in stage arts. Improvisation is taught in time and can be improved thanks to the contribution of music. Soundpainting has a structure which is quite convenient for improvising. With the movement shown by the Soundpainter, performers make their choice. Besides this, there is "improvisation" movement and three separate improvable movements. All these features of Soundpainting improve the improvisation skills of performers.

Lastly, it is concluded that performers are excited while Soundpainting. Soundpainting is a sign language and no level of information is required to speak this language. For a person to be able to Soundpaint, he should want to do it and be open to learn. The fact that Soundpainting is a real language and include more than 1500 movements allows performers to be happier during performances. Additionally, the fact that there is no such a term as making a mistake makes the performers more comfortable and enthusiastic.

RECOMMENDATIONS

Soundpainting can take place more at the schools and

non-formal institutions for those who make music, dance and visual arts as an occupation and also for those who are amateurs in this branch.

Musicians, who cannot improvise and feel weak in this subject and performers, who have stage phobia, can Soundpaint to overcome their fears.

Soundpainting carries the features of Aleatoric music. As a pre-study to understand and listen to Aleatoric music, it would be beneficial to take part in a Soundpainting group. For that reason, particularly the students who study music should be encouraged to participate in Soundpainting practices.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

Vocabulary developing strategies applied to individuals with hearing impairments

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The general purpose of this research was to investigate the strategies utilized for vocabulary development of ten individuals (first year college students) in Graphic Art Department, School for The Handicapped, Anadolu University with hearing impairment. The reflective and cyclical data were consisted of videotape recordings of the actual lessons, audiotape recordings of the meeting of the validity committee, lesson plans, archival data, students' artifacts and test results. During the instructions, based on the Balanced Literacy Instructional Approach (BLIA), direct and indirect vocabulary developing strategies were applied meaningfully, functionally and purposefully. The research findings indicated that the individuals with hearing impairment improved in their vocabulary and the application of combinations of direct and indirect vocabulary developing strategies repeated in various contexts is beneficial for the students' vocabulary development.

Key Words: Vocabulary, vocabulary developing strategies, individuals with hearing impairments, Balanced Literacy Instructional Approach.

INTRODUCTION

Vocabulary knowledge constitutes the basis of reading comprehension. There is a significant relationship between reading comprehension and vocabulary of an individual (Graves, 1986; Stahl and Nagy, 2006).

Principles such as the integration of new words with previous knowledge, repetition, and the meaningful usage of words in different contexts should be taken into consideration during the planning and implementation of studies concerning effective vocabulary development (Karatay, 2007; Nagy, 1988; Paul, 2001). Several

vocabulary developing strategies included in the subject matter of effective vocabulary instruction exist and they are based on these principles. In general, strategy is a way of doing things that should be done regarding any subject (Richek et al., 2002). Reading and writing strategies aim at the acquisition of reading and writing habits through methods such as questions and answers, defining, the use of graphic organizing, anticipation, understanding the text format, and summation. Strategies are used within certain activities that are prepared in

order to support the subjects to be learned in accordance with the instructional purposes and requirements (Carnahan et al., 2012; Gambrell et al., 2007; Tompkins, 2007).

The Balanced Literacy Instructional Approach (BLIA), a combination of the Skill Based Approach of the behaviorist theory and the meaning-based Whole Language Approach of constructionist theory, is commonly used in literacy instruction (Bingham and Hall-Kenyon, 2013; Pressley et al., 2002; Schirmer, 2000; Tompkins, 2007). BLIA provides students functional, purposeful and meaningful literacy activities. Various activities and strategies fostering literacy development could be designed based on the principles of the BLIA. The principles of the BLIA are: all forms of expressive and receptive language work together; focus is on meaning of written language in authentic context; classrooms are communities of learners in which literacy is acquired through use; students are motivated when given choice and ownership; literacy development is part of an integrated curriculum; reading behaviors of skilled readers reveal what instruction should accomplish; processes and products are equally important; meaningful, functional and purposeful literacy activities must be instructed in authentic contexts (Schirmer, 2000; Gambrell et al., 2007) It is found that integration, repetition and meaningful usage principles required by effective vocabulary instruction are consistent with the principles of BLIA (Fountas and Pinel, 1996; Pressley et al., 2002).

Vocabulary development strategies

Vocabulary acquisition includes the direct or indirect usage of vocabularies and vocabulary instruction strategies, and the learning of the meaning of a word through various activities (Diamond and Gutlohn, 2006; Nagy, 1988). Definitions and classifications regarding vocabulary instruction can be examined under two headings: direct and indirect vocabulary developing strategies (Cramer, 2004; Johnson and Johnson, 2004; Rupley et al., 2009).

Direct vocabulary instruction includes both the direct interpretation of a word and instruction in word learning strategies in order to find the meaning of words (Bennet et al., 2014; Baumann and Kameenui, 2004; Cramer, 2004; Johnson and Johnson, 2004). Direct vocabulary instruction is significant, in that it helps the learning of words or terms within complex contexts, and words that are not used in daily life (Diamond and Gutlohn, 2006). Direct vocabulary instruction strategies in common usage are: a) defining, b) direct instruction of the strategies, c) matching the words with their synonyms and definitions, and d) use of graphic organizing.

Indirect vocabulary instruction is defined as the indirect learning of the meaning of words by performing conversations and reading in different contexts. In studies concerning vocabulary acquisition, it is stated that the number of words learned indirectly are more than the number of words learned directly (Beck et al., 1983; Hiebert and Kamil, 2005; Rupley and Nichols, 2005; Stahl, 1999). Vocabulary developing strategies that are commonly used during reading are: a) guessing the meaning of words from the clues in the text, b) asking and answering questions, and c) filling in the blanks.

Research highlights the necessity of the combined implementation of direct and indirect vocabulary studies in vocabulary instruction (Nagy, 1988; Stahl and Fairbanks, 1986; Stahl, 1999). Again, in the literature, it is stated that a great majority of words are learned indirectly, while some words should be learned directly. However, both strategies should be used together, or according to the needs of the students, and the characteristics of the words, as direct or indirect vocabulary instruction strategy is not considered to be effective alone (Bauman and Kameenui, 2004; Blair, Rupley and Nichols, 2007; Diamond and Gutlohn, 2006; Hiebert and Kamil, 2005; Nagy, 1988; Rupley and Nichols, 2005; Stahl and Fairbanks, 1986; Stahl, 1999; Stahl and Nagy, 2006; Taylor et al., 2009).

Individual with hearing impairments and vocabulary development

It was determined that strategies implemented according to the principles of BLIA contributed to literacy skills of hearing and individuals with hearing impairments (Fountas and Pinel, 1996; Bingham and Hell-Kenyon, 2013; Karasu et al., 2012; Pressley et al., 2002; Schirmer, 2000; Uzuner, 2007a; Uzuner et al., 2011).

Reading skill requires visual and audio competences, deductive and predictive skills, extensive vocabulary, language development, and a certain cognitive level. Walker et al. (1998) and Ewoldt (1982) suggested that individuals with hearing impairments failed to develop reading comprehension strategies on their own since they could not acquire the necessary reading comprehension at a specific age. It has been said that these students cannot generalize and use skills such as comprehension, and the analysis and assessment of emotions and notions that comprise reading skills, with new content and in different contexts (Lombardi, 2015; Richek et al., 2002).

Reading comprehension and vocabulary strategies should be taught to individuals with hearing impairments in the same way as with their hearing peers (Charlesworth et al., 2006; Kyle et al., 2016; Schirmer and Woolsey, 1997; Walker et al., 1998). However, more activities,

repetition and revision strategies should be conducted and employed along with the combined usage of direct and indirect vocabulary instruction strategies (Karasu and Girgin, 2007; Luckner and Cooke, 2010; Paul, 1996; Schirmer and McGough, 2005). Nevertheless, individuals with hearing impairments acquire only a small amount of the vocabulary knowledge when indirect instruction strategies are used (Beck et al., 1983; Paul, 2001). For this reason, it is emphasized that direct vocabulary developing strategies should be used more than indirect vocabulary developing strategies in order to develop the vocabulary of individuals with hearing impairments (Beck et al., 1983; Kelly, 1996; Luckner and Cooke, 2010; Taylor et al., 2009).

Significance

It was determined that research on vocabulary developing strategies is related to the indirect vocabulary development strategy (Bauman and Kameenui, 2004; Stahl and Nagy, 2006). When, why and how strategies are used in teaching vocabulary development has been researched; however, there has been insufficient research regarding vocabulary development in college students, either in Turkey or around the world. Furthermore, the acquisition of professional terminology is very important for students with limited vocabulary and language skills in both their academic and professional lives (Lombardi, 2015). Moreover, supporting the professional education of individuals with hearing impairments via language lessons, would achieve better results, and would be significant. Students with hearing impairments receive professional education at the School for the Handicapped (SfH), where the present study was conducted. It is thought that this study, which aims to develop the teaching of professional terms to individuals with hearing impairments through BLIA will be a model for instructions to be provided to individuals with hearing impairments, and will enable them to become more literate individuals.

There is a need to determine exactly what strategies are employed and their effects on education, together with a consideration of some variables such as the classroom environment and student characteristics (Karatay, 2007; McShane, 2005; Schirmer and McGough, 2005; Trussell and Easterbrooks, 2016).

It is seen that most of the research conducted with hearing impaired students has been related to indirect vocabulary development strategies. Therefore, further research concerning direct and indirect vocabulary developing strategies should be conducted for the vocabulary development of hearing impaired students (Bauman and Kameenui, 2004; Beck et al., 1983; Blair et al, 2007; Cramer, 2004; Diamond and Gutlohn, 2006; Hiebert and Kamil, 2005; Mc Keown, 1993; Nagy, 1988;

Rupley et al., 2009; Rupley and Nichols, 2005; Stahl and Fairbanks, 1986; Stahl, 1999; Stahl and Nagy, 2006; Taylor et al., 2009).

For these reasons, the overall purpose of this research was to examine the vocabulary developing strategies hearing impaired college students in accordance with the principles of BLIA. Thus, the following questions were asked within the present research: 1) How did the vocabulary development process occur? 2) What were the components of the vocabulary development model that emerged during the research period, and how did the model work? 3) Which direct and indirect vocabulary developing strategies were used and how were they implemented? and 4) What were the effects of the implemented strategies on the vocabulary development of the students?

METHODS

The present study used the action research method, including both qualitative and quantitative data collection techniques in order to improve the educational activities conducted in an educational environment and to examine the process (Fraenkel and Wallen, 2003; Yildirim and Simsek, 2006). Within the study, a vocabulary development process used for hearing impaired students and the effects of this process were determined, and action plans were prepared. The action research method provided significant and practical applications for the students, and contributed to the development of the researchers as instructors. Moreover, as a result of this research, the action research model was considered to be useful as it responds to the purposes of the program of the School for the Handicapped at Anadolu University.

Setting

The School for the Handicapped began providing education in the 1993-1994 academic year. The main objective of this school is to enable the handicapped who require special education to be productive and successful individuals in the society by providing education in occupational programs that are appropriate to their handicap. At the SfH, hearing impaired students are educated in accordance with the BLIA principles of the Undergraduate Program of Graphic and Ceramic Arts, and Associate Degree Programs of Computer Operating and Architectural Drafting. In this study, data from the language courses were collected in the "Literacy Language Classroom" and data of the "Page Design-QuarkXPress Desktop Publishing" were collected in the "Computer Laboratory." The classrooms were equipped with the educational requirements of individuals with hearing impairments (Girgin, 2003).

Participants

The students

Prior to this research, a literacy model was developed within the framework of the project titled "Investigation of Literacy Instructions Applied Based on the BLIA to Hearing Impaired Students," which is

Table 1. The demographic characteristic of the students.

Names	Age/gender	Degree of hearing loss (better hearing ear)	Age of onset of hearing impairment	Age of diagnosis	Age of onset of hearing aid	Secondary education environment	Types of hearing loss
Orhan	18/ M	102 dB HL	Congenital	0.6	1.5	Vocational High School	
Esma	25/ F	85 dB HL	3	3	3.5		
Sevil	20/ F	65 dB HL	4	11	13		
Sonay*	21/ F	108 dB HL	Congenital	3	3.5	Public High School	Sensorineural Bilateral
Ahmet	18/ M	100 dB HL	Congenital	1	1		
Arda	23/ M	55 dB HL	19	19	21		
Dilek	19/ F	115 dB HL	Congenital	0.6	0.8	Research Center for Pre-school Education of Hearing Impaired Children	
Deren	20/ F	110 dB HL	Congenital	1.5	1,5		
Gizem	19/ F	107 dB HL	Congenital	1	1		
Gulden	19/ F	107 dB HL	Congenital	1	1.5		

supported by Anadolu University at the school. In this model, a school newspaper was published as a product, and the typesetting and layout of this newspaper were prepared in the "Page Design" course. Being a follow-up of the mentioned project, this study determined students who took the Page Design course through the purposeful sampling method, as this method profoundly investigates cases that are thought to have enriched information (Yildirim and Simsek, 2011). This study was conducted with ten bilateral sensorineural hearing impaired students who took the "Page Design" course in the first year of 'Graphic Arts' within one academic semester.

The students were informed about the purpose and process of the study and each student signed a consent letter. In the reports, the names of students were changed. All the students, seven females and three males, were communicated with verbally. Educational background and the hearing impaired status of students are presented in Table 1.

Language levels of the students

Information about language use and literacy performance of the students were determined by applying criteria referenced tests prepared and validated by language and literacy experts. In addition, the students were observed and interacted with during the instructions. Based on these data, all the students were in the multi-word period. Although they made some developmental grammar mistakes in writing and speaking skills, most of them could express the message using language complexities.

The researchers

Research data were collected by the instructors who are first and fourth authors of this article. While the first one was the instructor of the "Page Design" course that teaches a desktop publishing program, the fourth author was the instructor of the "Written and Verbal Expression Practices" and "Profession Language" courses at the School for the Handicapped. The researchers had at least 13 years of professional experience in the training hearing impaired students. All the researchers took courses on qualitative research, participated in relevant conferences, and took part in action research projects as researchers.

The validity and trustworthiness committee

The research process, the collected data, and quality of the practice were regularly and systematically audited by two specialists who are experienced in qualitative research and training of the hearing impaired and work in the Computer and Teaching Technologies Education Department (Creswell, 2005; Fraenkel and Wallen, 2003).

Data collection techniques and analysis

Various quantitative and qualitative data collection techniques were utilized when necessary (Creswell, 2005). In this research, the qualitative data collection techniques are as follows: videotape recordings of the actual classroom interactions (30 h and 54 min), audio recordings of the validity meetings (14 h and 40 min), 16 lesson plans and reflective journal entries, students' artifacts (portfolios, notebooks and indexes), archival data, (audiograms, the official records of the students) and various interviews with the stakeholders.

The quantitative data were collected by Criterion Referenced Test. The purpose of this test was to determine effects of the applied strategies on the vocabulary development.

Ongoing data analysis was conducted during the research process, the data were analyzed either decriptivly or indictivliy when necessary (Bogdan and Biklen, 2007;

Table 2. Dates and general scope of the research.

The research process	Dates	Fall semester	Spring semester
Preparation	2006–2007 Academic Year	Literature review	Pilot application
		Measurement tool development	Overall Assessment
Implementation	2007–2008 Academic Year	Overall Assessment	The implementation of the research
Enrichment	2008 Summer	Enrichment application	

Creswell, 2005; Fraenkel and Wallen, 2003; Gay and Airasian, 2005; Johnson, 2002).

RESULTS AND DISCUSSION

In this section, qualitative and quantitative results were examined. How the vocabulary development process occurred and the operation of the vocabulary development model that emerged during the research are the qualitative body of the results. Following this section, the criterion referenced test results, quantitative data, was examined.

The qualitative data results

The research consisted of three stages and was conducted over a long period (Table 2). The first, because vocabulary development requires a long period of time, and hearing impaired individuals have difficulties learning vocabulary (Luckner and Cooke, 2010; Paul, 1996; Paul, 2001). Another reason for the length of time taken is the nature of effective vocabulary instruction (Bauman and Kameenui, 2004; Stahl and Nagy, 2006). Figure 1 shows the present research consists of the preparation process, implementation process and enrichment process.

Preparation process

This process consists of developing a Criterion Referenced Test (CRT) and the pilot study. Developing a Criterion Referenced Test (CRT) was prepared in order to determine the vocabulary of the students and to scale the vocabulary development (Gay and Airasian, 2003; Uzuner, 2008). This test was applied as a pre-test and post-test in the first and ninth weeks of the process.

A content validity was secured in order to identify to what extent the prepared questions served the purposes of the test, whether the questions were appropriate for the ages, interests and language levels of the students, and whether the sentences and text structures used were appropriate (Tekin and İftar-Kircaali, 2001). T-unit calculations were made in order to identify the appropriateness of the texts to the levels of the students,

and the equivalences of the texts (Gillet and Temple, 1990; Uzuner, 2008). Reliabilities of the T-units of the texts were calculated via a Consensus/Consensus x Dissensus x 100 formula (Tekin and İftar-Kircaali, 2001). The pilot study included different students. The second grade graphic art students were chosen for the pilot study as they had received the "Page Design" course in the spring term of the 2006-2007 academic year during which the pilot study data was collected.

Direct and indirect vocabulary developing strategies were used in five lessons during the pilot study in which seven lessons were conducted cyclically. Pre-test and post-test data were collected before and after conducting the pilot study. The type of the hearing loss, its level, and the ages and communication types of the students in the pilot study were similar to those in the application group. The positive aspects and the problems of the pilot study were determined. The positive aspects were directly used in the implementation process, while certain measures were taken in order to remove the problems. Instructors did not encounter any problem regarding the activity cycle or during the sharing of lesson plans and materials on the internet. Moreover, the Criterion Referenced Test (CRT) was determined to be valid for the purposes of the research.

According to the pre-test and final test results of pilot study, the students had low performance in strategies of defining, answering questions, and listing words. Regarding this result, the decision was made to inform students that definition would be focused and definitions that express the word completely would be accepted and to conduct studies on how to make definitions previous to the research. As the period of pilot activity was short, it was decided to conduct the activities of asking questions, repeating and editing more intensely (Girgin, 2003; Graham and Wong, 1993; Harrel and Jordan, 2002). In the lesson plans, there were many words regarding the features of the course within language related purposes. It was decided to write five words within plans and increase this number to eight with words to be reinforced.

Implementation process

The Balanced Literacy Instruction Model was developed

The Preparation Process
2006-2007 Fall
-Reviewing the literature
-Designing the pilot study
- Development of the assessment tool
2006-2007 Spring
- Reviewing the literature
-Pretest
(12, 16, 17 March 2007)
-Pilot Study
-Posttest (23 March-27 April)
2007-2008 Autumn
2007 Summer
-Presenting the pilot study at the Conference, Peru (9 July 2007)
-General Assessment
2007-2008 Fall
- Literature review
-Reviewing and revising the lesson plans and the assessment tools
- Printing the school

General Assessment

General Assessment

The Implementation Process
2007-2008 Spring
- Reviewing the literature
-Pretest (21,22,28,29 February 2008)
-Collecting data
-Posttest (1-2) May 2008
-Printing the school newspaper.

The Enrichment Process
2008 Summer
- Reviewing the literature Instruction via internet
(June-August 2008)
-Evaluation
The product: The summer newspaper
(15-17 September 2008)
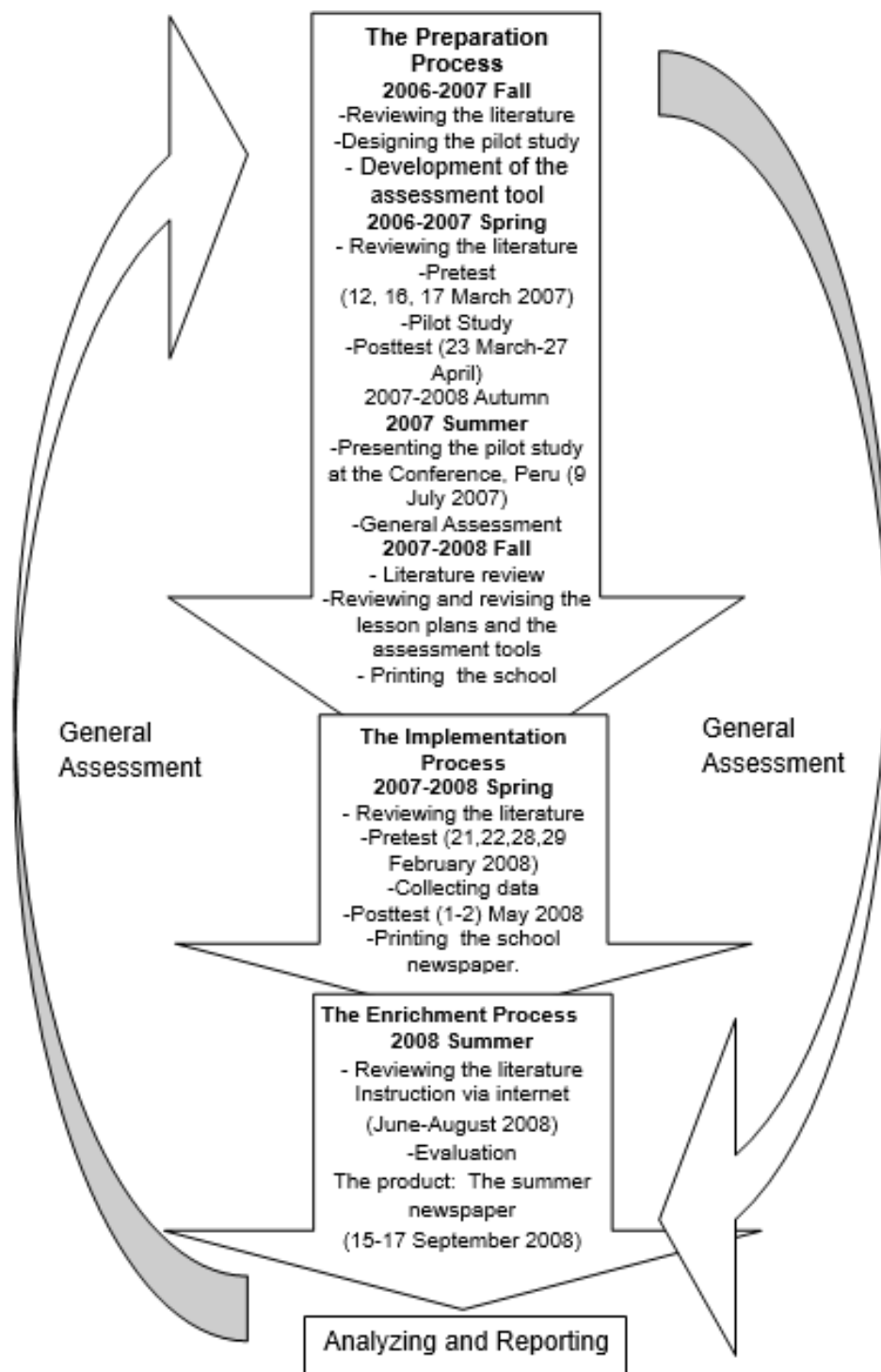
Analyzing and Reporting

Figure 1. Research process.

during the implementation process. The implementation data were collected in the spring term of the 2007-2008 academic year, and the research data were collected simultaneously in the "Written and Verbal Expression,"
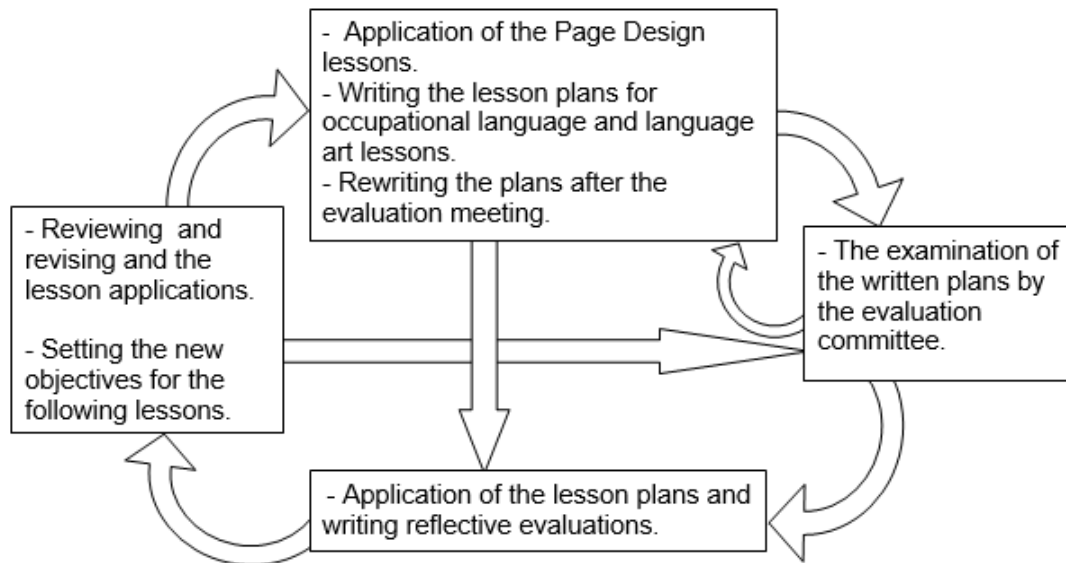
Figure 2. The weekly instructional cycle.

"Professional Language," and "Page Design" courses in the curriculum. In the "Written and Verbal Expression" course, a "Newspaper Terms Instruction" and a "Preparing an Advertisement" lesson for the SfH newspaper were conducted.

Teaching newspaper terms" and "advertising" courses were prepared within the "Written and Verbal Expression" course. In the "Professional Language" course, the content and terminology of the course "Page Design," which teaches the QuarkXPress desktop publishing program with theory and practices were supported by additional courses. As presented in Figure 2, a model that reflects BLIA principles was used by supporting professional courses with language courses (Bingham and Hell-Kenyon, 2013; Jacops, 1989; Lombardi, 2015; Schirmer, 2000; Policastro, 2015).

In the Professional Language lesson, supportive lessons were conducted for the content and terminology of the "Page Design" lesson in which a QuarkXPress desktop publishing program was taught on a theoretical and practical basis (Jacops, 1989; Schirmer, 2000). The lessons were supported via language lessons, thus enabling a model that reflected the principles of the balanced literacy instruction (Bingham and Hell-Kenyon, 2013; Fountas and Pinel, 1996; Pressley et al., 2002)

Direct and indirect vocabulary strategies were implemented together for the instruction of terminology during the lessons (Bauman and Kameenui, 2004; Beck et al., 1983; Blair et al., 2007; Cramer, 2004; Diamond and Gutlohn, 2006; Hiebert and Kamil, 2005; Mc Keown, 1993; Nagy, 1988; Rupley et al., 2009; Rupley and

Nichols, 2005; Stahl and Fairbanks, 1986; Stahl, 1999; Stahl and Nagy, 2006; Taylor et al., 2009). These include: defining, question-answer, map of meaning, direct instruction of strategies, making comparisons and matching the words with their synonyms or definitions. Examining the reading texts, preparing the classroom book and the control list, solving puzzles, conducting variable reading and writing studies were the activities conducted in this regard. A total of 71 lessons were conducted, each lasting for 45 min. Instruction on the newspaper terms and the preparation of an advertisement for the college newspaper took six weeks. Enrichment activities regarding the terms of the QuarkXPress desktop publishing program continued throughout the spring term. At the end of the term, the fourth issue of the college newspaper, Integrated News, was published.

The students' writings collected from all the classes of the College were examined at the "Editor's Table Meeting," held by the student representatives and faculty members, and articles to be published in the newspaper were determined. The layout and printing of the school newspaper were carried out by the students using the QuarkXPress desktop publishing program.

Enrichment process

The period of the research was extended on account of the fact that vocabulary develops further when sufficient time is provided through studies conducted on an active

basis in different contexts (Nagy, 1988; Palicastro, 2015; Paul, 1996). It was decided to continue the process on the internet, as the period after the application process coincided with the summer holiday. In the enrichment process, the students were provided with a ten-week study concerning the newspaper, QuarkXPress terms, and the general subject matter. The students were informed about the summer study program and the aim, scope and application scheme of the study were explained to them prior to the process. The students and faculty members shared their e-mail and MSN addresses. During the study period, which was based on weekly assignments, the students were asked to respond to the activities sent on the second day of the week, via the internet within a week, and daily feedback was obtained during the process.

Strategies and activities performed to enrich QuarkXPress and journalism terms are as follows: answering questions, filling in the blanks, asking questions, meaning map, predicting the meaning of words, finding the lexical meaning and writing a relevant text, summarizing a report, matching definitions with words, listing terms and processing the function of a command into a computer program. Activities for preparing news for the school newspaper are as follows: interviewing; introducing a favorite singer, movies and series; describing college; and writing introductory text about a holiday photograph or any kind of photograph.

As the study was conducted during the summer holiday, it was considered that the motivation of the students might be low. The opinions of the research team were sought, and the necessary precautions were taken in light of the relevant literature (Black et al., 1983, Glynn et al., 2005; Keller, 1987; Moore and Kearsley, 1996). These precautions are collected under following titles: a) determining a purpose and information about the process, b) motivational expectations and needs of students, c) the use of appropriate materials for academic levels, needs and ages of students, d) giving accurate feedback to their activities immediately or as soon as possible, e) giving the right to choose the appropriate material for the course subject, f) emphasizing strengths in addition to correcting mistakes, g) giving feedback without comparing with friends, h) making students feel the expectation of high success, i) offering weekly activities in different formats, j) making students feel a bit concerned when necessary, and k) using various communication ways through internet (e-mail and MSN).

Through this process, the students were enabled to conduct studies on the school newspaper and prepare news for it. The examination, measuring the vocabulary knowledge of the students regarding journalism and QuarkXPress, was reapplied at the beginning of the 2008-2009 academic year, on September 17 and 19, 2008, and at the end of the enrichment studies. Corrections of the text sent during the enrichment studies were completed with the help of the students in September and October of the 2008-2009 academic year and the "Summer Newspaper" was published.

Strategies used in the development of vocabulary

The strategies used within the written and verbal expression application lessons were as follows: defining the newspaper terms (March 6, 2008), creating a map of the meaning of the newspaper terms (March 6, 2008), and comparing the headlines and main copy words (March 20, 2008). The strategies used while teaching the terms of QuarkXPress in the occupational language lessons are as follows: filling the gap concerning the advertising process (March 14, 2008) and matching the function of the command with the computer command (March 21, 2008). Implemented vocabulary developing strategies will be explained below under the headings of direct and indirect vocabulary development strategies.

Direct vocabulary development strategies

Definition: Over the course of the entire research process, definitions were made in all the lessons. It was determined that 81 definitions were made in the lessons examined. During the research, it was observed that determining the time allocated to define a word, deciding whether the teacher should give the definition directly or create it together with the students, enabling the students to come across the definitions over and over again during different activities and drawing their attention to the definition of the words in a correct manner contributed to the success of the students in defining a word (Karasu et al., 2012; Silliman and Wilkinson, 2004; Stahl and Fairbanks, 1986).

Use of graphic organizers: Semantic mapping and comparison strategies, namely the graphic organizers that are direct vocabulary development strategies, were used during the research. With graphic organizers, the students were provided with an appropriate environment in which they can remember important terms regarding the subject matter, associate and group the terms, discuss the relationships between them, and read and write (Luckner and Cooke, 2010; Schirmer, 2000).

Matching the word with its definition: This strategy was used three times during the research process. While matching the words with their definitions, students were able to see the spelling and sounds of English terms in

written forms, and they were asked to write and repeat them verbally (Hieber and Kamil, 2005; Paul, 2001; Searfoss and Readence, 1989).

Direct teaching of the vocabulary learning strategies: During the research, the strategic teaching of how to apply the following direct and indirect vocabulary developing strategies was conducted, finding the meanings of the unknown words from the dictionary, the student explaining how he/she found the word from the dictionary verbally, explaining what features a definition should possess, and estimating the content of the text from the title of the text. It is thought that these applications are helpful for the students in using vocabulary development strategies, and contribute to their vocabulary development (Bennet et al., 2014; Strassman et al., 1987; Paul, 1996; Schirmer, 2000; Taylor et al., 2009; Trussell and Easterbrooks, 2016).

Indirect vocabulary development strategies

Question-answer: Used for the purposes of asking the meaning and/or synonym of the word and determining the words the students know about the subject during the lessons. During the research, it was seen that there was a variety of question types, and applications were carried out regarding how to answer these questions.

Being one of the indirect vocabulary improvement strategies, the question-answer strategy was used by the researcher during courses in order to ask about the meaning and/or synonymous of words and determine other words related to the subject. During the research, activities related to various question types and how to answer these questions were performed with students. In 2003, Girgin's study indicated that questions asked by teachers play an active role in the hearing impaired students' reading comprehension. This finding is compatible with the fact that students should know about question types. No research was found in the literature on question types to be asked for vocabulary improvement with the question-answer method, which is the most traditional method in teaching and its effectiveness.

During two question-answer activities performed following the text reading-analysis activities, students were trained on strategies directly related to question types and how to answer questions. In the study by Uzuner et al. (2005), investigated the contribution of asking questions on text structure on students' text structure learning within courses based on BLIA for hearing impaired university students. Accordingly, it was found that verbal and nonverbal strategies applied by the teacher and the questions asked following the reading have a positive contribution to students' text comprehension. Questions positively improve the comprehension skills of students and this improvement in reading indirectly affects the improvement of vocabulary. In activities conducted with the teaching of question types, it was reported that the literacy skills of students and hearing impaired students positively improve (Graham and Wong, 1993; Harrel and Jordan, 2002; LeNoir, 1993).

At the end of the research, it was determined that the verbal and non-verbal strategies implemented by the teacher, and the students' questions after reading, made a positive contribution to the students' understanding of the texts. The questions asked developed the reading and comprehension skills of the students in a positive way. This development in reading and comprehension indirectly affects vocabulary development (Girgin, 2003; Graham and Wong, 1993; Harrel and Jordan, 2002; Le Noir, 1993; Uzuner et al., 2005).

Filling in the blanks: During the filling in the blanks activities conducted two times in the research, the teacher asked the students to read the entire text and then to determine the correct word to be used in the blanks with suffixes. The students were informed about strategies to be used to determine these words. In literacy activities or other activities that aim to reinforce the learned words, texts with advertising words were given to students. These activities provided an environment for students to repeat the advertising words they had previously learned. They also ensured the performance of activities on determining and using clues in the same text. They discussed the word and issue while determining the words to be in the blanks. All these strategies and methods used during the filling in the blanks activity positively affected the vocabulary improvement of students. Searfoss and Readence (1989) reported that an explanation of the filling in the blanks process by the teacher and the process itself created a reasonable usage environment for vocabulary improvement of students. McAnally et al. (2007) reported that filling in the blanks is one of the major strategies to be used in the vocabulary improvement of impaired children and reading while determining words to fill in the blanks improves both reading comprehension and vocabulary. Stewart and Kluwin (2001) considered the filling in the blanks activity as an assessment tool for the reading comprehension of impaired children. However, it is also reported that activities to find clues within the text to find the appropriate word for the blank will contribute to the improvement of reading comprehension and the vocabulary of students. Many other studies also indicate that filling in the blanks activities contributed to hearing-impaired students (Reutzel and Cooter, 1999; Marschark and Spencer, 2003; Schirmer, 2000).
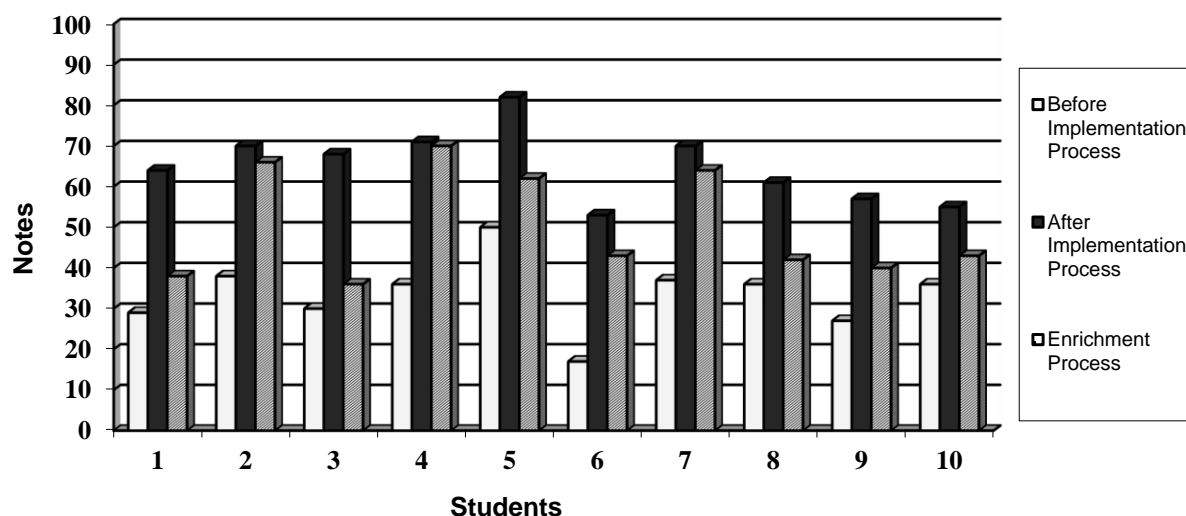
Figure 3. Effects of the applied strategies on vocabulary development.

It was found that filling in the blanks performance of students who participated in this research were below average. It is assumed that this finding resulted from the fact that filling in the blanks is a challenging strategy requiring the use of multiple skills (Mcloughlin and Lewis, 2004). The study by Girgin (2006) evaluated the reading comprehension of hearing-impaired students with error analysis inventory. She found that hearing impaired students had difficulty in writing the existing words in the text into the blank; yet they wrote different words that did not change the meaning of the sentence.

Estimating the meaning of the word from the text: During the research, two planned studies were conducted in order to determine the meanings of the unknown words from the text. Moreover, opportunities to use the above-mentioned strategies arose while examining the newspaper articles and other texts. The teacher became a model for the students in terms of the strategies and techniques regarding the estimation of the meanings of the words from the text and the usage of the clues (Gambrell et al., 2007; Raphael, 1986). During the application, it was seen that the meaning of some words could be estimated from the text, but some of them could not, which is an issue on which too much stress is placed. In addition, the students were asked to use this strategy in all other reading activities. It was determined that the students estimated the meanings of the words from the text (Bauman and Kameenui, 2004; Nagy, 1988; Pressley et al., 2002; Rupley et al., 2009; Taylor et al., 2009; Tompkins, 2007). These findings support the finding that students have trouble in estimating the meanings of the words in the text because the context

does not give sufficient clues in this regard and that the implementation of this strategy should be taught to the students (Black et al., 1983; Johnson and Johnson, 2004; Nagy, 1988).

The qualitative data results

Effect of the applications on the development of students' vocabulary

Considering the overall student achievement, all the students, except one, improved by 30 points or more in the examinations applied before and after the implementation process (Figure 3). This finding shows that implementing direct and indirect vocabulary developing strategies on the basis of the principles and components of BLIA is an effective contribution to the improvement of the vocabulary levels of these hearing impaired college students.

However, it was determined that all students, except one, could not obtain a score over 70 in all the examinations. This situation is thought to result from the fact that hearing impaired students require a longer period of time and more repetition in studies because of the limitations in their speech caused by hearing disabilities, and that they are unable to read a sufficient number of publications regarding professional language, added to factors concerning the quality of the education the students had received in the past. Research carried out on hearing impaired students also indicated that these students had difficulty in developing their vocabularies (Paul, 1996, Schirmer and McGough, 2005;

Trussell and Easterbrooks, 2016).

It was determined that students gained more benefits from studies carried out with formal education than from the studies carried out on the internet. In the education carried out on the internet, although many possible precautions were taken, limited reading comprehension skills, and not having face-to-face interactions were thought to negatively affect the performances of the students in the summer studies (Black et al., 1983; Glynn et al., 2005; Lederberg et al., 2000).

It is seen that the improvement of the students varied between 5 and 20 points in the examinations for filling in the blank and question-answer strategies. This situation is thought to result from the fact that question answering and filling in the blank strategies are complex strategies. It is thought that filling the blank and question answering strategies, which are indirect vocabulary developing strategies should be implemented intensively (Girgin, 2003, 2006)

It was determined that students made great progress in defining the terms related to the QuarkXPress desktop publishing program and to the newspaper. The reason for this is thought to be the fact that the students encountered the new terms related to a new subject for the first time. Moreover, it is thought that relating the definitions with prior knowledge, making a sufficient number of repetitions, and teaching the words in an environment that provides for their meaningful use affects the ability to make definitions positively (Karatay, 2007; Stahl and Nagy, 2006).

In the semantic mapping answers of the students, the results of almost all the students in the last test appeared to be above the pre-test scores. During the enrichment studies, question-answer, gap-filling and semantic mapping strategies were used intensely. It was determined that the students were not able to display the same performance in question-answer and gap-filling as in the performance they displayed in semantic mapping. This is thought to result from the fact that semantic mapping visualizes the information (Reutzel and Cooter, 1999).

In the final test, almost all the students achieved 100% success in listing the words. This is thought to be related to the effective use of vocabulary skills and the level of those skills. The students participating in the research had different language levels. When the effects of the instructions on the successes of the students were examined by taking students' language levels into consideration, it was determined that the education contributed to the students' language levels. However, it is seen that the students with better language levels were observed to be more successful (Marschark et al., 2002). Moreover, having background knowledge on the subject and using the information during the classes was found to

lead to better performances in that subject (Reutzel, 2002).

Suggestions

Instructional environments organized according to the principles of BLIA instruction, and the teaching of vocabulary development in meaningful contexts with a sufficient number of repetitions and the integration of the information learned with the information in different areas, were found to be effective in the research process. During the research, a model based on an interdisciplinary approach and effective vocabulary development was created. When the direct and indirect vocabulary developing strategies were implemented according to the principles of balanced literacy instruction, it is seen that it has a positive effect on the individuals with hearing impairments college students' professional words.

The strategies to be used during the courses were determined according to attributes of students and features of words to be taught and courses were planned and applied in this way. Focusing on the importance of effective vocabulary development programs by considering the language levels of hearing impairments students and including the applications is a necessity. In the light of the findings of the present study, it is suggested that in-service training should be given to the teachers of hearing impaired students of all age groups within the scope of the effective teaching of vocabulary. Moreover, it is recommended to increase language course hours to conduct vocabulary improvement activities, to apply an inter-disciplinary study circle in vocabulary improvement activities, and to conduct improvement activities within the academic year.

For further research to be conducted, it is suggested that assessment tools should be developed in order to determine the vocabulary of hearing impaired students, and that informative texts, stories and booklets, including activities and strategies for improving vocabulary, should be written/prepared. Research should be planned to include new vocabulary development strategies. This action research should be conducted in different educational environments with different participants and by different researchers in order to generalize the findings. In addition, group and single-subject, quasi-experimental and experimental research should be conducted in order to determine the cause and effect of relationships between the variables in the development of vocabulary. Moreover, the teaching of English computer terms was supported, and enrichment studies were conducted within the scope of the present research. Therefore, it is suggested that vocabulary development

activities should be conducted on different subjects with the same age group.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

The relation between prospective teachers' and their parents' learning styles

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The aim of this study is to investigate the relation between the learning styles of teacher candidates and those of their parents. Relational survey method has been employed to conduct the study. The target group contains 211 novice teachers studying at different teacher training departments of a Turkish university. The Grasha-Riechmann Student Learning Style Inventory and Kolb Learning Style Inventory have been administered to the participants and to their parents. The participants were asked to administer these scales to their parents. Inventories detected to be incomplete were eliminated, and consequently only 33 families' responses have been evaluated. The parents with a degree from a middle school or above have participated in the study. The data obtained from Kolb Learning Style Inventory suggest that there is no relation between the learning styles of teacher candidates and those of their parents. However, the data set from Grasha-Riechmann Student Learning Style Inventory displays a medium level relation between the learning styles of participating teacher candidates and that of their parents. Additionally, no statistically significant difference has been identified across the learning styles of participants in terms of their regional background and the educational background of their parents.

Key words: Learning styles, parents' learning styles, Kolb and Grasha-Riechmann learning style.

INTRODUCTION

Recent studies in learning psychology and educational sciences have yielded findings signifying the role of individual differences during teaching-learning process. Administered based on individual differences, instruction defines the quality of learning (Jonassen and Grabowski, 1993; Taylor, 2001; Bozkurt and Aydogdu, 2009; Dunn et al., 2009; Hsieh and Dwyer, 2009; Yazicilar and Guven, 2009; Meydan, 2010; Ari and Bayram, 2011; Yilmaz and Orhan, 2011) and contributes positively to students' development. Learning styles can very well be classified

as one of the individual differences identified within teaching-learning process. An instruction carried out in accordance with learning styles may produce positive cognitive (Duman, 2010; Demir and Usta, 2011; Fan and He, 2012) and affective outcomes (Minotti, 2002; Minotti, 2005; Elci, 2008; Gencel, 2008). Research on learning styles has noted these styles as an explanation as to why some students are more successful than others at school (Dunn and Miligram, 1993).

Rita Dunn first brought "Learning styles" forward in

1960. Dunn defines learning styles as "use of different and idiosyncratic tactics when learning or preparing to learn a piece of new and difficult information", or "some biological and developmental features that turn what is a wonderful method of teaching for some students into a nightmare for some others." (Boydak, 200; Acikgoz, 2003). The literature contains a variety of definitions and explanations concerning learning styles. This inconsistency in the literature on learning styles, says Ekici (2003), is a byproduct of its trivet nature with cognitive, affective, and physiological aspects, and a result of focus only on one of these dimensions by the researchers. This variation in the definition of learning styles has led to more than one type of classification in the literature. A study by Guven et al. (2008) has revealed that the classification in the literature involves 27 distinct learning styles. Although there have been various classifications of learning styles, Butler (1996) states that each individual has a unique thinking process, and these classifications do not say anything as to which one is the best or worst learning style, or which one is the right or wrong style.

Another reason why there is more than one way of classifying these learning styles is that personality traits also influence individuals' choice among these styles. In this sense, it will not be wrong to conclude that learning styles vary as much as characters do. The way individuals intake and process information, as well as their responses regarding motivational and environmental settings, are all considered as factors determining how learning styles are classified. Even though the literature offers an array of various definitions and classifications concerning learning styles, still the following is what can be distilled from what the study has found out about learning styles so far:

1. Learning styles may vary across individuals. Each individual has a unique style.
2. Many factors affect identification of learning styles.
3. An individual's learning styles are consistent, and they form a unity.
4. Many theoreticians have treated learning styles separately, and they haven't included features related with "study skills" into the styles.
5. Most of the definitions and classifications regarding learning styles are based on the interaction between the learner and the information.
6. Various scholars have produced different classifications as a result of focusing on distinct features of learning styles.

Many factors are influential over the formulation of one's learning styles. These factors can be grouped into two as the inborn and the acquired. Kaminska (2014) states that the question of learning style being biologically or environmentally determined has not yet been fully answered. "Some research indicates that certain elements of learning styles are outcomes of genetic make-up while others are influenced by life experiences" (Kaminska, 2014). For instance, Restak and Thies (1979) believe that learning styles mostly have genetic roots; whether someone feels better studying under dim or bright light, prefers a silent or noisy environment to study, or chooses studying at a table or on a bed are all dependent on genetics (Dunn and Milgram, 1993). As cited by Guven (2004), earlier experience and the expectations of one's environment play a crucial role over the development of learning styles. Furthermore, family, school, and workplace are also included among the factors affecting individuals. Dunn et al. (1989) note that learning styles are related to individual's moment of birth, cognitive development, maturation, which hemisphere of the brain is more active, holistic and analytic processes, individual's nature, and their self-conception. Referring especially to Kolb's and Dunn's study (2005), Cuthbert (2005) underlines that one's learning styles do not change quickly, but, in time, qualitative modifications may be observed as a result of growing, maturation, and changing environmental factors. On the other hand, Babadogan (2003) concludes that 20% of an individual's learning styles is genetically determined, and the rest is associated with students' preferences such as silence or background noise, bright or dim light, relaxed or upright posture, studying non-stop or with breaks, perceptual modes (auditory, visual, tactile), nibbling or not during studying, sticking with fixed times of a day, being mobile or immobile, and holistic or analytic thinking processes when focusing on a piece of new and difficult academic information. However, related studies report that individuals are not equally affected by these variables forming their learning styles. Many learners are primarily influenced by 6 to 14 variables (Dunn, 1984).

Other aspects of learning styles, apart from those transmitted through genetics, grow as an individual's experiences accumulate. Social preferences, learning motivation, and responsibility can be taught depending on the developmental level of individuals. This theory is supported by the differences and similarities between students from various cultural backgrounds and success levels, and their learning styles (Dunn, 1995). In addition, learning styles also vary across individuals from the same culture or group, across siblings, and parents and their children (Dunn and Milgram, 1993; Dunn and Griggs, 1995). This discrepancy strengthens the theory that learning styles are not only comprised of those features transferred via genetics, but there are other aspects that can change and improve learning styles.

Dunn (1984) finds it "confusing" that children and their parents and also siblings may have different learning tendencies despite the genetic aspects of learning styles. Relevant research points that children and parents generally have distinct learning styles. Children's learning styles do not reflect the learning styles of parents, and vice-versa. Thus, each parent and each child may have

totally different learning preferences (Dunn and Milgram, 1993). In spite of these differences, parents mostly tend to inoculate their own learning styles back at school days onto their children. This is generally attributed to the possibility that parents may not be aware of the fact that their children may prefer different learning styles. In a study examining the correlation between parents' perception regarding their children's learning styles and the actual learning styles that their children prefer, DeBello and Guez (1996) have reported no significant relation between what parents think about the learning styles of their children and those that their children really prefer and employ. This led to a pool of findings supporting the idea that parents do not have comprehensive information about their children's learning preferences. Moreover, this unawareness causes parents to impose their own styles onto their offspring. Dunn and Milgram (1993) think the efforts to infuse children with their parents' learning styles constitute a major source of problem, and they warn that this may end up with disappointment on both parents and children. Even the siblings sharing the same family and parents may not have exactly the same or at least similar learning preferences.

The literature holds a body of research concluding either that learning preferences of children and their parents may be different, or that they may be using the same or at least similar styles. As cited by Leone (2008), in a study examining the differences and similarities between children's and parents' learning styles, Dunn (2006) concludes that if there is more than one child in a family, the first child tends to have similar learning preferences with one of the parents and the second child develops similar learning styles with those of the other parent. In a more recent study, Borchetta (2007) focuses on the similarities and differences between siblings' learning styles and those of their parents', and the author reports that children are inclined to have similar preferences with their parents in terms of study posture, light effects, and visual learning conditions. In this sense, sons have been noted to be like their fathers in terms of relaxed posture and daughters to resemble their mothers with respect to strong academic learning motivation. However, overall analysis of these data hardly indicates any significant similarity between the learning styles of parents and those of their children.

Research investigating if learning styles are formed by genetic factors or they are acquired via experience is scarce in both Turkish and international literature. Of those international studies, many were completed in early 1980s and they mostly scrutinized Dunn and Dunn learning styles theory. In this regard, Leone (2008) states that international research on the similarities and differences between parents' and children's learning styles is quite limited. The literature review completed for the present study has yielded no Turkish research on the relation between the learning preferences of parents and those of their children. Of all the studies conducted on learning styles in Turkey, almost all focus on the influence of parents' attitudes over learning preferences (Palut, 2008; Bozaslan, 2012), if learning styles vary across several socio-economic variables (Demir and Sen, 2009; Merter, 2009), scale development (Balat et al., 2012), and identifying the learning styles of learners at different levels (Mutlu, 2008; Demir, 2010).

This research has been designed to identify the relationship between parents' learning styles, and those of their children since international studies mostly narrow down on Dunn and Dunn learning styles and there is no single research focusing on this aspect in Turkey despite the high number of relational and empirical studies. Accordingly, the overall aim of the current study is to find out the degree of similarity between parents' and children's learning styles, and to investigate if some socio-economic variables relate to the similarities or differences between these learning preferences. Based on this overall aim, answers have been sought for the following questions:

1. Are the learning styles of parents and prospective teachers similar with respect to Kolb learning styles?
2. Are the learning styles of parents and prospective teachers similar with respect to Grasha and Reichman learning styles?
3. Are socio-economic variables influential over either the similarity or the difference between parents' and prospective teachers' learning styles?

METHODOLOGY

Research design

This research has a relational survey design. Relational surveys aim to determine the degree of change or if there is a change among two or more variables. In such studies, the variables to be examined in terms of their relation are symbolized separately (Karasar, 2007). In the current study, the relation between the learning styles of pre-service teachers and those of their parents has been investigated, and the influence of several socio-economic variables over this relation has been questioned. In this sense, the dependent variables of the present study are the learning styles of both prospective teachers and their parents, and the independent variables are some socio-economic factors such as the department the pre-service teachers are studying, the educational background of the parents and the neighborhood.

Research universe and sample

The universe of this study is the prospective teachers studying at various teacher training programs at Trakya University and their parents. With respect to the sampling for the research, pre-service teachers from different departments (because each department requires a score from separate fields of study) and their parents with a degree at least from middle school and above were selected. The reason the researcher chose prospective teachers from different departments is to access a variety of learning styles during data collection. Likewise, parents with a degree at least from a middle school or above were chosen because the participants were expected to have a long period of learning experience, and also to

Table 1. Numerical data regarding the teacher training programs from which research data have been collected.

Teacher training programs	The number of prospective teachers in the research universe	The number of prospective teachers in the actual research data	The number of parents who responded the inventories
Primary School	120	87	29
Pre-School	42	40	-
Science	39	39	4
English Language	51	45	-
Total	252	211	33

know themselves in terms of how they learn. These conditions were mandated in order to enhance the validity of the findings to be obtained in this study. However, some difficulties were identified during the administration of data collection tools to the parents; therefore, no scale was given to the parents of prospective teachers studying in the pre-school and language teaching departments.

Research data were collected in two phases. In the first one, prospective teachers studying in different teacher training programs such as primary school, pre-school, science, and English language were administered the data collection tool; and in the second one, teacher candidates' parents whose educational background met the selection criteria were given a second data collection tool. Based on the demographic information pre-service teachers provided during the first phase of data collection, some prospective teachers were asked to administer the second data collection tool to their parents at the end of the fall term of 2012 to 2013 academic year. By the start of the spring term in the same academic year, it was clear that the number of parents who responded to the tool was not enough. Therefore, research data was mostly collected from the teacher candidates at primary school teacher training program due to ease of access to both students and their parents. In this sense, Table 1 depicts the numerical values concerning the data collection process of the present study.

As displayed in Table 1, the research universe included a total of 252 teacher candidates, yet only 211 of them were appropriate to partake in the study. Some of the data concerning the teacher candidates were excluded from the analyses due to lack of some relevant information such as name/last name/nickname or lack of care in filling out the scales. With respect to the parents who were administered the data collection tools, 33 parents' learning styles were determined. Data set concerning these 33 parents and their children served the settlement of the research findings.

Data collection tools

Two different learning style approaches were employed in this study in order to obtain more valid results; thus, Kolb and Grasha-Riechman learning style inventories were utilized as data collection tools. The reason why Grasha-Riechman learning styles inventory was used is that the researchers think that this scale has a more tangible classification of styles, and the items in the scale are based on real learning situations, which would help the parents respond to the scale more easily. Likewise, Kolb learning styles inventory was chosen because it is the first one adapted to Turkish language (Askar and Akkoyunlu, 1993) and the most frequently used one in nation-wide surveys.

Of course, there is an adapted version of Grasha-Reichman learning styles inventory within Turkish literature (Zereyak, 2005; Cengizhan, 2006; Kocak, 2007), and it has been employed as data collection tool in several studies, too. This scale consists of 60

Table 2. Reliability coefficients of Grasha-Riechmann learning styles inventory according to learning styles classification.

Learning style	Alpha value
Independent learning style	0.662
Passive learning style	0.644
Cooperative learning style	0.757
Dependent learning style	0.650
Competitive learning style	0.815
Participatory learning style	0.774

items segregated across six learning styles such as independent, passive, cooperative, dependent, competitive and participatory (Grasha, 2002). Each learning style is examined through 10 items. The subjects score the items from 1-to-5, and the learning style with the highest score is determined as the learning style of the subject. The internal consistency of the scale was tested based on the data collected from the prospective teachers. Table 2 presents the internal consistency coefficients of Grasha-Reichman inventory.

As clearly seen in Table 2, the alpha values for all the learning styles are higher than 0.60. Generally, an alpha value of 0.70 is required for the internal consistency to be within ideal limits. However, low alpha values are not a surprise for scales with few number of items since the alpha value is sensitive to the total number of items in a scale (Akbulut, 2010). Thus, internal coefficients of the data obtained from the research sample indicate a reliable internal consistency. On the other hand, Kolb learning styles inventory is composed of 12 learning situations each of which requires a grading from 1 to 4 (1: the least appropriate, 2: somewhat appropriate, 3: appropriate, and 4: the most appropriate) (Guven, 2004). Each grading matches up with one of the factors comprising the inventory. In this sense, the first factor is Concrete Experience "CE", second one is Reflective Observation "RO", third is Abstract Conceptualization "AC", and the fourth is Active Experience "AE". Internal consistency of each factor has been analyzed for the reliability of the inventory. Internal consistency coefficients across sub-factors are presented in Table 3.

Table 3 shows that reliability coefficients of all the sub-factors of Kolb learning styles inventory are higher than 0.70. This means that the internal consistency of the inventory is reliable in terms of the factors (Palland, 2001). Furthermore, the relational values between the factors were also examined in order to see the relation across these factors and to set the validity of the inventory. Table 4 displays the relational values across factors. Table 4 depicts that the relation values among all factors are negative, which provides solid indicators that the measurement is valid. Especially, the strong

Table 3. Reliability coefficients of Kolb learning styles inventory in terms of sub-factors.

Sub-factors	Alpha value
Concrete experience (CE)	0.743
Reflective observation (RO)	0.733
Abstract conceptualization (AC)	0.800
Active experience (AE)	0.761

Table 4. Relational values across the factors of Kolb learning styles inventory.

Variable	CE	RO	AC	AE
CE	1	-259[**]	-503[**]	-162[*]
RO	-	1	-141[*]	-530[**]
AC	-	-	1	-396[**]
AE	-	-	-	1

[*]p<.001; [**]p<.005.

and clear negative relation between concrete experience and abstract conceptualization (r= -.503) and the one between reflective observation and active experience (r= -.530) point that the data obtained from the factors are distinctive and valid.

Accompanied by a form about demographic information, the data collection tools were administered to the prospective teachers simultaneously. The candidates were asked to write either their names or nicknames, if they had any hesitations, on the tools so that the second step of the study concerning the parents could be completed correctly.

Data analysis

Statistical package for the social sciences (SPSS) 17.0 has been employed to analyze the data collected via both inventories. First, the data were uploaded into the program. During the data process, special attention was paid to write the demographic information about the teacher candidates, and the data obtained from the tools on the same line. All data, if any, were excluded from the analysis if anything had been missing or misplaced. Since the tools contained no negative statement, reverse grading was not conducted. Following the data process on the software, prospective teachers' learning styles were identified based on their scores on the inventories. Concerning the relation between the learning styles of pre-service teachers and those of their parents, some non-parametric tests were employed. Chi-square and non-parametric methods for the relational tests were utilized because the obtained data was a kind of classification data.

RESULTS

Results and relevant interpretations are presented in accordance with research questions. Therefore, first, findings regarding Kolb learning style inventory are reported, and then those concerning Grasha-Riechmann inventory are discussed. Lastly, the findings about socio-economic variables and the learning styles of prospective teachers and their parents are noted.

Research question 1: Are the learning styles of prospective teachers and their parents similar with respect to Kolb learning styles inventory?

The first research question regards the relation between the learning styles of prospective teachers and those of their parents in terms of Kolb learning styles inventory. To do so, individuals' learning styles served as classification estimate level, and the relation between Cramer's V and Phi value was examined. Table 5 shows the values concerning these relation levels. As can be seen in Table 5, no significant relation between the learning styles of teacher candidates and those of their parents has been detected based on the data from Kolb learning styles inventory.

Research Question 2: Are the learning styles of prospective teachers and their parents similar with respect to Grasha-Riechmann learning styles inventory?

Second research question concerns the relation between the learning styles of prospective teachers and those of their parents in terms of Grasha-Riechmann learning styles inventory. Relevant values are depicted in Table 6. Table 6 indicates that there is mid-level (Cramer's V=.561) significant (p<.05) relation between the learning styles of teacher candidates and those of their mothers whereas no significant relation has been detected between the learning styles of pre-service teachers and those of their fathers. This relation between the learning styles of mothers and those of prospective teachers is attributed to qualities of Grasha-Riechmann learning styles classification and to cultural factors. Grasha-Riechmann learning styles classification is more about students' attitudes towards in-class activities than their personal and cognitive features (Montgomery and Groat, 2004).

Thus, the classification is not based on how learners intake and organize new information but on the interaction learners have within the classroom setting. Therefore, this classification, as for Curry (1983), belongs to the group of classifications pertaining to learners' learning preferences about the setting rather than cognitive personality centered classifications. This aspect of learning styles makes it possible to classify learners in certain groups depending on environmental factors and the influence from these factors. Since learning styles are not cognitive personality centered in this inventory, the prospective teachers may have grown similar to their mothers in terms of studying and learning habits as a result of guidance and direction from mothers starting

Table 5. The relation between the learning styles of prospective teachers and those of their parents with respect to Kolb learning styles inventory.

Relation type	Number of valid estimates	Cramer's V value	Phi value	Significance
Prospective teacher / Mother	33	0.380	0.658	0.283
Prospective teacher/ Father	33	0.481	0.862	0.078

Table 6. The relation between the learning styles of prospective teachers and those of their parents with respect to Grasha-Riechmann learning styles inventory.

Relation type	Number of valid estimates	Cramer's V value	Phi value	Significance
Prospective teacher / Mother	33	0.561	1.123	0.003[*]
Prospective teacher / Father	33	0.408	0.816	0.341

p<0.05.

Table 7. Learning style differences among prospective teachers in terms of their neighborhoods.

Variable	Grasha learning style	Kolb learning style
Chi-square	0.851	7.765
Degree of freedom	4	4
Significance	0.931	0.101

Table 8. Differences between the learning styles of mothers and those of prospective teachers based on mothers' educational background.

Variable	Learning styles of prospective teachers		Learning styles of mothers	
	Grasha lear.sty	Kolb lear.sty.	Grasha lear.sty	Kolb lear.sty
Chi-square	1.013	2.731	0.683	8.591
Degree of freedom	5	5	5	4
Significance	0.962	0.741	0.984	0.072

from early ages.

Research question 3: Are socio-economic variables influential over either the similarity or the difference between parents' and prospective teachers' learning styles?

As part of the efforts to answer the third research question, learning styles of prospective teachers were examined to see if there was any variance across different neighborhoods. In addition, learning styles of parents were also analyzed to determine if there was a difference among the participants (both students and parents) in terms of parents' educational background. Since the relevant data set is small, non-parametric methods were employed to be able to answer this question. Accordingly, Table 7 depicts the data indicating

if prospective teachers' learning styles vary across different neighborhoods. Table 7 shows that teacher candidates' learning styles do not significantly (p>.05) vary in terms of their neighborhoods. Likewise, Table 8 and Table 9 present the data concerning if learning styles of both parents and prospective teachers vary across different educational backgrounds of parents.

As shown in Table 8, learning styles of pre-service teachers and their mothers do not vary significantly across mothers' different educational backgrounds. Based on this, one can conclude that mothers' educational backgrounds are not definitive over learning styles. Analysis of the values in Table 9 points to a similar conclusion with respect to the influence of fathers' educational background over prospective teachers learning styles, which is not statistically significant. Under the light of these findings, one may easily conclude that educational background has no effect over learning

Table 9. Differences between the learning styles of fathers and those of prospective teachers based on fathers' educational background.

Variable	Learning styles of prospective teachers		Fathers' learning styles	
	Grasha lear.sty	Kolb lear.sty.	Grasha lear.sty	Kolb lear.sty
Chi-square	4.470	4.218	4.280	3.658
Degree of freedom	4	4	3	3
Significance	0.346	0.377	0.233	0.301

styles.

DISCUSSION AND CONCLUSION

The field of learning styles has always been one of the topics of research and interest since it was first introduced into the literature. This conceptualization helps us to determine, classify, and define individual differences and preferences regarding learning process. Distinct classifications of learning styles within the literature led to grouping these classifications under certain titles, which brings the studies of Curry (1983) and Sadler and Smith (1996) into mind. In Curry's (1983) onion model, learning styles are categorized in accordance with their specific qualities. According to this model, the inner-most layer of the onion hosts cognitive styles, mid-layer are the styles based on information processing, and the outmost layer of the onion represents those relevant to individual's learning preferences.

Sadler and Smith (1996), on the other hand, group learning styles into four; based on cognitive personality, information processing, study approaches and learning preferences. According to Curry's (1983) model, the outer layer components are more likely to include changeable and observable features due to influence from environmental and cultural factors. Sadler and Smith's (1969) classification is no different. Classifications regarding study approaches and learning preferences are those bearing a higher probability of change as a result of environmental factors. Considering the factors shaping the classification of learning styles, there are two basic determiners; one is whether learning styles have any genetic and congenital qualities, and two is whether learning styles change due to environmental influence or not. Kolb and Grasha-Riechmann learning styles employed in the current study are located on the outer layer of the onion. Both Kolb and Grasha-Riechmann learning styles are classifications based on experience and environmental qualities. In this sense, one of the frequently debated issues in the literature is whether learning styles are inborn characteristics or they develop in accordance with the influence from environmental and cultural factors (Dunn and Milgram, 1993; Dunn, Beudury and Klavas, 1989; Dunn and Griggs, 1995; DeBello and Guez, 1996; Leone, 2008).

Along with this debate and the vagueness regarding how important these factors are in shaping learning styles, the scarcity of studies investigating the elements influential over learning styles is noteworthy despite the large body of research on learning styles both on national and international scales. Examining parents' and their children's learning styles in order to find out what factors are effective over the formation of learning styles may be an appropriate method, or at least a hint, to search if learning styles are genetic or they are influenced by learning experiences and environment. Thus, this research aimed to identify the learning styles of parents and prospective teachers and to determine if there was any relation between the two.

This study has employed Kolb and Grasha-Riecmann learning style inventories. Both Kolb and Grasha-Riechmann inventories are classified in the outermost layer of the onion model by Curry (1983), that is, these learning styles are formed as a result of individual's learning experience and preferences. Research findings have indicated that there is no relation between the learning styles of prospective teachers and those of their parents with respect to Kolb learning styles inventory while a mid level relation between the learning styles of pre-service teachers and those of their mothers has been identified in terms of the data set obtained from Grasha-Riechmann learning style inventory. This lack of relation between the learning styles of teacher candidates and those of their parents is in line with the findings of Dunn and Milgram (1993) and Borchetta (2007).

On the contrary, the mid-level relation between the learning styles of prospective teachers and those of their mothers can be noted as one of the interesting findings of the present research. Neither national nor international literature reviews have yielded a similar result pointing a relation between the learning styles of students and those of their parents. However, a similar conclusion has been made by Borchetta (2007). Borchetta (2007) concluded that boys resemble their fathers and girls resemble their mothers with respect to learning process. Since no gender comparison has been held in this study, it would be wrong to state that Brochetta's (2007) findings are supported with the current research. Cultural elements are thought to be responsible for the similarity between the prospective teachers and their mothers. Indeed, the results of several nationwide studies (Ahioglu, 2006; Gelbal, 2008; Gungor, 2009; Kaya and Tuna, 2010; Demirezen and Akhan, 2013) have underlined the

definitive role of mothers over their children's learning preferences through trying to build a study habit, helping with the homework assignments, and taking care of every need of their child especially with their younger children at early ages. The fact that this research has concluded a resemblance between the prospective teachers and their mothers in terms of learning styles may be considered as a reflection of a reality that it is the mothers who gets engaged in frequent interactions with their children with respect to learning processes starting from early ages. In addition, Al-Khayat et al. (2013) indicate that the learning styles are connected with the parents especially mothers who have the responsibility of teaching and following up their children in Jordanian Society.

Another research question is directed to figure out if learning styles vary across several social variables. Accordingly, learning styles have been examined to see if they change based on the neighborhood the teacher candidates live and the educational backgrounds of parents. Statistical analyses have yielded that learning styles do not vary across these two variables. All the national studies focusing on the variance of learning styles across the neighborhoods of the participants (Merter, 2009; Besoluk and Onder, 2010; Tomakin, 2012; Baran et al., 2014) have produced different results. For instance, neighborhood was determined as a factor influencing the variance of learning styles in Merter (2009) and Tomakin (2012) whereas the same variable of neighborhood has been noted to have no impact over learning styles in Besoluk and Onder (2010) and Baran et al. (2014). Likewise, other nationwide studies (Yenilmez and Çakır, 2005; Besoluk and Onder, 2010; Gulerci and Oflaz, 2010; Gurpinar et al., 2011; Seven et al., 2012) examining if learning styles vary based on the educational backgrounds of parents have revealed no relation between the learning styles and the educational backgrounds of parents. In this sense, findings of the present study do not match with those in the literature.

Investigating if there is a relation between learning styles of prospective teachers and those of their parents, this research can be considered as one of the pioneers within the national literature in terms of the issue it focuses on, and the field of study it belongs to. In this sense, some limitations also accompany the study. Being unable to reach a larger number of parents and pre-service teachers from a variety of fields is the first limitation. Therefore, there is a need for similar studies in the literature to increase the scientific information about this topic. Researchers aspiring to design similar studies may employ different data collection tools for various learning styles in different groups within Curry's (1983) classification. Especially, cognitive and information processing learning styles can be selected and relevant studies can be completed to determine similarities and differences between parents and their children. Furthermore, researchers can enhance their research questions by adding several social variables into their data collection tools. Different conclusions can be made in accordance with different variables such as the number of siblings, or being the first child or not.

Conflict of Interests

The author have not declared any conflict of interests.

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Full Length Research Paper

A multi-year study of teaching an online computer literacy course in a medical university: A lesson learnt

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In this research, we aim to understand the effectiveness of adopting educational technologies in a computer literacy course to students in a medical university. The course was organized with three core components: Open Education Resources (OER) reading, a book club, and online game competition. These components were delivered by a learning management system (LMS). Participating records of LMS and survey results are analyzed. This study has shown positive results in terms of students' self - evaluation and online participation rate.

Key words: Educational technology, learning management system, computer literacy, open educational resource.

INTRODUCTION

The professional society for educational technology, the Association for Educational Communications and Technology (AECT), had defined: "educational technology as the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources." It emphasizes on integrating diverse media to improve teaching and learning. Most educational techno-logies are implemented through information technologies. Learning management systems (LMSs) may become one of the most common means in providing effective teaching and learning (Junco and Clem, 2015).

Using LMS, students can gain more access to class materials and video lectures instructors deployed. In LMS, synchronous online discussions provide valuable profiles for evaluating different pedagogical interventions (Kovanović et al., 2015).However, both students and faculty need help to make the best practice of educational technology (Abelson et al., 2011). To provide these assistance, various educational strategies have been examined, such as, shared mental model (Sikorski et al., 2011), collaborative group modeling (Lee et al., 2014), meta-analytic evaluation (Adedokun et al.,2014), peer instruction (Vickrey et al., 2015), blended learning (Graham et al., 2013), virtual intercultural interaction (O'Dowd, 2013), and role assignment and participation (Xie et al., 2014). Through such techniques, educational technology can improve students' performance and

instructor-independent. However, the study also shows that the student participation rates were extremely variable (Wolter et al., 2012). In many researches, educational technologies were pedagogical tools developed for teachers. As the self-regulated learning becomes a relevant and valuable concept in higher education (Cassidy, 2011), the implementation of educational technologies need to consider further on various learning styles of students. In this research, through collecting both objective and subjective data for the past six years from a computer literacy course using LMS. We would like to demonstrate the effectiveness of innovative course activities design, such as using OERs, book club, and game in an online course.

The concept of OpenCourseWare (OCW) was initiated by Massachusetts Institute of Technology (MIT) in 2000 (Yue and Chen, 2004; Yue and W., 2004). Beginning in 2002, Hewlett Foundation founded various developments of open educational resources to improve quality of teaching and learning. MIT's OCW was one of the funded programs (Atkins et al., 2007). By 2006, the OCW Consortium included more than 100 universities. MIT had published 1800 courses by fall 2007 (Abelson, 2008a). Most OCWs consist of teaching materials, sample assignments and quizzes, offered weekly. Recently, UNESCO announced open education resource (OER) in its Paris declaration. The OERs include the publication of open courses that anyone may access on the Internet and re-use (DeVries, 2013). Due to the international promotion of OCW and OER, projects such as teacher education in sub Saharan Africa (TESSA) program (Murphy and Wolfenden, 2013) have been reported to drive pedagogical changes. In China, Chinese Quality Course (CQC) project was launched in 2003 to promote the awareness of OER (Hu, Li, Li, and Huang, 2015). With the growth of OERs, search tools or platforms have been developed. OER repositories had been built as well (Marcus-Quinn and Diggins, 2013). Studies such as metadata(Tang et al., 2013) and folk semantic (Shelton et al., 2010) have been reported.

To monitor the quality of online programs and students' performance, students' satisfaction surveys have been used (Kuo et al., 2014). Many aspects of online learning self-efficiency has been evaluated, such as interaction between classmates and instructors, and online platform handling (Shen et al., 2013). During the past decade, information literacy has been listed as a core competence in health science education. American Library Association (ALA) published the 'Information Literacy Competency Standards for Higher Education' in 2000. It states that 'Information literacy' is common to all disciplines, to all learning environments, and to all levels of education. 'Information literacy' enables learners to master content, to extend their investigations, to become more self-directed, and assume greater control over their own learning. Information technology skills relate to information

literacy. At present, students should be able to learn skills of critical thinking and problem-solving, collaboration across networks, and accessing and analyzing information (Nielsenet al., 2014).To achieve a wide variety of academic, work-related, and personal goals, an individual needs training in information technology skills. In many higher education organizations, information literacy or computer literacy courses had been added into the curriculum. A computer literacy course for life sciences may include modules such as, web-based project repositories, databases, background literature research, data analysis, and presentation (Smolinski, 2010). For students with life science majors, information literacy courses consisting of basic computer concept, library usage, and applications in healthcare may be designed into a curriculum. In this research, we would like to know if a computer literacy course is effective to students in a medical university with adopting educational technologies. Both quantitative and qualitative analyses of students' performance and feedback were preformed and will be presented. The analytics of LMS data will be one of the means to present the effectiveness of course activities. Moreover, we would also like to know if student majors affect their learning outcomes. If any, what would be the possible cause?

MATERIAL AND METHODS

Course sample

The basic computer concept (BCC) course is an online computer literacy course. The course is implemented as an entry-level election for undergraduate in a medical university. Topics include introduction to hardware, software, Internet, information security and privacy, copyright and creative commons, and related applications. Students are expecting to spend 2 h efforts each week for 17 weeks to finish the course. The objectives of this introductory course are (1) how to use information technology (IT) tools to present their ideas, (2) where to find answers or resources of their homework or research through Internet or databases, and (3) how to cooperate with each other through internet.

The BCC course is delivered through the university's LMS. The LMS provides functions for delivering all course activities. Topics and instructions are released on a weekly basis. Students are required to give their feedback through discussion forums or surveys. There are three innovative activities provided in this course:

1. Self-learning from Open Education Resources (OER).
2. Cooperative learning from a Book club.
3. Game-learning from an online Jeopardy-like game.

The course has been offered for several years. Enrollments are also open to students of various colleges or schools from time to time. Approximately 60 students enroll in each academic year. Objective data such as user reading clicks, reading time and discussion rate are collected directly from system, while subjective data are gathered through student surveys, writing assignment and peer reviews. By 2013, the BCC course had been offered for 7 consecutive years. A total of 441 students had enrolled, with 90% of them being non-native speakers of English. Only records of 374

students taking the course after the LMS change in 2008 were studied in this research.

Using OER

An OER, 'Computer Science-E1: Understanding computers and the internet' (E1), is the primary knowledge source for the course studied in this research. This OER was used at Harvard University Extension School, and was first published in fall, 2005. It is a video courseware filmed in the classroom. The first version was filmed at Harvard University and consisted of 14 lectures with David Malan as the lecturer. David is one of the pioneers in filming OERs of computer science. A newer version with 9 lectures was filmed in spring 2011. David's apprentice, Dan Armendariz, and David Malan were the lecturers. The courseware is under a Creative Commons Attribution-Non commercial-Share Alike 3.0 Unsupported License. The original web site of E1 lists course highlight in one page, which is easier for self-learning. To integrate the OER, we add more selected topics in the LMS and arranged links to the videos. After examining the course videos, students are required to submit the weekly assignments. Progress of student self-learning is monitored automatically by the LMS.

Book club

The book for this activity is "*The Pattern on the Stone*", by W. Daniel Hillis, and consists of 9 chapters. Students are divided into 9 groups. Each group is assigned to read one chapter of the book, respectively. Each group after the reading makes a video presentation and shares the learning with other groups. During the semester, 3 presentations each week for 3 weeks are allotted for these group activities. All students give evaluation and feedback on each presentation as part of the course requirement.

Online Jeopardy-like game

A Jeopardy game, featuring categories and graduated answer values, is a popular quiz competition. The online competition in the BCC course consists of a 3 week activity. In the preparation phase, each team submits a category and 5 quizzes related to topics learnt from the course. Each quiz is labeled a value from 100 to 500.The game is a role-based competition. There are three roles in this competition, the chairman, the secretary general, and the spokesperson. When the spokesperson post questions, the secretary generals of other team could answer these posted questions. Then, the chairman has to check the correctness of answers and determine who win the score. Competition teams with 4 to 6 students are formed and each team chooses persons to assume the 3 roles respectively. During the competition, each team shall follow the defined instructions to find the best strategy of obtaining the highest score and win. All of these activities are accomplished by using functions provided by the LMS.

Data collection

The standardized end-of-semester learning survey consists of 15 scale questionnaires related to course satisfaction plus 1 open question. Another survey at the end of semester focusing on e-learning experiences presents 20 scale questionnaires and 1 open question. Peer reviews are collected at the end of the book club and online competition, respectively. There are two kinds of peer

reviews, in-team and between-team. Between team, peer review is done after the book club presentation, each student uses a rubric rate in the presentation team. The in-team peer review is for team members to evaluate each other. The total point of each student earned is calculated as a portion of his or her final grade. All these data are collected by LMS. Moreover, in the LMS logs every click of a user on a content page (a view) as well as the time between one click to another defines the 'reading time'.

Outcome assessment

Three primary outcomes were collected and assessed: (1) the engagement of learners with the activities, (2) participation of online activities, and (3) grading from various assignments. Quantitative and qualitative analyses of surveys provided the engagement data. Content analyses of the open questions were used for qualitative evaluation. Participation data came from LMS logs. Quantitative descriptive statistical analyses were related to the participation and grades. Moreover, in this research, the major of a student was used as one of the variables, and performance differences among majors were analyzed.

RESULTS

Engagement with the activities

A total of 371 student surveys were used in this research. Overall, 65% of the students claimed that they had read more than 75% of OER content. There were 30% of students who considered the Harvard content as the most difficult learning activity. Only 7.5% of students liked the English speaking OERs. The major reason was the language barrier. Some students suggested video subtitles or lecture notes which would help learning. Nearly 35% of students agreed that courseware from prestigious universities was motivating their learning. Only 9.5% of students thought online competition was impressive. Merely 15.6% of students considered book club interesting. General speaking, 46% of students liked this course to be an e-learning course. Time-flexibility and activity-diversity were the two major benefits from this course. More than a half of students considered participation of course activities as "virtual teams" was hard since many needed to call for help on keeping their teammates in touch.

Participation of online activities

Views and discussions generated by students and collected by the LMS were counted for activity participation. From 2008 to 2013, a total of 139,629 views and 426 teaching materials were recorded. Views per weeks per year statistics are shown in Figure 1. Total views per week are presented in Figure 2. The first peak appears between week 4 and 8 when the first team activity starts. The second one is between week 10 and
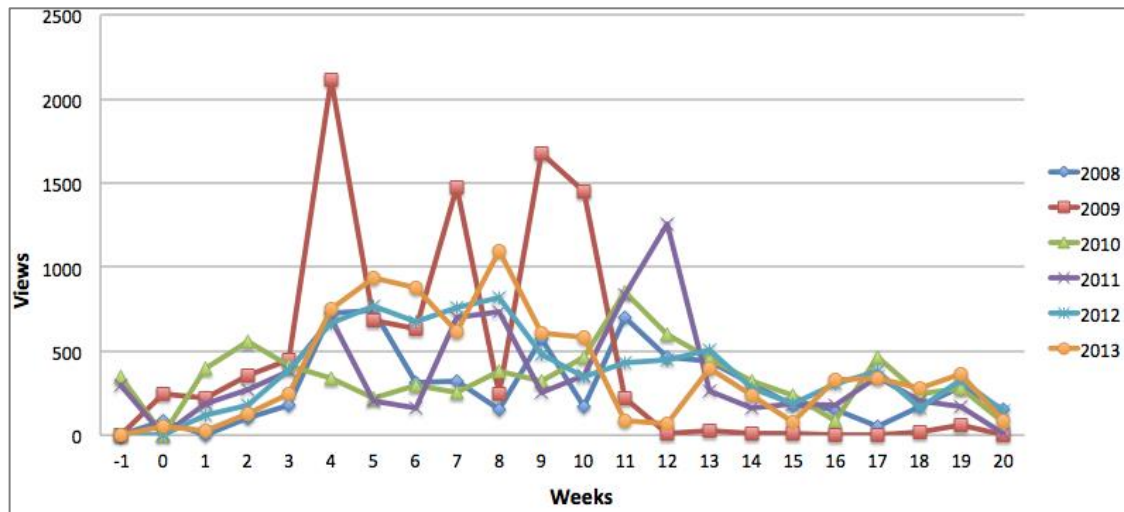
Figure 1. Student views in weeks of each year's course.
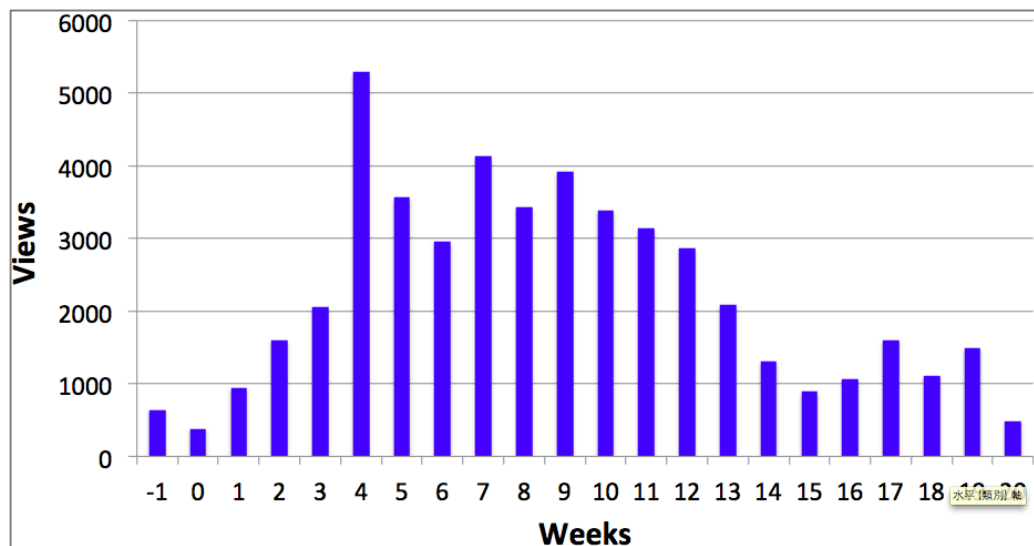
Figure 2. Total student views in each week.

12, when the book club activity begins. The third is around week 17 when the online competition kicks in. According to the LMS logs, the video, how to make a presentation video, apparently was the most viewed teaching material. Following "the instruction of the book clubs" came second. Among the 4,130 discussions, there was a mean of 11 discussions per student with a median of 8 which was recorded. A medical student hit the highest frequency of 62 discussions.

Grading from various assignments

Both in-team and between-team peer reviews of team

presentations represented a portion of the team presentation score. Final grade of a student came from homework, team presentation, competition scores, online activities, as well as peer reviews. The average of student grades was 82.2% with a median of 87.4%. A positive correlation between a student's final grade and his/her course reading records was demonstrated, as shown in Figure 3. Students who spent more time on the learning content generally scored higher in grades.

Differences among majors

The BCC course is a general election course for all
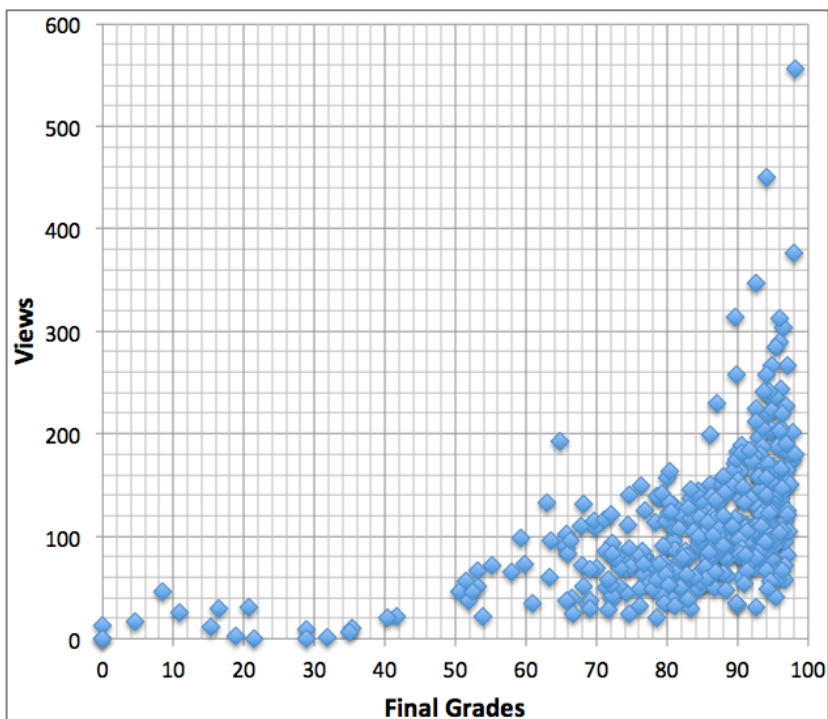
Figure 3. Content views versus final grades.

Table 1. Average grades of students in different majors.

Majors	*n*	Drop-out	Average	*SD*	Max
Medicine	82	0	83.16	18.04	97.85
Dental	46	0	85.36	15.69	97.50
Pharmacy	59	1	86.06	8.90	98.10
Med Tech	27	0	78.79	14.23	96.00
Nursing	14	0	76.57	21.27	94.10
Nutrition	53	0	84.51	12.19	97.10
Public Health	25	0	72.24	24.31	97.10
Health Administration	9	0	83.08	11.65	96.40
Respiratory Therapy	11	1	79.38	10.04	98.04
Gerontology Health Mgt	15	0	82.42	16.33	98.19
Dental Tech.	22	0	83.80	11.68	96.20
Allied Universities	11	1	68.31	20.53	93.85

students in a medical university. Enrolled students vary in their majors and in academic years. In this survey, 22% of enrolled students are from school of medicine and 15.8% from school of pharmacy. Students' performances in their majors are shown in Tables 1 and 2. Comparing the average grades, students in pharmacy appears to score slightly higher than all other medical students. Comparing the records of views and discussions, students in public health and nursing tend to view less and talk less.

DISCUSSION

Many interesting videos can be introduced to non-computer science major students to facilitate their computer literacy. A course designed both for those with little, if any, computer experience and for those who use

Table 2. Average participation data of students in different majors.

Majors	*n*	Discussion	View	V/D
Medicine	82	11.4	111.4	9.8
Dental	46	13.1	119.1	9.1
Pharmacy	59	11.5	116.3	10.1
Med Tech	27	10.0	102.3	10.3
Nursing	14	8.7	97.1	11.1
Nutrition	53	9.9	104.0	10.5
Public Health	25	7.3	96.8	13.2
Health Administration	9	10.9	107.4	9.9
Respiratory Therapy	11	11.8	122.0	10.3
Gerontology Health Mgt	15	13.1	129.7	9.9
Dental Tech.	22	11.9	104.1	8.8
Allied Universities	11	11.5	88.1	7.6

Table 3. Documents and discussions done by students in the BCC course.

Semester	Documents	Discussion
2008	470	294
2009	464	678
2010	631	764
2011	370	879
2012	481	1257
2013	547	927

a computer every day just accomplishes its purpose as suggested by Malan (2011). Students' responses indicate that these OER videos are interesting and challenging. Videos with subtitles are highly proposed by those who are not English-native speakers. There are not so many courses with full English content in this medical university. At present, increasing numbers of international students elect this course due to its English-speaking content. Students obviously divide into groups of native students and international students and the two groups show opposite opinion on the language issue. In addition, the first version of video was in Flash video format and was not mobile-device friendly. These videos have been changed into MP4 format in 2014.

Students have shown the enhancement of self-regulated learning through Malan's OERs. Course activities appear to induce students to participate and view more. Teaching materials consisting of more operations and instructions have gained more views than just delivering knowledge content. Although, activities of the book club and Jeopardy-like game were not popular in this survey, they offered opportunities for students to cooperate with each other in the learning process. Few students left very encouraging massages in the forum and appraised the interactions appear in the online competition. During the period of 2008 to 2013, after summing up online documents and discussions produced by students through LMS records, the BCC course was considered to be one of the most "active" courses. The amount of each year is indicated in Table 3.

To manage the course, the instructor used to consume considerable amount of time to reply the students' message and setup the LMS content. Thanks to the efficient support of the LMS, many logistical issues can be resolved by this educational technology. However, to calculate peer review scores fairly is still a fairly challenging task. A better design LMS function to support instructor logistics may be needed. Overall, the BCC course in this study has been offered once per year in a medical university as a general education course for the past 10 years. In the beginning, this course was primarily a lecture-based format. Both the instructor and students were dissatisfied with either the content or the outcomes. After the introduction of innovative course activities, students tended to show positive response in course satisfaction, even though the new design requires considerably more time on assignments and studying. Recent surveys show that more than 90% of students who took the course reported they have learnt the BCC. In addition, more than 90% of students who took the

course recommend it to others. These perceptions are supported by the fact that the enrollment rate of this course has increased in recent years, and it has become one of the most popular courses in the university where this study was conducted.

Further research is recommended regarding relationships of student majors to outcomes in the BBC course. It is expected that students' performance will be different among majors in the health science field. Traditionally, medical students have higher entrance exam scores than other students of health-related majors and therefore may be expected to perform better. In this course, the result does support this expectation. However, further study may be needed regarding these findings and the details of relationships between student majors and BCC course outcomes.

Conclusion

Based on the findings of this study, innovative activity design appears to be an effective method to enhance computer literacy for undergraduate students with health science related majors. Utilization of educational technologies, such as LMS and OER, can benefit both instructors and students. Further research should be undertaken to validate and extend these findings, and to examine direct relationships between a computer literacy course and student academic performance, both in the BCC course itself and subsequently other academic work.

Conflict of Interests

The authors have not declared any conflict of interests.

Ethical approval

For this type of study, formal consent is not required at the university where this study was conducted.

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Full Length Research Paper

Investigating the primary school teachers' perspectives on the use of education platforms in teaching

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Technology plays an important role in educational activities in Turkey. This is largely because of the Faith Project, which was recently introduced into the country. The Fatih Project is a project of Turkish government which seeks to integrate computer technology into the country's public education system. Education Informatics Network is one of the sub projects of the Faith Project which makes many free websites available for teachers' use. Furthermore, Ministry of Turkish National Education has included primary schools in the project and as a result, the usage of education platforms at primary schools is available now. Considering all the mentioned points, the purpose of this study was to find out classroom teachers' opinions in employing the education platforms in teaching. The participants of this study consist of teachers working in the city of Mersin, Turkey. The data were gathered from 116 primary school teachers working in the first, second, third and fourth grades, by using a semi-structured interview with 7 open-ended questions. The data were analyzed based on a descriptive research design. Besides, a qualitative approach was employed based on the answers given in the interview. The data and their frequencies are presented in tables. As a result of the data obtained from the study, it has been concluded that class teachers think education platforms are useful, the usage frequency of education platforms varies relative to different factors; and education platforms are used in an attempt to provide effective and permanent learning. Moreover, it was also stated in the study that teachers are not competent in using these education platform and they lack the required background knowledge. Consequently, several suggestions have been made to eliminate the mentioned inadequacies.

Key words: Education platforms, primary school teacher, technology, the Fatih Project.

INTRODUCTION

Knowledge is dynamic and it develops constantly, and the place of technology cannot be ignored. Technological developments enable knowledge to improve in a fast and more reliable way. In the field of education, knowledge is like a raw material that is refined by technological developments and ignoring this development gives way

to failure. Teachers should follow technological develop-ments closely and they should be equipped with technological skills. Besides, teachers should use computers, which are the most important tools of technology.

In a world where science and technology advances rapidly, knowledge should not be transferred or memorized through traditional education methods. Based on the aforementioned point, education programs should be changed; and rather than training individuals by memorization, the aim of teaching should be to educate students who are, autonomous, creative, thinking critically and scientifically (Yavuz and Coşkun, 2008). In an educational setting, various factors are considered to administer the use of information technology. For instance, the teachers are considered to administer it (Sert et al., 2012). According to Xenos (2004), in the computer-based lessons, various training materials are given to students through web sites in which the traditional role of teachers loses its importance. On the other hand, teachers can focus on counseling, figuring out potential difficulties and taking appropriate precautions while students choose from the various offered educational materials. By doing this, teachers will gain their significance (Odabaşı, 2002). Informational technology use is progressing rapidly in Turkey like it is throughout the world. The use of computer has been widespread in the Turkey since the 1990s. As a result, it is important that individuals acquire relevant knowledge on technology use (Yılmaz et al., 2015). The Faith Project in education aims to use tools of information technologies within the lessons effectively in such a way that it refers to more sensory organs to provide equality in education as well as to improve the required technology at schools (faith projesi.meb.gov.tr, 2015). The components of the Fatih Project can be examined in five main sections which are: equipment software, e-content, using the information technologies and in-service education of the teachers. As the Ministry of Turkish National Education has included primary schools in the Faith Project, using Education Informatics Networks platform during both indoor and outdoor activities has become inevitable for primary school teachers.

Education Informatics Network designed by Directorate General is an innovative and educative social platform which uses information technology to provide safe, appropriate and analyzed e-contents for the use in the classroom. Education Informatics Network which was designed particularly for teachers and students and all the education partners provides the following features:

1. Offering different, rich and educational contents,
2. Providing information on culture which will be used in education, thereby popularizing it,
3. Meeting the required content,
4. Exchanging information on social network,
5. Contributing to lessons through its rich and growing archive,
6. Availability of dynamic information,
7. Involving the students to use different learning strategies (linguistic, visual, mathematical, interpersonal, auditory, etc.),
8. By bringing all teachers together on the common ground, initiating them to direct education in cooperation,
9. Being a social education platform which has been designed to use education not as a purpose but as a tool (fatihprojesi.meb.gov.tr, 2015).

As the Faith Project, which refers to the *Movement of Enhancing Opportunities and Improving Technology*, has been initiated at high schools and primary schools, it is required that teachers' level of competency of computer use should be assessed (Yılmaz et al., 2015), since a teacher should possess appropriate knowledge of computer use for an effective teaching. If the teacher lacks this knowledge and does not know how and what to teach, the aim of the computer based instruction will not be achieved. For this reason, it is necessary for teachers to improve their professional skills of using the required technology effectively before going into the classroom.

A primary school teacher plans suitable activities for the classroom, guides students in these activities, makes evaluations and takes a close interest in the challenges of each student while carrying out these activities (Oğuzkan, 1974). Primary school teachers not only teach students how to read and write but also help them in physical, mental, emotional and social development (Gültekin, 2000). In addition to having the required professional knowledge, primary school teachers should be versatile enough to possess knowledge of the use of computers and other technological equipment, and to use internet during lessons (Smith and Handaker, 2000). The role of teachers is to be a bridge between students and their web-supported lessons. The main duties of a teacher are following the needs and abilities of the students and providing guidance to the students in order to make good choices for them (Xenos, 2004).

Furthermore, the availability of teaching elementary school students by means of web should be taken into consideration with especially referring to technology. This is why certain principles like the appropriateness of the material for the students' level and the curriculum have to be considered (Alkan and Kurt, 2000). Web-supported education which will be used to boost classic education will be included in students' indoor and outdoor activities (Harris, 1999). However, out of the classroom, surfing on the net should be closely monitored.

Purpose

The aim of this study is to investigate the perspectives of primary school teachers on the use of education platforms in teaching. With this in mind, the answers to
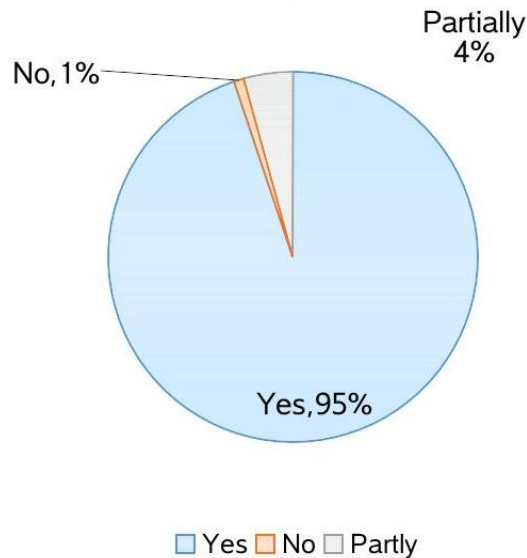
Figure 1. Rate of teachers' finding the educational platforms useful.

the following research questions have been put forward:
What are the perceptions of the primary school teachers on the use of education platforms in teaching?
More specifically:
1. What are the perceptions of primary school teachers on the efficiency of education platforms?
2. What are the perceptions of primary school teachers on the kind of activities education platforms used?
3. What are the perceptions of primary school teachers on the reasons why they prefer education platforms?
4. How often do the primary school teachers use education platforms?
5. Does the use frequency of education platforms differ according to gender and experience factors?
6. What are the perceptions of primary school teachers on which education platforms are often used?
7. What are the perceptions of primary school teachers about which lessons education platforms are preferred?
8. What are the perceptions of primary school teachers about the effects of education platforms on students' attitudes towards the lesson?
9. What are the perceptions of primary school teachers on the advantages of using education platforms?

METHODS

Qualitative research design was used in this study. It is an approach which tries to understand social facts and how these facts refer to environment based on perspectives and principles (Yıldırım and Şimşek, 2013). Qualitative methods should be used to reveal the perceptions of the individuals and to understand the external world from their points of view.

Qualitative methods are necessary to understand why individuals behave in such a particular way and how they make sense of this behaviour (Yıldırım, 1999). Bogdan and Biklen (1997) defined interview as a tool most frequently used in qualitative studies, which effectively reveals the points of views, experiences, feelings and opinions of the participants (Yıldırım and Şimşek, 2013). In-depth interviews are used highly for collecting data on the perspectives and experiences of people, especially when sensitive topics are being discovered (Mack et al., 2005). Here in this study, a semi-structured interview designed by the authors was used to explore the perspectives of the participants; the semi-structured interview guide supplies a clear set of instructions for interviewers and can provide reliable, comparable qualitative data (Louise-Barriball and While, 1994). Besides, in this study, the literature review was formed and the data relevant to education platforms were collected. The aim of this work is to find out the opinions of the primary school teachers about using education platforms in teaching.

Participants

This study was carried out with primary school teachers working in Mersin, Turkey. As it is clearly understood from Table 1. One hundred and sixteen (116) primary school teachers participated in the study, seventy-five (75) of whom were female while forty-one (41) were male. Besides, Figure 1 states the frequency of teachers who find educational platforms useful.

From the data, 110 (94%) of the participants found education platforms useful, 1 primary school teacher (1%) found it not useful, and 5 teachers (5%) stated that It is partially useful. One can understand from Figure 4 that in terms of years of experience, sixteen (16) of the teachers worked for 0-5 years; forty-eight (48) of them worked for 6-10 years; 25 worked for 11-15 years; 17 worked for 16-20 years; and 10 of the teachers worked for over 20 years. Regarding the graders, 32 of the teachers teach the 1st graders; 37 of the teachers teach the 2nd graders; 2 of the teachers teach the 3rd grader; and the remaining 25 of the teachers teach the 4th grader. The data of the participants is shown in the following table.

Instruments

The data in this study were collected through a semi-structured open ended question form designed by the researchers. The question form consists of two parts. The first part contains questions about personal data, while in the second section there are 7 questions. To ensure the validity of the form, an expert's opinion was sought and a pre-practice form was issued out to some teachers. The teachers who participated in the pre-practice were not involved in the study later on. While preparing the semi-structured question form, the views and suggestions of the members of the Department of Primary Education at Mersin University, primary school teachers, and Faculty of Educational Science members were consulted. In qualitative research design, semi-structured open ended question forms are usually given to individuals to obtain data, so 116 individuals who participated in this research were interviewed individually; the interviews were recorded and translated into texts for the question form.

Procedure and data analysis

Based on a descriptive analysis method, the acquired data were summarized and interpreted according to the questions used in the interview (Yıldırım and Şimşek, 2013). In this research, the practices and opinions of the teachers were analyzed in accordance with the purpose of the research.

Successively, the data in this study were coded, divided into themes and categorized going through the literature with the help of experts, then they were described clearly and systematically. After descriptions, explanations, interpretations and cause-effect relations, conclusions were arrived at. The data were tabulated and

Table 1. Participants.

		(f)	%	Total (f)	%
Gender	Female	75	64.7		
	Male	41	35.3		
Experience	0-5 years	16	13.8		
	6-10 years	48	41.4		
	11-15 years	25	21.6		
	16-20 years	17	14.7	116	100
	20 above years	10	8.6		
Grade	1st grade	32	27.6		
	2nd grade	37	31.9		
	3rd grade	22	19.0		
	4th grade	25	21.6		

Table 2. Efficiency of education platforms.

Items	(f)
It embodies learning process by enriching it through visual and aural aspects.	37
It is accessible and it is a useful facilitator.	20
Others…	20
It increases the interaction between the students and the teacher.	16
It makes learning effective.	9
It compensate for the insufficiencies of the textbooks.	7
It makes learning fun and attractive.	6
It is useful for reinforcement and review.	4
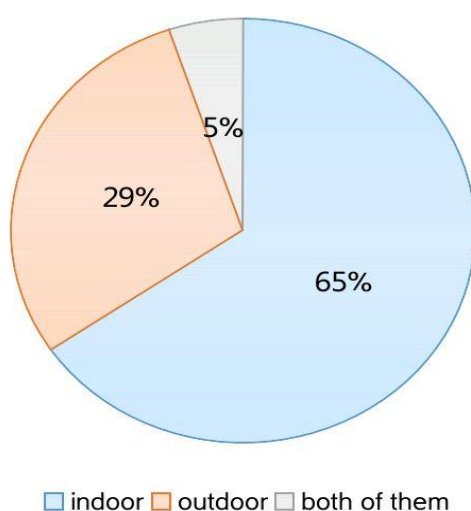
Figure 2. The kind of activities education platforms used.

the frequency of occurrence were digitized and presented in tables in order to clarify the subject more. The digitized data increases reliability as well as being more understandable (Yıldırım and Şimşek, 2013). While digitizing and tabulating the data, Microsoft Office 2016 program was used. Teachers who find education platforms useful gave the following reasons in Table 2.

According to Table 2, the most frequent item is "It embodies learning process by enriching it through visual and aural aspects". (f:37), followed by ''It is accessible and a useful facilitator.'' (f:20). Thus, it can be interpreted that the primary school teachers use education platforms in education because they provide effective and permanent learning facilities and support learning activities. While 76 respondents out of 116 primary school teachers said that they use education platforms in indoor activities, 34 of them stated that they use the platforms in outdoor activities and 6 respondents stated that they use the platforms in both indoor and outdoor activities (Figure 2). Teachers who do not use the platforms in outdoor activities explained that their reason is that the students do not have access to the platform outside school.

Table 3 shows why teachers prefer to use education platforms. According to the table, the most frequent reason is that ''Education platforms are appropriate for the students level and they are understandable.'' (f:23); followed by ''They have rich content.'' (f:17). The opinions shown on this table can be interpreted as primary school teachers prefer education platforms depending on their appropriateness for the level of the students, and as they are designed in rich content. The frequencies of teachers' using education platforms are seen in Table 4. According to the table, the highest times for platform use (in weekly periods) are ''5-6 h'' (f:24), ''3-4 h'' (f:23) and ''1-2 h'' (f:19). Based on these durations, it can be concluded that teachers use education platforms for an average of one-two hours per day.

Table 3. The reasons why teachers prefer education platforms.

Items	(f)
They are understandable and appropriate for the level of the students	23
They have rich content	17
They are attractive and enjoyable	9
They are easy to use	7
They are free	5

Table 4. The use frequency of education platforms.

Weekly average	(f)
Never	7
1-2 h	19
3-4 h	23
5-6 h	24
7-8 h	14
9-10 h	13
10 h and above	6

Table 6. The lessons education platforms used.

Items	(f)
Maths	68
Turkish	54
Life science	48
Science and Technology	26
All lessons	22
Others	12
Social Studies	11
English	6

Table 5. Education platforms used often.

Items	(f)
Morpakampüs	75
Eğitimhane	21
Education Informatics Network	14
Vitamin	14
Okulistik	11
Other	10
Sınıföğretmeniyizbiz	3

Regarding the weekly use of education platforms according to the gender factor, with 4.25 h a week, female primary school teachers show less time of use as compared to the male primary school teachers who spend 5.45 h of usage.

When the averages of the total weekly time use of education platforms were taken based on the professional experiences, primary school teachers who have 0-10 years of experience outnumber those who have experience of 10 years and above. Looking at this figure, it may be concluded that the more the professional experience of the primary school teachers, the lesser technological proficiency they have. It can thus be concluded that the time spent using education platforms reduces in time.

According to Table 5, the most frequently used education platforms are in the following order: ''Morpakampüs.'' (f:75), ''Eğitimhane.'' (f:21) and ''Education Informatics Network.'' (f:14). The frequencies shown in the table also indicates the order of preference.

Table 6 shows the lessons in which education platforms are used and the frequencies of use in these lessons. According to the table, the lessons in which education platforms are mostly used are: ''Maths.''(f:68), ''Turkish.''(f:54) and ''Lifescience.''(f:48). The data in the table show that primary school teachers get better efficacy

when they use education platforms while teaching the lessons like Maths, Turkish and Lifescience as compared to other lessons.

In Table 7, the effects of using education platforms in the lessons on the students' attitudes are that education platforms affect their approaches positively and increase attendance in the lesson. On the other hand, 5 of the primary school teachers stated that using education platforms too much had both positive and negative effects. One (1) teacher expressed no opinion on this issue.

Table 8 shows the advantages of using education platforms in teaching. The most mentioned advantage is that ''They embody abstract concepts.''(f:27), followed by ''They catch students' interest and attention.''(f:27), and then ''They provide effective and permanent learning.''(f:26). The order of these advantages can be summarized as: when education platforms are used in lesson by teachers, they catch the attention of the students more, the students are more involved in the learning, and they provide effective and permanent learning.

RESULTS AND DISCUSSION

The aim of this study was to investigate the opinions of the primary school teachers on the use of education platforms in teaching. The views and opinions of the teachers were revealed through a semi-structured interview. Nearly all the teachers who participated in the study stated that they are trying to use education platforms in teaching. However, the teachers think that the physical background of education platforms is inadequate. At primary schools, teachers use education platforms in education activities as long as the opportunities are sufficient. In the study conducted by Çağıltay et al. (2001), it was revealed that one of the reasons for the teachers' lack of interest in the use of

Table 7. The effects of education platforms on students' attitudes towards lessons.

Items	(f)
There were positive, remarkable, interesting, enjoyable, and lesson attendance enhancing effects	110
Negative and positive effects are both avaible (when used more than needed)	5

Table 8. The advantages of using education platforms.

Items	(f)
1. They embody abstract terms.	27
2. They catch students' interest and attention.	27
3. They provide effective and more permanent learning.	26
4. They save time and resource.	23
5. They are effective tools for repetition and reinforcement.	16
6. They provide rich content.	13
7. They are easily accessible.	6
8. They increase the interaction between students and teachers.	5
9. They offer innovations.	5
10. They compensate for the insufficiencies of the textbooks.	4
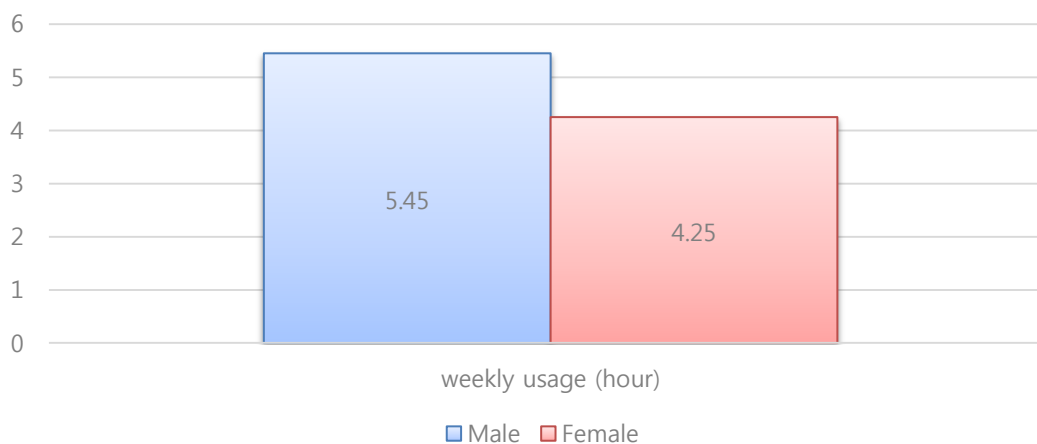
Figure 3. The use frequency of education platforms according to gender factor.

computer technology is that computers are not readily available. Besides, the study of Granger et al. (2002) is parallel to the conclusions of our study. It was concluded that one of the factors affecting technology integration into education is the shortage of materials in schools (Rice and Valdivia, 1991; Branch et al., 1999; Granger et al., 2002; Jochems, Koper; Van Merrienboer, 2004).

Furthermore, according to the results of the study, women use the education platforms more than men. It can also be concluded that as the experience of profession increases, the time for using education platforms decreases. Teachers who have 0-10 years of experience use online education platforms more frequently. In her study, Akkoyunlu (2002) revealed that teachers who had 0 to 15 years of experience used the internet more frequently. This result shows similar consequences as compared to the present results as well.

For the primary school teachers participated in the study, using visually and auditory enriched education platforms makes education process more enjoyable and provides productivity for both students and teachers. Education activities taking place through this way embody abstract concepts and make process of giving data easier. The primary school teachers revealed that education platforms are the biggest aids for effective

weekly/hour

Figure 4. The Use frequency of education platforms according to experience factor.

teaching and for using teaching time efficiently. That's to say, the primary school teachers that participated in the study find education platforms useful and they believe tha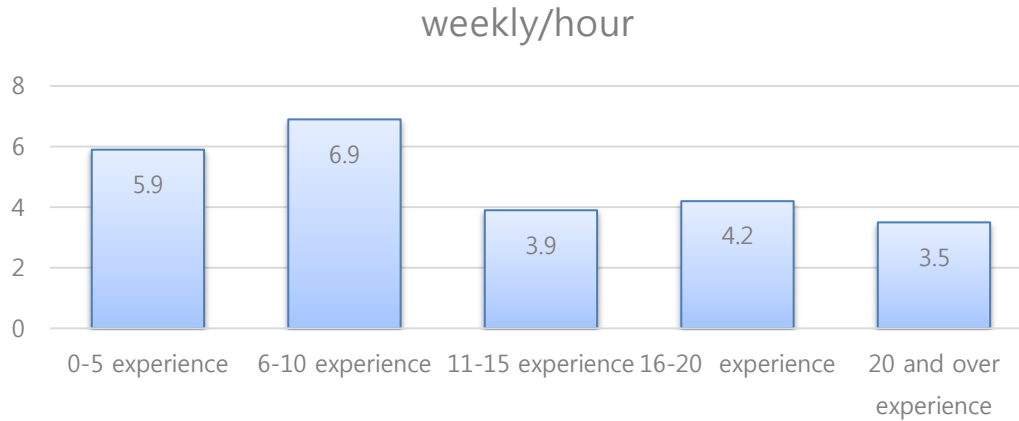t these platforms have positive impacts on them. Besides, the reasons why they prefer education platforms are their being free, easily accessible and suitable for the students' level, as well as having rich content. In the research conducted by Çağıltay et al. (2001), they found out advantages of using computers in education. In the research done by Odabaşı et al. (2002), it was also found out that web-assisted education offered a rich educational environment to the primary school students in terms of stimulus and embodying abstract concepts. These mentioned results overlap with this research results again.

The study results show that teachers use education platforms and this provides benefit in teaching and learning processes. This result is also emphasized in other research studies conducted. These studies have shown that the interaction in web-based environments plays key role in success (Moore and Kearsley, 1996; Palloff and Pratt, 2001; Odabaşı et al., 2002). A new era has started through these applications. All over the world, views and innovations spread faster now as compared to those in the past (Gülbahar et al., 2010).

It was also concluded that the primary school teachers that participated in the study use education platforms mostly in Turkish, Lifescience and Science and Technology lessons, while according to the study of Akkoyunlu (2002), maths is the leading lesson.

According to research results, primary school teachers mostly use such education platforms as Morpakampüs, which is followed by Eğitimhane. Teachers have declared the reasons why they prefer education platforms as these platforms firstly have rich content, as well as being for the level of the students, and are easily accessible and free.

The primary school teachers that participated in this study declared many advantages of education platforms. These advantages are that they embody abstract concepts,

they catch students' interest and attention and provide effective and permanent learning, they save time and source, as well as being effective tools for repetition and reinforcement, and provide rich content.

Suggestions

1. Pre-service teachers should perform model practices with education platforms during their university education.
2. Teachers should have in-service trainings to learn how to use education platforms.
3. In schools, infrastructural and equipmental problems which prevent the usage of education problems should be abolished.
4. The opportunities to access education platforms in outdoor activities for the students should be provided with the collaboration of the school and the family.
5. To increase the variety of education platforms, governmental projects should be put into practice, and more platforms should be incorporated as an extension of Education Informatics Network.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

Measurement equivalence of teachers' sense of efficacy scale using latent growth methods

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This study is based on the application of latent growth modeling, which is one of structural equation models on real data. Teachers' Sense of Efficacy Scale (TSES), which was previously adapted into Turkish was administered to 200 preservice teachers at different time intervals for three times and study data was collected. Measurement equivalence of TSES was analyzed over this data using second-order latent growth models. For this aim, whether the scale achieved measurement equivalence at metric and scalar level was tested. The findings support that Teachers' Efficacy Scale has measurement equivalence in time. Time intervals between the applications of the scale were associated with school experience (internship programs) of preservice teachers. The applications were carried out before, during and after internship. It was found that preservice teachers' sense of efficacy increased in time and that as school experience increased belief towards professional sense of efficacy developed.

Key words: Latent growth models, measurement equivalence, longitudinal study, teachers' sense of efficacy.

INTRODUCTION

Latent growth models (LGM) among structural equation models, is used to analyze time-dependent change. These models were first introduced by Rao (1958) and Tucker (1958) as the basis of longitudinal factor analysis and were later developed and corrected by Meredith and Tisak (1984, 1990), McArdle (1988), McArdle and Epstein (1987) and Muthen (1991). Longitudinal analyses use different statistical techniques for data analysis. One of these methods is the approach, which deals with "raw change" in scores. Analysis of variance (ANOVA) and multiple regression methods analyze the difference between the first and second time measurements as a function of individual or group characteristic (Curran and

Muthen, 1999). Another alternative approach involves the analysis of "residual variance". Analysis of covariance (ANCOVA) is one of the typical applications of this method. ANOVA only analyzes "raw change;" in other words, the change in mean and finally change in each individual is indicated as error variance. However, this "error variance" in fact, gives important information about the quality of change. For this reason, researchers studied methods to better explain the nature of change and differentiation of the individual (Duncan and Duncan 2004). Time series analysis methods model change in data, rather than the change in structure. Although LGM, which are developed as a result of these studies, is a

stronger method in statistical terms, in studies which are based on the comparison of two methods, it gives a higher fit between the underlying theory of the analysis method and the statistical method (Preacher et al., 2008).

Latent growth model

LGM offer a more suitable methodology for longitudinal studies, which measure the change in the latent structure consisting of manifest variables. The variables observed in these types of studies are generally obtained from total or mean scores obtained in time of an item set under a single structure. The obtained observed variables are used in identification of first order LGM. In first-order LGM, the model fits to the vector and covariance matrix of mean observed variables scores which were reformed at each time for each individual (Sayer and Cumsille, 2001; Andruff et al., 2009; Sessoms and Finney, 2015; Kim and Willson, 2014).

While calculating time-dependent variance in LGM, two parameters of latent growth factor were determined. These parameters are first situation and change ratio. In model function, the first situation corresponds to intercept and variance ratio corresponds to slope (Fraine et al., 2007).

Considering that the markers observed for first-order LGM are *X, W*…and *Y* and the sum of these items point out to *V* observed variable, *V=X+W+….+Y.*

For first-order LGM, it is expressed as follows;

$$V_{(t)n} = f_{0n} + \beta_{(t)} f_{sn} + e_{(t)n},$$

Where *V* indicates observed variable score observed at *t* time for *n* people while f_{0n} and f_{sn} show intercept and slope values. Apart from this, β shows the basic coefficient determined from the shape of the slope and *e* indicate residual terms for *n* people at *t* time which cannot be explained with intercept and slope values (Ferrer et al., 2008).

Since first-order LGM is easily calculated and interpreted, they are commonly used in a lot of fields. On the other hand, easy adaptation of model is one of the strong aspects of first-order LGM. However, the principle limitation of this model is that the same latent structure is evaluated for the measurements at each time level. Presence of a single indicator for each measurement time makes it impossible to apply standard procedure to identify factorial invariance. For this reason, researchers cannot calculate but only estimate the variance, which is the effect of the observed variable on the latent invariance dimension for each measurement time (Ferrer et al., 2008).

Second-order LGM is an approach which allows for modeling of the change of latent level in time. This model is a multiple variable extension of first degree LGM. Its most important advantage is that factorial invariance of model parameters can be calculated for the

measurements at each time level. When factorial invariance is kept constant, it can inform the researcher that the same latent dimension is measured as the same at each time level. If factorial invariance is achieved, in that case, intercept and slope parameters of the model can be calculated. For example, a model with three variables can be written as follows;

$$X_{(t)n} = \tau_x + \lambda_x f_{(x)n} + e_{x(t)n},$$
$$W_{(t)n} = \tau_w + \lambda_w f_{(x)n} + e_{w(t)n}, ve$$
$$Y_{(t)n} = \tau_y + \lambda_y f_{(x)n} + e_{y(t)n},$$
$$f_{(t)n} = f_{0n} + \beta_{(t)} f_{sn} + z_{(t)n},$$

In the equation above, observed variables of *n* people at *t* time are indicated with X, W and Y. In the equation, τ indicates the intercept, λ indicates factor load or the indicator of linear slope for factor *f*, *e* indicates single factor score, f_{0n} and f_s indicate intercept and slope values of *f* factor for *n* people and β indicate basis coefficients determined from the shape of the slope and $z_{(t)}$ expresses distribution term of *f* factor at *t* time. Diagram of this model is presented in Figure 1. In the figure, observed variables are indicated with square, while latent variables are indicated with circle. On the other hand, triangles represent the intercept with which means and slopes are estimated.

Three prerequisites should be satisfied to make LGM analysis (Kline, 2005). First of all, measurement at constant (at equal intervals) level at minimum three different situations belonging to one independent variable is required. Secondly, the measurements should be collected from the individuals simultaneously and finally measurement equivalence should be achieved (Dural et al., 2011). Achieving measurement equivalence means that the measurements observed at different time points measured the same structure.

Measurement equivalence for LGM

Longitudinal measurement equivalence or time-dependent measurement equivalence indicate the status of measurement values obtained from the same measurement tool at different times. Achieving measurement equivalence means that the structure formed by the observed variables by latent structure measured at different times is the same at each measurement time (Drasgow, 1987; Meredith, 1993; Hancock et al., 2001; Ferrer et al., 2008).

Factorial equivalence whose scope was determined by Meredith (1964, 1993) was analyzed by taking measurement equivalence of common factor model as a reference in general terms (Stoel et al., 2004, Ferrer et al., 2008). In previous studies, factorial equivalence was divided into two categories, which are metric equivalence and non-metric equivalence (Horn et al., 1983; Meredith, 1993; Widaman and Reise, 1997). Metric equivalence is hierarchically analyzed in three steps which are weak,
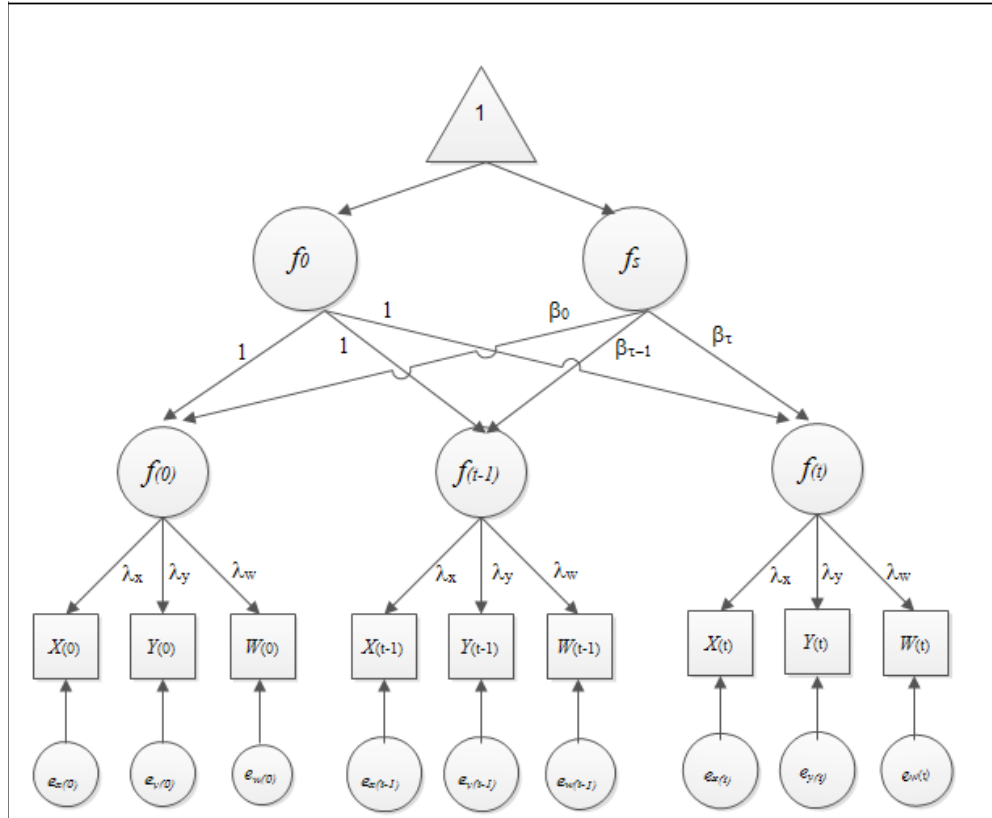
Figure 1. Second order LGM.

strong and strict factorial equivalence (Ferrer et al., 2008).

Non-metric equivalence means similar properties of indicators of latent structure without numerical data for parameter estimates. Weak factorial equivalence points out those factor loads of each observed variable take time-dependent values. On the other hand, strong factorial equivalence refers to adding invariance of intercept value of each indicator to weak equivalence. In strict factorial equivalence, in addition to factor loads and intercept value, it is expressed that specific variance of each indicator also changes in time (Ferrer et al., 2008). Analysis of measurement equivalence using second-order latent growth models only test weak and strong equivalences; after achieving strong equivalence, strict equivalence analysis cannot be generally performed. In other words, achieving scalar (strong) invariance is considered as adequate for measurement equivalence (Vandenberg and Lance, 2000; Wu et al., 2007).

Chi-square "χ^2" values and Comparative Fit Index (CFI) determined from two models are used to determine whether measurement equivalence is achieved or not (Byrne and Stewart, 2006; Vandenberg and Lance, 2000; Wu et al., 2007). $\Delta\chi^2$ and ΔCFI are calculated taking the difference of χ^2 and CFI values belonging to two models. While testing statistical significance of the obtained $\Delta\chi^2$,

this value is compared to critical chi-square value corresponding to the difference between degrees of freedom of two models. Obtaining a statistically insignificant $\Delta\chi^2$ value as a result of this comparison indicates that measurement equivalence is achieved. Although no statistical significance test can be made for ΔCFI, if the ΔCFI value obtained from the comparison of two models is equal to or smaller than -0.01 value can be used as a proof of achieved measurement equivalence (Byrne and Stewart, 2006; Vandenberg and Lance, 2000; Wu et al., 2007).

Aim

This study examined time-dependent measurement equivalence of second-order LGM using real data. The teachers' sense of efficacy scale's weak and strong measurement equivalence in second order LGM was tested. Besides, the measurement tool's longitudinal measurement equivalence was examined. This study also investigated further evidence for the construct validity of the three factor subscale scores via analyzing the measurement equivalence of TSES using second-order latent growth models. On the other hand, we tried to analyze how Teachers' Sense of Efficacy changed as

the teachers' experience increased.

METHODS

Type of the study

Since the study is based on the examination of data on the practical use of LGM models, it is a descriptive study. However, as the measurements of Teachers' Sense of Efficacy were taken at different time intervals, it can be considered as longitudinal study.

Study group

Sampling of the study included preservice teachers enrolled in Ege University, Program of Teaching (Pedagogic Training for Preservice Teachers). Real data was obtained from repetitive measurement of Teachers' Sense of Efficacy Scale on 200 students who were randomly selected from a total of 400 students. The sampling consisted of a total of 200 students with bachelor's degree, of whom 128 (64%) were female and 72 (36%) were male.

Measurement tool

Original form of Teachers' Sense of Efficacy Scale-TSES was developed in "Self Efficacy in Learning and Teaching" seminar held in Ohio State University. New items were added based on self-efficacy scale of Bandura and a 24-item scale consisting of 9-item Likert scale was designed (Tschannen-Moran and Hoy, 2001). The reliability for the 24-item scale was 0.94 and construct validity evidence obtained by authors.

Original scale was adapted in Turkish in 2005 after completing validity and reliability studies (Çapa et al., 2005). The Turkish adaptation of the scale contained 3 sub-dimensions and 24 items like in the original one. Sub-dimensions of the scale measure teacher competencies in "using educational strategies", "classroom management" and "providing student participation".

Teachers' sense of efficacy refers to belief or perception of a teacher that he/she can produce desired learning products even in case of the presence of generally problematic students with low motivation (Tschannen-Moran and Woolfok-Hoy, 2001). The characteristics of individuals with sense of efficacy include struggling with problems and having a determined attitude towards problem-solving, in other words, loyalty to new targets (Bandura, 1997; Scholz et al., 2002).

Cronbach's alpha coefficient calculated for Turkish adaptation of Teachers' Sense of Efficacy was found to be .93. However, it was calculated as .84 for "using educational strategies"; .84 for "classroom management" and 0.86 for "providing students participation" (Capa et al., 2005).

Total scores obtained from Teachers' Sense of Efficacy Scale gives information about professional sense of efficacy of teachers or preservice teachers. High scores received from the scale indicate higher sense of efficacy for teaching profession while low scores indicate lower sense of efficacy. It also provides information about their levels in classroom management, providing students participation and using teaching strategies which are sub-dimensions of teachers' sense of efficacy.

Procedure

Teachers' Sense of Efficacy Scale was administered to a total of 200 preservice teachers who were selected as unbiased in three replications before (the first application), during (in the middle of internship) and after the internship (the third application) during 2012/2013 spring semester. This application aimed to examine how teachers' sense of efficacy varied before having any experience; after having a certain degree of school experience and after completing internship programs. The data were gathered at 60-day intervals.

Analyses

M-Plus 5.1 (Muthen and Muthen, 2008) software was used for the analysis of latent growth models. In the present study, measurement equivalence in second degree LGM was analyzed using basic LGM, weak measurement equivalence in LGM and strong measurement equivalence in LGM.

RESULTS

Data analyses

Basic LGM model in Table 1 indicates a situation with no limitation to test measurement equivalence. Indices obtained from basic LGM in the analysis indicate a good fit between the model and data. In other words, measurements of latent variable at three time points show a linear increase. However, for the situation which achieved measurement equivalence, the difference between latent variable should be analyzed. Weak and strong equivalents should be tested. Table 1 presents the results of basic model, weak invariance model and strong invariance model.

Basic LGM model in Table 1 indicates a situation with no limitation to test measurement equivalence. Indices obtained from basic LGM in the analysis indicate a good fit between the model and data. In other words, measurements of latent variable at three time points show a linear increase. However, for the situation which achieved measurement equivalence, the difference between latent variable should be analyzed. Weak and strong equivalents should be tested.

Factor loadings were restricted in weak equivalence degree included in analyses. For this model, measurement equivalent was determined by subtracting χ^2 and CFI values obtained for the first model from χ^2 and CFI values. Analysis of $\Delta\chi^2$ and ΔCFI in Table 1 shows that there was no significant deterioration in the model. This means that Teachers' Sense of Efficacy Scale had weak (metric) measurement equivalence in LGM. In addition to the limitations in strong equivalence weak equivalence analyses for the scale, analysis was made by restricting intercept values. As indicated in Table 1, ΔCFI and $\Delta\chi^2$ values obtained from the difference of CFI and χ^2 values of weak and strong invariance models indicate that there is no deterioration in the model. This situation proves that condition of scalar (strong) equivalence was achieved in second level LGM for Teachers' Sense of Efficacy Scale.

The Appendix 1 includes parameter estimates and reports results of factor loads. As indicated in program

Table 1. Goodness of fit and model difference statistics of measurement equivalence.

Parameter	χ^2	sd	SRMR	CFI	$\Delta\chi^2$	Δsd*	ΔCFI
Basic LGM	118.915	25	0.051	0.915	–	–	–
Weak equivalence in LGM	120.857	29	0.069	0.917	1.942	4	0.002
Strong equivalence in LGM	122.365	33	0.070	0.919	1.508	4	0.002

Δsd* = 4 critical value; χ^2 = 13.28 at p = 0.01 level.

output, since first indicators off latent variable are fixed to 1 in the model as reference variables, no parameter estimation can be made. On the other hand, for two other indicators of latent variable, parameter estimations are given by restricting factor loads in such a way to be equivalent at three time points. "S WITH I" section in the Appendix 1 show covariance value for latent growth factors and it is understood that this coefficient is -19.06 (p = 0.00). In standardized results, correlation coefficient was -0.89 among latent growth factors which corresponds to this value. The section "Means" in parameter estimates indicates means of latent growth factors and here it is understood that mean first situation latent growth factor was estimated as zero. Main reason for this is that in second degree LGM, constant values of observed variables and mean of the first situation latent growth factor were not estimated simultaneously. Estimated mean for the change ratio of latent growth factor is 0.27 (p = 0.00). The section "Intercepts" which reports constant values for observed variables include restricted parameter estimations with equivalent constant values at three time points. Estimated variances of the first situation and change ratio factors (under the title "variances") were found to be 30.62 (p = 0.00) and 14.70 (p = 0.00) respectively. The last chapter of the Appendix 1 reports error variance values for observed (y11-y33) and latent (f1-f3) variables under the title of "Residual Variances". R^2 values which represent explanation ratio of the model of observed and latent variables were calculated as 0.71, 0.75, 0.70, 0.62, 0.68, 0.65, .81, 0.77 and 0.70 for observed variables and 0.33, 0.72 and 0.51 for latent variables, respectively.

DISCUSSION

In the present study, linear change of teachers' efficacy in time was analyzed by using real application data set within the scope of second order LGM; measurement equivalent was tested as metric and scalar level and findings of the analyses were presented. Furthermore, model parameters in the outputs were explained.

The fact that estimated mean of latent growth factor of variance ratio was statistically significant points out to a time-dependent linear change in terms of the handled characteristics. The fact that mean of latent growth factor of variance ratio was statistically significant indicate that

teachers' sense of efficacy showed a time-dependent variance. Since the obtained mean value is positive, the mentioned variance can be interpreted as preservice teachers" increased teachers' sense of efficacy in time.

Statistically significant result obtained for the variance of the first situation latent growth factor means that the individuals in the sampling was not a heterogeneous group in terms of teachers' sense of efficacy levels. On the other hand, statistically significant variance of latent growth factor of change ratio points out that the individuals in the sampling different from each other in time, in terms of teachers' sense of efficacy levels.

The relationship between latent growth factors (in other words obtaining a statistically significant covariance value) indicates that the increase the individuals with high levels of teachers' sense of efficacy at the beginning show in time was higher than that of the individuals with low levels at the beginning (Bollen and Curran, 2006; Welch, 2007). Despite this, since there is a negative relationship, it indicates that teachers "sense of efficacy levels of the individuals with lower beginning level increased more than those who had higher teachers" sense of efficacy levels at the beginning. Finally, R^2 values reported in standardized results for the estimated error variances of the observed (y11-y33) and latent (f1-f3) variable in the model are used to interpret the extent the variance in observed and latent variables are explained by the model. According to this, variance model explained 71% of variance in observed variables and 52% of the variance in latent variables on average.

Conclusion

Various research problems about sensory characteristics of individuals require analysis of behavior in time. The results of this study indicated that Teachers' Sense of Efficacy Scale had weak (metric) measurement equivalence and scalar (strong) equivalence in LGM. Considering that teachers' sense of efficacy can change as the experience of preservice teacher increases, widespread use of this type of research particularly in the field of education will significantly contribute to our knowledge of teacher training. Teachers' sense of efficacy form was administered to the students enrolled in program of preservice training, from whom data was collected, at three different times: Before the start of

teaching application (the first application); in the middle of semester (the second application) and after the completion of application training (the third application). This made it possible to investigate the change in professional sense of efficacy of the students in time depending on experience. It was found that as the school experience of the students with low sense of efficacy at the beginning, professional sense of efficacy levels increased. As implied by Mulholland and Wallace in 2001, the findings reveal that as their school experience increased, the students with high sense of efficacy score at the beginning shows lower development than those who had low sense of efficacy. Based on our findings it can be stated that measuring sense of efficacy in individuals with no school experience can be misleading. In other words, it can be suggested that professional sense of efficacy becomes more stable with experience.

A number of research should be conducted in future studies: First, further research on psychometric properties of the Teachers' Sense of Efficacy Scale needs to be analyzed. Second, the scale quality should be tested for investigation of the relationships between in-service teachers across different settings and different subject-areas. Finally, the relationships between teacher characteristics and teachers' efficacy judgments should be analyzed.

Conflict of Interests

The authors have not declared any conflict of interests.

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Appendix 1. Second order LGM' M-Plus output for standardized solutions of parameter estimations.

Variable	Two-Tailed			
	Estimate	S.E.	Est./S.E.	P-Value
STD Standardization				
I				
F1	1.152	0.080	14.390	0.000
F2	1.094	0.092	11.909	0.000
F3	1.055	0.105	10.018	0.000
S				
F1	0.000	0.000	999.000	999.000
F2	0.760	0.069	11.056	0.000
F3	1.466	0.117	12.515	0.000
F1 by				
Y11	4.805	0.341	14.080	0.000
Y21	5.654	0.386	14.648	0.000
Y31	5.730	0.412	13.903	0.000
F2 by				
Y12	5.059	0.419	12.080	0.000
Y22	5.411	0.418	12.955	0.000
Y32	5.567	0.440	12.656	0.000
F3 by				
Y13	5.245	0.334	15.712	0.000
Y23	5.735	0.379	15.145	0.000
Y33	5.527	0.390	14.187	0.000
S with I	-0.896	0.037	-24.373	0.000
Means				
I	0.000	0.000	999.000	999.000
S	0.273	0.087	3.130	0.002
Intercepts				
Y11	53.019	0.411	128.957	0.000
Y21	54.177	0.469	115.616	0.000
Y31	53.234	0.492	108.268	0.000
Y12	53.019	0.411	128.957	0.000
Y22	54.457	0.575	94.703	0.000
Y32	53.181	0.599	88.788	0.000
Y13	53.019	0.411	128.957	0.000
Y23	53.938	0.559	96.532	0.000
Y33	53.241	0.559	95.322	0.000
F1	0.000	0.000	999.000	999.000
F2	0.000	0.000	999.000	999.000
F3	0.000	0.000	999.000	999.000
Variance				
I	1.000	0.000	999.000	999.000
S	1.000	0.000	999.000	999.000
Residual variance				
Y11	9.377	1.406	6.667	0.000
Y21	10.658	1.767	6.030	0.000
Y31	14.182	2.047	6.928	0.000
Y12	15.481	2.323	6.666	0.000
Y22	14.046	2.276	6.172	0.000
Y32	16.619	2.516	6.606	0.000
Y13	6.414	1.220	5.257	0.000
Y23	9.777	1.581	6.183	0.000

Appendix 1. Cont'd.

Y33	12.818	1.718	7.460	0.000
F1	99.00	999.00	999.00	999.00
F2	0.715	0.048	15.023	0.000
F3	0.508	0.146	3.472	0.001
R-square				
Observed variable				
Y11	0.711	0.047	15.067	0.000
Y21	0.750	0.045	16.632	0.000
Y31	0.698	0.048	14.694	0.000
Y12	0.623	0.060	10.392	0.000
Y22	0.676	0.056	12.030	0.000
Y32	0.651	0.056	11.523	0.000
Y13	0.811	0.039	20.821	0.000
Y23	0.771	0.041	18.922	0.000
Y33	0.704	0.044	16.031	0.000
Latent variable				
F1	0.328	0.079	4.152	0.000
F2	0.285	0.048	5.981	0.000
F3	0.492	0.146	3.359	0.001

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Full Length Research Paper

The examination of the views of primary school teachers and pre-service primary teachers on European Union citizenship from the point of different variables

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The aim of this study is to determine the view of primary school teachers and pre-service primary teachers on European Union citizenship. This study is a descriptive and quantitative research in survey methodology. The data of the research was collected from 207 primary school teachers teaching in 22 primary school in the city center of Kırşehir and 282 pre-service primary teachers studying in Department of Primary Education, Faculty of Education, Ahi Evran University, As the data collection tool, two different Personal Information Forms for teachers and pre-service teachers and View on European Union (EU) Citizenship Questionnaire were used. Arithmetic Mean ($\bar{x}$), standard deviation (sd), independent samples t-test, factor analysis, analysis of variance (ANOVA) and Scheffe test were applied to the data collected from teachers and pre-service teachers. At the end of the research, it was found that in comparison to pre-service primary teachers, primary school teachers evaluated EU citizenships as more active citizens. Also, it was determined that both primary school teachers and pre-service primary teachers were indecisive about whether or not EU citizens included socio-cultural negativity. Besides, it was seen that both primary school teachers and pre-service primary teachers thought that EU citizens were individually developed in terms of economy and they had awareness in point of rights and responsibilities.

Key words: Primary school teacher, preservice primary teacher, European Union, EU citizenship.

INTRODUCTION

In modern times, schools are regarded as one of the most important tools educating a generation and creating a society. Thus, states use schools for educating their citizenships by having them gain a citizenship consciousness (Kahveci, 2013; Yeşil, 2002). Schools are very significant institutions raising citizens being loyal to their countries. In this context, one of the most important aims of schools is to have people gain citizenship consciousness and responsibility (Bîrzea, 2000; Ross, 2004). Citizenship education is stated in curriculum in two different ways: the subject approach and the cross-curricular approach (Eurydice, 2012). In Turkey, education

citizenship is applied in both ways (Ministry of National Education (MNE), 2006).

Turkey-European Union (EU) relations, which started in 1959 and became official in 1963 with The Ankara Agreement, reached a crucial level by deciding to enter into negotiations in 2005 (Ministry for EU Affairs, 2013). As a result of this process, the views of Turkish people on EU and orientating of Turkish people to EU has been an important factor for a possible full membership of Turkey. If Turkey becomes a full member of EU, Turkish people will also become EU citizens. Because, in The Maastricht Treaty in 1993, it was expressed that "each of citizens of EU states are also EU citizens" (Kaya, 2013), thus a citizenship concept of EU was firstly seen in the literature.

Today, there are different approaches about Turkey's full membership in EU among Turks. While some people say that being a full member in EU will be very advantageous for Turkey (Şahin, 2011), other people says Turkey will incur losses in terms of political, social, cultural and economical aspects (İnaç, 2005) and the others claim that EU will never accept Turkey as a full member (ISRO, 2006). On the other hand, especially recent statements made by politicians and initiatives for full membership show that Turkey still has a government policy to become a full member.

These incompatible approaches may derive from the significant lack of information of both Turkish and EU citizens about Turkey's membership process. Hence, if Turkey still has an aim and policy to become a full member in EU; in addition to political and legal regulations, Turkey should raise its citizens' conscious-ness about EU citizenship due to both accelerate the process and ensure the integrity with EU after a full membership.

Education plays a crucial role in order to have Turkish citizens gain a right point of view on EU and EU citizenship. According to Erginer (2006), raising EU citizenship consciousness is definitely or vaguely regarded as a main principal in the objectives part of EU states' education systems. According to most researchers (Çubukçu and Gültekin, 2006; İbrahimoğlu, 2009; Sağlam, 2012), children considerably gain basic value judgments at primary education period (between the ages of 6-12). Therefore, the education process raising EU citizenship consciousness of children should necessarily begin at primary school. It has been mostly stated by researchers (Güven and Şahin, 2003; Karaman, 2008) that in this process, especially the attitudes and behaviors of teachers have a great influence on personality development and perspectives of students.

Hence, it is very important that primary school teachers should have a positive view on EU and EU citizenship. In this way, diffusion of EU culture and overcoming the orientating problems might be easier. Therefore, it is crucial to determine the views on EU and EU citizenship of primary school teachers, who play significant roles in citizenship education. This is the main issue of this study.

In the literature, there aren't any studies examining the views of primary school teachers and pre-service in EU and EU citizenship about the examination of perspective. On the other hand, the research of the data, primary school teachers and pre-service teachers of Turkey in EU and EU citizenship about true perspective about research of education may think of the scope of the guiding. In addition to this, it foretaste a research results in same issues but different educational step and extent. However, primary school teachers and pre-service primary teachers about EU and EU citizenship is limited in educational research. The different relationship between two pictures in Turkey and EU will be specified in different evaluations.

Schools which are planned educational institutions (Doğan, 2012; Tezcan, 2012), and teachers, who have influence on students (Güven and Şahin, 2003; Karaman-Kepenekçi, 2008) have crucial roles to practice such education. Thus, primary school teachers should have a point of view and carry out their work in parallel with this aim. In this regard, it is important to determine what kind of point of view primary school teachers, who play significant role in citizenship education, have on EU and EU citizenship. This issue is the main problem of this study.

Aim of the research

The main aim of this research is to view primary school teachers working in primary schools and pre-service primary teachers studying at faculty of education, primary education department on EU and EU citizenship. In this context, the following questions were tried to be answered:

1. What are the views of primary school teachers and preservice primary teachers on EU citizenship?
2. Is there any differentiation between the views of primary school teachers and pre-service primary teachers on EU citizenship?
3. Is there any differentiation between the views of primary school teachers and pre-service primary teachers on EU citizenship according to their genders, their thoughts about being a full member in EU and the identity type using to identify themselves?

METHODOLOGY

Research model

This study is a descriptive and quantitative research in survey method. The thoughts of primary school teachers and pre-service primary teachers on EU citizenship were described.

Study population and sample

The population of the study consists of 534 primary school teachers

Table 1. Validity and Reliability Analysis Values of VEUCQ in the factors.

Factors	Number of items	Factor Loading ranges	Eigenvalues	Sum of Variance (%)	Cronbach alpha
SN	14	0.544-0.780	7.679	20.754	0.891
AC	14	0.490-0.684	6.121	16.542	0.875
PD-C	9	0.540-0.715	2.091	5.652	0.835
Overall	37	0.490-0.780	-	42.947	0.883

teaching in 43 primary school in the city center of Kırşehir (Kırşehir National Education Directorate, 2014) and 622 pre-service primary teachers studying in Department of Primary Education, Faculty of Education, Ahi Evran University. The study sample was comprised of 207 primary school teachers teaching in 22 primary schools in the city center of Kırşehir and 282 pre-service primary teachers from two classes of each grades studying in Department of Primary Education, Faculty of Education, Ahi Evran University. The teachers working in 22 schools in the city center and preservice teachers studying in two classes from each grade were chosen as the sample of the study by random sampling. Of these teachers, 75 of them are women and 132 are men; also 31 of them have taught between 1 to 9 years, while 41 have taught between 10 to 18 years, 90 have taught between 19 to 27 years and 45 of them have taught for 28 years and over. Of these students, 43 of them were freshmen, while 71 were sophomore, 87 were junior and 81 of them were senior; also 218 of them were women and 64 were men.

Data collection

The data of the research was collected by "Personal Information Forms" and "View on European Union Citizenship Questionnaire (VEUCQ)" from the target teachers and pre-service teachers groups.

Personal information forms

They were prepared for both teachers and preservice teachers to collect data about independent variables of the research, and the one for teachers consisted of 13 questions while the other one for pre-service teachers had 18 questions.

View on European union citizenship questionnaire (VEUCQ)

It is a six point likert scale consisted of 37 items gathered under three factors and developed by the researchers. The first factor's name is "Socio-cultural Negativeness (SN)" (14 items), the second one's name is "Active Citizenship (AC)" (14 items) and the third one is "Personal Development/Consciousness (PD-C)" (9 items). The factors were given these names because of their contents. There are six choices across the items in the scale which are "(0) No Idea and Thought", "(1) Absolutely Disagree", "(2) Disagree", "(3) Indecisive", "(4) Agree" and "(5) Absolutely Agree".

In the development process of VEUCQ, an item pool consisted of 88 items which was created by literature review and interviews with teachers and preservice teachers. These items were examined by two specialists in their field and two grammarians in terms of content and expression. In the end, a draft scale including 55 items were developed. By getting required permissions, the draft scale was applied to 207 teachers and 282 preservice teachers described under the study universe title of the research.

Validity analysis of the scale was made by 1 exploratory factor analysis and 2 item-total correlation; reliability analysis of it was made by examining the Cronbach's Alpha internal consistency coefficient. During the exploratory factor analysis, firstly KMO test and Bartlett test were done; due to the fact that KMO value was found as 0.899 and Bartlett test values were found as x^2=11265.282; sd: 1485 and p<.001, it was understood that factor analysis could be done on the data. After factor loading examination, the items which have loading below 0.30 and a difference below 0.100 between their loadings in the factors were removed from the scale (Büyüköztürk, 2012). When these items were removed, at last there was a scale which consisted of 37 items under three factors. The scale's KMO value was found as 0.896 while Bartlett Test values were found as x^2=7247.198; sd=666; p=0.000 (p<0.001). The item-total correlation values (p<.01) done on the data by Pearson's r test showed that it is a valid scale because of each items being suitable with the aim of the scale (Tekin, 2008; Büyüköztürk, 2012; Yeşil, 2010).

After validity and reliability analysis, factor loading ranges, eigenvalues, sums of variance and Cronbach alpha reliability coefficients of the items in the factors are shown in Table 1.

Data analysis

On the data of the research, arithmetic mean and standard deviation values were primarily calculated as descriptive statistic. To test the differentiation according to independent variables, Levene test, independent sample t test, ANOVA test and if required Scheffe test was used. When arithmetic mean values of the view of teachers and preservice teachers on EU citizenship were interpreted, the values between 1.00 to 1.80 were considered as "absolutely disagree", between 1.81-2.60 as "disagree", between 2.61-3.40 as "indecisive", between 3.41-4.20 as "agree" and the ones between 4.21-5.00 as "absolutely agree". In difference tests, the level of p<.05 was seen as significant.

RESULTS

The results found at the end of the research are shown and explained below in Tables 2, 3 and 4.

The views of primary school teachers and pre-service primary teachers on European Union citizenship

The views of primary school teachers and pre-service primary teachers on EU citizenship are seen according to the sub-factor of the scale in Tables 2, 3 and 4.

As seen in Table 2, the assessments of primary school teachers showing the level of their agreement with the items on EU citizenship stated in SN factor varied

Table 2. The views of teachers and pre-service teachers on the characteristics of EU citizens stated in the socio-cultural negativeness factor.

Items		N	x̄	Sd
They are under the influence of Christian culture	Teacher	207	3.77	1.33
	Pre-service teacher	282	3.14	1.53
They lost their historical, cultural, national and religious value	Teacher	207	2.79	1.33
	Preservice teacher	282	2.54	1.29
They have prejudice and hostile attitude against Oriental societies and cultures	Teacher	207	3.40	1.37
	Preservice teacher	282	3.08	1.34
They have prejudice against Islam and Muslims	Teacher	207	3.60	1.32
	Preservice teacher	282	3.32	1.39
They are extremely pragmatist and selfish	Teacher	207	3.32	1.29
	Preservice teacher	282	3.06	1.35
They often come across with some health problems such as obesity or cancer because of their lifestyle	Teacher	207	3.32	1.34
	Preservice teacher	282	3.34	1.34
They often come across with some psychological problems such as stress, desperation or burnout because of their lifestyle	Teacher	207	3.24	1.33
	Preservice Teacher	282	3.22	1.39
They *don't* see Turkey or Turkish citizens belong to Europe	Teacher	207	3.72	1.16
	Preservice teacher	282	3.55	1.33
They have poor relationships such as friendship, neighborhood or affinity	Teacher	207	3.66	1.31
	Preservice teacher	282	3.46	1.44
They have a miserable and unsteady family life	Teacher	207	3.06	1.29
	Preservice teacher	282	3.09	1.45
They see economical and political power as absolute supremacy	Teacher	207	3.38	1.33
	Preservice teacher	282	3.43	1.23
They are intolerant against the things (mosque, minaret, azan, etc.) belong to Islam	Teacher	207	3.20	1.29
	Preservice teacher	282	3.19	1.46
They have a capitalist and materialistic value judgment	Teacher	207	3.47	1.29
	Preservice teacher	282	3.09	1.47
They sometimes violate the realm of freedom of other people because of having lots of freedom.	Teacher	207	3.16	1.31
	Preservice teacher	282	3.18	1.38
SN factor mean	Teacher	207	3.36	0.87
	Preservice teacher	282	3.19	0.87

between x̄= 2.79 and x̄= 3.77, while the pre-service primary teachers' varied between x̄=2.54 and x̄=3.55.

In SN factor, the characteristic of EU citizenship teachers criticized at most was "being under the influence of Christian culture" and "not seeing Turkey and Turkish citizens belong to Europe". In this context, pre-service teachers chiefly criticized EU citizens in terms of the issues of "not seeing Turkey and Turkish citizens belong to Europe" and "having poor relationships such as friendship, neighborhood or affinity". As seen in general Mean, it was determined that primary school teachers and preservice primary teachers were indecisive about the fact that EU citizens have characteristics including socio-cultural negativeness.

As seen in Table 3, the assessments of primary school teachers on EU citizens from the point of characteristics stated in AC factor varied between x̄= 2.96 and x̄= 4.01, while the preservice primary teachers' varied between

Table 3. The views of teachers and preservice teachers on the characteristics of EU citizens stated in the active citizenship factor.

Items		N	x̄	Sd
They are participative and leading individuals being in non-governmental organizations	Teacher	207	3.76	1.01
	Preservice teacher	282	3.37	1.23
They know the rights in their constitution and international convents, and behave according to these	Teacher	207	3.71	1.12
	Preservice teacher	282	3.27	1.27
They like their state and society and are proud of being a part of it	Teacher	207	3.44	1.27
	Preservice teacher	282	3.20	1.33
They are conscious about democratic legal remedies such as voting or petitioning	Teacher	207	4.01	.94
	Preservice teacher	282	3.48	1.34
They know and protect their cultural and historical heritages	Teacher	207	3.70	1.06
	Preservice teacher	282	3.34	1.25
They are self-confident and they behave inventively and easily in their social life	Teacher	207	4.01	.84
	Preservice teacher	282	3.82	1.04
They are against violence and prejudice and solve problems amicably	Teacher	207	2.99	1.28
	Preservice teacher	282	2.89	1.23
They have required social skills to know and introduce themselves	Teacher	207	3.65	0.96
	Preservice teacher	282	3.55	1.10
They adopt consumption culture and live in step with this	Teacher	207	3.31	1.23
	Preservice teacher	282	3.29	1.22
They continually improve themselves by believing in the necessity of lifelong learning	Teacher	207	3.78	1.02
	Preservice teacher	282	3.51	1.25
They are not submissive against persons and events and act in a critical attitude	Teacher	207	3.62	1.04
	Preservice teacher	282	3.37	1.24
They are on about interfaith and intercultural dialogue	Teacher	207	2.96	1.19
	Preservice teacher	282	2.94	1.32
They do their best for economical, social and cultural development of their society	Teacher	207	3.44	1.07
	Preservice teacher	282	3.35	1.13
They abide by rule of society (traditions, etc.) and law (constitution, etc.)	Teacher	207	3.77	1.02
	Preservice teacher	282	3.33	1.11
AC factor mean	Teacher	207	3.58	0.64

x̄=2.89 and x̄=3.82.

When primary school teachers evaluated EU citizens in terms of characteristics in AC factor, they mostly described them as "being conscious about democratic legal remedies such as voting or petitioning". Also, both teachers and preservice teachers expressed that EU citizens are "self-confident and they behave inventively and easily in their social life". As seen in general mean, it was determined that primary school teachers saw EU citizens as active citizens but preservice primary teachers were indecisive about this.

As seen in Table 4, the assessments of primary school teachers on EU citizens in terms of the level of having characteristics stated in PD-C factor varied between x̄= 3.22 and x̄= 3.92, while the preservice primary teachers' varied between x̄=3.32 and x̄=3.79. From the point of characteristics in PD-C factor, teachers mostly defined EU citizens as "being responsive to environmental pollution, animal rights, etc. and don't refuse to take responsibility about these". It was also seen that preservice teachers mostly thought that EU citizens had

Table 4. The views of teachers and preservice teachers on the characteristics of EU citizens stated in the personal development/consciousness factor.

Items		N	x̄	Sd
They regard and support human rights, democracy and rule of law	Teacher	207	3.31	1.48
	Preservice teacher	282	3.57	1.17
They know social, political and civic institutions and can interact with them when needed	Teacher	207	3.64	1.15
	Preservice teacher	282	3.60	1.03
They are responsive to environmental pollution, animal rights, etc. and *don't* refuse to take responsibility about these	Teacher	207	3.92	0.99
	Preservice teacher	282	3.72	1.07
They regulate their life according to a plan and are well-disciplined in all respects	Teacher	207	3.81	1.04
	Preservice teacher	282	3.50	1.07
They freely accommodate, travel and work in the member states	Teacher	207	3.83	1.13
	Preservice teacher	282	3.61	1.14
They care about the necessities of disadvantageous individuals and groups (disabled, minority, poor, etc.) in the society	Teacher	207	3.56	1.19
	Preservice teacher	282	3.48	1.12
They don't have a problem about unemployment and have an adequate income for a laid-back life	Teacher	207	3.22	1.13
	Preservice teacher	282	3.32	1.16
They have high living standards in education, health, transportation, career, etc	Teacher	207	3.84	1.01
	Preservice teacher	282	3.79	0.99
They are component and productive in terms of professional competence	Teacher	207	3.76	1.02
	Preservice teacher	282	3.75	1.03
PD-C factor mean	Teacher	207	3.65	0.75
	Preservice teacher	282	3.59	0.71

the characteristic of "having high living standards in education, health, transportation, career, etc". On the other hand, teachers evaluate EU citizens in the same context, too. Generally, both teachers and preservice teachers thought that EU citizens had the characteristic stated in PD-C factor.

The differentiation of the evaluations of primary school teachers and preservice primary teachers

The findings of the differentiation of the view of primary school teachers and preservice primary teachers on EU citizens/citizenship are given in Table 5.

In Table 5, the evaluations of teachers on EU citizens/ citizenship varied between x̄=3.36 and x̄=3.65, while preservice teachers' varied between x̄=3.19 and x̄=3.59. While the evaluations of teachers and preservice teachers on EU citizens/citizenship significantly differentiated in SN and AC factor on behalf of teachers (p<0.05), it was determined that there was no significant differentiation

(p>.05) in PD-C factor.

The differentiation of the view of primary school teachers and preservice primary teachers on eu citizens/citizenship according to genders

The findings of the differentiation of the view of primary school teachers on EU citizens/citizenship according to genders are shown in Table 6. As seen in Table 6, the evaluations of female teachers ranged between x̄=3.73 and x̄=3.56, while male teachers' ranged between x̄=3.37 and x̄=3.64. There was no significant differentiation between the evaluation of male and female teachers in terms of each factors (p>0.05). The findings of the differentiation of the view of preservice primary teachers on EU citizens/citizenship according to genders are shown in Table 7.

As seen in Table 7, the evaluations of female preservice teachers varied between x̄=3.17 and x̄=3.61, while male preservice teachers' varied between x̄=3.27 and x̄=3.51.

Table 5. The differentiation of the view of primary school teachers and preservice primary teachers on EU citizens/citizenship.

Factors	Group	N	x̄	Sd	Levene		t	sd	p
					F	p			
SN factor	Teacher	207	3.36	0.87	0.871	0.351	2.122	487	0.034
	Preservice teacher	282	3.19	0.87					
AC factor	Teacher	207	3.58	0.64	2.974	0.085	3.767	487	0.000
	Preservice teacher	282	3.33	0.76					
PD-C factor	Teacher	207	3.65	0.75	1.743	0.187	.915	487	0.361
	Preservice teacher	282	3.59	0.71					

Table 6. The differentiation of the view of primary school teachers on EU citizens/citizenship according to genders.

Factors	Gender	N	x̄	Sd	Levene		t	sd	p
					F	p			
SN factor	Female	75	3.33	0.97	1.713	0.192	0.320	205	0.750
	Male	132	3.37	0.81					
AC factor	Female	75	3.56	0.61	0.011	0.915	0.319	205	0.745
	Male	132	3.59	0.66					
PD-C factor	Female	75	3.66	0.74	.022	0.881	0.199	205	0.843
	Male	132	3.64	0.75					

Table 7. The differentiation of the view of preservice primary teachers on EU citizens/citizenship according to genders.

Factors	Gender	N	x̄	Sd	Levene		t	sd	p
					F	p			
SN factor	Female	218	3.17	0.88	0.086	0.770	0.850	280	0.396
	Male	64	3.27	0.82					
AC factor	Female	218	3.32	0.77	1.158	0.283	0.386	280	0.700
	Male	64	3.36	0.71					
PD-C factor	Female	218	3.61	0.69	.353	.553	.981	280	.327
	Male	64	3.51	0.77					

There was no significant differentiation between the evaluation of male and female preservice teachers in terms of each factors (p>0.05).

The view of preservice primary teachers on EU citizenship according to their class level

The view of preservice primary teachers on EU citizenship according to their class level was researched. ANOVA and Scheffe test were done to determine the significance of differentiation according to class level and it was shown in Table 8. Table 8 views the preservice of primary teachers on EU citizenship according to their class level. As seen in the table, while there was no significant differentiation in terms of socio-cultural negativeness factor (p>0.05), a significant differentiation was found in active citizenship and personal development/ consciousness factors (p<0.05). After Scheffe test, it was determined that there was a significant difference of

Table 8. The view of preservice primary teachers on EU citizenship according to their class level.

Factor	Class level	N	x̄	Sd	Variable	K T	Sd	KO	F	p	Scheffe
SN factor	Freshman	43	3.19	1.03	Between groups	0.083	3	0.028			
	Sophomores	71	3.21	0.77	Within groups	213.044	278	0.766			
	Juniors	87	3.17	0.86	Total	213.127	281	-	0.036	0.991	-
	Seniors	81	3.19	0.87	-	-	-	-			
	Total	282	3.19	0.87	-	-	-	-			
AC factor	Freshman	43	3.04	1.04	Between groups	8.746	3	2.915			
	Sophomores	71	3.18	0.73	Within groups	155.249	278	0.558			
	Juniors	87	3.43	0.62	Total	163.995	281	-	5.220	0.002	1-4
	Seniors	81	3.51	0.69	-	-	-	-			
	Total	282	3.33	0.76	-	-	-	-			
PD-C factor	Freshman	43	3.32	0.80	Between groups	7.655	3	2.552			
	Sophomores	71	3.45	0.69	Within groups	136.901	278	0.492			
	Juniors	87	3.65	0.73	Total	144.556	281	-	5.181	0.002	1-4; 2-4
	Seniors	81	3.78	0.60	-	-	-	-			
	Total	282	3.59	0.71	-	-	-	-			

opinion between freshmen and seniors in active citizenship factor and between seniors and freshmen-sophomores in personal development/ consciousness factor. In comparison with freshmen, seniors evaluated EU citizens as more active citizens. In personal development/ consciousness factor, it may be said that seniors evaluated EU citizens much more personally developed and having consciousness in comparison with freshmen and sophomores.

The differentiation of the view of primary school teachers and preservice primary teachers on EU citizenship according to their thoughts about full membership of Turkey in EU

The arithmetic mean and standard deviation values of the view of primary school teachers and preservice primary teachers on EU citizenship according to their thoughts about full membership of Turkey in EU and ANOVA and Scheffe test results which were done to determine the significance of differentiation were given in Tables 9 and 10.

In Table 9, the view of primary school teachers on EU citizenship according to their thoughts about full membership of Turkey in EU was shown. Accordingly, while there was no significant differentiation in teachers' thought in active citizenship factor (p>0.05), it was determined that there were significant differentiations in socio-cultural negativeness and personal development-consciousness factors (p<0.05). In socio-cultural negativeness factor, the teachers who thought that full membership of Turkey in EU would be "bad" evaluated EU citizenship including more socio-cultural negativeness in comparison with the ones who thought that it would be "good" and "very good". In personal development-consciousness factor, in comparison with the ones who thought that full membership of Turkey in EU would be "very bad", the ones who thought that it would be "very good" saw EU citizenship as being personally more developed and having more consciousness. Also, the teachers who thought that Turkey's full membership in EU would be "good" and "very good" and the ones who were "indecisive" about this supposed that EU citizenship included being personally more developed and having more consciousness in comparison with the ones who thought that full membership would be "very bad". The views of preservice primary teachers on EU citizenship according to their thoughts about full membership of Turkey in EU are shown in Table 10. As seen in

Table 9. The view of primary school teachers on EU citizenship according to their thoughts about full membership of Turkey in EU.

Factor	Full membership	N	x̄	Sd	Variable	K T	sd	KO	F	p	Scheffe
SN factor	Very good	14	2.84	1.03	Between groups	15.185	4	3.796			
	Good	48	3.10	0.70	Within groups	143.785	202	0.712			
	Indecisive	59	3.27	0.92	Total	158.970	206	-	5.333	0.000	1-5; 2-5
	Bad	64	3.60	0.72							
	Very bad	22	3.79	1.05	-						
	Total	207	3.36	0.87							
AC factor	Very good	14	3.67	0.90	Between groups	0.607	4	0.152			
	Good	48	3.65	0.53	Within groups	85.198	202	0.422			
	Indecisive	59	3.56	0.64	Total	85.805	206	-	0.360	0.837	-
	Bad	64	3.56	0.62							
	Very bad	22	3.48	0.76							
	Total	207	3.58	0.64							
PD-C factor	Very good	14	4.19	0.59	Between groups	14.229	4	3.557			
	Good	48	3.80	0.68	Within groups	102.542	202	0.508			
	Indecisive	59	3.78	0.64	Total	116.771	206	-	7.007	0.000	1-4; 1-5; 2-5; 3-5
	Bad	64	3.49	0.75							
	Very bad	22	3.11	0.87	-						
	Total	207	3.65	0.75							

the table, it was understood that while there was no significant differentiation in preservice teachers' views according to their thought on full membership of Turkey in EU in active citizenship factor (p>.05), there were significant differentiations in socio-cultural negativeness and personal development/consciousness factors (p<.05). Therefore, Scheffe test was done to determine the source of differentiation. After the test, in socio-cultural negativeness factor, the teachers who expressed that full membership of Turkey in EU would be "very bad" thought that EU citizenship included more socio-cultural negativeness in comparison with the ones who were "indecisive" about the full membership. In

personal development/consciousness factor, in comparison with the ones who said that full membership of Turkey in EU would be "very bad", the ones who thought that it would be "very good" explained that EU citizenship should be evaluated as being personally more developed and having more consciousness.

The differentiation of the view of primary school teachers and preservice primary teachers on EU citizenship according to the identity type using to identify themselves

The view of primary school teachers and

preservice primary teachers on EU citizenship according to the identity type using to identify themselves were examined. It was told to teachers and preservice teachers that they could optionally not answer the question in Personal Information Form which asked them what kind of identity they primarily used to identify themselves. So, all of the teachers and preservice teachers in sample group did not participate in the research in this context and %93 of teachers and %81 of preservice teacher approximately participated in. The arithmetic mean and standard deviation values of the view of primary school teachers and preservice primary teachers on EU citizenship according to the identity type using to identify

Table 10. The view of preservice primary teachers on EU citizenship according to their thoughts about full membership of Turkey in EU.

Factors	Full membership	N	x̄	Sd	Variable	K T	sd	KO	F	p	Scheffe
SN factor	Very good	9	3.09	1.09	Between groups	13.948	4	3.487			
	Good	54	3.15	0.87	Within groups	199.179	277	0.719			
	Indecisive	152	3.04	0.85	Total	213.127	281	-	4.849	0.001	3-5
	Bad	47	3.47	0.80							
	Very bad	20	3.78	0.72	-						
	Total	282	3.19	0.87							
AC factor	Very good	9	3.61	0.95	Between groups	4.985	4	1.246			
	Good	54	3.45	0.83	Within groups	159.010	277	0.574			
	Indecisive	152	3.37	0.67	Total	163.995	281	-	2.171	0.072	-
	Bad	47	3.16	0.80							
	Very bad	20	3.02	0.91	-						
	Total	282	3.33	0.76							
PD-C factor	Very good	9	4.00	1.19	Between groups	8.753	4	2.188			
	Good	54	3.59	0.83	Within groups	135.803	277	0.490			
	Indecisive	152	3.68	0.63	Total	144.556	281	-	4.463	0.002	1-5
	Bad	47	3.43	0.67							
	Very bad	20	3.10	0.53	-						
	Total	282	3.59	0.71							

themselves and ANOVA and Scheffe test results which were done to determine the significance of differentiation were given in Tables 11 and 12. In Table 11, the evaluations of primary school teachers on EU citizenship according to the identity type using to identify themselves were given. Accordingly, it was understood that while there was no significant differentiation in preservice teachers' views according to the identity type using to identify themselves in active citizenship factor (p>.05), there were significant differentiations in socio-cultural negativeness and personal development/consciousness factors (p<.05). In socio-cultural negativeness factor, in comparison with the teachers who identified

themselves as global citizens, the ones who preferred ethnic and religious identity and the ones identifying themselves as citizens of Turkey expressed that EU citizenship included more socio-cultural negativeness. In personal development/consciousness factor, the primary school teachers who identified themselves as global citizens saw EU citizenship as being personally more developed and having more consciousness in comparison with the ones who identified themselves as citizens of Turkey.

The views of preservice primary teachers on EU citizenship according to the identity type using to identify themselves were shown in Table 12. Accordingly, it was determined that there was no

significant differentiation in preservice teachers' views according to the identity type using to identify themselves in none of the factors (p>.05).

DISCUSSION AND CONCLUSION

The results of the research which was done to analyze the view of primary school teachers and preservice primary teachers on EU citizenship are given below by discussing. Both primary school teachers and preservice primary teachers are indecisive about the fact that EU citizens have socio-cultural negativeness.

However, teachers are closer to the idea that

Table 11. The view of primary school teachers on EU citizenship according to the identity type using to identify themselves.

Factors	Identity type	N	x̄	Sd	Variable	KT	sd	KO	F	p	Scheffe
	Ethnic identity	17	3.94	0.57	Between groups	21.904	3	7.301			
	Religious identity	31	3.77	90	Within groups	127.827	190	0.673			
SN factor	Citizen of Turkey	91	3.39	0.81	Total	149.731	193	-	10.853	0.000	1-4; 2-4; 3-4
	Global citizenship	55	2.92	0.84	-						
	Total	194	3.36	0.88							
	Ethnic identity	17	3.60	0.65	Between groups	0.326	3	0.109			-
	Religious identity	31	3.49	0.55	Within groups	81.953	190	0.431			-
AC factor	Citizen of Turkey	91	3.61	0.71	Total	82.279	193	-	0.252	0.860	-
	Global citizenship	55	3.57	0.61	-						-
	Total	194	3.58	0.65							-
	Ethnic identity	17	3.39	0.86	Between groups	6.307	3	2.102			
	Religious identity	31	3.63	0.58	Within groups	102.828	190	0.541			
PD-C factor	Citizen of Turkey	91	3.54	0.73	Total	109.135	193	-	3.885	0.010	3-4
	Global citizenship	55	3.92	0.77							
	Total	194	3.65	0.75	-						

Table 12. The view of preservice primary teachers on EU citizenship according to the identity type using to identify themselves.

Factors	Identity Type	N	x̄	Sd	Variable	KT	sd	KO	F	p
	Ethnic identity	16	3.36	0.95	Between groups	1.563	3	0.521		
	Religious identity	35	3.36	0.96	Within groups	178.708	225	0.794		
SN factor	Citizen of Turkey	127	3.16	0.91	Total	180.271	228	-	0.656	0.580
	Global citizenship	51	3.15	0.75	-					
	Total	229	3.20	0.88						
	Ethnic identity	16	2.94	1.00	Between groups	3.026	3	1.009		
	Religious identity	35	3.37	0.78	Within groups	125.111	225	0.556		
AC factor	Citizen of Turkey	127	3.37	0.73	Total	128.137	228	-	1.814	0.145
	Global citizenship	51	3.42	0.63						
	Total	229	3.35	0.74						
	Ethnic identity	16	3.30	0.74	Between groups	3.916	3	1.305		
	Religious identity	35	3.37	0.99	Within groups	118.797	225	0.528		
PD-C factor	Citizen of Turkey	127	3.65	0.64	Total	122.713	228	-	2.473	0.063
	Global citizenship	51	3.69	0.70	-					
	Total	229	3.59	0.73						

they include this negativeness. Each group mostly thinks that EU citizens don't see Turkey and Turkish citizens belong to Europe. This result may derive from the fact that EU hasn't accepted Turkey as a full member in spite of the negotiations that have been continuing for years. Primary school teachers and preservice primary teachers may think in this way just like most of Turkish people, because lots of countries which applied to EU for full membership later than Turkey and were more underdeveloped countries than Turkey was accepted as full members and Turkey has oppositely been waited as candidate country because of some excuses. On the other hand, it can be said that these thoughts may be a result of some important European politicians' statements against Turkey and its full membership in EU (Aydın-Düzgit and Keyman, 2013). Thus, if especially authorized persons in EU make more equable and careful statements about Turkey and both sides do their shares ideally to quicken the membership process, these negative views may be change positively.

On the other hand, that preservice teachers think that EU citizens have poor relations such as friendship, neighborhood or affinity but teachers don't think in this way may derive from the feature of the age group that preservice teachers are included. Because preservice teachers attach more importance to social relationships due to their ages (18 to 24) (Senemoğlu, 2012), they may evaluate EU citizens and citizenship negatively in this aspect. In this context, in order to strengthen cultural and social relations among university students, supporting and popularizing student exchange programs such as Erasmus may be helpful.

Both primary school teachers and preservice primary teachers choose the item "They lost their historical, cultural, national and religious value" at the very least in this factor. This thought may derive from the fact that they know that there are lots of educational and cultural activities to keep European history and culture alive in EU; also in this context, some important persons' names are used even entitling these activities such as Erasmus, Comenius, Grundtvig or Leonardo da Vinci who are the most important people in European history and culture.

Primary school teachers and preservice primary teachers see EU citizens as active citizens. In active citizenship factor, primary school teachers mostly imply that EU citizens are "conscious about democratic legal remedies such as voting or petitioning". Also, both teachers and preservice teachers mostly indicate that EU citizens are "self-confident and they behave inventively and easily in their social life". In a similar research on preservice teachers by Dinç (2009), same results were obtained in parallel with this determination, too. In this research, it was found that preservice teachers described EU citizens as the people who were self-confident and they behaved inventively and easily in their social life. In primary schools and universities in Turkey, making legal and administrative arrangements making teachers and

students use their democratic rights easier, organizing activities in this way and raising awareness of teachers and students may contribute to teachers and preservice teachers being more conscious of this issue. It is very important for EU that EU citizens have a democratic attitude and know their rights and responsibilities. Within this framework, there are lots of activities and organizations for EU citizens in order to be more active citizens in the presence of EU (European Economic and Social Committee, 2012; Education, Audiovisual and Culture Executive Agency, 2013). So, it may be said that it is inevitable for EU citizens being democratic and active citizens.

Primary school teachers and preservice primary teachers think that EU citizens are personally developed individuals and have consciousness. In a study which was done by Altunay (2012) on administrators and teachers, most of who are primary school teachers, to research EU citizenship perception of them, there were same results with this research. Also in this research, it was determined that teachers evaluated EU citizens as the individuals who have high living standards and were vocationally very competent. Besides, teachers emphasize on EU citizens' awareness of environment. Such that, there are some organizations about environment in EU which support teachers' views. Environment Directorate-General (European Commission, 2014) in European Commission being an organ of EU (European Commission, 2014) and European Environment Agency (2014) which is a part of EU work actively to inform and direct member states and their citizens about their responsibility for environment.

On the one hand, teachers and preservice teachers express that EU citizens are developed and prosperous; on the other hand, they claim that they substantially face with a serious problem like unemployment. The economical problems which Europe encountered especially in euro zone after 2008 economic crisis may cause such a view on the participants. Officially, unemployment rate which decreased until 2008 to the level of 6.5% started to increase in 2008 and reached approximately to the level of 11% in 2014. In Spain and Greece, these rates are relatively higher (Eurostat, 2014). According to gender variable, there is no significant differentiation in the view of primary school teachers and preservice primary teachers on EU citizenship. This may derive from the fact that there is nearly no gender gap in Turkey in terms of economic, social and other part of life and the cultural and educational backgrounds of men and women are almost at the same level now.

As long as primary school teachers and preservice primary teachers think negatively about full membership of Turkey in EU, the evaluations of them in SN factor become negative. On the contrary, as long as they think positively about full membership in EU, they take a bright view of the items in PD-C factor. However, the interests of Turkish people on full membership of Turkey in EU

diminish over years; the recent researches show that there is a support for EU in no small measure. According to a research by International Strategic Research Organization (ISRO) (2006), while the rate of Turkish people supporting full membership of Turkey in EU was 75% in the early part of 2000s, it was determined that it decreased to the level of 50% in 2006. These results were also supported by a research by The German-Marshall Fund of the United States (2011). According to it, while the rate of Turkish people supporting full membership of Turkey in EU was 73% in 2004, it was seen that this rate fell to the level of 48% in 2011.It is seen that the ones who think that being full member in EU will make a great contribution for Turkey thinks generally in the same way. According to Turks, the prior contribution of being full member in EU of Turkey will be in terms of high living standards and economic welfare. Besides, development of personal liberties was seen as another important contribution (The German-Marshall Fund of the United States, 2011; Alkan, 2013; Ercan, 2012). The results in this research also confirm these views. Primary school teachers and preservice primary teachers who support full membership of Turkey in EU think that EU citizens are personally developed individuals and have consciousness.

On the contrary, when the literature is reviewed, it is seen that there are Turkish people who think that full membership of Turkey in EU will have negative returns. A great majority of people who don't want full membership in EU believe that EU and EU citizens have prejudice against Turkey and Muslims and a probable membership will damage Turkey from national, religious and cultural points (The German-Marshall Fund of the United States, 2011; Alkan, 2013; Ercan, 2012; ISRO, 2006). Also in this research, the ones who have a negative view on EU citizens and EU from socio-cultural point take a dim view of full membership of Turkey in EU due to the fact that a possible membership of Turkey would damage Turkish people socio-culturally.

In comparison with the primary school teachers who identify themselves as global citizens, the ones who prefer ethnic and religious identity and the ones identifying themselves as citizens of Turkey express that EU citizenship includes more socio-cultural negativeness. In addition, the primary school teachers who identify themselves as global citizens see EU citizenship as being personally more developed and having more conscious-ness in comparison with the ones who identify themselves as citizens of Turkey. The teachers who see themselves as global citizens have a more positive view on EU citizenship. On the other hand, there is no significant differentiation in preservice teachers' views according to the identity type using to identify themselves.

State of the Republic of Turkey, which is a nation-state, also includes lots of ethnic groups. In the 1982 Constitution, it was determined that every citizen of State of the Turkish Republic is Turkish by the sentence *"Everyone bound to the Turkish state through the bond of citizenship is a Turk"*. Nevertheless, Turkish citizens may prefer a different ethnic identity, a religious identity or another identity which they think more encompassing to identify themselves instead of Turkish identity. In this context, citizenship of Turkey or Republic of Turkey is occasionally used as an alternative identity to Turkish identity. Nonetheless it is not basically different from Turkish identity, it is accepted by some group because of being a more encompassing and flexible phrase (Esendemir, 2008).

It is seen that the groups who identify themselves with citizenship of Turkey and religious identity have a negative attitude against EU especially from cultural point. The citizens who bring their ethnic identity forward, especially the ones identifying themselves as Turk have a more negative attitude against EU from political and cultural points in comparison with the others using other ethnic identities (İnaç, 2005). It may be interpreted that the ones who identify themselves as global citizens are closer to EU and EU citizenship which is supranational.

Conflict of interests

The authors have not declared any conflict of interests.

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