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Full Length Research Paper

Examining music teachers' self-confidence levels in using information and communication technologies for education based on measurable variables

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Rapid developments and innovations in technology have impact on individuals. The use of technology for one's daily life has become a necessity; therefore, the development and popularization of Information and Communication Technologies (ICTs) is use as a tool for solving educational problems. Because educational technologies play a major role both in learning and teaching, it is undoubtedly required that music teachers have the knowledge and skills of using these technologies. Teachers should use technologies that are appropriate to the course objective, and they should be used to make students understand the course material better, and form permanent knowledge. For that reason, this study aims to determine music teachers' self-confidence levels in the use of information and communication technologies in education based on variables analyzed with a descriptive screening model. For data collection, a 5-point Likert-type scale was used. In conclusion, this study did not find a significant difference in terms of gender and age variables. However, professional seniority, having a personal computer or not, and having access to internet at home or not, all had a significant effect on self-confidence.

Key words: Music teacher, information and communication technology, self-confidence.

INTRODUCTION

In the 21th century, people live in an information age characterized by rapid changes and developments in information and communication technologies (ICTs). This necessitates that societies need to adapt rapidly to those changes and developments that are leading to a knowledge explosion.

The information produced generates new technologies that enable information to be spread more rapidly and

easily. ICT includes all kinds of visual, auditory, printed, and written instruments that allow access to and produce information (Çavaş et al., 2004). In this respect, ICT is of great importance today (Zyad, 2016).

Innovations and rapid developments in information and communication technology affect the educational field, as they do all other fields. Therefore, utilizing ICT in an educational field or in many other fields during the

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learning-teaching process has demanded significant innovation, and music and music education is among those fields. Recent developments in music technology have offered new opportunities for teachers and students. For instance, using software programs in music lessons provides new methods and makes important contributions to students in individual and group activities through helping them improve their skills in composing and creativity (Robyler and Edwards, 2000).

The dissemination and application of educational innovations largely depend on teachers' adoption of these innovations. Therefore, ICT not only helps students a more rapid and easy access to information throughout their education, but also provides them with richer learning environments (Sirkemaa, 2001).

In this respect, ICT's contributions to the education is an undeniable fact (Uşun, 2000), and the relationship between education and technology is in a continuous state of change and development (Watson, 2001). Therefore, it can be possible for individuals to make information transfer, to access information and to evaluate information in a more rapid and easy way (Mooij, 2007). Bulman and Fairlie (2015) placed an emphasis on ICT for the improvement of the education system.

Today, individuals' need for ICT have gained more importance than ever. One of the duties of education is to raise individuals who can use technology productively (Christanse, 2002). In this respect, teachers have enhanced duties: they should have relevant knowledge, skills, and qualifications for the use of ICT (Christanse, 2002).

In addition, it has been stated that having qualifications for use of ICT is not always considered only as an advantage, but that it is regarded as a significant loss if teachers do not have these qualifications (Roussos, 2007). Undoubtedly, to achieve efficient use of ICT in schools, teachers must first be educated in ICT (Aslan and Zhu, 2015). Because teachers have necessary technical competences in this issue and know how to use these technologies, it is important for teachers to see that students use ICT for educational purposes in a productive way. Erdoğan and Erdoğan (2015) reported that teachers' use of ICT in education enabled students to be more successful and made positive contributions to their learning.

Giving weight to the ICT investments is important for improving the quality of education. A study indicated that many countries worldwide have made investments for ICT to improve, develop, and update education that is provided to their younger generations. In addition, it has been emphasized that developed countries such as Canada, England, and the United States gave computer to students in a ratio of one for every 10 students (Hepp et al., 2004). Thus, many countries make an investment that shows they regard ICT an important tool for

education. Another study showed that, especially in primary and secondary school levels, state-sponsored configurations have been made since 1980s for the effective use of ICT in educational institutions (Visscher et al., 2003).

Checchi et al. (2015) suggested that ICT courses should be included in the curriculum, and ICT should be integrated into the education programs. Even though investments in ICT have been made in Turkey, teachers cannot integrate ICT into educational environments, cannot use the technology for the purpose of increasing learning, and do not feel ready to make progress in these directions (Brush et al., 2003; Prestridge, 2007).

Studies have also emphasized that inadequate pre-service education received by teachers is the primary reason hampering teachers' ICT use. These results are important because they are clear signs that teachers cannot use technology effectively in educational environments (Acuner and İpek, 2011). A study emphasized the importance of training teachers in other for them to have the ability to use ICT (Gill et al., 2014).

In addition to the presence of information and communication technologies in schools, teachers' self-confidence in ICT, as well as their knowledge, skills, and competencies, is important for integrating ICT into teaching environments (Papanastasiou and Angeli, 2008). Ertmer's 2005 study emphasized the importance of internal factors such as attitude and self-confidence, as well as external factors such as the school climate and support in the integration of ICT into educational environments (Ertmer, 2005).

Analysis of studies in the literature has revealed that the importance of appropriate knowledge, skills, and competence for the effective use of ICT is under discussion (Ertmer, 2005). The recent study of Kılıç (2015) indicated that teachers use technology in their classes more as their self-confidence regarding the use of ICT increases, and that this understanding helps them to improve their self-confidence. Roussos (2007) found that when teachers do not have knowledge, skill, and experience regarding ICT use, their self-confidence levels and, at the same time, their ICT use rates decrease.

Studies conducted on ICT have emphasized that both gender (Keser et al., 2015; Sezer, 2015), and experience (Kazu and Erten, 2014) are important factors for the development of self-confidence. Shashaani and Khalili (2001) reported that the rate of ICT use increases as self-confidence levels increase. Therefore, those persons having higher self-confidence regarding the use of ICT make more effort to learn, whereas those with low self-confidence have more resistance to ICT use (Scherer, 2015).

It has been seen that determining teachers' self-confidence levels regarding the use of ICT during the educational process is an important matter in terms of providing the effective use of the ICT in the learning-

teaching process. Moreover, the present study is important because it acts as a pioneer for further studies about similar issues. Although there are limited studies determining teachers' self-confidence levels regarding ICT use, no studies have been conducted that actually evaluate music teachers' self-confidence levels regarding ICT use.

Thus, determining the variables that affect the self-confidence level will contribute to reveal the relevant measures that can be considered in the integration process for these variables. The present study will show that music teachers' higher self-confidence levels regarding the use of ICT will be beneficial for the field in terms of that teachers' ability to improve their skills, follow current issues, and, in their professional life, improve their students' abilities. In this regard, the present study aims to examine music teachers' self-confidence levels regarding using information and communication technologies in education in terms of clearly stated variables. This study, with this basic aim, sought answers the following research questions:

Do music teachers' self-confidence levels regarding using ICT

1. Differ by gender?
2. Differ by possession of a personal computer?
3. Differ by having had internet access at home?
4. Differ by age?
5. Differ by a teacher's professional seniority?
6. Differ by computer usage hours?

METHODOLOGY

Type of the study

In accordance with the purpose of this study, descriptive scan model was used. Most of the studies conducted within the scope of quantitative research approaches about educational sciences generally used descriptive scanning model (Cohen et al., 2013).

Participants

The study group comprised 278 (146 females and 132 males) music teachers working in different regions of Turkey. The participants were specified using an easily accessible case sampling method, one of the non-random sampling methods. This easily accessible case sampling method provides speed and practicality for researchers because in using this method, researchers prefer a case that is nearby geographically and easily accessible (Yıldırım and Şimşek, 2008). The teacher-participant sample included 97 teachers (35%) from the Aegean region, 89 (32%) from the Marmara region, and 92 teachers (33%) from other regions of Turkey.

Instruments

This study used a personal information form, and a scale developed

to determine self-confidence about the use of information and communication technologies in education.

Personal information form

The personal information form comprised two parts. In the first part, there were questions about personal characteristics such as gender, age and professional seniority. The second part was about computer experience, and consisted of questions regarding internet access at home, whether the participant had a personal computer, and their hours of computer usage.

The self-confidence scale for the use of information and communication technologies in education is a 5-point Likert-type scale developed by Papanastasiou and Angeli (2008), and adapted for Turkish use by Tezci (2010) to determine self-confidence regarding the use of information and communication technologies. This scale was reviewed by three language experts working in the English language teaching field. Tezci (2010) adjusted this scale by adding three new items. The final version of the scale comprised 11 items. Participants' answers indicated their agreement levels: 1=Strongly disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4= Agree, 5=Strongly Agree.

For validity and reliability analysis, Tezci (2010) administered the scale to 272 primary school teachers (class and branch teachers) working in the Balıkesir Province. After Tezci (2010) administered the scale, Kaiser-Meyer-Olkin (KMO) and Bartlett's test values were examined for the suitability of data for analysis. This examination found the KMO value and the Bartlett test value to be significant at the level of 0.928 and 0.000, respectively.

This study determined that results were sufficient for performing a principal components analysis of the results. That analysis revealed that all items of the scale gathered under one factor and found that the total explained variance of eleven items was 62.249%. For correlations between items, the lowest value was between items 11 and 10 (0.259), and the highest value was between items 7 and 8 (0.785). The Cronbach's Alpha reliability coefficient of this scale was 0.921. Therefore, both opinions of the experts and data obtained from the pre-application of the study confirmed that the scale is appropriate for collecting data in terms of validity and reliability. In this sense, this study found the reliability of the scale to be 0.88.

Data analysis

In comparisons between two variables, this study used the unrelated (independent) samples t-test, when variables were homogeneous, and the Mann-Whitney U test, when variables were not homogeneous, to determine whether there were self-confidence differences between music teachers' opinions in terms of gender, personal computer, and internet access at home. For unrelated samples, in comparisons over more than two variables such as age, professional seniority, hours of computer usage, this study used the one-way variance analysis (ANOVA) when variables were homogeneous, and the Kruskal-Wallis H test was used for variables that were not homogeneous. Cohen's d coefficient was calculated to determine the effect size of the difference where differences were found.

RESULTS AND FINDINGS

The independent groups t-test analysis was performed because variables in this study were homogeneous in

Table 1. t-test analysis results.

Independent variable	Group	N	\bar{X}	SD	t	sd	p	Cohen's d
Gender	Female	146	2.68	0.46	-1.469	0.276	0.469	-
	Male	132	2.73	0.42				
Personal computer	Yes	210	2.78	0.43	7.864	0.276	0.00*	0.724
	No	68	2.32	0.52				
Internet access at home	Yes	194	2.78	0.41	6.502	0.276	0.00*	0.611
	No	84	2.41	0.43				

terms of music teachers' gender, having a personal computer, and having had internet access at home. This study used Cohen's d in the analysis to calculate the effect size of difference. Analysis results obtained regarding the specified variables are shown in Table 1.

Table 1 shows that there was no statistically significant difference between music teachers' self-confidence levels regarding the use of ICT by gender ($t = -1.469$, $p > .05$). In other words, self-confidence levels of female teachers ($\bar{X} = 2.68$) and male teachers ($\bar{X} = 2.73$) were close. Analysis of music teachers' self-confidence levels regarding the use of ICT according to the status of having a personal computer did not find a statistically significant difference ($t = 7.864$, $p < .05$). Gil-Flores et al. (2017) found no significant difference between teachers' levels of self-confidence in the use of ICT and their genders. This finding supports the results of the present study.

Teachers having a personal computer ($\bar{X} = 2.78$) had more self-confidence than those who did not have a personal computer ($\bar{X} = 2.32$). When music teachers' self-confidence levels regarding the use of ICT were examined according to the status of having Internet access at home, it was found no statistically significant difference ($t = 6.502$, $p < .05$). A previous study supports this finding (Huang et al., 2016).

This study found that self-confidence levels of participants having Internet access at home ($\bar{X} = 2.78$) were greater than those who did not have internet access ($\bar{X} = 2.41$). In addition, this study showed that the effect size between means in terms of having a personal computer and having Internet access at home was moderate and higher. These results revealed the importance of considering the effect of having a personal computer and Internet access at home on self-confidence. Erdoğan and Erdoğan (2015) stated that those who had internet access in their homes had higher level of self-confidence. This finding is parallel to the results of the present study.

This study also compared music teachers' self-

confidence levels in terms of age, professional seniority, and hours of computer use. To determine whether there was a statistically significant difference between variables, this study used the one-way variance analysis (ANOVA) for data analysis, when variables were homogeneous. Moreover, when a significant difference was found through data analysis, to determine between which groups this difference existed, this study performed a Tukey analysis and examined the effect size. Analysis results obtained regarding the specified variables are shown in Table 2.

As it is seen in Table 2, this study revealed that music teachers' professional seniority ($F(3,274) = 14.221$, $p < .05$) and their hours of computer use ($F(3,274) = 162.164$, $p < .05$) had a statistically significant effect on self-confidence. These findings showed that the effect size of the difference between means in terms of teachers' professional seniority was at medium level, whereas the effect size of the difference between means, in terms of the hours of computer use variable, was found to be very high.

Akgül et al. (2015) emphasized that teachers' levels of self-confidence in the use of ICT were higher than those of teachers who had lower levels of professional seniority. Another study showed that individuals' increased hours of computer use resulted in their positive attitudes towards computers and allowed them to more self-confident (Mumcu and Dönmez, 2014).

In addition, this study showed that music teachers' age ($F(3,274) = .548$, $p > .05$) had no statistically significant effect on their self-confidence levels.

DISCUSSION AND CONCLUSION

The present study shows that music teachers' self-confidence levels did not have a statistically significant difference in terms of the gender variable, that is, that gender has no effect on self-confidence. Because the rate of teachers' use of ICT has gradually increased, it is suggested that any difference related to gender has

Table 2. One-way variance analysis results.

Variable	Groups	N	\bar{X}	SD	Mean of squares (S)	F	p	Cohen's d	Tukey
Age	a) 20-29	126	2.78	0.51	0.124	0.548	0.612**	-	-
	b) 30-39	82	2.66	0.58	0.246	-	-	-	-
	a) 40-49	24	2.58	0.38	-	-	-	-	-
	d) 50 years or above	46	2.79	0.52	-	-	-	-	-
Professional seniority	a) 1-5 years	100	2.82	0.48	3.264	14.221	0.00*	0.264	a>b, c, d
	b) 6-10 years	61	2.68	0.46	0.211	-	-	-	-
	b) 11-19 years	61	2.62	0.44	-	-	-	-	-
	d) 20 years or above	56	2.58	0.42	-	-	-	-	-
Hours of computer usage	a) 1-2 h	74	2.54	0.37	22.886	162.124	0.00*	.848	d>c>b, a
	b) 3-6 h	111	2.57	0.35	0.136	-	-	-	-
	b) 7-10 h	50	2.86	0.32	-	-	-	-	-
	d) 11 h or more	43	3.81	0.35	-	-	-	-	-
p<.05*;p>.05**	-	-	-	-	-	-	-	-	-

gradually decreased thereby.

Thus, this result can be explained both that female and male teachers are directed to computer-related jobs and that they are supported for studies regarding tools about information and communication technologies. Moreover, it is suggested that this finding may arise from the fact that both females and males have been interested in using information and communication technologies from their childhood years.

Roussos (2007) stated in his study that gender is not a significant factor in determining self-confidence levels. In the literature, there are similar findings (Karadeniz and Vatanartiran, 2015; Şad and Nalçacı, 2015). However, there are studies that have shown a significant relationship between gender and self-confidence scores (Akgül et al., 2015; Gönen and Kocakaya, 2015).

Music teachers' self-confidence levels differed statistically significantly concerning having a personal computer: having a personal computer is important for further development of self-confidence levels. Therefore, this result makes it necessary to consider the effect of personal computers on self-confidence. Moreover, it also shows that the effect size of the difference between means, the importance of this difference, and the necessity of taking this difference into account. In the final analysis, the present study revealed that regarding teachers' self-confidence level, among those teachers who had a personal computer, the level of ICT use was higher than among those who did not have a personal computer. This finding is largely in agreement with the results of other studies (Tezci, 2010; Menzi et al., 2012; Gürbüzürk et al., 2015; Şad and

Nalçacı, 2015).

In this study, music teachers' self-confidence levels regarding using ICT was statistically significantly different depending on the status of having had Internet access at home; other studies support this result (Menzi et al., 2012; Mumcu and Dönmez, 2014). Furthermore, the present study showed that there is no statistically significant difference between music teachers' self-confidence and their age. A similar study did not find significant differences between teacher age and self-confidence levels (Roussos, 2007). These previous findings support the findings of the present study.

Another finding of the present study was that music teachers' self-confidence statistically significantly differed in terms of the professional seniority variable: music teachers with lower

professional seniority years had higher levels of self-confidence. It is likely that teacher who had recently started their careers followed new technologies more effectively with their knowledge and experiences. That is in agreement with studies conducted (Tezci, 2010; Akgül et al., 2015). Akgül et al. (2015) stated that young people had more chance to have an interaction with technology compared to the previous generation.

Chen (2008) reiterated that self-confidence levels of teachers, who had recently started their careers, regarding use of ICT was higher; these results are in line with findings of the present study. Rowand (2000) emphasized that teachers with lower professional seniority years use the Internet more often and mostly to reach information or to share information with their colleagues. Therefore, these results provide evidence that newly hired teachers had access to computer training during their undergraduate studies; therefore, they have a better cognitive background related to computer use, they have had more opportunities to use a computer; and they are more interested in computers.

Based on study findings, music teachers' self-confidence differed statistically significantly in terms of the hours of computer use variable. Therefore, if teachers have a personal computer, it is expected that they access desired information whenever they want or need to, depending on their computer use frequency and hours.

Wilfong (2006) reported that self-confidence level increases as the frequency of ICT use increases. A study in the literature showed that the effect size of the difference between means was quite high, indicating that emphasizing practice rather than theory is the important way to increase the information and communication technologies use by teachers. Çevik Kılıç (2015) stated that the qualifications for use of ICT should be reviewed and the deficiencies in this issue should be explored. Mumcu and Dönmez (2014) emphasized that the more frequently individuals used computer, the more proficient they would feel themselves.

The present study shows that music teachers' self-confidence regarding the use of ICT is an issue that should be emphasized. Therefore, improving teachers' self-confidence has equal importance as making investments in technology. In this sense, it can be assumed that music teachers will make more of an effort to create an effective learning environment thanks to their higher levels of self-confidence regarding the use of ICT. Özüt and Tuncer (2012) also discussed the fact that teachers can be more efficient in most fields related to their jobs by proper and appropriate use of ICT, and especially in educational-instructional processes.

Thus, with rapid technological changes and developments experienced in today's world, it is essential for music teachers to combine and integrate their knowledge and experiences with technological learning environments. In other words, self-confidence should be

taken into consideration during the period where ICT use is being integrated with traditional teaching practices throughout the learning-teaching process. In this respect, it is necessary and important to provide opportunities for teachers to gain an increased knowledge level regarding effective ICT use in classrooms during learning-teaching processes. In the light of these findings, the following recommendations are offered:

1. Seminars and in-service training activities should be organized for music teachers to improve their self-confidence regarding the use of ICT.
2. With semi-structured interviews, music teachers' self-confidence levels regarding using ICT should be examined.
3. Further studies should be conducted to discuss other variables that also affect the use of ICT.
4. To increase the use of ICT, it may be appropriate to provide time for more practice rather than introducing more theory.

Conflicts of interest

The author has not declared any conflict of interests.

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Full Length Research Paper

Understanding the academic procrastination attitude of language learners in Turkish universities

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The prevalence of academic procrastination has long been the subject of attention among researchers. However, there is still a paucity of studies examining language learners since most of the studies focus on similar participants such as psychology students. The present study was conducted among students trying to learn English in the first year of their university education. 144 male and 169 female students from four different Turkish universities participated in the study. The main purpose of the study was to investigate the relationship between the procrastination levels of language students and variables like gender, department, age, self-reported motivational levels, and satisfaction with majors. The findings of the study suggested that men reported significantly higher procrastination behavior. The participants who reported higher motivation procrastinated less while age was not found to be related to procrastination.

Key words: Academic procrastination, motivation, language learning, academic procrastination.

INTRODUCTION

Procrastination, a destructive affliction that can be seen in every aspect of life, may hamper people's career, study or personal life (Beswick et al., 1988). Ackerman and Gross (2005) defined procrastination as 'the delay of a task or assignment that is under one's control' (p. 5). Alternatively, some researchers perceive it as a tendency to postpone a task that is necessary to reach a goal in spite of an awareness of negative outcomes (Lay, 1986; Steel, 2007). The procrastinator obtains a short-term relief through easier, quicker and less-anxiety provoking acts (Boice, 1996). Hence, procrastination is considered mostly as a self-handicapping propensity while procrastinators are often described as lethargic people who tend to waste time and show poor performance (Chu and Choi's 2005).

Past researchers (Mann, 2016) identified two types of

procrastination: behavioral procrastination, which can be defined as the delay of the completion of tasks, and decisional procrastination, which is concerned with postponing decision-making within some specific period. While the former focuses on how people perform tasks in different life situations, the latter appears to indicate how they approach their decision-making processes. The present study focuses mainly on behavioral procrastination.

Although, procrastination is generally accepted as a detrimental tendency, not all researchers focus on the negative aspects of procrastinatory behavior. Chu and Choi's (2005) classification of procrastinators as active and passive displays a different approach to the perception of procrastination. They stated that, while passive procrastinators tend to postpone tasks without

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originally intending to do so, active procrastinators defer tasks intentionally since they work better under pressure. Chu and Choi's (2005) also reflected that active procrastinators shared more with non-procrastinators because of their intentions of meeting the deadlines and performing the task satisfactorily. They had the control of their work and time as well as self-efficacy. Similarly, a study by Cao (2012) found that graduate students, identified as procrastinators did not always lose control of their work since they tended to procrastinate when they felt more confident with their abilities to accomplish academic tasks. Nevertheless, the bulk of the procrastination research findings focuses mainly on its detrimental effects and does not consider any of its functional aspects.

Procrastination is known to be prevalent within the academic contexts. As detected in a study conducted by Klassen et al. (2008), it took longer for procrastinators to begin important assignments. In addition, they were less confident in their capability of regulating their own learning that resulted in lower class grades and lower GPAs. A number of researchers (Cao, 2012; Perrin et al. 2011) have examined the procrastinatory behaviors of college students. In a study conducted by Solomon and Rothblum (1984), students reported that they procrastinated on writing a term paper (46%), studying for exams (27.6%), and reading weekly assignments (30.1%). Such delays within the academic context are labeled academic procrastination. Steel and Klingsieck (2016) defines this term as 'to voluntarily delay an intended course of study-related action despite expecting to be worse off for the delay' (p. 37). The term "student procrastination" has been used interchangeably with the term "academic procrastination".

The relationship between procrastination and academic performance has been examined in a large number of studies. Although, some researchers have not identified any negative relationships between procrastination and academic achievement (Lay, 1986; Pychyl et al., 2000), a large number of studies have reported negative effects of procrastination on learning and achievement (Burka and Yuen, 1990; Cao, 2012; Knaus, 1998; Onwuegbuzie, 2000; van Eerde, 2003). As suggested by Kim and Seo (2015) in their meta-analysis pertaining to the relationship between procrastination and academic performance, the inconsistent results may have stemmed from different reasons such as the use of small samples, different measures, self-report data or different demographic characteristics of the learners.

After a thorough examination of the related literature, Steel (2007) classified the causes and correlates of procrastination under four major sections: task characteristics, individual differences, outcomes and demographics. Task characteristics are related to the nature of the task whereas, individual differences are clustered into different components: neuroticism, trait

extraversion, agreeableness, intelligence/aptitude and conscientiousness. The outcomes are listed as mood and performance, considering procrastination may affect the students' anxiety levels as well as their success levels. Steel also reported three possible demographic factors that can be associated with procrastination: age, gender and year. That is, people are likely to procrastinate less as they get older and when gender differences are taken into consideration, it is observed that men tend to procrastinate more. The year of the study is also an important factor since newer studies find higher levels of procrastination.

Other researchers have linked procrastination to a large number of factors such as perfectionism (Burka and Yuen, 1990; Flett et al., 1992; Hewitt and Flett, 2007), personality traits such as self-esteem, self-regulation and self-efficacy (Klassen et al., 2008), metacognitive beliefs (Fernie and Spada, 2008) and motivation (Katz et al., 2014). Among all the factors, motivation has an important place since a large number of studies focused on the correlation between motivation and academic procrastination. According to the Temporal Motivation Theory (TMT), procrastination is more likely to occur if the outcome of an unpleasant activity like writing an essay proposes rewards in the distant future (Steel and Klingsieck, 2016). Similarly, Çavuşoğlu and Karataş (2015) indicate that both intrinsic and extrinsic motivations are direct predictors of academic procrastination.

The role of gender in procrastinatory behavior has been explored in a number of studies. In a study conducted by Özer et al. (2009), significant gender difference was found, with men procrastinating more (2009). Van Eerde (2003) detected only a weak relationship between gender and procrastination, with men showing procrastinatory behaviors slightly more than women. Similarly, Steel (2007) found that men procrastinated slightly more than women did, yet, the difference was not significant. In their study, performed with Turkish participants, Klassen and Kuzucu (2009) concluded that adolescent boys were more likely to spend their time with electronic media (watching TV, emailing, going on-line, and, in particular, playing computer games), while girls were most generally expected to read books, magazines and newspapers.

The present study examines the academic procrastination of language learners. The main impetus for the study came from the scarcity of studies in the literature on the academic procrastination of language learners. Hence, the main purpose of the study is to examine the academic procrastination levels of language learners. Learning a foreign language requires hard work and dedication, especially if the students do not live in a country in which the target language is the medium of communication. As in the case of the English language learners in Turkey, in such situations, the students do not find the opportunity to communicate with native English

speakers. To improve their language skills, they need to fulfill many tasks such as listening to audio materials, reading texts of different levels, writing essays in English or performing speaking activities in and outside of the class. Since language learning requires the fulfillment of so many tasks, an examination of the procrastinatory behaviors of language learners may shed light on the language learning behaviors of students.

In addition to a number of factors such as study field, gender, age and self-reported motivation, the study also examined the effect of the students' satisfaction with their majors on their procrastination scores. Here, it is crucial to give information on the National University Entrance Exams (UEE) in Turkey. Since this exam is rather competitive, students do not always have full control on the subject they will study. Their scores in the exam is the major determiner of the university, faculty and department that they will attend. Since a large number of students take the test every year and it requires hard work to get a high score, the students may sometimes end up with a field they do not actually want to be. Most of the time, these students continue their education because of not having a better option. This has been considered among the factors that may affect the procrastination scores of students. Therefore, students' satisfaction with their majors was one of the variables that have been examined in this study.

METHOD

The present study aims to investigate the procrastination levels of English language learners attending the language classes in four universities in the Southeastern Region of Turkey. The following research questions have been sought within this study:

1. What level of academic procrastination do the language learners have?
2. What is the nature of the relationship between the students' majors and their procrastination scores?
3. Do the students' academic procrastination scores correlate with factors such as gender, age, self-reported motivation and satisfaction with their prospective fields of study?

Participants

The participants of the study were college students that were enrolled in different departments: Economics, Turkish Literature, British Literature, English Language Teaching, Engineering (Computer Engineering, Mechanical Engineering, Electronic Engineering, Civil Engineering, Bioengineering, Metallurgy Engineering), Philosophy, History of Art and Anthropology. According to the regulations in Turkish universities, if students are to take some (or in some cases all) of their lessons in English during their university education and their language proficiency levels are not found to be adequate after a language test, they are offered English courses for one year at the beginning of their university education. Therefore, during the year in which the study was conducted, all participants were language learners, trying to improve their language skills for their future studies. After that year,

they would be taking courses about their majors partly or fully in English. Namely, although they were enrolled in 13 different departments, their focus of study was English during the time of the present study. All the students attending the preparatory language classes in the four sample universities were included in the study. All responses were submitted anonymously. Altogether, 319 submissions were made, which were then reduced to 313 (144 males and 169 females) after discarding the questionnaires that were either incomplete or carelessly completed (e.g. choosing the same option throughout the questionnaire). The average age of the participants was 22.4, with a range of 17 to 31 years.

Instruments

Data was collected through a questionnaire, adapted from two scales: Aitken Procrastination Inventory (Aitken, 1982; Ferrari et al., 1995) and Academic Procrastination Scale (Çakıcı, 2003). The questionnaire, originally written in Turkish, consisted of 16 items, each accompanied by a 5-point Likert scale. An example of the items is "Whenever I start studying English, I remember something else that I need to do" with response options 1- not at all true of me, 2- slightly true of me, 3- moderately true of me, 4- very true of me, and 5- completely true of me. The possible scores of the students ranged between 16 and 80. The Cronbach's alpha coefficient of internal consistency for the questionnaire was 0.88, which was acceptable. Before the administration of the questionnaire, a pilot test was conducted with twenty students, chosen according to the same criteria for the participants of the study. With the information obtained from the pilot testing, minor wording changes were made to avoid ambiguity and confusion.

In addition to this questionnaire, a background questionnaire was also prepared to obtain demographic information about the participants, including questions about their motivation levels and satisfaction with their majors. The students were asked to state their motivation levels towards learning English by choosing among three options, ranging from low motivation to high motivation. Similarly, the students were asked to determine their satisfaction with their majors by choosing among three options ranging from not at all satisfied to completely satisfied.

Procedures

The questionnaires were administered in four different universities during the spring term of 2014-2015 academic year. Only the students enrolled in a language preparation class were included in the study. The participants were assured of anonymity and it was made clear that the participation was voluntary. Since the questionnaires were administered by course instructors, the response rate was high. The questionnaire results were analyzed with SPSS.

RESULTS

The first research question this study addressed was on the level of the language learners' academic procrastination. The possible mean scores for the questionnaire range from 16 to 80. The participants of this study obtained scores from 18 to 76 ($M = 44.75$). Appendix 1 summarizes the frequencies and percentages of all the answers given to the items in the questionnaire. According to the results, the participants find time to go

Table 1. Frequencies, means and standard deviations for academic procrastination by department, age, self-reported motivational levels, and satisfaction with majors.

Departments	f	M	SD
British Literature	72	39.82	13.61
English Language Teaching	40	41.25	10.22
Art and philosophy	35	41.69	10.29
Economics	34	42.59	12.90
Turkish Literature	20	47.10	13.31
Anthropology	26	50.31	11.59
Engineering	86	50.40	12.79
Total	313	44.75	13.08
Age			
19 and younger	192	44.44	12.58
20-25	105	46.26	13.48
26 and older	16	38.63	15.01
Total	313	44.75	13.08
Self-reported motivational levels			
low	69	55.29	11.87
moderate	71	46.01	11.27
high	173	40.04	11.63
Total	313	44.75	13.07
Satisfaction with major (satisfaction levels)			
Not at all satisfied	26	50.31	12.99
Moderately satisfied	144	47.10	12.60
Completely satisfied	143	41.39	12.79
Total	313	44.76	13.08

over the subjects that they have learnt before English exams (Item 4; very true of me: %26.3; completely true of me: 33.1%). Nevertheless, they may put off studying boring things until the last minute (Item 8; M= 3.22; very true of me: 14.7%; completely true of me: 23.8%). The answers given to the items about the submission of assignments showed that the students generally completed their English assignments and projects on time and they did not fail to submit them. For instance, the answers given to Item 15 reflect that only 13.6% have difficulties in completing their assignments on time (very true of me: 4.5%; completely true of me: 9.1%). Similarly, the responses given to Item 11 reflect that the students submitted their assignments on time (M= 2.04; very true of me: 21.2%; completely true of me: 42.2%). However, the answers given to Item 2 suggest that they generally delay their English assignments/projects until the last minute (M= 3.47; very true of me: 19%; completely true of me: 28.3%).

The examination of the procrastination scores of the students from different departments indicated that the lowest mean scores belonged to the departments of British Literature and English Language Teaching (Table 1). Since the data would be difficult to interpret otherwise,

the scores of the students from the departments of engineering (Computer Engineering, Mechanical Engineering, Electronic Engineering, Civil Engineering, Bioengineering, Metallurgy Engineering) were examined together and the students in this group had the highest procrastination scores of all groups (M= 50.40, SD = 12.80). According to the results of the one-way ANOVA, the difference between groups was statistically significant [$F(6,306) = 6.93, p < .001, \eta^2 = 0.11$]. Post-hoc Tukey HSD results indicated that the scores of the engineering students were significantly higher than the scores obtained by four other departments: British Literature (M= 39.82, SD = 13.61), English Language Teaching (M= 41.25, SD = 10.22), Art and Philosophy (41.69, SD = 10.29) and Economics (M= 42.59, SD = 12.90).

To determine the relationship between gender and procrastination scores, an independent samples t-test was calculated. As seen in Table 2, men had significantly higher procrastination scores (M= 49.54) than women (M= 40.67) [$t(311) = -6.34, p < 0$].

The frequencies, means and standard deviations of the participants' academic procrastination according to age factor are presented in Table 1. Since the students' ages were close, they were classified under three groups. The

Table 2. Gender difference in procrastination scores.

Gender	f	M	SD	2-tail significance
Female	169	40.67	11.74	0.00
Male	144	49.54	12.96	

$t=-6.34$, $df=311$, $p=0$.

findings indicate that students who were older than 25 shared the lowest scores, followed by students that were 19 and younger while those with ages between 20-25 had the highest scores. Nonetheless, the ANOVA results did not reveal a significant difference between age and procrastination scores.

Table 1 shows the mean scores of the students with high, moderate and low self-reported motivational levels. As can be seen in the table, the students who reported having low motivation had the highest procrastination scores ($M= 55.29$, $SD = 11.87$). They were followed by the students with moderate ($M= 46.01$, $SD = 11.27$) and high levels of motivation ($M= 40.04$, $SD = 11.63$).

An ANOVA was calculated to find out whether the differences between the scores of students with different levels of self-reported motivation were significant. The results suggested a significant difference between the groups [$F(2,310) = 43.13$, $p<.001$, $\eta^2 = 0.21$]. Post-hoc comparisons using the Tukey HSD test indicated a statistically significant difference among all the groups. Namely, the procrastination scores of students with high, moderate and low motivation levels differed significantly.

Another variable examined in the study was the students' satisfaction with their majors. As Table 1 suggests, the students who were not satisfied with their majors had the highest procrastination scores ($M= 50.31$), while the students with complete satisfaction with their majors were less likely to report procrastination ($M= 41.39$). The ANOVA results indicated a statistically significant difference and a post-hoc Tukey HSD test showed the significant difference between the mean scores of the students with the highest satisfaction levels and the other two groups with lower satisfaction levels [$F(2,310) = 9.95$, $p < .001$, $\eta^2 = 0.06$]. Here, it may be useful to mention that the motivational levels of the students differed according to their departments. The students of the departments of British Literature and English Language Teaching had the lowest mean scores ($M= 39.82$ and 41.26 respectively), whereas the students of the departments of Anthropology and Engineering had the highest ($M= 50.31$ and 50.40 , respectively). The implications of these findings will be further explored in the discussion section.

Correlations among major variables are presented in Table 3. To summarize, academic procrastination of language learners showed significant correlation with department, gender, motivation and satisfaction with major. In addition to the findings mentioned above,

significant positive correlations were found between department and satisfaction with major. Furthermore, motivation appeared to be correlated with gender and satisfaction with major.

Multiple regression was used to determine the extent to which the variables predicted academic procrastination. A summary of this analysis is presented in Table 4. An examination of the standardized regression coefficients (β) revealed that the greatest contributor to the prediction model was motivation ($\beta = -.40$, $p<.01$). Standardized regression coefficients (β) for gender and satisfaction with major were 0.28 ($p<.01$) and -0.12 , ($p<.05$) respectively while department and age had no significant effects.

DISCUSSION

The present study aimed to examine the academic procrastination of language learners. The students' overall procrastination scores were not very high. They generally found time to study before their exams and submitted their assignments on time. Nevertheless, the students did admit to some form of procrastination in their academic work. Most students reported procrastinating until last minute in their study time. As suggested by Ackerman and Gross (2005), they may also submit perfunctory work as a concomitant of lagging behind. Research has shown that procrastinators have the same desire to work at the beginning of a task as others (Steel et al., 2001). However, they tend to work less to attain their goals since they devote a lot of time to do irrelevant tasks while the chief task is deferred.

As suggested by Van Eerde (2003), the role of gender on procrastination has not been consistent since quite different findings were obtained in different studies. Though many studies were equivocal in their findings and did not lead to significant results, the bulk of evidence still point to men scoring higher than women (Van Eerde, 2003; Steel, 2007; Özer et al., 2009). Not surprisingly, the findings obtained from the present study reflected that men procrastinated significantly more than women. Another study performed with Turkish participants by Klassen and Kuzucu (2009) resulted with similar findings. They explored the academic procrastination and motivation variables of 508 adolescents in a secondary school in Turkey and found that adolescent boys procrastinated more than girls. In a study conducted in

Table 3. Correlation values among variables.

	1	2	3	4	5	6
Academic procrastination	-					
Department	.10*	-				
Gender	.33**	.17**	-			
Age	-.02	-.24**	.16**	-		
Satisfaction with major	-.24**	.26**	-.11*	.01	-	
Motivation	-.46**	-.08	-.13**	-.02	.26**	-

* $p < .05$; ** $p < .01$.

Table 4. Summary of multiple regression for variables predicting academic procrastination (N=313).

	B	SE B	β	T	p
Department	0.18	0.28	0.03	0.63	0.53
Gender	7.2	1.32	0.28	5.51	0.00**
Age	-1.2	1.11	-0.06	-1.16	0.25
Satisfaction with major	-2.4	1.08	-0.12	-2.24	0.03*
Motivation	-6.3	0.80	-0.40	-7.89	0.00**

* $p < .05$; ** $p < .01$ $R = .556$ $R^2 = .309$ $F(5,307) = 27.50$.

one of the prominent universities of Turkey, it was found that female students outperformed males in academic achievement, which was entailed to better class attendance, study skills and motivation (Dayıoğlu and Türüt-Aşık, 2007). Özer et al. (2009) attributed this difference to the behavior patterns, which may stem from culture. According to their explanation, in collectivist cultures like the Turkish culture, women may feel the need to be more organized and successful.

The self-reported motivational levels of the participants correlated negatively with their procrastination scores. In previous studies, motivation was reported to be an important factor that affected procrastination behaviors of students. Most other studies reported similar findings. Lee (2005) found that high procrastination was connected to lack of self-determined motivation along with low incidence of flow state. In another study that scrutinized the predictors of academic motivation, Kandemir (2014) found that academic motivation had a significant negative relationship with academic procrastination. Similarly, Çavuşoğlu and Karataş (2015) indicated that both intrinsic and extrinsic motivations were direct predictors of academic procrastination. As known, motivation level changes according to the individual's expectancy of an outcome. This may be connected to another finding of the study, which reflected the negative correlation between students' satisfaction with their departments and their procrastination scores. As mentioned before, the students in Turkey do not always have full control on choosing their majors. The participants of the study were

university students, who tried to improve their English proficiency levels for their prospective studies. Students who were not satisfied with their prospective majors and consequently had lower expectations concerning their forthcoming studies tended to procrastinate more than others.

This study included participants from a large number of departments, including Economics, Turkish Literature, British Literature, English Language Teaching, Engineering, Philosophy, History of Art and Anthropology. When their procrastination scores were compared, it was found that the lowest mean scores belonged to the departments of British Literature and English Language Teaching. Since learning English is more crucial for the students of these two departments, this is not surprising. This finding also strengthens the previously mentioned finding about motivation. Presumably, the students of the departments of British Literature and English Language Teaching attributed more importance to learning English, a crucial factor for them to pursue their prospective careers that led them to procrastinate less.

As mentioned by Steel (2007), people tend to show less procrastinatory behavior as they get older. In this study, age was not found to be correlated with the procrastinatory behaviors of the participants. Although, the students who were older than 25 procrastinated less than the others, this finding should be evaluated with caution since it did not lead to any significant results.

Procrastination may provide a relief in the university life with more time for socializing and release of stress

(Patrzek et al., 2012). Some procrastinators may even claim that they work best under time pressure (Ferrari, 2001) and consequently, those who claim to work well under stress and time pressure procrastinate intentionally to get better results (Chu and Choi's 2005). However, research has shown that instead of working well under pressure, dilatory students complete less of a task and display less accurate results (Ferrari, 2001). This may stem from the fact that chronic procrastinators are not good at determining the necessary time that is needed to complete a task and their tardy behavior leads to spending less time on tasks (Ferrari, 2001; Klassen et al., 2008).

The results of the present study need to be considered in light of three main limitations: First, the sample of the study consisted of university students in the southeastern part of Turkey and a larger sample could have led to different results. Second, the study is based on the students' self-reports, which can be subjective. Moreover, it should be recognized that the study was conducted on university students, whereas different findings could have been obtained with students that had different backgrounds.

Conflict of Interests

The author has not declared any conflicts of interest.

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Appendix 1. Language learners' responses to the items of the questionnaire in percentages (frequencies in brackets).

Items	Not at all true of me	Slightly true of me	Moderately true of me	Very true of me	Completely true of me	M	SD
15- I cannot complete my English assignments/ projects on time.	47.9 (169)	15.6 (55)	11.6 (41)	4.5 (16)	9.1 (32)	2	1.34
11- I submit my English assignments on time.	8.2 (29)	4 (14)	12.7 (45)	21.2 (75)	42.2 (149)	2.04	1.29
4- Before English exams, I find time to go over the subjects that I have learnt.	8.2 (29)	3.4 (12)	17.3 (61)	26.3 (93)	33.1 (117)	2.18	1.25
3- I give up studying English to do things that are more enjoyable.	21 (74)	24.1 (85)	22.4 (79)	9.9 (35)	11.3 (40)	2.62	1.30
5- Whenever I start studying English, I remember something else that I need to do.	25.5 (90)	22.7 (80)	14.7 (52)	10.2 (36)	15.6 (55)	2.63	1.44
6- Even when I know they are important, I delay working for English exams until the last minute.	28.3 (100)	17.8 (63)	14.7 (52)	11.6 (41)	16.1 (57)	2.65	1.49
9- Before I go to the English classes, I read all the texts that are required.	22.7 (80)	18.1 (64)	20.4 (72)	17.6 (62)	9.9 (35)	2.70	1.34
12- Even when the date of an English exam is announced earlier, I often deal with things of secondary importance, and cannot find enough time to study.	24.6 (87)	17.8 (63)	20.4 (72)	10.5 (37)	15.3 (54)	2.70	1.42
7- I go to English classes prepared.	19.8 (70)	16.1 (57)	23.2 (82)	17.8 (63)	11.6 (41)	2.83	1.33
10- While I am studying English, I often take a break to eat, drink or have a chat with someone.	16.7 (59)	24.9 (88)	18.4 (65)	13 (46)	15.6 (55)	2.84	1.36
14- There are times I become unsuccessful in English exams, because I put off studying until the last day.	19.5 (69)	15 (53)	18.7 (66)	16.7 (59)	18.7 (66)	3	1.44
1- I study for my English lessons regularly.	12.7 (45)	10.2 (36)	32.3 (114)	23.8 (84)	9.6 (34)	3.08	1.18
8- I put off studying boring things until the last minute.	15 (53)	13.6 (48)	21.2 (75)	14.7 (52)	23.8 (84)	3.22	1.43
13- I generally stick to my plans about studying English.	24.9 (88)	15.9 (56)	22.1 (78)	13.9 (49)	11.9 (42)	3.31	1.37
16- Before an English exam, I generally have enough time to study for all the subjects.	10.2 (36)	11 (39)	25.8 (91)	22.7 (80)	19 (67)	3.32	1.26
2- I delay my English assignments/projects until the last minute.	11 (39)	11.6 (41)	18.7 (66)	19 (67)	28.3 (100)	3.47	1.37

Full Length Research Paper

Electronic means of foreign language learning in the system of higher education

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Integration of information communication technologies, enhancing students' motivation and adding to personalized learning, into higher education is challenging but beneficial. It is particularly acute in the field of foreign language learning which requires language competence formation along with knowledge of grammar patterns, vocabulary specificity and reproductive skills in listening, reading, speaking and writing. The given article reflects the current trends of e-learning of foreign languages to providing insights of teaching and learning practice, theoretical literature review and empirical data gained by students' opinion polls in NRU HSE Nizhny Novgorod branch. Both advantages and shortcomings are analyzed and the comparison of the traditional classroom education and innovative is carried out. Recent trends in e-learning of foreign languages, use of various tools and numerous techniques are considered.

Key words: Gamification, Wiki sites, e-learning requirements, personalized learning.

INTRODUCTION

E-learning is a complex process of creating an educational space for people to share knowledge and acquire skills via new informational technologies. Its significance for higher education lie in the implementations of information communication technologies that accelerate the process of collection, accumulation, storage, processing and transmission of various data.

Less than 15 years ago, e-learning which implied the use of various forms of ICT as a primary means of learning and teaching (Snyder, 1998; Rosenberg, 2001; Swan et al., 2003), was an experimental way of teaching various technical subjects. Currently, educators across all fields use online training to teach in every sphere of competence. Almost any university or educational

institution incorporates e-Learning or blended learning into its programs one way or the other according to the statistics given on the official site of U.S Department of education and English language office in Moscow <http://moscow.usembassy.gov/elo.html>.

Trends of e-learning

Cloud computing is now a major technology trend. In relation to e-learning, cloud-based LMS services are gaining popularity and have the capacity to reduce operation costs. It provides the opportunity to provide learners with media storage, which can be instantly

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shared by links and found by the key word.

Another trend is gamification, which has existed for quite a long time. Its real influence has been discovered a couple of years ago due to computer technologies' development boost. Gamification makes learning motivating, engaging, and inspiring. It worth noting that American researchers have been using many games in their teaching practice, in particular the following memory games: Memorise the picture, quiz, memory games with cards (Osipov et al., 2015) Gamification in e-learning uses exciting technologies and innovations within the gaming industry. Also, Karl M. Kapp opines that even more is forthcoming with the use of virtual and augmented reality (Kapp, 2012).

In addition, it's been foreseen by the staff of Massachusetts Institute of Technology, that in the near future universities will award degrees with 100% content on Massive Online Open Courses (MOOCs). This evidently shows the popularity of MOOC, which is becoming the main stream.

Currently, students learning via MOOCs are getting certificates that will soon translate into credit. A growth area to watch for is the rise of co-branded MOOCs between corporations and established academic universities, where students would prefer paying fees to study rather than enrolling free conventional courses.

Keeping in the forefront of innovations National Research University Higher School of Economics has created several courses in the frames of the project of Open university founded by the leading Russian universities and incorporated a number of MOOCs offered by international teaching community into the curricular .

Thus, the 4th year students of department of Mathematics Informatics and Computer science, whose specialty is engineering programming, have had a must to participate in the massive course devoted to Academic English writing. They enrolled it in October 2016 and it lasted for three month to be followed by tests in December. The given course provides the opportunity to get to know basic principles of essay writing, business correspondence issues and research writing techniques. <https://www.coursera.org/specializations/academic-english>

Among the recent tendencies, for flipped classrooms, discovery learning, project learning and others, the student oriented learning tops the list (Frolova, N., 2016). It is general knowledge that most university students often feel "out of the picture" concerning their learning and, quite frequently, uninspired or even demotivated and their grades reflect it. Learners do not realize the value of knowledge they are being broadcasted to. However, personalized learning puts the learners in control, allowing them to trace the progress and acquiring the necessary information, creating their own learning track. Learners are also offered choices on ways to learn and

educational media that suit their learning style and pace Filatova A, Titova S (2014). The latter seems to be acute for adult learners and disabled ones in particular.

Requirements

When it comes to only sharing knowledge and making learners understand the material better, e-learning is definitely a better choice in contrast to the classroom training. Presenting huge information in the classroom to teach basics of any subject in today's fast paced working environments cannot be said as a preferable choice when you can easily leverage the benefit of e-learning in the form of eBooks, online manuals, Online handbooks, audio and training videos to transmit huge information. In addition, for communicating about values and vision throughout an organization or training people on change management, e-learning can be very effective. It can also ensure a consistent learning experience for learners.

If e-learning courses are developed on the basis of sound instructional designing strategies and adhere to adult learning principles as well, they can be highly beneficial and engaging for the adult learners. These adult learners, who are experienced, self-directed and expected to be busy in their lives (playing multiple roles in lives), like to learn in order to just enhance their present performance in doing some work/task. They are more likely to go after such a course, which can allow them to experiment, practice, perform, and acquire required skills. Adults learn to get their existing performance problem solved. Another factor with adult learners is they like to take time and learn at their own pace, which can become possible in the case of the online training module.

In this way, e-learning courses, which are usually learner-centered, can be very useful for these adult learners. The well-chunked content along with the complimentary real-life interactive scenarios, simulations, problem-solving games, stories, case studies etc., in e-learning courses can highly engage the students more than classroom training which is mainly focused on the presentation of various information, including basics and least, allows for interacting with the course. However, for learners who are not satisfied with technology or tend to lose interest in a self-paced, self-driven eLearning course, the classroom can be a better option.

E-LEARNING EXPERIMENTAL PRACTICE IN HSE AND ITS METHODOLOGY

The National Research University Higher School of Economics (HSE) is not an exception but it has implemented various information and communication technologies in the educational process and is the member of the pilot project of the Open University, which is supported by leading Russian universities. (<https://openedu.ru/university/hse>).

E-learning and blended learning are carried out by means of wiki sites, e-learning environment (LMS), and learners' groups in social

networks, webinars and others. Wiki enables project-based learning in real time, when all participants distantly can cooperate in teamwork. . (Lyashenko M, Frolova N, 2014) Wiki spaces allow both formal and informal communication in different role models and dimensions like (student-student, student teacher, tutor-teacher, teacher-student groups). The author of the article has created and used teaching and learning practice correspondingly to several wiki sites <https://sites.google.com/site/frolovanh>, <https://sites.google.com/site/presidentprogrammeprtfolios>, <https://sites.google.com/site/lmsnnovgorod>, <https://sites.google.com/site/3rd2016>)

The abovementioned web tools can cater for many learning types and are becoming much more of a must have in e-learning.

The fourth generation evaluation principle of Mason (2002) was used while carrying out the research. Opinion polls and observation were given in the process of learning integration for all students groups. The evaluation of e-learning tools and students' feedback was arranged. Being both a teacher and an evaluator, the author of this article collected and interpreted the data received. While assessing the learning activities, focus was on all findings and personal discoveries of the participants concerning advantages and disadvantages of e-learning. The author used interview and qualitative approach to analyze the results by comparing them with the initial ones.

RESEARCH FINDINGS AND E-LEARNING STEPPING STONES

The author of the given article conducted a study with the 3rd year students of the NRU HSE NN. The respondents (more than 40 people) have been mostly positive, in response to the questionnaire on the e-learning efficiency. 87% of the students have confirmed that the system improves teacher-student communication. Thus, the results of the given survey prove the optimization of learning by means of web tools. However, the practice show that due to additional investments requirements and retraining policy, universities authorities are reluctant to switching fully from the traditional learning system to e-learning.

Coming to the cost benefits, based on various research reports statistics, e-learning proves to be more cost-effective than conventional classroom training. Corporate and educational bodies save about 50 to 70% on training, when they replace instructor-led training with e-learning. This is due to reduced or eliminated travel costs and more targeted training (IOMA, 2002). Unlike classroom training, which requires the presence of trainers, each and every time the course is supposed to be delivered, e-learning set can be developed once and used multiple times for the training requirements of the bigger audience.

Furthermore, it is now very easy to develop the e-learning course in quick time following the advent of authoring tools (a 30-minute course can be developed in about 3 to 4 weeks of time by using such authoring tools as Lectora, Articulate etc.). In this way, e-learning development costs are significantly less compared to classroom training.

According to the statistics, not all professional teachers are very optimistic about web tools and e-learning. In particular, those who are new to e-Learning usually refuse to accept the creation of online courses, usually due to lack of ICT knowledge or computer skills, and many of those who do apply eLearning tend to use the old-fashioned pedagogical methods for their online training, making the whole idea of remote education unreasonable and impractical. The following comments such as «What is the use of these technologies? I can do without them in my high quality teaching practice" are not uncommon.

RESULTS

Both classroom and e-learning techniques are to empower learners with knowledge and skills. Both have their advantages and limitations. The tracking of learners' progress is usually done manually in the classroom situation, which may sometimes result in an incorrect recording of data. The process of assessing learners' progress in the classroom also consumes huge time and manpower. On the other hand, e-learning courses can be delivered on any platform, be it the Learning Management Systems or MOOC, for tracking and monitoring of learners' progress automatically in the course in an efficient manner.

In terms of personalization of education, the issue is controversial, as classroom training allows learners to interact face to face with the instructors or tutors and other learners in the live environment, whereas learners have to depend on electronic media to interact with the course in e-learning. There is always somebody in the classroom to motivate and access the performance of learners in the classroom, whereas learners are required to be self-driven and a self-disciplined to enjoy all benefits of e-learning.

Conclusion

Thus, e-learn or not depends on one's requirement and approach towards learning. Although online training resembles many features of classroom training, it also has some unique attributes. The role of the instructor also differs. All these mean that learning and development professionals need to alter their teaching styles, learn new skills, use different methods, master design and development tools, and move away from an instructor-centered methodology to a learner-centered environment.

Conflicts of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

An application of fuzzy analytic hierarchy process (FAHP) for evaluating students' project

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In recent years, artificial intelligence applications for understanding the human thinking process and transferring it to virtual environments come into prominence. The fuzzy logic which paves the way for modeling human behaviors and expressing even vague concepts mathematically, and is also regarded as an artificial intelligence technique has become one of the most preferred methods in the solution of decision problems. Numerous decision-making situations are faced in education as well. Particularly, it is rather challenging and requires experience to decide in a fair way and assessing students' performances without making any error in the process of assessment and evaluation. The purpose of the current study is to assess students' performance with the fuzzy analytic hierarchy process (FAHP), one of the multi-criteria decision making methods based on the fuzzy logic approach. The formation of the proposed system on the basis of fuzzy set theory determines that it can provide benefits in modeling these ambiguities in human mental processes and also it can reach fairer, more sensitive and objective results. Being used especially in making important decisions in companies and in developing smart vehicles in engineering, FAHP methods have brought into question whether this method can be used in education or not. This study reveals that FAHP method can be used in the evaluation of students' projects in education.

Key words: Performance evaluation, fuzzy multi criteria decision making methods.

INTRODUCTION

Decision-making is a phenomenon encountered constantly in every areas of human activities. Decision-making process is about selecting the most suitable alternatives according to certain criteria in occasions that one faces with existing alternatives. This process is considered to be a tough one for decision makers because of its uncertainty and subjectivity (Bai and Chen, 2008; Lin, 2010). Today, studies on this phenomenon appearing in many fields like management, industry, and

education have gained a different dimension with the advancing technologies. Especially in recent years, artificial intelligence applications on human thinking process and adapting this system into computer environment had gained importance. Allowing human behaviors to be modeled and vague concepts to be expressed mathematically, fuzzy logic, also is considered to be an artificial intelligence technique, have become a frequently preferred method in solving problems in

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decision-making process. Education is one of the application areas of fuzzy logic which has a wide range of application areas (Ibrahim, 2001; Kavcic et al., 2003; Kinshuk et al., 2001). There are many occasions requiring numerous decision-making process in education. Particularly, making right decisions in assessment and evaluation process and evaluating students correctly are hard processes requiring experience (Bai and Chen, 2008).

Project evaluation process includes the evaluation activities regarding the students' levels of carrying out knowledge or skill (Nitko, 2001). Generally, numerical values of verbal expressions are used in the evaluation of students' projects. However, it is observed that certain numbers are used by the decision-makers because of the difficulties that they face in the process of digitizing the verbal (qualitative/linguistic) grades (Kahraman et al., 2007). The literature indicates that instead of the use of certain numbers in expressing human feelings and decisions in the decision-making process, the use of linguistic variables which is a more realistic option, allows one to carry out a better, right and comfortable evaluation (Chan et al., 1999; Gu and Zhu, 2006; Kahraman et al., 2007; Lin, 2010).

The process of students' project evaluation includes some uncertainty and subjectivity like in other decision-making processes (Bai and Chen, 2008; Law, 1996; Wu, 2003). Also, another occasion affecting the decision-making in this process is the outnumbering evaluation criteria. Various scientific methods have been developed with the aim of finding a solution to the cases having high number of criteria in decision-making problems. One of the solution methods is multi-criteria decision-making model (Durán and Aguilo, 2008). Multi-criteria decision-making model is concerned with structuring and choosing an option from a set of alternatives which are characterized by different criteria. The decision maker ranks for these criteria by proposing the importance. There are various multi-criteria decision-making approaches in the literature. Most popular among them ELECTRE, Analytic Hierarchy Process (AHP), Technique for Order Preference by Simulation of Ideal Solution (TOPSIS), Preference Ranking Organization Method for Enrichment Evaluations (PROMETHEE), and Analytic Network Process (ANP). These techniques and approaches have been suggested to choosing the best alternative. The benefits of AHP compared with other multi-criteria decision making methods is its ability to its simplicity, flexibility, accuracy, ease of understanding (Forman and Gass, 2001) and include intangibles (Harker, 1987). Since multi-criteria decision-making model depends more on qualitative data and human thoughts, nowadays, fuzzy logic, which is more suitable to evaluate such data, is frequently used (Bozbura et al., 2007; Mardani et al., 2015). Fuzzy logic is an effective way of explaining the uncertainty in the decision-making process

(Lin et al., 2007) and its qualities (Pedrycz and Gomide, 1998) by enabling an evaluation with the verbal variables. In these methods called fuzzy multi-criteria decision-making models, fuzzy numbers including uncertainty and reflecting human thoughts which cannot be distinguished from each other are used. The literature on fuzzy multi-criteria decision-making method suggests that there have been many studies in different fields (Mardani et al., 2015). Each multi-criteria decision-making method has its own privilege, strength, and weakness for certain applications (Zare et al., 2016). It is an emphasized topic by different researchers that with the integration of fuzzy set theory and Analytic Hierarchy Process (AHP) which is one of the multi-criteria decision making methods, highly sensitive and right decisions can be achieved (Fu et al., 2006; Ong et al., 2003; Yang and Chen, 2004). Fuzzy AHP is more representative for decisions of humans (Cheng et al., 2008). The fuzzy AHP method has been widely used by various researchers to solve different decision-making problems. Nagpal et al. (2015) used fuzzy AHP to compare and rank different websites of an educational institute on their usability criteria. Chen et al. (2015) present a framework for teaching performance evaluation based on fuzzy AHP and fuzzy comprehensive evaluation method. Jie (2010) applied fuzzy AHP to evaluate online course quality. Chao and Chen (2009) used fuzzy AHP to examine E-learning system effectiveness accordingly to send the results back to managers in schools. Lin (2010) adopted an evolution model for evaluate course website quality. However, it has rarely been applied in the field of evaluation process in education. Therefore, the aim of this study is to evaluate the student projects and interpret the results of the evaluation with Fuzzy AHP, one of the multi-criteria decision making process.

Fuzzy set theory

In daily life, it is impossible to make a certain definition of many occasions. The reason for this is the high degree of uncertainty in real life. In order to define effectively subjective judgment or ambiguous problems via linguistic variables, fuzzy set theory was proposed by Zadeh (1965) on the uncertainty of human thought, for the first time. An object is either an element of the set or not in classical set theory. In no circumstances, partial membership can be discussed. If the membership value is 1, it is the full element of the set; if it is 0, it is not the element of the set. In contrast to classical sets, the membership degrees of the elements can vary in infinite numbers between the range of $[0, 1]$ in fuzzy sets.

Membership function

Fuzzy sets are defined by membership functions (Zadeh

and Kacprzyk, 1992). The membership function of \tilde{A} fuzzy set is shown by $\mu_{\tilde{A}}(x)$. Fuzzy sets described each object with the membership function having the degree of membership ranging between 0 and 1 (Zadeh, 1965). If x element definitely belongs to \tilde{A} fuzzy set, it is $\mu_{\tilde{A}}(x)=1$; if it does not definitely belong to, it is $\mu_{\tilde{A}}(x)=0$. In fuzzy sets, there are no precise limits; instead, there is a gradual transition depending on the case of belonging to the set or not, and this transition is described with the membership functions (Klir and Yuan, 1995). Although there are a large number of membership functions, generally triangular, trapezoidal, gaussian, and bell-shaped membership functions are used. In the current study, triangular membership function is used. Although there are a large number of widely membership function which include triangular, trapezoidal, gaussian, and the bell curve, triangular membership function was used in this study.

Verbal /linguistic variables

In fuzzy logic, verbal/linguistic variable is as an important concept of fuzzy sets. Linguistic variables are used to express human’s feelings and decisions (Chan et al., 1999). Since human judgments are generally vague and cannot be estimated via precise numeric value, precise values remain insufficient in modeling the real life in many occasions. According to Zadeh (1965), linguistic variables are used to avoid excessive complexity. The value of linguistic variables in natural languages is not numbers but words or sentences; and decision-making with words or sentences is easier than decision-making with numbers. The studies in the literature indicate that the evaluations via linguistic variables are more comfortable for the decision-makers and more realistic results are revealed (Chu and Lin, 2003; Gu and Zhu, 2006; Zhang and Lu, 2003). Since linguistic variables can be analyzed qualitatively and can be used by grading in a certain range instead of single value, it allows obtaining more sensitive results (Lin et al., 2007).

Fuzzy numbers

Fuzzy numbers are a fuzzy subset of real numbers. Fuzzy numbers are used to handle the indefinite numerical values such as around 7 or close to 10 (Chen and Hwang, 1992). There are fuzzy number types such as triangular, trapezoidal, and bell shaped curve. Generally triangular fuzzy numbers are used in studies. The triangular fuzzy numbers are described via three real numbers (l, m, u). The membership factor is defined by depending on these numbers. The membership function of the triangular fuzzy number is shown in Figure 1.

The real number values (l, m, u) constituting the triangular number are “ l ”, the smallest probable value,

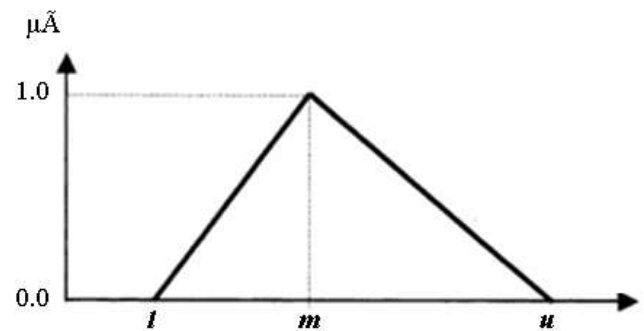


Figure 1. The membership function of the triangular fuzzy number.

“ m ”, the most probable number, and “ u ”, the largest probable value. The membership function of a triangular fuzzy number is defined as follows.

$$\mu(x | \tilde{A}) = \begin{cases} 0, & x < l \\ (x-l)/(m-l), & l \leq x \leq m \\ (u-x)/(u-m), & m \leq x \leq u \\ 0, & x > u \end{cases} \quad (1)$$

Fuzzy analytic hierarchy process

AHP is one of the multi-criteria decision making methods which are widely used in modeling unstructured problems arisen in fields like politics, economics, social and management sciences (Saaty, 1980). AHP is also employed to solve complex decision problems involving subjectivity (Saaty, 1990). It is argued that AHP remain incapable in reflecting human thought system completely and dealing with ambiguity and uncertainty occurring in the process of pair wise comparison although calculation is based on information given by decision makers (Büyüközkan et al., 2004; Deng, 1999; Kahraman et al., 2003; Lin, 2010). Therefore, recently, by combining AHP and fuzzy theories, some studies have been carried out in order to determine the rate of criteria inferring from subjective perceptions (Fu et al., 2006; Mardani et al., 2015; Yang and Chen, 2004). This method called Fuzzy Analytic Hierarchy Process (FAHP) employs value ranges, instead of precise numbers, in determining the rates of pair wise comparisons (Bender and Simonovic, 2000). The power of representing the vague situations in the process increases as a result (Bozbura et al., 2007; Lin, 2010).

Essences of fuzzy analytic hierarchy process

Fuzzy AHP reduces complex problems to simpler piece

of problems by constructing a hierarchical structure and hence, it allows solving of the problem in a shorter time. Since it takes both qualitative and quantitative factors into consideration and has an easy and simple way of use, this method which analyzes pair wise comparisons, options and criteria in terms of their significance and dominance is employed frequently in solving complex decision problems. Stepwise procedure of "Extended Analysis Method" developed by Chang (1996) is as follows: According to Chang's method, each target is taken and each dimension analysis is respectively applied. In this way, for each dimension m dimension analysis is obtained. Here, all described M_{gi}^j variables as l, m and u are triangular fuzzy numbers.

$$M_{gi}^1, M_{gi}^2, \dots, M_{gi}^m, \quad i = 1, 2, 3, \dots, n \quad (2)$$

Step 1: To the goal denoted as i., fuzzy synthetic dimension value is shown as follows:

$$S_i = \sum_{j=1}^m M_{gi}^j \otimes \left[\sum_{i=1}^n \sum_{j=1}^m M_{gi}^j \right]^{-1} \quad (3)$$

Step 2: Priority values of decision elements in hierarchy are determined by comparing described synthetic values. However, since synthetic values are triangular fuzzy numbers, while making comparisons, the following rules should be considered:

Let $M_1 = (l_1, m_1, u_1)$ and $M_2 = (l_2, m_2, u_2)$ be two triangular numbers, the degree of possibility of equation $M_2 \geq M_1$ is shown in Equation 4.

$$V(M_2 \geq M_1) = \sup_{y \geq x} [\min(\mu_{M_1}(x), \mu_{M_2}(y))] \quad (4)$$

This equation is based on the assumption of constructing a set with weak ones of fuzzy correlation between μ_{M_1} and μ_{M_2} choosing the strongest of all. This equation is shown in Equation 5.

$$V(M_2 \geq M_1) = \mu_{M_2}(d) = \begin{cases} 1 & , \text{ if } m_2 \geq m_1 \\ 0 & , \text{ if } l_1 \geq u_2 \\ \frac{l_1 - u_2}{(m_2 - u_2) - (m_1 - l_1)} & , \text{ otherwise} \end{cases} \quad (5)$$

Step 3: Equation 6 is used in order to calculate the degree possibility for a fuzzy number to be greater than k fuzzy numbers. Pairs of fuzzy numbers are compared and the results are obtained. Among these results, minimum value denoted as $d'(A_i)$ belonging to each

decision is chosen:

$$\begin{aligned} V(M \geq M_1, M_2, \dots, M_k) &= V[(M \geq M_1) \text{ and } (M \geq M_2) \text{ and } \dots (M \geq M_k)] \\ &= \min V(M \geq M_i), \quad i=1, 2, 3, \dots, k \\ &\quad \forall k = 1, 2, 3, \dots, k \\ &\quad k \neq i \end{aligned} \quad (6)$$

Step 4: If $d'(A_i) = \min V(S_i \geq S_k)$, priority vector is presented in Equation 7

$$W' = (d'(A_1), d'(A_2), \dots, d'(A_n))^T \quad (7)$$

$A_i (i=1, 2, \dots, n)$

Step 5: Normalization is a mathematical calculation done for reducing each criterion to the range of [0,1] and allowing to compare the results. With normalization, normalized weight vector is presented in Equation 8. Here, W is not fuzzy but priority vector composing of real numbers.

$$W = (d(A_1), d(A_2), \dots, d(A_n))^T \quad (8)$$

A CASE STUDY

This study is conducted with the aim of evaluating the projects developed by university students within a course and choosing the best project. First of all, the hierarchical structure of the project evaluation model is constructed in line with expert opinions, and then the main criteria and sub criteria under each main criterion in this structure are identified. The degree of importance of each criterion is determined by the expert carrying out the evaluation. Lastly, the projects are evaluated via linguistic expressions in the lights of the set criteria. After the evaluation via linguistic variables, the linguistic variables are converted into fuzzy numbers and the data are analyzed via FAHP method. In the evaluation process with FAHP, Extended Analysis Method (Chang, 1996) is used and the paired comparison of the criteria and projects are made by the system. After the required processes completed on the weight of each criterion and the project's score of students, the conclusion is reached. The project evaluation process is summarized in Figure 2.

Forming the hierarchical structure

Forming the hierarchical structures in the analysis of complex systems allows easier access to the desired destination (Chang, 1996). In FAHP method, the aim is at the top of the hierarchy and under this aim, there are respectively main criteria, sub criteria, and options. The hierarchical structure in the evaluation of students' projects is indicated in Figure 3.

Determining the project evaluation criteria

Studies show that experts play an important role in determining the evaluation criteria (Ma and Zhou, 2000). Professors generally have expectations about the course achievements and experiences so they identify the evaluation criteria in line with this framework. The project evaluation criteria were pilot tested with five experts to

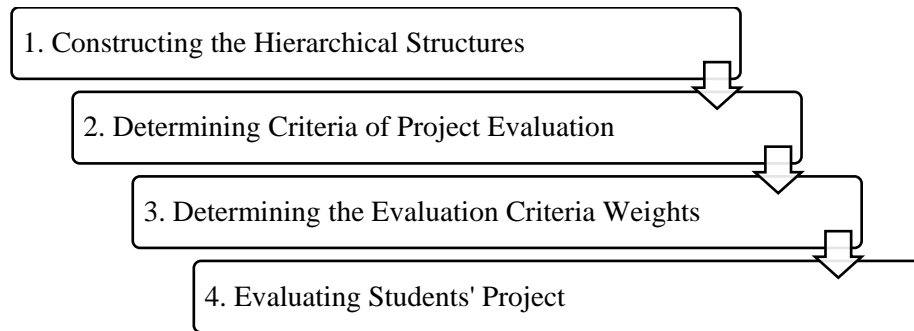


Figure 2. The project evaluation process with FAHP.

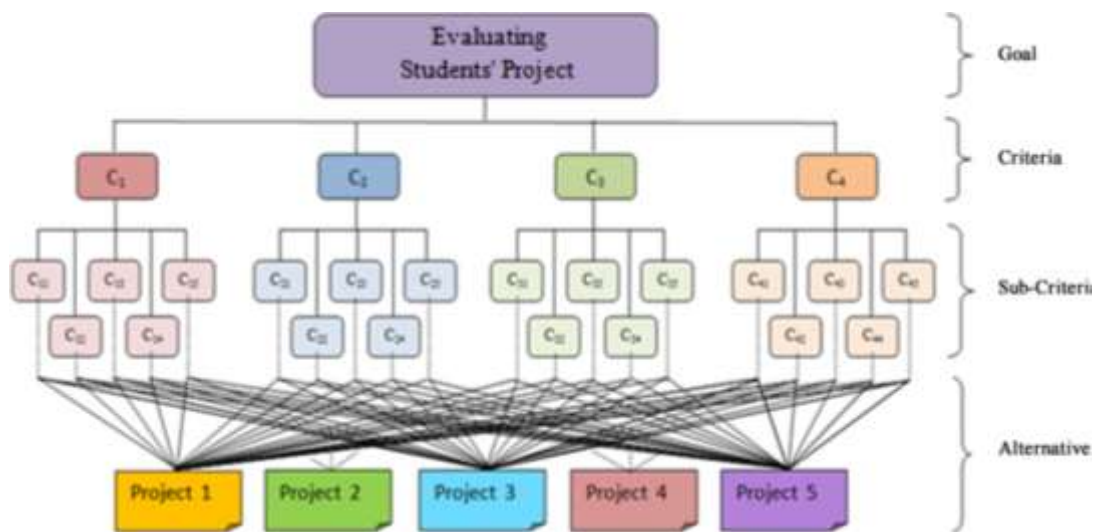


Figure 3. The hierarchal structure of criterion and options.

validate the instrument. These experts have more than 10 years' experience in instructional technology education and they have varying degrees of experience in project evaluation. They were asked to opinions on the meaningfulness, relevance, and clarity of the criteria. Therefore, the evaluating criteria have confirmed content validity. Based on five experts' feedback the four main criteria content, design, technical and presentation are identified as most crucial for evaluating the projects.

The weights of the criteria used for the project

The criteria are weighted via linguistic expressions. The weights of the criteria in project evaluation are determined by the decision maker by using linguistic variables as follows "Very Important (V.I.)", "Quite Important (Q.I.)", "Important (I.)", "Slightly Important (S.I.)", and "Rarely Important (R.I.)". The criteria used in the evaluation of students' projects and the linguistic expression of the weights of each criteria are presented in Table 1.

Evaluation of the students' projects

Rather than grading with precise numbers, the students' projects

are evaluated via linguistic variables used in ambiguous occasions. The professor of the course uses a linguistic scale such as "Very Good (V.G.)", "Good (G.)", "Average (A.)", "Poor (P.)", and "Very Poor (V.P.)". In the project evaluation, the linguistic evaluations by the professor suggesting to what extent each criterion meets in the project are presented in Table 2.

Fuzzy number equivalents of linguistic variables

The problem of project evaluation was attempted to be solved via "Extended Analysis Method" by Chang (1996). According to Chang's method, the final conclusions are reached with the paired comparisons of both criteria and options with each other. Five linguistic variables are used, for comparing the students' project evaluation criteria as "Absolutely Important," "Very Strongly Important," "Strongly/Essentially Important," "Weakly Important," and "Equally Important" according to a fuzzy five level scale (Chiou and Tzeng, 2002). The triangular fuzzy number for linguistic variables is defined by Erümit (2007). The triangular fuzzy number equivalents of linguistic variables used in evaluating main criteria, sub criteria and alternatives via paired comparison are presented in Table 3.

Table 1. Main/sub criteria and the weight of the criteria in the evaluation process.

Criteria	Code name	Degree of importance	Sub-criteria	Code name	Degree of importance
Content	C ₁	V.I.	Suitability for the purpose	C ₁₁	V.I.
			Currency of knowledge	C ₁₂	Q.I.
			Accuracy of knowledge	C ₁₃	I.
			Suitability for spelling rules	C ₁₄	S.I.
			Suitability for user level	C ₁₅	I.
Design	C ₂	Q.I.	Simplicity	C ₂₁	S.I.
			Coherence	C ₂₂	I.
			Color harmony	C ₂₃	S.I.
			Layout and menu design	C ₂₄	I.
			Harmony of multimedia elements	C ₂₅	V.I.
Technical	C ₃	I.	Ease of use	C ₃₁	I.
			Operating links properly	C ₃₂	I.
			Operating pages properly	C ₃₃	S.I.
			Need for additional tech.	C ₃₄	S.I.
			Flexibility	C ₃₅	V.I.
Presentation	C ₄	I.	Having full knowledge of the topic	C ₄₁	V.I.
			Difficulty of application	C ₄₂	S.I.
			Clarity and presentation capability	C ₄₃	I.
			Presentation of the sources	C ₄₄	S.I.
			Use of time	C ₄₅	I.

Table 2. The project evaluation via linguistic variables.

Criteria	Project 1	Project 2	Project 3	Project 4	Project 5
C ₁₁	V.G	V.G	V.G	V.G	V.G
C ₁₂	V.G	G	V.G	V.G	G
C ₁₃	G	G	G	V.G	G
C ₁₄	G	G	G	V.G	A
C ₁₅	G	G	V.G	V.G	A
C ₂₁	V.G	G	G	V.G	A
C ₂₂	G	G	V.G	V.G	G
C ₂₃	G	V.G	V.G	V.G	A
C ₂₄	G	G	V.G	V.G	G
C ₂₅	G	G	V.G	V.G	G
C ₃₁	V.G	V.G	V.G	G	G
C ₃₂	G	V.G	V.G	G	G
C ₃₃	G	V.G	V.G	V.G	V.G
C ₃₄	V.G	G	G	V.G	G
C ₃₅	V.G	G	G	V.G	P
C ₄₁	V.G	V.G	V.G	V.G	A
C ₄₂	G	A	V.G	V.G	P
C ₄₃	G	A	G	V.G	G
C ₄₄	G	A	G	G	P
C ₄₅	G	G	A	V.G	G

Table 3. The triangular fuzzy number equivalents of linguistic variables used in the evaluation.

Linguistic variable	Triangular fuzzy number	Reverse of triangular fuzzy number
Equally important (E.I.)	1,1,1	1,1,1
Weakly important (W.I.)	0.5, 1.25, 2	0.5, 0.8, 2
Strongly important (S.I.)	1.5, 2.25, 3	0.33, 0.44, 0.66
Very strongly important (V.I.)	2.5, 3.25, 4	0.25, 0.307, 0.40
Absolutely important (A.I.)	3.5, 4.25, 5	0.20, 0.235, 0.285

Table 4. Rule base of paired comparisons of fuzzy inputs related to criteria.

Linguistic variable	R.I	S.I	I	Q.I	V.I
R.I	E.I	1/W.I	1/S.I	1/V.I	1/A.I
S.I	W.I	E.I	1/W.I	1/S.I	1/V.I
I	S.I	W.I	E.I	1/W.I	1/S.I
Q.I	V.I	S.I	W.I	E.I	1/W.I
V.I	A.I	V.I	S.I	W.I	E.I

Table 5. Rule base of paired comparisons of fuzzy inputs related to the project evaluation.

Linguistic variable	V.P	P	A	G	V.G
V.P	E.I	1/W.I	1/S.I	1/V.I	1/A.I
P	W.I	E.I	1/W.I	1/S.I	1/V.I
A	S.I	W.I	E.I	1/W.I	1/S.I
G	V.I	S.I	W.I	E.I	1/W.I
V.G	A.I	V.I	S.I	W.I	E.I

Rule base of paired comparison

Rule base is formed in order to determine the fuzzy exits which will be formed as a result of the comparison of criteria's access input values. This rule base is prepared according to similar studies in the literature and the final version is formed by expert opinions. The rule base used in the paired comparison of the criteria is presented in Table 4.

Since FAHP method bases on paired comparisons because of its structure, it requires to form a rule base in the comparison of the criteria. When the rule base in Table 5 is examined, it can be stated that the linguistic variables having similar degree of importance (If C₁=Very Important and C₂=Very Important, the result of Paired Comparison is = Equally Important) are equally important and the degree of importance of linguistic variables having different degree of importance as a result of the paired comparison can be summarized as in Table 4.

The rule base of paired comparison of linguistic variables such as very good, good, etc. used in the project evaluation is presented in Table 5.

Similar to paired comparison of criteria, it is necessary to generate rule base for paired comparison of the students' projects. The rule base regarding linguistic variables employed for the evaluation of students' projects is presented in Table 5.

RESULTS AND DISCUSSION

Primarily, the weight of criteria which is gathered as a

result of the paired comparison of main criteria and sub criteria was calculated, and then the paired comparison matrix which is formed as a result of the evaluation of each project according to these criteria, will be presented. Evaluators completed their assessments of relative importance for the criteria, paired comparison matrix for main criteria. The weight of criteria and the final grades obtained via the comparison of the projects are identified. The paired comparison matrix of priority values of main criteria according to the evaluator's opinions is presented in Table 6.

Taking into consideration the fuzzy number equivalents of the values expressed in Table 6 via linguistic variable regarding the result of the paired comparison of each main criterion, the data in Table 7 is obtained.

Similarly, the paired comparison matrix of each sub criterion is given with the fuzzy number equivalents respectively. The paired comparison matrix of each sub criterion under the main content criteria is presented in Table 8.

The degree of importance of the main design criteria of each sub criterion by the professor is determined as a result of paired comparison concerning primarily rule base, and then taking into consideration the fuzzy number equivalents of the identified the degree of importance, the

Table 6. The paired comparison matrix of main criteria

Main Criteria	C ₁	C ₂	C ₃	C ₄
C ₁	E.I	W.I	S.I	S.I
C ₂	1/W.I	E.I	W.I	W.I
C ₃	1/S.I	1/W.I	E.I	E.I
C ₄	1/S.I	1/W.I	E.I	E.I

Table 7. The paired comparison matrix of the fuzzy number equivalents of the main criteria.

Main criteria	C ₁	C ₂	C ₃	C ₄
C ₁	1,1,1	0.5, 1.25, 2	1.5, 2.25, 3	1.5, 2.25, 3
C ₂	0.5, 0.8, 2	1,1,1	0.5, 1.25, 2	0.5, 1.25, 2
C ₃	0.33, 0.44, 0.66	0.5, 0.8, 2	1,1,1	1,1,1
C ₄	0.33, 0.44, 0.66	0.5, 0.8, 2	1,1,1	1,1,1

Table 8. The paired comparison matrix of main content criteria of each sub criterion.

Main content criteria of each sub criterion	C ₁₁	C ₁₂	C ₁₃	C ₁₄	C ₁₅
C ₁₁	1,1,1	0.5, 1.25, 2	1.5, 2.25, 3	2.5, 3.25, 4	1.5, 2.25, 3
C ₁₂	0.5, 0.8, 2	1,1,1	0.5, 1.25, 2	1.5, 2.25, 3	0.5, 1.25, 2
C ₁₃	0.33, 0.44, 0.66	0.5, 0.8, 2	1,1,1	0.5, 1.25, 2	1,1,1
C ₁₄	0.25, 0.31, 0.40	0.33, 0.44, 0.66	0.5, 0.8, 2	1,1,1	0.5, 0.8, 2
C ₁₅	0.33, 0.44, 0.66	0.5, 0.8, 2	1,1,1	0.5, 1.25, 2	1,1,1

paired comparison matrix of main design criteria of each sub criterion is found and presented in Table 9.

The weight of criteria is determined as a result of the paired comparison of each criterion. Since a similar way is followed in the comparison of each criterion, only the comparison of the main criteria will be explained in detail here and when it comes to the comparisons of other criteria, only their results will be presented. The steps in the comparison of main criteria are as follows:

Synthetic dimension values of paired comparisons of fuzzy evaluation matrix are calculated via equality (3) as follows:

$$S(C_1) = (4.50, 6.75, 9.00) \otimes (1/25.32; 1/17.53; 1/12.66) = (0.178, 0.385, 0.711)$$

$$S(C_2) = (2.50, 4.30, 7.00) \otimes (1/25.32; 1/17.53; 1/12.66) = (0.099, 0.245, 0.553)$$

$$S(C_3) = (2.83, 3.24, 4.66) \otimes (1/25.32; 1/17.53; 1/12.66) = (0.112, 0.185, 0.368)$$

$$S(C_4) = (2.83, 3.24, 4.66) \otimes (1/25.32; 1/17.53; 1/12.66) = (0.112, 0.185, 0.368)$$

The probability of the expression, $M_2 = (l_2, m_2, u_2) \geq M_1 = (l_1, m_1, u_1)$ is defined by taking into account the Equation 5:

$$V(S_{C_1} \geq S_{C_2}) = 1 \quad V(S_{C_1} \geq S_{C_3}) = 1 \quad V(S_{C_1} \geq S_{C_4}) = 1$$

$$V(S_{C_2} \geq S_{C_1}) = 0.729 \quad V(S_{C_2} \geq S_{C_3}) = 1 \quad V(S_{C_2} \geq S_{C_4}) = 1$$

$$V(S_{C_3} \geq S_{C_1}) = 0.487 \quad V(S_{C_3} \geq S_{C_2}) = 0.817 \quad V(S_{C_3} \geq S_{C_4}) = 1$$

$$V(S_{C_4} \geq S_{C_1}) = 0.487 \quad V(S_{C_4} \geq S_{C_2}) = 0.817 \quad V(S_{C_4} \geq S_{C_3}) = 1$$

With the help of these values, criteria are primarily calculated by using Equality 7 as follows:

$$d'(C_1) = \min(1, 1, 1) = 1$$

$$d'(C_2) = \min(0.729, 1, 1) = 0.729$$

$$d'(C_3) = \min(0.487, 0.817, 1) = 0.487$$

$$d'(C_4) = \min(0.487, 0.817, 1) = 0.487$$

The following vector is obtained as a result of the calculation of the priority vector:

Table 9. The paired comparison matrix of main design criteria of each sub criterion.

Main design criteria of each sub criterion	C ₂₁	C ₂₂	C ₂₃	C ₂₄	C ₂₅
C ₂₁	1,1,1	0.5, 0.8, 2	1,1,1	0.5, 0.8, 2	0.25, 0.307, 0.4
C ₂₂	0.5, 1.25, 2	1,1,1	0.5, 1.25, 2	1,1,1	0.33, 0.44, 0.66
C ₂₃	1,1,1	0.5, 0.8, 2	1,1,1	0.5, 0.8, 2	0.25, 0.307,0.4
C ₂₄	0.5, 1.25, 2	1,1,1	0.5, 1.25, 2	1,1,1	0.33, 0.44, 0.66
C ₂₅	2.5, 3.25, 4	1.5, 2.25, 3	2.5, 3.25, 4	1.5, 2.25, 3	1,1,1

Table 10. The paired comparison matrix of main technical criteria of each sub criterion.

Main technical criteria of each sub criterion	C ₃₁	C ₃₂	C ₃₃	C ₃₄	C ₃₅
C ₃₁	1,1,1	1,1,1	0.5, 1.25, 2.0	0.5, 1.25, 2.0	1,1,1
C ₃₂	1,1,1	1,1,1	0.5, 1.25, 2.0	0.5, 1.25, 2.0	1,1,1
C ₃₃	0.5, 0.8, 2.0	0.5, 0.8, 2.0	1,1,1	1,1,1	0.5, 0.8, 2.0
C ₃₄	0.5, 0.8, 2.0	0.5, 0.8, 2.0	1,1,1	1,1,1	0.5, 0.8, 2.0
C ₃₅	1,1,1	1,1,1	0.5, 1.25, 2.0	0.5, 1.25, 2.0	1,1,1

W'(1, 0.729, 0.487, 0.487)

Lastly, the obtained weight values are normalized and the final weights are determined:

W=(0.370, 0.270, 0.180, 0.180)

The weights obtained as a result of the paired comparison of main criteria prepared in order to evaluate the students' projects, are as follows. The weight of content main criteria is 0.370; the weight of design main criteria, 0.270; the weight of presentation criteria, 0.180; and the weight of technical main criteria, 0.180. Similarly, the weight vectors of paired comparison of all criteria are displayed in Table 12.

After determining the weights related to the criteria, the evaluations of five projects under each criterion by decision maker are handled. The steps in determining the weights of the criteria are applied here as well. The weight vectors of the projects' evaluation are presented in Table 13.

The paired comparison matrix of main technical criteria of each sub criterion is displayed in Table 10.

Similarly formed, the paired comparison matrix of main presentation criteria of each sub criterion is presented in Table 11.

The results generated by multiplying the degree of importance of the main and sub criteria and the weight vectors of the students' projects form the total weights of each criterion and these weights provide an indication of what extent a project meets the criteria compared to the

other projects. It is possible to identify the total weight vectors of each project and accordingly the best project in Table 14. When the data in Table 14 are examined, it is determined that the best project is Project 4 and it is followed by Project 3, 1, 2 and Project 5.

We interviewed the professor about the evaluation result. He agreed that the evaluation result obtained by the developed fuzzy based evaluation system is more transparent and objective. The professor's views on the results of the evaluation are as follows:

1. Generally, I carry out the evaluation with numerical grades. Because converting linguistic variables into numerical grades is very difficult and takes a lot of time. However, with the help of this system, I was able to carry out linguistic evaluation and I got successful results.
2. The developed system does not provide sharp lines but calculates intermediate values and provides a final result. It uses linguistic variables. I think, it is an applicable system and it will be a fair system. Also, while I am evaluating the students, I spend quite a lot of time to determine to what extent the students meet the criteria and also to calculate it. One of the benefits of this system is that it directly reveals the final results by carrying out the necessary calculations after your calculations... I think, this will contribute to the process of assessment and evaluation in education if it is used properly.
3. Carrying out paired comparison and determining which group did a better job concerning each criterion are the advantages of this system compared to traditional evaluation. As human beings, we can compare the two

Table 11. The paired comparison matrix of main presentation criteria of each sub criterion.

Main presentation criteria of each sub criterion	C ₄₁	C ₄₂	C ₄₃	C ₄₄	C ₄₅
C ₄₁	1,1,1	2.5, 3.25, 4	1.5, 2.25, 3	2.5, 3.25, 4	1.5, 2.25, 3
C ₄₂	0.25, 0.307, 0.4	1,1,1	0.5, 0.8, 2	1,1,1	0.5, 0.8, 2
C ₄₃	0.33, 0.44, 0.66	0.5, 1.25, 2	1,1,1	0.5, 1.25, 2	1,1,1
C ₄₄	0.25, 0.307, 0.4	1,1,1	0.5, 0.8, 2	1,1,1	0.5, 0.8, 2
C ₄₅	0.33, 0.44, 0.66	0.5, 1.25, 2	1,1,1	0.5, 1.25, 2	1,1,1

Table 12. The weight vectors of main and sub criteria.

Main criteria	Weight vectors	Sub-criteria	Weight vectors
C ₁	0.370	C ₁₁	0.330
		C ₁₂	0.243
		C ₁₃	0.153
		C ₁₄	0.122
		C ₁₅	0.153
C ₂	0.270	C ₂₁	0.106
		C ₂₂	0.133
		C ₂₃	0.106
		C ₂₄	0.133
		C ₂₅	0.521
C ₃	0.180	C ₃₁	0.210
		C ₃₂	0.210
		C ₃₃	0.185
		C ₃₄	0.185
		C ₃₅	0.210
C ₄	0.180	C ₄₁	0.521
		C ₄₂	0.106
		C ₄₃	0.133
		C ₄₄	0.106
		C ₄₅	0.133

groups with each other but the rate of making mistakes will increase when the number of groups increases. However, it is an advantage that this system makes this paired comparison automatically. In addition, I think that this system makes it possible to have more objective evaluations and to reach more accurate results.

Conclusions

One of the decision-making processes in education is the evaluation of the students’ projects. The evaluations in this process are generally carried out depending on the logic but intermediate evaluations are not taken into account. According to Çepni (2006), evaluating the students’ behaviors as black or white, or right or wrong in

the evaluation process does not coincide with the modern education approach.

In this study, since taking into consideration numerous criteria in the evaluation of students’ projects and the question of to what extent these criteria are met involve ambiguity, it is stated that it requires an intense mental effort. The formation of the proposed system on the basis of fuzzy set theory determines that it can provide benefits in modeling these ambiguities in human mental processes and also it can be reached fairer, more sensitive and more objective results. In this respect, this study shares similarities with the studies of Lin (2010), Montero et al. (2005), and Saleh and Kim (2009).

The studies in literature indicate that it is difficult to evaluate the projects with numerical data and using linguistic variables is more beneficial (Chang and Sun,

Table 13. The weight vectors of the projects.

Criteria	Project 1	Project 2	Project 3	Project 4	Project 5
C ₁₁	0.200	0.200	0.200	0.200	0.200
C ₁₂	0.210	0.185	0.210	0.210	0.185
C ₁₃	0.191	0.191	0.191	0.237	0.191
C ₁₄	0.193	0.193	0.193	0.246	0.176
C ₁₅	0.191	0.191	0.234	0.234	0.152
C ₂₁	0.233	0.191	0.191	0.233	0.152
C ₂₂	0.188	0.188	0.219	0.219	0.188
C ₂₃	0.191	0.233	0.233	0.233	0.110
C ₂₄	0.188	0.188	0.219	0.219	0.188
C ₂₅	0.188	0.188	0.219	0.219	0.188
C ₃₁	0.210	0.210	0.210	0.185	0.185
C ₃₂	0.188	0.219	0.219	0.188	0.188
C ₃₃	0.179	0.205	0.205	0.205	0.205
C ₃₄	0.219	0.188	0.188	0.219	0.188
C ₃₅	0.273	0.221	0.221	0.273	0.010
C ₄₁	0.250	0.250	0.250	0.250	0.000
C ₄₂	0.225	0.134	0.290	0.290	0.060
C ₄₃	0.193	0.176	0.193	0.246	0.193
C ₄₄	0.233	0.191	0.233	0.233	0.110
C ₄₅	0.193	0.193	0.176	0.246	0.193

Table 14. The final results of the projects' evaluations.

Main criteria weight vector	Sub-criteria weight vector	Project 1	Project 2	Project 3	Project 4	Project 5
C ₁	C ₁₁	0.330	0.200	0.200	0.200	0.200
	C ₁₂	0.243	0.210	0.185	0.210	0.185
	C ₁₃	0.153	0.191	0.191	0.191	0.237
	C ₁₄	0.122	0.193	0.193	0.193	0.246
	C ₁₅	0.153	0.191	0.191	0.234	0.234
C ₂	C ₂₁	0.106	0.233	0.191	0.191	0.233
	C ₂₂	0.133	0.188	0.188	0.219	0.219
	C ₂₃	0.106	0.191	0.233	0.233	0.233
	C ₂₄	0.133	0.188	0.188	0.219	0.219
	C ₂₅	0.521	0.188	0.188	0.219	0.219
C ₃	C ₃₁	0.210	0.210	0.210	0.210	0.185
	C ₃₂	0.210	0.188	0.219	0.219	0.188
	C ₃₃	0.185	0.179	0.205	0.205	0.205
	C ₃₄	0.185	0.219	0.188	0.188	0.219
	C ₃₅	0.210	0.273	0.221	0.221	0.273
C ₄	C ₄₁	0.521	0.250	0.250	0.250	0.250
	C ₄₂	0.106	0.225	0.134	0.290	0.290
	C ₄₃	0.133	0.193	0.176	0.193	0.246
	C ₄₄	0.106	0.233	0.191	0.233	0.233
	C ₄₅	0.133	0.193	0.193	0.176	0.246
Total weight vectors		0.206	0.200	0.215	0.225	0.156
Rank		3	4	2	1	5

1993; Law, 1996). FAHP based system allows decision makers to evaluate via linguistic variables. That this system processes the linguistic variables via converting them into fuzzy numbers and provides a final weight score is interpreted as a positive feature by the professor. Also, it is found that the results of the system are satisfactory. The followings are stressed as the disadvantages of traditional evaluation methods: It is difficult to carry out paired comparison among projects when the number of projects increases; it takes a lot of time to carry out numerical procedures for each project; and there can occur probable errors in the evaluation process. Thanks to the developed FAHP based system, it is possible to follow the same steps for all projects, to provide errorless calculations, and to make complicated calculation quickly. In addition, with the FAHP method, the paired comparisons of both criteria and projects can be achieved automatically. As a result of this feature, more accurate results in the evaluation of projects can be obtained. Also this approach can reduce subjectivity in the evaluation process. In this study, another point to be emphasized is that the application of fuzzy logic principles in the process of the project evaluation provides the desired flexibility for the existing system. The sensitivity of the evaluation of the target population can be increased by defining the criteria and the degree of importance in detail, thanks to the flexible structure. This study supports researchers and practitioners an insight into how FAHP can be used in evaluating student projects.

This study has some limitations that can be considered as recommendations for future studies. First, this study focus on that FAHP method can be used in the evaluation of students' projects in education. In future studies, other multi-criteria decision making methods such as fuzzy TOPSIS, fuzzy ANP, fuzzy PROMETHEE, fuzzy ELECTRE and their modification can be used for similar applications and the results obtained are comparable. Second, the evaluation criteria were determined as the result of interviews with experts. Future research can use different methodologies, such as longitudinal studies or a review of the literature to identify evaluation criteria. Finally, this study was conducted with relatively small samples. Similar studies can be conducted on larger sample and generalizability can be increased.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

Value-based leadership approach: A way for principals to revive the value of values in schools

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The qualitative research discussed in this article is based on the assumption that school principals as leaders need to establish, develop and maintain a core of shared values in their schools. Our focus is on principals' current perceptions of values in their schools. This is important because values underpin their decisions and actions and thus influence the members of school organizations. The framework of our research was informed by social constructivism. Data were collected in the form of semi-structured individual interviews with nine school principals that were designed to elicit a detailed picture of the participants' perceptions of values. The interviews were audio-recorded and transcribed. Thematic analysis was employed because of its flexibility which makes it possible to analyze and report on the patterns identified, to provide a rich and dense description of the results. The results indicate firstly that principals have diverse perceptions of values. Secondly, they highlight the range of contributions and influences values have in their schools. Thirdly, they show that principals connect values in/directly to themselves as leaders, their leadership styles and employ values un/intentionally. We argue for a value-based leadership (VBL) approach because it provides ways of overcoming deficiencies in leadership. It is vital that school principals establish and maintain a core of shared value that underscore the school as an organization that strives for the well-being of all of its members.

Key words: Educational leadership, principals, human plurality, value-based leadership, values.

INTRODUCTION

In South Africa, values such as equity, tolerance, openness, accountability, multilingualism and honour are critical components of effective teaching and learning (Department of Education, 2000). These values are enshrined in the Constitution of the Republic of South Africa (South Africa, 1996b) which includes a Bill of Rights (South Africa, 1996a).

Great store is set by cultural diversity, and therefore schools are supposed to accommodate a variety of

different cultures (Du Preez and Roux, 2010). The diversity in schools often leads to a conflict in values (Begley, 2010). This accentuates the necessity for respect for personal values and shared values that enhance the well-being of individuals in a school organization (Du Preez and Roux, 2010; Shatalebi and Yarmohammadian, 2011). Buchko (2007:37) states that "[v]alues form the shared conceptions of what is most desirable in social life; in effect, values are the "glue" that binds people together

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into organizations. When a group of people shares a set of beliefs about the goals that need to be achieved and the means to be used to attain those goals, there is a basis for organization". Shared values embrace implicit or explicit basic beliefs as well as principles that inspire the culture of the school, guiding decision making and the behaviour of its members. Buchko (2007:37) posits that "without some common beliefs or values, organizations could not exist; people need a common set of beliefs to come together and create social organizations".

A school as organization is viewed as "a place of gathering people who work together under a coordinate discipline in order to realize the organizational purpose" (Shatalebi and Yarmohammadian, 2011:3703). Realising the purpose of the school organization necessitates that values manifest themselves in educational leaders, for instance in the principals' leadership and management actions, decisions and the way they conduct themselves in their leadership position (Haydon, 2007; Shapiro and Gross, 2013). When leaders' values are not clearly defined and understood, their own and others' development and growth could be jeopardised as values are located and fundamental to human-decision making (Eikenberry, 2010). As Johnson (2012: vii) notes: "it is impossible to be a leader without values". Values influence the attitudes individuals possess and how they act or behave (Baloglu, 2012). Eikenberry (2010) stresses that values are important to leaders because they strengthen their ability to influence, give clarity, reduce stress and guide decision-making and actions. Being aware of these should persuade leaders to instil values such as honesty, respect, responsibility, integrity, beneficence and accountability that can have an impact on the smooth running of the school that ultimately leads to success (De Klerk and Rens, 2013). Begley (2010) emphasises that leaders who intentionally construct and convey the school's values are likely to use their influence to ensure that values inform practice. Where the community is diverse, ethical leaders need to include a wider range of values (Begley, 2010).

CONCEPTUAL AND THEORETICAL FRAMEWORK

The literature has long acknowledged the importance of values in any society as a means of helping to safeguard members of society against unscrupulous people (Prilleltensky, 2000). Consequently, the values that inform political, social, cultural, personal as well as professional behaviour should be morally defensible otherwise they are seen as mere preferences (Prilleltensky, 2000). Begley (2010) emphasises that values are motivationally grounded and have a conscious as well as unconscious effect on people's actions, attitudes, speech and behaviour. The literature conceptualizes values in various ways as indicated in Table 1. Furthermore, as De Klerk

and Rens (2013) note, values dictate a person's thoughts and actions and can determine whether certain values are accepted or rejected.

Values have a dynamic nature in the sense that they can have various levels of worth at a specific point in a person's life: they can be subdued and only surface in certain scenarios or may feature very strongly if the situation warrants it (Begley, 2001). Prilleltensky (2000:144) suggests three sets of values that guide individual and organizational behaviour: "values for personal wellness, values for collective wellness and values for relational wellness". Here wellness refers to the fulfilment of basic needs. The literature also refers to various types of values (Begley, 2001; Kaye and Neil, 2009; Mueller, 2014; Prilleltensky, 2000). These include values such as: personal values (values that define who we are and how we act, that which makes us unique); relationship values (values that empower and care about others); organizational values (values that guide the perspective and actions of the organization actions); societal values (values of a specific community that dictate social conduct); human rights values (establishing shared values in diverse environment that is grounded on integral moral nature); and cultural values (group of people who have the same values about certain cultural aspects that are interconnected) (Du Preez, 2013; Kaye and Neil, 2009; Little, 2011; Mueller, 2014; Peregrym and Wolff, 2013; Schein, 2010).

It is clear that values should form the core on which the daily functioning of the school is grounded. This includes its application of the mission, vision, policies and procedures that are based on values identified as right and proper for the specific needs of a school (Johnson, 2012). This requires leadership which is "a process of influence based on clear values and beliefs and [leads] to a 'vision' for the school" (Busch, 2007:403). In addition, leadership should be about "influencing others' actions in achieving desirable ends (Cuban, 1988:xx). Leaders are people who shape the goals, motivations, and actions of others". Effective leadership thus not only depends on a leader with firm personal beliefs, values and the ability to influence others, but requires the inclusion of professional, organizational (school) and social values that underscore the school's vision. This requires significant and relevant values within the specific context of the school to be values that all concerned in the school value (Begley, 2001; Prilleltensky, 2000). Principals need to establish and clarify values and ensure that the ones chosen are midway between the personal and shared values of the school community for the general tranquillity, wellbeing and optimal functioning of the whole group. Prilleltensky (2000) is of the opinion that this can be achieved by means of VBL that focuses on endorsing shared values and keeping in mind the group of people who form part of a certain social and cultural group. Du Preez and Roux (2010) highlight the fact that people from

Table 1. Conceptual definitions: values and value-based leadership.

Concept	Author
Values	
Motivating determinants of behaviours and subjective concepts of the desirable	Hodgkinson (1996)
“Conceptions, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means, and ends of action”	Parsons and Shils (1962, p. 395)
Values set standards, dictate models of conduct and give direction: they reflect the important elements in people’s daily living	Rokeach (1973) Knowles and Landar (2012)
Value-based leadership (VBL)	
“Practice aimed at fostering cogent values in consideration of personal interests and degrees of power held by people within an organization and in a group of people it serves”.	Prilleltensky (2000, p. 140)
“Consistently leading out of personal values that are both desirable and beneficial for ourselves, those in our communities, and/or the organizations we serve”.	Peregrym and Wolf (2013, p. 5)

different cultures in the same school have to negotiate and allocate similar meaning to the shared values they determine together. Prilleltensky (2000:140) comments that when values are applied, the process takes place “within intersubjective spaces”. This implies that leaders should always take account of the needs, habits, desires and interests of the people who form part of their particular school context.

Value-based leadership (VBL)

Prilleltensky (2000:140) contends that VBL “may be conceptualised as practice aimed at fostering cogent values in consideration of personal interests and degrees of power held by people within an organization and in a group of people it serves”. A more contemporary definition is provided by Peregrym and Wolf (2013:5) who view VBL as: “consistently leading out of personal values that are both desirable and beneficial for ourselves, those in our communities, and/or the organizations we serve”. Value-based leaders concentrate on core values and view them as directing principles that shape the behaviour and action of the members of the organization. Buchko (2007:38) refers to core values as “a specific set of publicly stated beliefs or concepts that are expected to be adhered to by everyone in an organization” and emphasises that “[w]hile not all organization values are public, those that are seen as forming the core of the organization and that are central to the organization’s existence are generally known by all members of the enterprise”. The core values of the school need to be shared and communicated repeatedly as they are indicative of what the school upholds and values (Financial Times, 2016).

These definitions accentuate that VBL requires sound values to be put into action, taking due account of the

leader’s personal values and those of the others in the organisation as well as their shared values. VBL evolved as a “bi-product of time and culture” by theorists in response to the lack of “ethics and morality in exemplary leaders (Copeland, 2014:105). This inspired the development of “strateg[ies] for increasing the effectiveness of leaders” in various organizations as it became apparent that “moral and ethical deficiencies became prevalent in many charismatic, dynamic and seemingly transformational leaders that had risen to prominence” (Copeland, 2014:105-106). In addition to moral and ethical shortcomings in leadership, the literature highlights an authentic dimension which leaders require to be effective and successful (Avolio and Gardner, 2005; Copeland, 2014). These are also viewed as “foundational behaviours to leadership” (Copeland, 2014:131). Kraemer (2011:6) lists four principles of VBL that are important for leaders to put values into action: Self-reflection (find the bigger picture and engage in reflection to establish what and why it is valuable); balance (take into account various aspects and or views in a holistic way of matters that arise); true self-confidence (know yourself, accept yourself, acknowledge your competencies, be aware of what you do not know and strive for improvement); and genuine humility (acknowledge your roots, where you came from, and how you have excelled to the position you are now). VBL requires aligning the leader’s personal values with the values of the organization and ensuring shared values are adhered to in the educational, school setting (Shatalebi and Yarmohammadian, 2011). Johnson (2012) adds that VBL means being guided by a solid purpose that focuses on strong positive values that guide leaders’ actions and behaviour as their leadership styles have a profound effect on others. Copeland (2014:106) adds that “some of the ensuing theories emerged as researchers, leaders and practitioners argued that leaders must be

moral and possess inner ethical qualities and values”.

Human plurality

Arendt (1990:80) exerts that:

The world opens up differently to every man, according to his position in it; and that the ‘sameness’ of the world, its commonness (koinon, as the Greeks would say, common to all) or “objectivity” (as we would say from the subjective viewpoint of modern philosophy) resides in the fact that the same world opens up to everyone and that despite all differences between men and their positions in the world-and consequently their doxai (opinions [also splendour and fame]) – ‘both you and I are human’.

We draw on Arendt’s conceptualisation of human plurality (Arendt, 1958, 1990; Becker, 2013) to situate the VBL approach as the ‘principal’, the leader of a school, is “not altogether separated from the plurality which is the world of men and which we call in its general sense humanity” (Arendt, 1990:88). Humanity, in this sense refers to plurality that signifies “the relation self as [I am] two-in-one” (Arendt, 1990:88; Becker, 2013:26). This accentuates that “men do not only exist in the plural as do all earthly beings, but have an indication of this plurality within themselves” (Arendt, 1990:88). The relation self:other describes the “multilayered and complex self in relation(s). Self:other embraces the intersections of self as two-in-one, self in relation with another and self in relation with all others in non-linear socio-historic and political time and space” (Becker, 2013:26). Within this relation self is in continual intra-dialogue with self, another and all others (Arendt, 1990; Bauman, 1994; Becker, 2013). Becker (2013:1) similarly explains that “[s]elf:other is the relationship between self, and other, and all other. The relation self:other is simultaneously representative of all humanity in space and time and singular in difference. Self:other is used to indicate the simultaneous singularity and togetherness in this relation”.

RESEARCH METHODS

Our qualitative inquiry was grounded in a social constructivist approach that assumes that human development is socially constructed and knowledge construction happens via interaction with others (Beck and Kosnik, 2012). In view of this, as well as the research question and objectives/aims, we selected nine school principals who are currently in the ACE (Advanced Certificate in Education) school leadership development programme. Purposive and convenience sampling were employed. The participants chosen had the particular characteristics of interest to us and were easy to access, making them holders of the required data in a specific context and thus information-rich individuals connected to our phenomenon of interest (Strydom and Delpont, 2011).

Data were generated by means of semi-structured individual interviews. This method offered flexibility in both scope and depth as well as creating the opportunity to generate detailed description of the participants’ perceptions of the studied phenomenon (Galletta, 2013; Greeff, 2011). These interviews were audio recorded with the permission of the participants. The transcripts of these interviews were subjected to thematic analysis, which allowed us to identify, and analyze the various patterns that emerged from the data and then provide an account of them (Braun and Clarke, 2006: 79). A computer-based qualitative data analysis program, Atlas.ti™, was used to manage and aid the identification and synthesization of patterns during the data analysis process.

Due care was taken to meet ethical requirements such as voluntary participation, participants’ anonymity and confidentiality (Denscombe, 2010). LaBanca (2010:1) defines trustworthiness as a means to “[demonstrate] that the evidence for the results reported is sound and [that] the argument made based on the results is strong”. We enhanced the trustworthiness of this research by using criteria such as truth value, applicability, consistency and neutrality and strategies such as credibility, transferability, dependability, and confirmability as suggested by Krefting (1991) and Lincoln and Guba (1985).

RESULTS AND DISCUSSION

The three main themes that emerged during the data analysis of the principals’ perceptions of values within schools are captured in Table 1. Tables 2 to 6 present representative verbatim quotations from the interview transcripts to illustrate and support the discussion. Each of the participants was coded as “P” and was numbered as “P1”, “P2”, “P3” ... “P9”.

Table 3 provides the participants’ diverse perceptions of values as reflected in their responses to the question: What is your understanding of the concept values? These vary from perceiving values as action or knowledge about how to behave, to values as beliefs, laws, policy and standards, to values as important, to values as personal and communal in nature.

The above responses indicate that 78% of the participants rightly perceive values as a way of acting or behaving. Byamugisha et al. (2000:9) define behaviour as:

The way in which an individual behaves or acts [towards people, objects or society]. It is the way an individual conducts herself / himself. Behaviour should be viewed in reference to a phenomenon, an object or person. It can be seen in reference to society norms, or the way in which one treats others or handles objects.

Behaviour can be constructive or destructive and yield different effects as people are social beings that try to find significance in peoples’ behaviour by “dividing it into discrete meaningful units” (Kassin et al., 2011:141). Lichtenstein (2012:2) states that “values are the invisible force that drives visible results” evident in people’s actions or behaviour or organizational performance.

Lichtenstein (2012) indicates that principals cannot

Table 2. Principals' perceptions of values within schools.

Major theme
Diverse perceptions of values
Contributions and influences of values
Linking values to leader (principal) and leadership styles
Employment of values

Table 3. Diverse perceptions of values.

Category	Sample sentences
Values: beliefs, laws, policies and standards	<i>For me values are beliefs, standards and principals that guide me in doing my job.</i> P6 <i>... laws that control a person.</i> P7 <i>... values are standards that you like to keep up....</i> P5
Values: influence and guide behaviour	<i>... principles that influence our behaviour ... values are the things that drives one's behaviour....</i> P1 <i>... a value is about behaviour ...</i> P4 <i>... unwritten laws that control a person and of which a person behaves accordingly ...</i> P8 <i>They (values) spur me to take certain actions ...</i> P6
Values: personal and communal	<i>... social issues ... human relations and social interactions ... my personal values and societal values (drive me)</i> P1 <i>... our behaviour within our communities ...</i> P2 <i>... determined by the staff, SGB and community</i> P5

Table 4. Contributions and influences of values.

Category	Sample sentences
School culture	<i>... in essence values influence the culture of the school ...</i> P1 <i>... values represent what the school is for and stands for ...</i> P2 <i>... values determine the culture of the school in other words good values determine good culture ...</i> P4 <i>... dictate the mood in the school ...</i> P6
School climate	<i>... for me societal values have a direct impact on institutions (school) ... sell my values to the school in order to become the best we can ...</i> P1 <i>... values have a huge impact in the school culture ... learners at the school are obedient (as a result of good values) and therefore we do not experience discipline problems ...</i> P3... <i>to achieve our goals ...</i> P6 <i>... it is how you translate your values in the working place are the once that make my school successful ...</i> [P8] <i>... control a person ...</i> P9

alter the force [values] that drive the staff, but they can alter their behaviour by understanding the values that underlie it and applying them in an appropriate manner for the culture of the school through effective communication, policies, laws and strategies. If principals enforce their own values regardless of the different values of the 'others' in the school community, the result may be resistance to change, policies or strategies and disharmony in the school organization (Lichtenstein, 2012). Principals can justify their actions and decisions

based on values that are consensually (policy and laws), consequentially (those which will have the best result), personally (individual benefit), or transcendently (faith) motivated (Begley, 2001). It is extremely important to construct values that are shared and valued by the members of the school to underpin the guidelines and policies for optimal functioning of the school (Prilleltensky, 2000).

The participants mentioned various and different values that they try to uphold in their schools. Although each

Table 5. Linking values to leader (principal) and leadership styles.

Category	Sample sentences
Various influences	<i>Values makes my colleagues respect and believe in me, trust and show obedience ... P3</i>
	<i>I am led by my values firstly as a Christian and secondly as a school leader ... P5</i>
	<i>... they have a positive impact as they drive me towards achieving my goals. They keep me grounded and focussed. P6</i>
	<i>My values are the ones that stand out because they determine how I handle the teachers and learners. P8</i>
Various leadership styles	<i>They sort of shape my behaviour as to how I conduct myself and related to others ... P9</i>
	<i>There is a deep influence of values in my leadership. Values actually make followers to have a particular perspective about one as a leader. I apply transformational leadership ... P1</i>
	<i>They make me to a respected and responsible leader. I make sure that my subordinates understand my values well. Both Transactional and Transformational leadership ... P2</i>
	<i>My values help me to guide me on daily basis to work towards my goals. As I "walk the talk" consistently my staff follow and determine their values alike. Participative leadership style. P4</i>
	<i>Add balance as they help with adherence to policy and harmony between myself, the SGB, staff and community and other stakeholders. Democratic leadership style. P6</i>

Table 6. The employment (intentional and un-intentional) of values.

Category	Sample sentences
Intentional	<i>By constantly and continuously talking about values and reminding everyone ... P2</i>
	<i>Teachers are always reminded through different meetings and discussions, and with regard to learners values are always intergraded in some of the subjects. P4</i>
	<i>... staff development meetings once a term ... P5</i>
	<i>... in a diversity of settings- in meetings, informal talks and committee discussions ... P6</i>
Un-intentional	<i>We do talk about values in our meetings and at the school assembly ... P7</i>
	<i>I am actually enforcing values by walking the talk and also infusing them within our policies of which all ... stakeholders will be represented ... discuss these values as part of the code of conduct for educators ... speak of values at assembly, staff developing meetings, as well as parents evenings. P9.</i>
	<i>Very seldom. This does not come as a planned activity ... P1</i>
	<i>Seldom only if something wrong has happened ... P3</i>
	<i>I will sometimes give them one or two values to them at a meeting ... P8</i>

participant had a different set of values that guided him/her, most of the participants viewed honesty and respect as important values in their schools. Other values the participants shared are: Inclusivity, integrity, equity, loyalty, consistency, trust, Ubuntu, christianity, cooperation, professionalism, accountability, kindness and democracy.

It is clear that not all of the values listed by participants are deemed equally important. The key factor is the context and climate of the school. Begley (2001) warns that it is important to be aware of who determines the particular values that an individual or social group upholds as good or bad. In similar vein, Du Preez and Roux (2010) caution that values are interpreted differently and have different significance to people. It is therefore important for principals to ensure that discussion of values that the organization upholds allow sufficient

opportunity for common interpretation and agreement to be reached, since a diverse organization will have different values. As Du Preez and Roux (2010) note it would be anathema to the multicultural ideals that underlie our democratic education system for a value system to be based on only one specific culture or religious view.

Although most of the participants perceive values as personal they also recognise that values are determined by various stakeholders that include staff members, SGB (School Governing Body), community and society. Personal values influence the way individuals perceive the external environment, their behaviours, actions as well as decisions and therefore have an impact on the performance of an organization (Lichtenstein, 2012). In an organization such as a school the principal's personal values, staff members' personal values and the school's

values need to be aligned in what Lichtenstein (2012:4) labels as a “values dynamic”. For leaders to be successful, they have to have a firm set of beliefs underscored by personal values, as well as having the ability to be able to reflect on the values of the organization that may be complicated by being steered by cultural and human rights values directed by policies (Baloglu, 2012). The proper alignment of values shared by all staff members has a positive impact on the achievement of the required goals and objectives in a school (Lichtenstein, 2012; Shatalebi and Yarmohammadian, 2011).

Table 4 offers the responses that highlight the participants’ perception that values are a factor that contributes to and influences the schools’ culture. These principals are aware that values play a significant role in determining and maintaining school culture. Their responses emphasise the impact values have on the school climate.

It is essential that principal’s understand the school’s culture; if values in the organization are incongruent or inappropriate the culture will enforce conflict and dissonance (MacNeil et al., 2009). Every school has its own unique culture and consequently the priorities of the principals will differ (Baloglu, 2012). Principals that attempt to bend cultures to satisfy their own ends or enforce their own values will struggle to create shared values and a culture that is valued by the staff, who all need to strive for the attainment of the school’s mission and vision and the values that underpin these (Lichtenstein, 2012).

Ninety percent (90%) of the participants expressed the view that values play an important part and have a positive impact on their management of schools, while 10% viewed values as an important means of controlling others. This is in keeping with the literature that attests that a successful school has a collective value system in place which strengthens the positive functioning of the school (Baloglu, 2012). Staff members are likely to want to retain their cultural and personal values when entering an organization (Shatalebi and Yarmohammadian, 2011). It is therefore essential that principals negotiate in order to establish ‘shared values’ especially in a multicultural educational setting to ensure that the same set of values are maintained by all the stakeholders (Du Preez and Roux, 2010).

Tables 5 and 6 present results that show that principals link values to themselves as leaders (principals) and their leadership styles, and the employment (intentional and unintentional) of values.

Jamal (2014:1268) posits that leadership style “refers to something that characterizes a specific person [principal] throughout different situations”. A leadership style can also be seen as a specific method which a leader employs in the course of influencing people to achieve a specific objective (Jamal, 2014). In this study, it

became clear that the principals have a variety of leadership styles. Of the 89% who referred to their leadership styles, however, 11% were unable to clearly state what their leadership styles were. It seems that they have a ‘blurred’ understanding of their own leadership styles. Some of the 89% connect their values indirectly to their leadership styles whilst others connected values directly to their leadership styles. These participants also intentionally and un-intentionally referred to values. The data revealed that their leadership styles vary according to the demands of a particular situation, as did some of the reasons why these participants opted to employ a specific leadership style, such as autocratic, transactional, transformational, or participative leadership styles. Some them stated that they follow a combination of various leadership styles.

Principals are seen as agents who apply and enforce the values of the school and community, but they tend to enforce certain values only when serious problems arise or when consensus cannot be reached (Begley, 2001). Du Preez and Roux (2010:23) argue that such difficult or uncomfortable situations make people “move between different sets of values systems”, leading to confusion and a misunderstanding of the values they espouse.

Although people are not always aware of their personal values, these readily emerge when they are confronted by others or placed in multicultural spaces where the values of others also come into play (Du Preez and Roux, 2010).

The results indicate that 67% of the participants felt very strongly about instilling the values of the school. They said they used various opportunities to intentionally remind their staff of the importance of values. It is important to note that the results indicate that 67% of the participants employ values intentionally whilst 33% employ values un-intentionally. As Shatalebi and Yarmohammadian (2011) urge, it is crucial that leaders communicate their values clearly. One way of doing this is to ensure that their ‘actions and words’ are aligned (Shatalebi and Yarmohammadian, 2011). It is particularly important for leaders such as principals to exhibit their values through their actions, especially if they represent a specific social group or community (Begley, 2001).

CONCLUSIONS AND RECOMMENDATIONS

There are many values that the participants view as important as leaders in their schools. However, it is evident that they do not all have the same set of values. One size clearly does not fit all. Values need to be selected to meet the needs of each school and what it deems important. The participants asserted un/intentionally that values play an important role in building the ethos of their schools.

It is interesting that although the participants referred to

various 'personal' and 'shared' values which they view as important to them as leaders as well as for their schools, most of them did not mention any core values. Like any other organization, schools have laws, policies and regulations fundamental to educational practices. Firstly, the participants did not explicitly refer to the term 'core values' nor did not refer to tolerance, openness and honour as values that are explicitly provided in the departmental document, values, education and democracy, on values in education, that document includes values such as: Equity, tolerance, openness, accountability, multilingualism and honour, "[a]ppropriate values for South Africa to embrace in its primary and secondary educational institutions [that] has implications for the broader shaping of the quality of national character to which we as a people in a democracy wish to aspire" (Department of Education, 2000:4).

It is important to note that various laws, policies and regulations provide principals with core values. As noted earlier, core values form "a specific set of publicly stated beliefs or concepts that are expected to be adhered to by everyone in an organization" and these core values need to be known by the members of the organization as to guide their actions towards realising the schools' vision statements (Buchko, 2007:38). The Department of Education (2000:4) cautions that "[v]alues cannot simply be asserted; it will require enormous effort to ensure that the values are internalised by all our people, by our institutions, and by our laws and policies".

When 'tolerance' is not valued and practised, the result will be the violation of efforts to mutually understand one another to the detriment of "reciprocal altruism and the active appreciation of the value of human difference" (Department of Education, 2000:22). This will impede attempts to make it possible for people to live valuable lives in which they flourish. The value of 'openness' is that it allows members of the organization to be "open and receptive to new ideas" and to engage in dialogue with one another, thus to be "willing to debate ideas in order to arrive at quality decisions" (Department of Education, 2000:39). Valuing 'honour' provides a means for members to develop their identity as a group that connects with the identity of the larger group, community or society. Schools are viewed as national resources, not belonging to any one group of people but to all (Department of Education, 2000:50). Interestingly, the participants did not refer to any values that would indicate that they value resources such as textbooks, buildings, and facilities.

We reiterate that principals as leaders have a duty to constantly reflect on core values as well as to identify values that are supported and valued by those in their specific school contexts. As every school is unique in terms of its composition of staff, learners, parents and community, it is important for principals as leaders to find the values that are shared by the group (social network)

and thus will be maintained by them. Principals have to constantly create opportunities to engage in dialogue so they can discuss and benchmark their own personal values, core values and shared values. This is important as values that are not maintained can decay, as is evident in the acts and behaviours of stakeholders that jeopardise the envisioned school culture.

Secondly, it seems as if the participants are unaware of how values (identifying, reflecting, benchmarking and maintaining values) can significantly increase social capital. Their social network has two facets: "Relationship structure" that refers the size of the social network, but includes its composition and identity; and "relationship content" that refers to human assets in these networks that are underscored by norms and values (Bartkus and Davis, 2009:2).

Thirdly, the participants gave no indication that they endeavour to align or benchmark their own personal values with core values as well as the shared values that characterise their schools' cultures. When principals as leaders omit these practices, a VBL approach is deemed necessary especially in a society where values seem to deteriorate, hampering positive functioning of people at various levels at micro and macro levels (Johnson, 2012; Shatalebi and Yarmohammadian, 2011). A VBL approach can address this challenge as it focuses on harmonising and stabilising the shared values of the school as an organization, and includes the leaders' personal values (Shatalebi and Yarmohammadian, 2011). Therefore principals who lead according to VBL approach not only accommodate the organization's values but also the individual, social group, culture and community values (Baloglu, 2012; Begley, 2001).

Implications for practice

Leader (principal) and school staff members (organization members)

A principal who does not or is unable to make meaning and construct understandings of what values encompass, or who is unaware of his/her personal values, core values (guiding principles) and the shared values that characterise the school culture is likely to find him/herself in a difficult position as a leader. Not knowing or understanding will result in a principal not being able to disrupt, critique and reconstruct "the difference within the self and the difference between self: other", regarding an understandings of values, by means of intra-dialogue that should "start with dialogue between the self as two-in-one" (Becker, 2013:30). In addition, if "individual and collective meanings and understandings" are not disrupted and critiqued, the possibility of creating new ethical self: Other relations will be diminished (Becker, 2013). This will result in the principal as leader not being

able to inspire his/her staff members or even to enhance their behaviour so that values are reflected as individual and collective meanings and understandings. This jeopardises the achievement of the school's vision.

The principal needs to engage in on-going dialogue in which shared values are regularly communicated to staff members and there is an opportunity to align the staff members' personal values and the school's vision. Without doing so, staff members are unlikely to support core or shared values or see them as important. Repeated communication and engagement in dialogue with staff members is necessary to be able to identify the relevant and essential core values (guiding principles). Leadership that is not based on values negatively affects the staff members' behaviour, the learners' behaviour, and the school's character and culture. This may leave staff members feeling dispirited, unmotivated and dissatisfied and create a school environment that does not promote the wellbeing of all.

Principals and their staff members need ample opportunities to rethink values, reflect on existing values, maintain or benchmark their values, or critically review the principals' leadership style. If they are not afforded such opportunities, they will be unable to engage in valuable decision making and or make contributions that will benefit multicultural and diverse school environments, to the benefit of society at large. Without VBL, principals and schools will fail to respond to national and international calls for moral and ethical behaviour in leadership and the provisioning of a school climate conducive to effective teaching-and-learning practices.

The way forward

Our recommendations for school principals as leaders are based on a VBL approach and human plurality. VBL has the propensity to enable principals to rethink, reflect on values and proactively engage in appropriate dialogue in multicultural school environments:

1. Irrespective of leadership style/s of the principals concerned, a VBL approach and its underlying principles can strengthen the effectiveness of their current leadership style/s and help them avoid value conflict and ambiguity.
2. Principals need to engage regularly in self-reflection to enable them to develop their leadership skills as well as to review the effectiveness of their ideas and their practices. This self enhancement helps them to understand themselves, what values they are practising and why it is important for them as leaders to practise values. This needs to be preceded by intra-dialogue to find a dissonance of values in relation to 'self', 'the other', and 'all other'. When principals' self-reflection activities are successful, they will be able to practise values in such a way that they will be able to motivate their

members of staff.

3. Principals need to accentuate the importance of the shared values that should underpin an organization's activities, meetings, policies, procedures and vision.

4. Principals have to find a balance between 'self' and the 'other' in the relation 'self:other' and transcend their own comfort zones, thus taking a holistic view (Becker, 2013). This is important in VBL, as principals must understand and know what their own personal values are as well as understand and appreciate the personal values of others. This can be achieved by explicitly engaging in dialogue with themselves and the 'other' (staff members). Leaders have to ensure that their personal values are aligned with the social values of the organization and ensure that the agreed shared values are internalized and form part of the school's culture. Awareness-raising sessions on values could include dialogues in which various personal, core and shared values are discussed. These could occur during staff meetings, or workshops and training programmes for leaders organised by the education department.

5. Balance can only be achieved when principals have genuine self-confidence based on knowledge of themselves, self-acceptance and realistic knowledge of their personal and leadership skills, both their capabilities and their in-capabilities. This could be attained by principals who embrace themselves fully in a way that is reflected in their mature actions and behaviour that accord with the shared values of the school.

6. Principals' actions and behaviour should reveal honesty and humility based on the desire to serve the 'other' and not abuse the power their position gives them. This calls for principals to constantly be aware of their duties as leaders and to put the needs of the diverse others first.

7. Principals need to benchmark, internalise or put core values into practice in order to break with current practice in which core values seem to be 'paper-based' values to which principals and staff members pay lip service at best. Principals and the Department of Education should engage in joint ventures to benchmark core values in schools. Principals should also address the issue of values in the meetings arranged for them by the various Departments of Education.

In conclusion, it is clear that principals need ways of implementing values in schools that are meaningful and are valued by the members of the school community. A VBL approach seems to offer a way in which to address and employ values successfully in schools establishing a climate conducive to effective teaching-and-learning practices.

Conflicts of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

An evaluation of the preferences of individuals with severe and multiple disabilities and the teaching of choice-making skills

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The general purpose of the present study is to determine the relationship between direct and indirect preference assessments of individuals with severe and multiple disabilities (SMD) and the relationship between the direct preference assessments (single-stimulus, paired-stimulus, and multiple-stimulus) as applied to individuals with SMD, and to find whether it is effective to teach the skill of choice making among photographs through the constant time-delay procedure. The study group was composed of three boys aged 9 years and a 7-year old girl residing at Bolu Province who were diagnosed with severe disability; that is, a total of four subjects and their primary caregivers. The study had two phases. During the first phase, the relation between the preference assessments was investigated. There was a highly positive relationship between both the direct and indirect preference assessments and at the same time between the directly applied preference assessments based on single-stimulus, paired-stimulus, and multiple-stimulus-without-replacement. The second phase included teaching choice-making skills. It was seen that teaching through the constant time-delay procedure was effective in teaching the choice-making skill and that the participants preserved the choice-making skill 1, 3, and 4 weeks after the completion of teaching and generalized it to their primary caregivers.

Key words: Severe and multiple disabilities, individuals with severe and multiple disabilities, choice-making, choice-making skills, teaching of choice-making skills, preference assessment.

INTRODUCTION

Severe and multiple disability (SMD) has been defined as the occurrence of one or more mental, emotional, and physical problems that require educational, social, and psychological or medical services apart from the services provided by the normal classroom or special education programs in order that the affected individuals can participate in social life more

independently and use their existing potentials better (Tekin-İftar, 2005).

Individuals with SMD may be severely affected by a single disability, or affected by multiple disabilities when a disability accompanies another. In certain individuals with SMD, severe cognitive and motor disabilities coexist (Petry and Maes, 2007; Petitpierre et al., 2007; Vlaskamp

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and Putten, 2009). Individuals with SMD may display characteristics associated with severe cognitive disabilities, additional disabilities (visual, hearing disability, physical disability, etc.), sensory loss and behavioral problems (Changnon, 2002; Petry and Meas, 2007). Therefore, each individual with SMD is exclusive and unique. Thus, SMD represents a more heterogeneous group compared to the other types of disabilities (Petitpierre et al., 2007). Individuals with SMD may demonstrate many characteristics that are different from each other. Some may experience intensive physical problems and difficulties with learning, focusing, and perceiving.

The education of individuals with SMD which demonstrate different developmental traits is ignored in Turkey, although great importance is attached to it by some countries. As a matter of fact, the individuals with SMD have to receive education in order to live independently and to take on responsibility for their own living. In other words, the focus of education provided to the individuals with SMD is to ensure that they live independently and take on the responsibility of living.

Taking on responsibility for living has been defined as the right to and capacity of establishing control over and directing one's own life (Wehmeyer, 2003). Ülke-Kürkçüoğlu (2007) defined taking on responsibility of life as a general expression covering all the skills that might be necessary for the individual to self-manage his/her life. These skills include elements such as choice-making, decision-making, and problem-solving (Wood et al., 2004).

Among these elements, choice-making skill was defined by Shevin and Klein (1984) as the act of the individual to choose a preferred alternative among different familiar options. Choice and preference are generally used as interchangeable concepts. However, when their literal meanings are considered, choice points to an action of choosing one alternative over others repeatedly (Belfiore et al., 1994). In other words, while the items that appeal to individuals suggest their preference that the individuals show, point to or name the appealing one shows their choice.

The preferences and choices made according to them are very important for improving the life quality of the individuals with severe and multiple disabilities (Powers, 2005; Wehmeyer et al., 1998). This is because of the fact that preferences and choice-making may improve the life quality of the individuals by allowing them to make their choices among various options and make their own decisions in line with their requests, beliefs, values, and requirements (Martin et al., 2006). Moreover, the opportunities offered to individuals in relation to their preferences and choice-making make positive reflections on their perception of independence, dignity and self- (Guess et al., 2008).

A substantial part of an educational program intended

for individuals with severe and multiple disabilities should focus on the preference assessment and accordingly the choice-making (Coots and Falvey, 1989; Grenot-Scheneyer et al., 1989; Mirenda and Smith-Lewis, 1989; St. Peter et al., 1989; Stafford et al., 2002) due to the fact that the educational objectives of the individuals with severe mental disabilities include their participation in the educational settings and societal activities as independently as possible and extension of the same independence to their occupational setting, living environment, and social environment subsequent to the school (Alberto and Taber, 1999; Ford et al., 1989).

Preference assessment

Preference assessments can be considered in two groups based on the assesse and the assessed behavior. The preference assessments based on the assesse can be classified as direct and indirect (Hagopian et al., 2004). The indirect preference assessments are based on the views of the parents, caregivers, or the other individuals, who are familiar with the participant (Fisher et al., 1996; Matson et al., 1999). The indirect preference assessments are carried out via interviews with the parents, caregivers, or the other individuals, and check lists. The direct preference assessment, on the other hand, includes a series of stimuli presented to the individual and observation of the reaction of the individual towards them and the response time of the individual.

The preference assessments based on behaviors are classified into two groups: the approach-based and the engagement-based preference assessments. The approach-based preference assessment relies on the behaviors of pointing to, reaching for, looking at, orienting toward the stimulus, smiling-laughing (Spevack et al., 2008), and making sounds in response to the stimulus. The engagement-based preference assessment includes the method of measurement of the engagement time of the individual, whose preference towards the stimulus is to be assessed. It is applied in two ways, namely, free operant and single stimulus, in itself. In the free operant procedure, the individual, whose preference is to be assessed, is introduced to a previously set number of stimuli, with free access to all the stimuli. The preferred stimulus is then determined and the engagement time is measured (Rech, 2012). The preference hierarchy is developed based on the percentage rate of engagement. In the single-stimulus engagement, the stimuli are introduced one by one for 2 minutes and whether the engagement is maintained is recorded (DeLeon et al., 1999; Hagopian et al., 2001).

The stimuli used in the preference assessments are highly important. When the characteristics of the stimuli

which are eligible for the preference assessment are sorted from concrete to abstract, then the stimuli can be grouped as the real objects (the object itself or a part of it), photographs (genuine photographs), pictures, lines, written words, and orally presented stimuli. In addition, assisting technology is also used in the presentation of the stimuli (Dattilo, 1986; Horrocks and Morgan, 2009). The real stimuli were used in the preference assessment phase of this study, due to the fact that the study group comprised the individuals with SMD.

Another important factor that should be considered during the preference assessment is the number of the stimuli (toys, food, etc.). Single-, paired-, and multiple-stimulus can be used in the preference assessment. In the single-stimulus (SS) method, each stimulus is introduced separately. In the paired-stimulus (PS) method, the stimuli are introduced in pairs and the individual is allowed to choose one of these stimuli. The multiple-stimulus presentation has been defined as the individual choosing one of three or more stimuli presented simultaneously. The multiple-stimulus method has also been used in the form of "without replacement" in the literature (DeLeon and Iwata, 1996; Roane et al., 1998; Waldvogel and Dixon, 2008; Rush et al., 2010). In the later method, a group of stimuli (multiple-stimulus presentation) is introduced to the subject, and whenever the subject chooses a stimulus, it is removed from the series and not included in the series in the other trials during the session. Direct preference assessments based on single-, paired-, and multiple-stimulus without replacement, were used in this study.

There are studies in the relevant literature, which compared the direct and indirect preference assessments. These studies included the comparisons between the personnel views and the single-stimulus preference assessment (Green et al., 1988), the caregivers' predictions and the paired-stimulus preference assessment (Parsons and Reid, 1990), the personnel predictions and the paired-stimulus preference assessment (Newton et al., 1993), the parents' and teachers' views and the paired-stimulus direct preference assessment (Didden and Moor, 2004), the teacher and familiar personnel views and the single-stimulus direct preference assessment (Spevack, 2006), the caregivers' views and the direct observation data (LaRosa, 2007), the teacher reports and the paired-stimulus direct preference assessment (Cote et al., 2007), the multiple-stimulus without replacement and the teachers' preference assessment (Resetar and Noell, 2008), and the caregivers' views and the multiple-stimulus without replacement (Waldvogel and Dixon, 2008). As it is evident from the mentioned studies, there was no study that compared the indirect preference assessment to the directly applied three assessment methods.

It is observed in other studies that methods directly applied to individuals with differing numbers and types of stimuli are compared. Higbee et al. (2000) compared the pictorial and tangible stimuli, Davis et al. (2009) compared the data from paired-stimulus and multiple-stimulus preference assessments, Cohen-Almeida et al. (2000) compared the results of the preference assessments based on the oral and tangible stimuli, and Cecile de Vries et al. (2005) compared the results of the preference assessments based on the visual, tangible, and pictorial stimuli, where Kuhn et al. (2006) compared the results of the preference assessments in presence and absence of the real stimulus.

The first aim of the present study was to investigate the relationship between the results of the indirect preference assessments with the primary caregivers and the direct preference assessments conducted in three different trials using the real stimuli (single-, paired, and multiple-stimulus without replacement) and the relation between the results of the direct preference assessments conducted in three different trials.

Choice-making

After determining the preferences of the individuals, it was necessary to teach the choice-making skills to the individuals that could not specify their preferences. Teaching the choice-making skills is a complex and difficult task in educational terms (Clark, 2006). Unlike the normal individuals, the individuals with severe and multiple disabilities cannot learn the skill of choice-making spontaneously, but need systematic teaching to learn this skill (Clark, 2006; Stafford, 1999). The methods to be used when teaching choice-making systematically are very important. Clark (2006) suggested that individual-focused interventions would be more effective in teaching choice-making. The constant time-delay procedure is one of the individual-focused interventions. The constant time-delay procedure suggests a process in which the individual is provided with a constant time-delay between presentation of a task and tips, thus ensuring the individual achievement (Wolery ve diğerleri, 1992).

There were two studies in the literature, which employed the constant time-delay procedure in teaching the choice-making skills (Clark, 2006; Stafford, 1999). Stafford (1999) used the constant time-delay procedure in teaching the choice-making skills to individuals with severe mental disabilities. Stafford's (1999) study differs from this study in three contexts, which could be summarized as the types of disabilities of the participants, the type of choice, and the research model.

Clark (2006) investigated whether the intervention

package, which included the constant time-delay procedure as well, was effective in teaching the choice-making skills. The present study is different from that of Clark (2006) in terms of the ages of the participants, methods employed, and the model of the research. These two studies were done using real objects. Nevertheless, the teaching of choice-making skills was done through the use of choosing among photographs which represent an upper level of real objects. Another aim of this study was to investigate whether the constant time-delay procedure was effective in teaching choice-making skills to individuals with SMD.

PHASE 1: COMPARING PREFERENCE ASSESSMENT FORMAT METHODS

Research model

The purpose of the first phase of this study was to determine the relationship between direct and indirect preference assessments and the relationship between the direct preference assessment methods applied to individuals with SMD through the use of correlational research model which is among the relational research models.

Subjects and enrollment

Four individuals aged 6 to 10 years with severe disabilities and diagnosed for additional disabilities and the primary caregivers who were directly involved in the care of these individuals participated in the study. The characteristics of the individuals and primary caregivers are provided as the following.

Ufuk was a 10-year-old boy with severe mental disability and spasticity. Ufuk could not hold his head and body straight for a long time but could use the right part of his body better. He used daily medicines against epilepsy seizures. He could understand and carry out single action instructions and say a few words. Primary caregiver was her mother, who was a primary school graduate housewife.

Esin was a 7-year-old girl with severe mental disability, hydrocephaly, and spastic tetraparesis, who could not use her feet and right hand. She could say 'grandmother', 'sister', brother', 'mother', 'grandfather', and 'finished'; could understand sentences with a few words, and use her left hand. Primary caregiver was her grandmother, who is a literate housewife.

Eray was a 9-year-old boy with severe mental disability and cerebral palsy. Eray started to walk when he was 6 years old. He could not walk coordinately, had inability to control saliva and inability to verbally express himself. Eray understood and tried to carry out single word instructions. The primary caregiver was his mother. She was an illiterate housewife.

Kaan was a 9-year-old boy with medium mental disability and cerebral palsy. Kaan could use his hands and arms and walked, albeit not well coordinated. He understood and tried to carry out single word instructions, had a limited vocabulary (mother, bye bye), uttered sounds as eehaaah, had behavior problem, and attended public school. His primary caregiver was his mother, who was a secondary school graduate housewife.

The direct and indirect preference assessments were carried out in the residences of the subjects. Camera and tripod were used in

the setting.

Determination of target behavior and data collection

It was seen upon observation during the preference assessments that the subjects demonstrated approaching behaviors (catching, putting to the mouth, swallowing, asking again) for preference and avoiding behaviors (pushing, spitting, shutting mouth, and throwing out of the mouth) for non-preference. Therefore, the subjects' catching, putting to the mouth, and swallowing behaviors towards the stimulus were considered a preference in the present study. On the other hand, the subjects' pushing, spitting, shutting mouth, and throwing out of the mouth towards the stimulus were recorded as a non-preference. In the presentation of two consumables, the item shown and consumed by the subject was considered preferred, the item shown but not consumed was considered not-preferred, and the item not shown and consumed was considered not-preferred.

The primary caregiver information form, preference assessment form, and the preference sorting list were developed for the collection of indirect preference assessment data. Primarily, the primary caregivers were informed to collect the indirect preference assessment data. Thereafter, the indirect preference assessment form was applied. The preference sorting lists were created upon data obtained from the form. The literate primary caregivers sorted the items included in the form based on the scores from 5 to 1. As for the illiterate caregiver, the researcher read the stimuli included in the preference sorting list and asked the caregiver to score those items.

The single-stimulus, paired-stimulus, and multiple-stimulus without replacement assessment forms were used for the direct preference assessment data. Moreover, a set of ten consumables each, including five favored and five disfavored consumables by the subject, was used in the direct preference assessment. The favored items that the subject requested to consume were marked with a "+" and the disfavored items that the subject did not want to eat or spitted were marked with a "-."

Analysis of data

Statistical Package for Social Sciences (SPSS) for Windows software was used in the analysis of the data obtained via the direct and indirect preference assessments and the correlation between the data was reviewed. In the indirect preference assessment, the numbers as stated by the primary caregivers of the subjects were entered into the preference sorting lists as it is. Nevertheless, in direct preference assessments, the percentages were calculated upon completion of three-session preference assessments and the numbers that corresponded to the said percentage values were entered into the SPSS software. The relationship between the accordingly obtained data was calculated by Spearman Brown rank differences correlation coefficient.

RESULTS

A review of Tables 1 and 2 suggests that there was a highly positive and significant relationship between the food preference predictions of the primary caregivers and the single-stimulus direct preference assessment ($r=0.805$, $p<0.01$), paired-stimulus direct preference

Table 1. Relationship between direct and indirect preference assessment.

Variable	r	p
Relationship between indirect and single-stimulus direct preference assessment	0.805	0.000
Relationship between indirect and paired-stimulus direct preference assessment	0.862	0.000
Relationship between indirect and multiple-stimulus direct preference assessment	0.832	0.000

Table 2. Relationship between the direct preference assessments.

Variable	r	p
Relationship between single- and paired-stimulus preference assessments	0.890	0.000
Relationship between single- and multiple-stimulus preference assessments	0.739	0.000
Relationship between paired- and multiple-stimulus preference assessments	0.795	0.000

assessment ($r=0.862$, $p<0.01$), and multiple-stimulus direct preference assessment ($r=0.832$, $p<0.01$) as applied to the individuals with SMD.

As a result of the study, a highly positive relationship was found between the direct and indirect preference assessments. These findings had similarities and differences with the previous studies, which found a positive relationship (Newton et al., 1993; LaRosa, 2007; Waldvogel and Dixon, 2008). The study by Newton et al. (1993) compared the activity preferences of the caregivers of individuals with severe mental disabilities to paired-stimulus direct preference assessment results and found that the caregivers' predictions were highly accurate. The finding of the present study was similar to the results of the study by Newton et al. (1993). Nevertheless, the study by Newton et al. (1993) collected predictions for 144 activities and applied the paired-stimulus direct preference assessment to randomly selected activity pairs among them. In the present study, the caregivers' views were collected for 10 consumables and the same consumables were assessed by three direct preference assessment methods. Therefore, despite the fact that the findings of this study were similar to that of Newton et al. (1993), there were differences as regards the stimuli used in indirect and direct preference assessments, the number of stimuli, and the methods employed in the direct preference assessment. LaRosa (2007) found that the caregivers' predictions were associated with the direct preference assessment results in a study, which compared the predictions of the caregivers of individuals with multiple disabilities to the direct preference assessment results. The findings of the present study were similar to that of LaRosa (2007). Waldvogel and Dixon (2008) compared the views of the staff caring for the individuals with developmental disabilities to the results of the multiple-

stimulus direct preference assessment without replacement and found a positive relationship. The present study was similar to that of Waldvogel and Dixon (2008) in terms of the findings and the stimuli employed. Waldvogel and Dixon (2008) used 10 consumables in their study.

The present study which found a positive relationship between the direct and indirect preference assessments was not compliant with some previous studies that found no relationship between the caregivers' views and direct preference assessments (Green et al., 1988; Parsons and Reid, 1990). Green et al. (1988) assessed the preferences of individuals with severe disabilities based on the caregivers' views and three-stimulus presentation. It was found as a result of the study that the views of the caregivers did not reflect the preferences of the participants. In that context, the findings of the present study and that of Green et al. (1988) were different. It is thought in the present study that taking the primary caregivers' opinions was effective in creating this difference. Due to Turkish culture, the primary caregivers of the individuals with SMD are their kin, namely, mothers or grandmothers. The primary caregivers provide all the care for the individuals with SMD. Therefore, it was suggested that the primary caregivers predict the preferred food of the children with SMD with high accuracy for this reason.

There was a highly positive and significant relation between the single-stimulus preference assessment and paired-stimulus preference assessment ($r=0.890$, $p<0.01$), between the single-stimulus preference assessment and multiple-stimulus preference assessment paired-stimulus direct preference assessment ($r=0.739$, $p<0.01$), and paired-stimulus preference assessment and multiple-stimulus preference assessment ($r=0.795$, $p<0.01$) as applied to the individuals with SMD. Based on the foregoing, it could

be concluded that the responses of individuals with SMD were consistent when they were presented with the single-, paired-, or multiple-stimulus.

There was a highly positive relationship between the preference assessments based on single-, paired-, and multiple-stimulus without replacement in the study. These findings had similarities and differences with the previous studies, which found a positive relationship (Thomson et al., 2007; Thiessen, 2010). Thomson et al. (2007) assessed the preferences of individuals with severe and very severe disabilities by single- and paired-stimulus preference assessment methods and that the results from both methods suggested a positive relationship. The positive relationship, as found between the single- and paired-stimulus preference assessments in the present study, was consistent with the findings of the study by Thomson et al. (2007). Moreover, both studies employed the consumables as stimuli. Nevertheless, there was a limitation of the study by Thomson et al. (2007) since the said study employed only two of the direct preference assessment methods by which their study differed from the present study. Thiessen (2010) found a positive relationship between the paired- and multiple-stimulus preference assessments. The findings of the present study were similar to that of the study by Thiessen (2010).

The literature of the field suggested that studies comparing two methods used single- and paired-stimulus preference assessments and those comparing three methods used paired-, multiple-, and blended-stimulus methods. The review also suggested that there was no study, which compared the single-, paired-, and multiple-stimulus (without replacement) preference assessments in a single study. This was the original aspect of the present study.

PHASE 2: teaching the skill of choice-making among photographs with time-delay procedure

Research model

The second phase of the study employed the multiple probe design across subjects, which is one of the single subject designs. The dependent variable was the level of choice-making from among the photographs of the consumables. The independent variable was the time-delay procedure.

Subjects

The subjects involved in the first phase were also enrolled in the second phase of the study. The research was conducted at the residences of the subjects. The 10 most real-like photographs of

consumables sized 10 × 10 cm were used for each subject in teaching the skill of choice-making among photographs.

Determination of target behavior and data collection

In the study, the photographs of the preferred and non-preferred consumables were used in teaching the skill of choice-making among photographs. Showing the photographs of the stimuli by the subjects was considered the correct response.

Probe, continuity, and generalization registration forms and the registration form to record the progress during teaching were developed for data collection purposes as regards teaching the skill of choice-making among photographs.

Paired stimulus presentation was used in teaching sessions. Each target stimulus pair in the work sets (5 pairs) was presented to the individuals in the same order 3 times, in other words 15 trials were conducted. The stimuli in the work set were separately determined for each subject. The photographs of preferred (5) and non-preferred (5) food-drink items as a result of direct and indirect preference assessments were used for the purposes thereof. The item pairings in teaching the skill of choice-making among photographs was the same with the pairings used in the paired-stimulus preference assessment, and were presented in the same order.

Procedure

Probing, teaching, and generalization sessions were conducted with 3 individuals for each choice phase during the application of the study which tested the effectiveness of time-delay procedure in teaching the skill of choice-making among photographs to individuals with severe and multiple disabilities.

Baseline

Probing sessions were conducted to determine the performance of the subjects as regards the skill of choice-making among photographs before the onset of teaching the skill. During the probing session, each target stimulus pair was presented to the subjects three times in the same order. The first probing session was conducted simultaneously with all the subjects before the teaching started. The probe data were collected in inconstant intervals for the 2nd and 3rd subjects.

The probing sessions were conducted in the room where the application was carried out based on the following steps: (1) the researcher made ready the

materials to be used in the session, registration forms, and the video camera for recording the session; (2) the researcher informed the subjects about the study (I want you to make choices among the items I am going to show you); (3) the researcher provided tips in order to attract the attention of the subjects (Are you ready? Shall we start? etc.); (4) the subjects' responses indicating readiness to work were reinforced (Well done!), target stimulus was presented (Look at this, look at this, which one do you want?); (5) the subjects' working behaviors along with their responses were reinforced; (6) the researcher proceeded to the next trial.

Intervention

The subjects received training for waiting if they did not know how to wait for tips before the onset of teaching. The teaching sessions with constant time-delay procedure were organized as sessions with 0 seconds constant time-delay procedure and constant time-delay procedure.

During the constant time-delay procedures, the following was said to the child before commencing the teaching: "Now we will learn how to make choices. If you know which one to prefer show it. If you do not know the right answer wait for me to show you the right answer. Show after I show it. If you listen to me carefully and show it when I ask you to do so, you can eat/drink the items you have shown." The subjects were asked "Are you ready!" in order to attract their attention. When the subject expressed readiness via a sound (aaahhh) or any gesture or facial expression, or after high-fiving when the subject was asked to high-five, if he or she was ready, the teaching sessions started by telling "Well done, very good, so we can start working."

During the teaching sessions with the constant time-delay procedure, after the target stimulus was presented ("Look at this, look at this, which one do you want?"), the researcher started to silently count for the waiting time (1001, 1002, 1003, and 1004) and provided the controlling tip at the end of the time-delay. When the individual provided the right answer within the time-delay between the target stimulus and controlling tip, the individual was reinforced both verbally and with food, and when he/she showed the right answer after the controlling tip, the individual was reinforced verbally by for example, "Well done, very good!", and the next trial started.

If the individuals provided the wrong response before the controlling tip, the photographs were replaced and the target stimulus was presented again and the right response was reinforced both verbally and with food. If the right responses came after the controlling tip, the same were reinforced only verbally. In case of wrong responses before the controlling tip, the photographs

were replaced, target stimulus was presented again, the subject was asked to wait, and then the researcher showed the right answer first after 4 seconds and then asked the subject to show it. In case of wrong responses after the controlling tip or when the subject failed to provide a response, the controlling tip was provided again and the subject was asked to show. When the subject showed the right answer, he was reinforced verbally. If not, the choice was considered void and the next trial started.

Generalization

Interpersonal generalization was made in the study. In order to test whether interpersonal generalization was ensured, it was checked whether the individuals made choices among the items presented by the primary caregivers. The primary caregivers were provided with preliminary information as regards how to provide an opportunity for making choices. During the preliminary information, they were told where and how to place the photographs, that they should not react to wrong or right responses of their children, and that they should replace the photographs in case of wrong responses. The generalization sessions started after the primary caregivers were presented with and practiced the information earlier mentioned. During the application, necessary instructions and assistance in photograph placement were provided to the mothers. The generalization sessions were conducted in the same way as the probing sessions.

Graph-1 teaching the skill of choice-making among the photographs

As shown in Graph-1 (Figure 1), Esin's baseline performance as regards choice-making among the photographs was 33%, and it increased to 100% in 7 and 8th sessions. Eray's baseline performance was 35% and it increased to 87% in the 7th session and 100% in the 8th session. Kaan's baseline performance was 40% and it increased to 87% in 5, 6, and 7th sessions, which met the criteria. Esin and Eray retained 100% of what they had learned after 1, 3 and 4 weeks, where Kaan retained 87%. It was seen that all three subjects demonstrated this skill also when they were together with their primary caregivers.

It was seen that the curves indicating the right response levels before the tips during the teaching with time-delay procedure diverged from the horizontal axis, and that the right response levels after the tips converged the horizontal axis. As it is evident from the graph, the results imply that the teaching with time-delay procedure was associated with acquisition of the

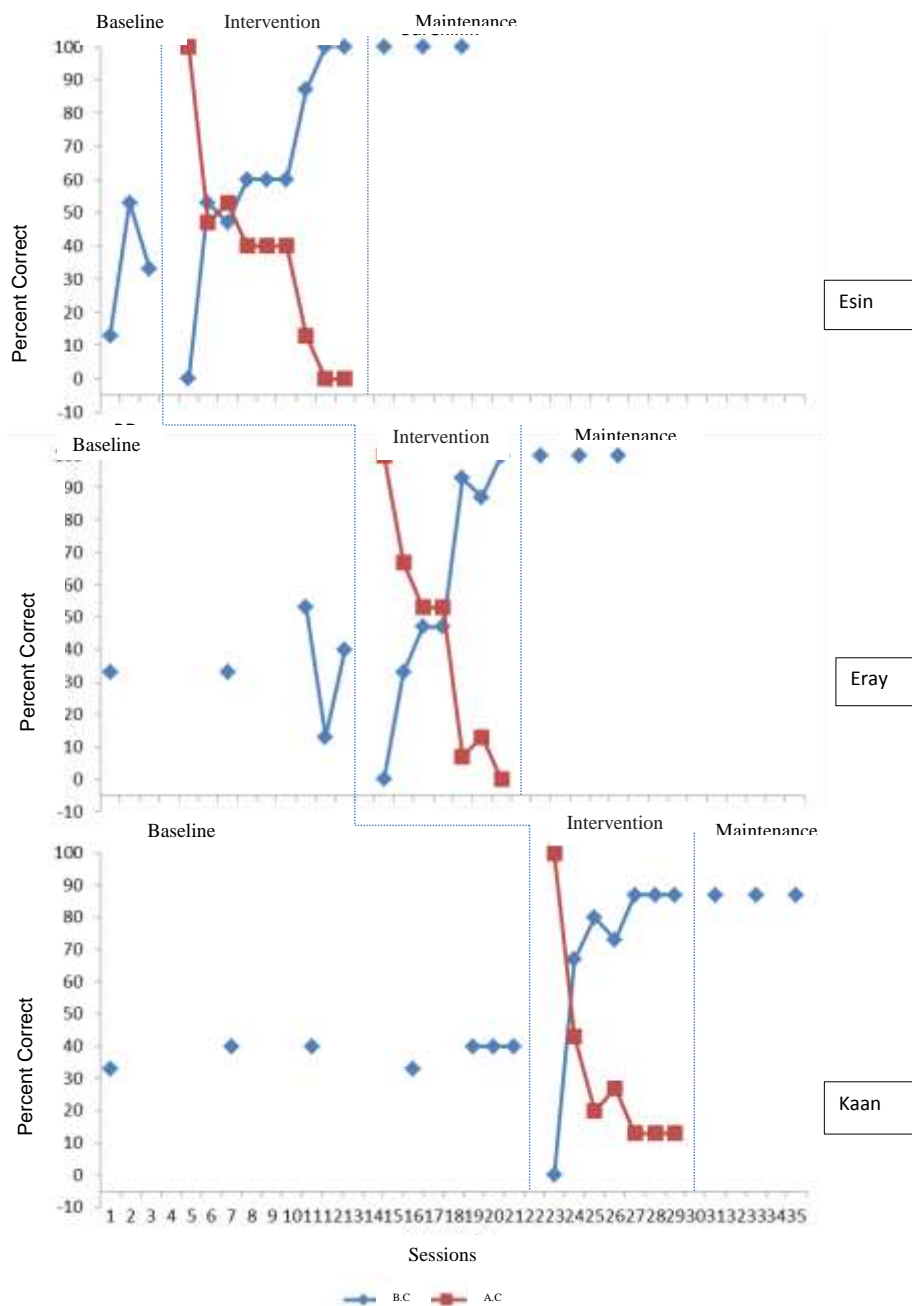


Figure 1. Graph-1 teaching the skill of choice-making among the photographs.

skill of choice-making among photographs by the subjects.

simultaneously in different settings by randomly selecting 30% of the applications during each phase of the study. The inter-observer reliability data was 100%.

Inter-observer reliability findings

Two classroom teachers working in the field of special education collected the inter-observer reliability data. They collected data as regards the dependent variable

Application reliability findings

A teacher, who worked in the field of special education and familiar with the method used in the study,

collected the application reliability data of the study. The application reliability data was 100%.

DISCUSSION

The findings of the present study suggested that teaching choice-making among the photographs with constant time-delay procedure was effective, that the participants retained the choice-making skill after 1, 3, and 4 weeks after the end of the teaching, and that they generalized the skill they learned to their primary caregivers.

Although the findings as regards the third aim of the study were generally positive, it is required to discuss certain situations observed during the conduct of the study. It was seen that the subjects' percentage of accuracy of the choice-making skills was improved in the sessions with constant time-delay procedures. It was seen upon a review of the accuracy percentages of choice making skills that Esin's performance rapidly improved, yet became stationary during the 4, 5, and 6th sessions. It was suggested that the stationary performance could be attributed to the upper respiratory infection that affected Esin. Esin's performance increased to 100% upon recovery from disease, providing her with audio and visual computer game as reinforcement at the end of the teaching sessions, allowing her to consume the stimulus that she preferred, using the same stimulus pairs, and increased number of sessions with constant time-delay procedure. Esin retained choice-making skill at 100% 1, 3, and 4 weeks after the end of the teaching.

Eray's percentage of accuracy as regards choice-making among photographs rapidly increased, yet became stationary during the 4th session. The reason of the stationary performance during the 4th session might be the fact that he was combative and reluctant to work due to a problem experienced with his teacher at school. Eray's performance during the 5th session rapidly increased yet he underperformed during the 6th session. The fact that the session was held on his birthday, when he had lower concentration, might be the underlying factor. Eray's performance reached 100% during the 8th session, and he retained choice making skill at 100% 1, 3 and 4 weeks after the end of the teaching. Eray's success in learning the choice-making skill fast was evident with his performance increased to 100% upon the use of his favorite computer game with a dozer and truck as reinforcement, allowing him to consume the stimulus that he preferred, using the same stimulus pairs, and increased number of sessions with constant time-delay procedure. Eray retained choice-making skill at 100% 1, 3, and 4 weeks after the end of the teaching.

Kaan's percentage of accuracy as regards choice-

making among photographs showed a marked increase, yet it declined during the 4th session. The reason for the decline was attributed to the intestinal infection that affected Kaan. A review of Kaan's performance during the 5, 6, and 7th sessions suggested that his performance was sustained at 87%. He experienced difficulties in making choices between the curd cheese and halva. This was because of the fact that the distractor has against the preferred stimulus, that is, the curd cheese, was placed in a black plate, or that the distractor was very powerful.

Kaan's success in learning the choice-making skill increased fast to 87% upon playing his favorite plays based on throwing and catching (balls, buckles) as a reinforce, allowing him to consume the stimulus that he preferred, using the same stimulus pairs, and increased number of sessions with constant time-delay procedure. Kaan retained choice-making skill at 100% 1, 3, and 4 weeks after the end of the teaching.

The findings of the present study were consistent with that of Stafford (1999), who investigated the effectiveness of constant time-delay procedure in teaching the three levels of choice-making (preferred-non-preferred, preferred-neutral, and among two preferred stimuli). He suggested that constant time-delay procedure was effective in teaching the three levels of choice-making. Nevertheless, the present study found that constant time-delay procedure was effective also on different subjects in teaching to make choices between the photographs of preferred and non-preferred stimuli, only one and the first of the levels suggested by Stafford (1999). The present study had a limitation of not addressing the other levels of choice-making as suggested by Stafford's study.

The findings of the present study were similar to and different from that of Clark (2006) in some aspects. Clark (2006) investigated whether it was effective to use the intervention package, which included the constant time-delay procedure as well, in teaching the choice-making skills to preschoolers, and concluded that it was effective. Despite the similar findings, there are differences between the present study and Clark's (2006) study in three aspects. The first is that Clark (2006) studied preschoolers with visual and multiple disabilities, whereas the present study enrolled schooled individuals with SMD. The other difference is that Clark (2006) used a teaching package that additionally included the constant time-delay procedure among others, whereas the present study only employed the constant time-delay procedure. Finally, Clark's (2006) study was based on multiple baseline model, whereas the present study employed the multiple probe model. In that respect, the present study is different from that of Clark (2006).

It was found as a result of the study that the individuals with SMD acquired the skill of choice-making among the

photographs. The findings of the present study are consistent with that of the study by Parsons et al. (1997), in which two out of seven subjects learned to make choices among the photographs. Parsons et al. (1997) employed two methods (objects and pictures) in teaching to make choices to 7 individuals aging between 49 and 67 with severe mental disabilities and additional disabilities. As a result of the study, five participants demonstrated the skill of choice-making based on objects, and two participants based on pictures. It was suggested the fact that only two participants learned how to make choices on the basis of photographs was attributable to age factor and individual characteristics.

As a result of the first phase of the present study, a highly positive relationship was found between the predictions of the primary care givers of the individuals with SMD about the consumable preferences and the single-, paired-, and multiple-stimulus direct preference assessments for individuals with SMD. These findings suggested the fact that the views of the primary caregivers might reflect the truth as regards the preferences of children with SMD. Furthermore, there was a highly positive relationship between the single-, paired-, and multiple-stimulus preference assessment as conducted within the scope of the study. These findings are important for the fact that the individuals may make consistent choices even when the number of stimuli changes.

The second phase of the study found that teaching to make choices among photographs based on the constant time-delay procedure was effective, that the participants retained the choice-making skill 1, 3, and 4 weeks after the completion of the teaching, and generalized the same to their primary caregivers. It was concluded that these findings were important since they were the prerequisites for teaching the skill of making choices among the photographs, an upper level of real stimuli. In addition, it was considered a transition stage towards the stimuli with photographs and illustrated communication systems to be used in the next educational stages. Furthermore, the results of the present study suggested that the individuals with SMD may acquire the choice-making skill since they can live independently and take on the responsibility of life.

A review of the studies on teaching the choice-making skills (Sigafoos and Dempsey, 1992; Kennedy and Haring, 1993; Stephenson and Linfoot, 1995; Parsons et al., 1997; Koepfel, 1998; Stafford, 1999; Barry and Burlew, 2004; Dutt, 2010; Clark, 2006; Hoch, 2006; Duke, 2008) provides that preferences are assessed before teaching the choice-making behavior. In the light of the research data, one can conclude that preference assessment is necessary for teaching to make choices. Teaching to make choices upon data obtained as a result of the preference assessment

leads to a more effective acquisition of the said skill and also helps the individuals to become more liberated and independent.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

An analysis of students' self-efficacy and motivation in piano, based on different variables and the reasons for their failure

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In this study, the self-efficacy and motivation of Zeki Muren Fine Arts High School piano students were examined based on different variables as well as the reasons for their failure. The data on their self-efficacy were obtained through self-efficacy scale of piano performance and the data on their motivation were obtained through motivation scale in piano education. 'The Questionnaire of Reasons for Failure in Piano Education' was carried out in order to obtain students' perspective of their failure. The data were examined through t-test, Mann-Whitney U test, one way ANOVA and Pearson Correlation via SPSS 23.00. Students' thoughts about their failure in piano performances were reported as frequency and percentage. This study reveals the fact that students' motivation towards piano education (with its sub-dimensions; interest in and willingness to play piano and motivational factors in the piano learning process) and their self-efficacy (with its sub-dimensions; perception of technical level and perception of performance) tend to fall after 10th grade when the class level advances from 10th to 12th. Moreover, achievement grade, motivation and self-efficacy are positively correlated. Although not statistically significant, there are some additional striking results. For instance, male students can overcome stage fright more easily than female students; male students consider themselves more proficient in terms of technical level than female students. Additionally, boarding students have more trouble in managing their stage fright compared to other students, and the students who have musicians in their families perceive their technical skills to be higher than students who do not. Since all possible students were included, this study aims to express the current situation in Zeki Muren Fine Arts High School. However, considering the effect sizes of those findings, this study should be replicated with a larger sample size to get statistically significant results.

Key words: Fine arts high school, piano, motivation, self-efficacy.

INTRODUCTION

Fine arts high school was first established in 1989 in Istanbul under the name of Anatolian Fine Arts High School. The school offers vocational music training-

education. Anatolian Fine Arts High School was founded to provide intense training in fine arts which requires its students to possess special talents. Its aim is to allow

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students to gain expertise on recognizing and rendering national and international pieces of art, to become productive and creative, to prepare for higher education and to generate an urge for research in the field of their specialisation (Ministry of National Education, 1999).

In recent years, the word 'Anatolian' was removed and Fine Arts High School (General Directorate of Secondary Education, 2016) was established. The school educates students in the field of music and painting in 68 cities and 78 counties. During the 2016 to 2017 academic year, piano lessons, which are major courses in the music department, were made compulsory for four years. Culture training courses also became compulsory. Until the 2015/16 academic year, piano classes were administered on once a week in 9th grade, and twice a week in 10th, 11th and 12th grades (Board of Education and Discipline, 2015). During the 2016/17 academic year, with the new curriculum, 9th, 10th, 11th, graders receive one hour piano lesson whereas in the 12th grade, piano lessons are removed from the curriculum (Board of Education and Discipline, 2016). This current study took place during the 2015/16 academic year when the educational program indicated that piano education and training underpinned the music education program. Moreover, piano education incrementally included technical practices and etudes, the art works samples of National and international composers, samples of educational music, piano literature, learning and teaching techniques of school music education (General Directorate of Secondary Education, 2006).

The 2015/2016 curriculum contained technical practices and etudes which underpinned the piano education and also had great importance in students' technical development. Additionally, the curriculum helps students learn some musical structures and gain an introduction of a deep repertoire. In piano education, correct acquisition of technical skills allows students to show effective performance with their instruments. However, it is probable that having solely technical skills may not be enough for students to show high-level performances and some differences in students' piano performances may occur because of different factors.

Among the reasons that may create the differences between students' abilities are personal factors such as students' perception level, physical characteristics, predisposition towards piano, work discipline, the length of practice, desire for learning, having faith in their success and family status, the study environment, teacher factor, and various environmental factors.

A student's willingness to learn, namely motivation, is one of the most important factors of those mentioned above. Motivation can be defined as an impulse for an organism to reach the target and a process which starts leads and carries on spiritual and physical activities (Budak, 2000). According to Tufan (2000), motivation controls the students' behaviors during the learning

process, keeps their behaviors alive and willing, and picks out the hidden energy in students (Yildirim Orhan, 2006). Cosar (2007) states that a person cannot achieve necessary or expected learning without sufficient amount of motivation, even if all the other conditions are obtained. It can be argued that unmotivated students are not in the right state for learning. Selcuk (1992) highlights that unless there is a reason to motivate students for learning; students do not take an interest in learning (Yildirim Orhan, 2006). In order to make students motivated, one should know the students' personality traits well (Modiri, 2012). In this sense, to motivate students for a better piano performance, both the piano instructors and the students should work harder (Orhan, 2006).

Another factor that affects learning is the "Self-Efficacy belief" which can be defined as the individual belief of a student to achieve a specific task. Bandura realized that a person's thoughts of sufficiency and self-actualization in a job underlies that person's expectations towards the result of that job and he defines self-efficacy as self-competence that a person has in order to arrange and actualize needed jobs for reaching the target (Ozmentes, 2014). Self-efficacy is a person's belief on how capable he is on a particular matter, namely very well, not very well or weak. Students who perceive their performances to be more adequate than it actually is tend to be more successful in their performances. For that reason, if a person's perceived self-efficacy is high, his performance actually reaches higher levels but if his self-efficacy is low, he performs under his level of capacity (Gun and Yildiz, 2014). As illustrated, it may not be wrong to conclude that self-efficacy belief is a significant factor in determining the quality of a student's instrument training process (Ozmentes, 2008). Briefly, as McCormick and McPherson's (2003) approach suggests, self-efficacy and motivation play an important role in the success of musical performance. Moreover, McCormick and McPherson emphasize the necessity of practice over a long period of time (Seker, 2011).

The existing literature on this subject is extensive and focuses particularly on determining the piano skills of Fine Arts High School students. Jelen (2013) reported in her study that 50% of the academics who lecture piano in Music Education in universities state that students who come from Anatolian Fine Arts High Schools have serious technical issues when they first begin piano courses. In the same study, Jelen (2013) mentions that 40% of academics agreed that students of fine arts high schools lack background knowledge when they start piano courses at music departments in universities. In the dissertation entitled 'Comparative study of piano skills of Music Education students who come from different high schools', Avci (2013) highlights that both fine arts high school students and other high school students have serious incompetencies in technical background

knowledge. In another study, 55.8% of Fine Arts High School students partly agreed with the question asked to determine the extent of students' skills and knowledge in piano (Cicek, 2016). Uslu (2012) demonstrates that students' unqualified musical background and incorrect or false technical musical skills have negative impact on their motivation and attitude towards piano.

The studies mentioned above identified the thoughts of both students in graduate level courses and Fine Arts High School level students on their state of technical and musical skills in piano performances. These studies prove that Fine Arts High School students have difficulties in technical and musical skills in piano performances. The interviews with the piano teachers at Bursa Zeki Muren Fine Arts High School are in accordance with the literature in that they indicate the confirmation of piano teachers that piano students show performance differences in oncoming stages. Furthermore, teachers report that students show unwillingness towards studying and practicing piano.

Throughout this current study, the state of motivation and self-efficacy, which are significant for musical achievement, are examined in terms of different variables with participant students at Zeki Muren Fine Arts High School. Moreover, the reasons why they fail in piano performances are reported in the study.

The purpose of the study

Bursa Zeki Muren Fine Arts High School students' ambitions towards piano playing have been determined to be a problem based on the viewpoints of the teachers who work in the same institution. Therefore, this study aims to report the actual situation and to investigate the reasons why students fail in piano performances based on the students' point of view. Within this context, in order to report the actual situation, students' self-efficacy and motivation level are examined in terms of different variables such as the student's gender, whether there is a musician in their family, whether they are board at the school, their skill level, and their achievement grade of piano course.

A questionnaire is carried out to find out the students' thoughts about the reasons for their failure in using piano. The answers to the questions below are sought accordingly.

1. Is the motivation and self-efficacy level of students significant in terms of gender, whether there is a musician in their family, whether they board, and their level?
2. Is there a significant correlation between end of term achievement grade of piano course and a student's motivation and self-efficacy level?
3. What do the students perceive the reasons are for their failure in piano performances?

Significance of the study

This study carries a great deal of significance as it tries to reveal the problems that Bursa Zeki Muren Fine Arts High School teachers have observed and ascertain the students' thoughts about them. The data obtained are believed to have positive impact on the courses that piano teachers offer in this institution and as well as other institutions in different parts of Turkey.

METHODOLOGY

Research model

In this study, a correlational research model was used. This model aimed to determine the extent and existence of the difference between model variables (Karasar, 2005). Within the scope of the current study, the relationship between the variables of gender, the existence of a musician in their family, their boarding status, level and achievement grade with the help of piano performance motivation scale and self-efficacy scale of piano performance were studied. Moreover, students reported the reasons for their failure.

Sampling

89 students, 22 (16 females and 6 males) 9th graders, 23 (13 females and 10 males) 10th graders, 25 (15 females and 10 males) 11th graders, 19 (14 females and 5 males) 12th graders, who participated the study willingly were Zeki Muren Fine Arts High School students during the 2015 to 2016 academic year.

Data collection tools

The Self-Efficacy Scale of Piano Performance (SESPP), developed by Gun and Yildiz (2014), was used to determine the level of self-efficacy of the piano performance of Zeki Muren Fine Arts High School students. This scale consists of 25 items with a Likert rating of 5, measures 3 sub-dimensions. 8 items for Perception of Technical Level (PTL) subscale, 7 items for Perception of Stage Anxiety (PSA) subscale, and 10 items for Perception of Performance Level (PPL) subscale. The factor loadings of the items are calculated in the PTL sub-dimension between 0.53 and 0.70; in the PSA sub-dimension 0.54 to 0.76; in the PPL sub-dimension 0.55 and 0.80. The KMO sample consistency coefficient was 0.947 and the Cronbach alpha reliability coefficient was 0.948 (Gun and Yildiz, 2014).

The data on the motivation levels of Zeki Muren Fine Arts High School students for piano education were obtained by Motivation Scale in Piano Education (MSPE) developed by Kurtuldu (2012). The scale consists of 24 items with a Likert rating of 5 and has 3 sub-dimensions; 8 for the sub-dimension of Interest in and Willingness to Play Piano (IWPP), 6 for the Efficacy Perception towards Playing Piano (EPTPP) sub-dimension, and 8 for the Motivational Factors in the Piano Learning Process (MFPLP) sub-dimension. The factor loadings of the items are in the range of 0.40 to 0.62 in the IWPP sub-dimension; 0.42 to 0.63 in the EPTPP sub-dimension; 0.43 to 0.56 in the MFPLP sub-dimension. Item total correlations were respectively 0.33 - 0.59, 0.30 - 0.69 and 0.38 - 0.63. KMO sampling adequacy coefficient was found to be 0.87. For the whole scale, the Cronbach alpha reliability coefficient was 0.88 (Kurtuldu, 2012).

Questionnaire of Failure Reasons in Piano Education (QFRPE),

Table 1. T-Test and Mann-Whitney U test results to differentiate MSPE, SESPP and sub-dimension points according to gender, family musician status and boarding status variables.

Source of variance	Gender			Musician status in the family			Boarding status		
	F (n=58) – M (n=31)			Yes (n=11) – No (n=78)			Boarding (n=24) – Non-boarding (n=65)		
	t (df=87)	p	Cohen d	U	p	Cohen d	U	p	Cohen d
MSPE	0.541	0.590	0.120	493.0	0.428	0.238	783.5	0.978	0.028
IWPP	0.539	0.591	0.120	379.5	0.541	-0.191	765.0	0.893	-0.040
EPTPP	-0.603	0.548	-0.134	499.5	0.381	0.276	738.5	0.703	-0.077
MFPLP	0.692	0.491	0.154	490.5	0.446	0.149	822.5	0.697	0.105
SESPP	-1.364	0.176	-0.303	497.0	0.400	0.222	755.0	0.821	-0.106
PTL	-1.493	0.139	-0.332	549.0	0.136	0.477	794.0	0.900	0.091
PSA	-1.977	0.051	-0.440	452.5	0.774	0.059	638.0	0.190	-0.326
PPL	-0.375	0.709	-0.083	461.0	0.694	0.053	779.5	0.999	-0.080

MSPE = Motivation scale in piano education. IWPP = Interest in and willingness to play piano. EPTPP = Efficacy perception towards playing piano. MFPLP = Motivational factors in the piano learning process. SESPP = Self-efficacy scale of piano performance. PTL = Perception of technical level. PSA = Perception of stage anxiety. PPL = Perception of performance level.

prepared by Kurtuldu (2011), was used in order to determine the opinions of Zeki Muren Fine Arts High School students about the success status of piano education in the research. The questionnaire consists of 25 items with a Likert rating of 5.

Data collection procedure and analysis

The students were given QFRPE to determine the reasons for failure, SESPP to determine their self-efficacy scores, and MSPE scales to determine motivation scores along with personal information form (class, gender, achievement grade, boarding status, and musician status in the family). The data obtained from the volunteer students were analyzed by t-test, one-way analysis of variance and Pearson correlation analysis using SPSS 23.00 package program.

RESULTS

Comparison of MSPE and SESPP scores in terms of gender, musician status in the family and boarding status variables

Table 1 displays the results of t-test compare the

MSPE and SESPP scores of the students with respect to the gender variable and the results of the Mann-Whitney U the students with respect to the musician status and the residence status are given.

As shown in Table 1, the significance of the students' scores from the scales of the variables such as gender, having a musician in the family, and being a boarding student are determined as $p > 0.05$. Although the differences in the scores are not statistically significant, it can be considered that when the effect sizes are considered, the scores whose Cohen's d values are high may be affected by the relevant variables, but the sample size is not sufficient to show this effect. For example, the effect size of the gender variable for PSA scores ($d = -0.440$) suggests that female students' score is 0.44 standard deviation lower than that of male students; in other words male students can manage their stage concerns better. Likewise, PTL scores were higher in males than females ($d = -0.332$) and higher in students who have musicians in their family than the ones who

do not ($d = 0.477$). This indicates that, in terms of technical level, the men (according to the women) and the musicians in the family (according to the non-musicians) see themselves more as being efficient. When PSA scores are analyzed for boarding status, it can be considered that boarding students (according to non-boarding students) are having trouble managing stage fright ($d = -0.326$).

Comparing MSPE and SESPP scores in terms of class variable

The results of one-way ANOVA on the comparison of MSPE and SESPP scores of the students according to the class variable are given in Table 2.

When the scores were analyzed, as shown in Table 2, MSPE, $F(3, 85) = 4.514$, $p = 0.005$; IWPP $F(3, 85) = 6.12$, $p < 0.001$; MFPLP, $F(3, 85) = 3.206$, $p = 0.027$; SESPP, $F(3, 85) = 3.352$, $p = .023$; PTL, $F(3, 85) = 3.628$, $p = 0.016$ and

Table 2. Variance analysis results to determine MSPE, SESPP and their subscale scores according to class variable.

Source of variance		SS	df	MS	F	p	ω^2	Significance
MSPE	Class	5.057	3	1.686	4.514	0.005	0.106	10 > 12
	Residual	31.740	85	0.373				
IWPP	Class	7.131	3	2.377	6.120	< 0.01	0.147	10 > 12
	Residual	33.017	85					
EPTPP	Class	2.978	3	0.993	2.239	0.090	0.040	
	Residual	37.683	85	0.443				
MFPLP	Class	3.260	3	1.087	3.206	0.027	0.069	10 > 12
	Residual	28.812	85	0.339				
SESPP	Class	4.051	3	1.350	3.352	0.023	0.073	10 > 12
	Residual	32.244	85	0.403				
PTL	Class	5.804	3	1.935	3.628	0.016	0.081	10 > 12
	Residual	45.337	85	0.533				
PSA	Class	1.107	3	0.369	0.670	0.573	0.000	
	Residual	46.781	85	0.550				
PPL	Class	8.153	3	2.718	4.358	0.007	0.102	10 > 12
	Residual	53.005	85	0.624				

MSPE = Motivation scale in piano education. IWPP = Interest in and willingness to play piano. EPTPP = Efficacy perception towards playing piano. MFPLP = Motivational factors in the piano learning process. SESPP = The Self-efficacy scale of piano performance. PTL = Perception of technical level. PSA = Perception of stage anxiety. PPL = perception of performance level.

PPL, $F(3, 85) = 4.358$, $p = 0.007$ are different between class levels. A statistically significant difference in Bonferroni comparisons was found only in the 10th and 12th grades, although there was an increase in grades from the 9th grade to the 10th grade for the mentioned scores and a decrease in the scores in the subsequent grades. In other words, the highest scores belong to 10th grade students and the lowest scores belong to 12th grade students. This suggests that motivation in piano education (with its sub-dimensions; interest in and willingness to play piano and motivational factors in the piano learning process) and their self-efficacy (with its sub-dimensions; perception of technical level and perception of

performance) decrease after the 10th grade.

Relationships among AG, MSPE and SESPP scores

Table 3 displays Pearson correlation analysis results of the students' AG, MSPE and SESPP (and their subscales) scores.

In Table 3, it is seen that relations between all scores are significant at $p < 0.01$ level. Achievement grade, motivation and self-efficacy scores were found to be positively related to each other.

Table 4 contains the opinions of students about

the reasons for their failure in piano education. Approximately 32% of the students agree that their piano performance is unsuccessful due to careless studying, whereas 55% state that they do not know how to work. 37% of students think that their piano performance is technically inadequate and 50% prefer to memorize instead of learning. Although only 53% state that they can spend enough time to learn the piano, 57% think that they do not put in enough effort for success. The proportion of students who think that the intensity of the other lessons influences their piano training is 34%. 63% of the students state that the reason for their failure is due to the fact that they spend too much time having fun or strolling around. 66%

Table 3. Pearson correlation analysis for AG, MSPE and SESPP scores.

	BN	MSPE	IWPP	EPTPP	MFPLP	SESPP	PTL	PSA	PPL
AG	–	0.504*	0.439*	0.280*	0.452*	0.449*	0.334*	0.294*	0.461*
MSPE		–	0.856*	0.743*	0.839*	0.810*	0.668*	0.467*	0.823*
IWPP			–	0.568*	0.627*	0.691*	0.525*	0.395*	0.735*
EPTPP				–	0.540*	0.667*	0.582*	0.354*	0.674*
MFPLP					–	0.610*	0.476*	0.323*	0.657*
SESPP						–	0.867*	0.752*	0.879*
PTL							–	0.573*	0.628*
PSA								–	0.450*
PPL									–

Table 4. The frequencies and percentages of the questions answered in Questionnaire of Failure Reasons in Piano Education

	Item	Strongly agree		Agree		Partly agree		Slightly Agree		Disagree	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1	I think that I am careless when I play the piano	10	11.2	19	21.3	28	31.5	20	22.5	12	13.5
2	I don't know how to study for piano art works exactly.	18	20.2	31	34.8	18	20.2	16	18.0	6	6.7
3	I feel that I am technically incapable.	7	7.9	26	29.2	33	37.1	12	13.5	11	12.4
4	I think I do not spare enough time for piano practice.	6	6.7	18	20.2	18	20.2	25	28.1	22	24.7
5	I do not think I've made enough effort for success	16	18.0	25	28.1	23	25.8	17	19.1	8	9.0
6	The intensity of my other lessons is affecting my piano training	14	15.7	16	18.0	20	22.5	18	20.2	21	23.6
7	I do not think I can rest enough in the studying process	21	23.6	25	28.1	13	14.6	15	16.9	15	16.9
8	I spend a lot of time for fun or strolling around	28	31.5	28	31.5	13	14.6	13	14.6	7	7.9
9	I prefer to memorize instead of learning	28	31.5	16	18.0	24	27.0	13	14.6	8	9.0
10	I think the training I received in the previous piano training process is not enough	41	46.1	18	20.2	19	21.3	6	6.7	5	5.6
11	I get excited too much that it affects my performance at the exams badly	3	3.4	16	18.0	16	18.0	20	22.5	34	38.2
12	I think my ability to play piano is limited	34	38.2	19	21.3	17	19.1	10	11.2	9	10.1
13	I do not think I can make good school or branch choice	61	68.5	10	11.2	11	12.4	2	2.2	5	5.6
14	Everyone expects me to be very successful, which negatively affects me	41	46.1	22	24.7	9	10.1	15	16.9	2	2.2
15	My family or friends do not support me enough	65	73.0	10	11.2	7	7.9	5	5.6	2	2.2
16	My life apart from my parents affects me	69	77.5	7	7.9	3	3.4	8	9.0	2	2.2
17	I have some personal problems that I cannot share with anyone	41	46.1	15	16.9	20	22.5	7	7.9	6	6.7
18	I cannot indigenize piano lessons enough	42	47.2	17	19.1	13	14.6	11	12.4	6	6.7
19	I think that preparatory etudes or exercises for the artworks are insufficient	39	43.8	29	32.6	13	14.6	8	9.0	0	0.0

Table 4. Cont'd

20	I think piano lessons are boring	53	59.6	15	16.9	11	12.4	7	7.9	3	3.4
21	I think piano artworks are compelling	35	39.3	23	25.8	19	21.3	7	7.9	5	5.6
22	I think my piano teacher has a solid attitude	71	79.8	9	10.1	7	7.9	2	2.2	0	0.0
23	I think that my piano teacher cannot teach the course efficiently	67	75.3	8	9.0	6	6.7	6	6.7	2	2.2
24	I have to have more than one exam on the same day	20	22.5	15	16.9	18	20.2	11	12.4	25	28.1
25	I keep taking unexpected low grades from piano.	33	37.1	16	18.0	22	24.7	6	6.7	12	13.5

think that the training they have received in the previous piano training process is insufficient. 61% of students state that they do not get too anxious about the exam that it would affect their success badly. While 60% think that their ability to play piano is limited, 79% think they cannot do school or branch selection well. 70% of the students state that the reason for failure is that everyone expects them to be very successful. 84% of the students say that their family or friends do not support them enough, and 70% say they have personal problems they cannot share with anyone. 66% of the students cannot indigenize the piano lessons adequately, 76% of the students think that the piano lessons are boring and that the preparatory etudes or exercises are insufficient. 65% think that piano artworks are compelling. Students who think that the piano teacher has a strict attitude constitute 90% of the piano students and 85% think that the piano teacher cannot perform the lesson efficiently. The percentage of students who anticipate unexpected low grades constantly from piano lessons is 55%.

DISCUSSION

Even if the results of the study are not statistically significant ($p = 0.051$), they provide insight that male students are able to manage their stage

fright easier than female students (Cohen's $d = -0.440$). Along the same line, it is striking that male students consider themselves more capable in terms of technical level (Cohen's $d = -0.332$), although there is no significant difference obtained. When patriarchal structure of the society is taken into consideration, this result is not surprising. For instance, in Turkish parliament only 14.7% of the deputies are females and there is only one female minister in polity. The statistical studies done in 2015 indicate that 1.8% of the male population who are 25 or above are illiterate whereas in female population the rate is 9.2%. The rate of 25 year-old or older males who are graduates of high school and their equivalents is 23.2% whereas for females it is 15%. Graduate degree rate among males is 16.2% and among females it is 11.7%. Labor force participation rate in male population is 71.3% but in female population the rate drops to 30.3%. 35.5% of females are subjected to violence around the country (Turkish Statistical Institute, 2016). These rates illustrate the current place of women in Turkish society. It is not wrong to conclude that because of the traditional family structure, the restraints coming from their families cause girls not to behave freely in the society. This condition can explain the reason why male students have less stage fright and consider themselves more capable.

Apart from the gender variable, even if there is no significant difference, the results lead us to think that boarding students have more difficulty in managing stage fright compared to non-boarding students (Cohen's $d = -0.326$), and the perceptions in technical level of students who have musicians in their families are higher than the ones who do not have (Cohen's $d = 0.477$). Kaya et al. (2012) state that children who have good relationships with their families and needs fulfilled correctly develop higher problem-solving skills, have lower anxiety levels and higher academic achievement. Mersin and Oksuz (2014) suggest that the more support that children receive from their families, the lower their anxiety levels will be. That boarding students have higher levels of anxiety than others can be explained with Kaya et al. (2012) approach and this result is in consistence with Oksuz (2014). The students who have a musician in their family have innate predisposition and often have musical support from their families. These facts may support why those students have higher perception in technical level than the ones who do not have any musicians in their families.

When the literature has been reviewed on the state of gender variable on stage fright which is a sub- dimension of self-efficacy, a parallel result can be found in Baydag and Alpogut's (2016) study in which they have come to conclusion that

the stage fright is higher among female students than males. Although Deniz (1998) was not able to find a significant difference between stage fright and gender and Egilmez (2015) could not detect any correlation between self-efficacy stage fright and sub-dimension of technical level perception gender, in both studies the average results of female students is higher. Ozmentes (2014) concludes that male students who receive vocational musical training have higher level of self-efficacy than female students.

Results determined in this study show that achievement grade and motivation are positively correlated with self-efficacy. In other words, when the motivation and self-efficacy of the students at Zeki Muren Fine arts high school rises, their success rises as well. This finding was anticipated beforehand. There are various studies which examine the relationship between self-efficacy and success. Studies suggest a positive correlation between academic success and self-efficacy (Lent et al., 1984; Bandura et al., 1996; Zimmerman and Kitsantas, 2005; Zajacova et al., 2005; Hevedanli and Ekici, 2009, Vuong et al., 2010). As for the relationship between motivation and success, studies show a positive correlation (Busato et al., 2000; Kaufman et al., 2008; Cheng and Ickes, 2009) which is consistent with the findings of this current study.

When the effect of motivation and self-efficacy in piano performance in terms of level was analyzed, the findings substantiate that after 10th grade, students' motivation (including interest, desire and motivational factors with its sub-dimensions) and self-efficacy (technical level and performances with its sub-dimensions) drop. In Turkey, all the high school graduates, including the ones majoring in arts, have to do university entrance exams that have the same content for all the students. The prerequisite of musical talent exam is university entrance exam which consists of verbal and quantitative questions, so it takes great deal of time to get prepared. In the last two years of the high school education, students' motivation towards their instruments lowers as they invest less time in practicing their instrument because of their preparation for aforementioned examination.

Students report the reasons for their failure as follows; one-third of the students stated that they were not able to succeed because of carelessness while they were studying. Half of the students said that they did not know how to study, they preferred to memorize instead of learning and did not make enough efforts to succeed as they could allocate enough time to work the piano. One third of the students said that the reason for not working was due to the intensity of the other lessons and that a large majority was due to the fact that they spent much time in entertainment or traveling. 1/3 of the students think that their piano performances are technically inadequate, and more than half of the students think that the training they have received in the previous piano

education process is not sufficient, that their ability in piano is limited, they do not adopt piano lessons adequately, they do not do school or branch selection well, and that the piano classes are boring and etudes as well as pre-activities are inadequate, and that art works are challenging. There are also some students who attributed their failure to their teachers. The percentage of students who think that the piano teacher has a strict attitude is 90%, the rate of students who think that the piano teacher is not able to perform the lesson efficiently is 85%, and more than half of the students stated that they get consistently low grades from most piano lessons. The vast majority of students have attributed the reasons for failure to everyone's expectation of success and not being adequately supported by family or friends. 70% of the piano students had some personal problems they could not share with anyone. More than half of the students added that their performance failures were not because of anxiety. In a survey conducted with music teacher candidates using the same questionnaire (Kurtuldu, 2010), it was determined that there were both similarities and differences in the opinions of the students in their views on the reasons of failure in playing the piano. Aforementioned differences are probably due to the fact that the sample group is made up of university students. Our research results indicate that Zeki Muren Fine Arts High School students see how successful they are in playing piano and what the reasons of failure are. Almost all of the piano teachers were assigned to other schools by 'project school application', which was implemented by the Ministry of National Education in 2016, together with the teachers whose service years exceeded 8 years in Zeki Muren Fine Arts High Schools. It is believed that the opinions of the students about the causes of their failure in the piano performances will be insightful for the piano teachers who will be appointed as the manager of the Zeki Muren Fine Arts High School.

RECOMMENDATIONS

This study set out to evaluate motivation, self-efficacy and failure reasons of the students in Bursa Zeki Muren Fine Arts High School in terms of different variables superficially. However, further studies regarding the effect of gender, presence of a musician in their family, and boarding status on motivation and self-efficacy would be worthwhile with greater number of sample around Turkey. The similarities and differences between other studies mentioned in discussion part make a related meta-analysis study obligatory as it will make noteworthy contributions to current literature.

Conflicts of Interests

The authors have not declared any conflict of interests.

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The background of the entire page is a close-up photograph of several wooden blocks. Some blocks have numbers (3, 4, 6) and symbols (plus sign, minus sign) painted on them in various colors (red, green, blue). The image is slightly blurred and has a soft, rounded appearance.

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